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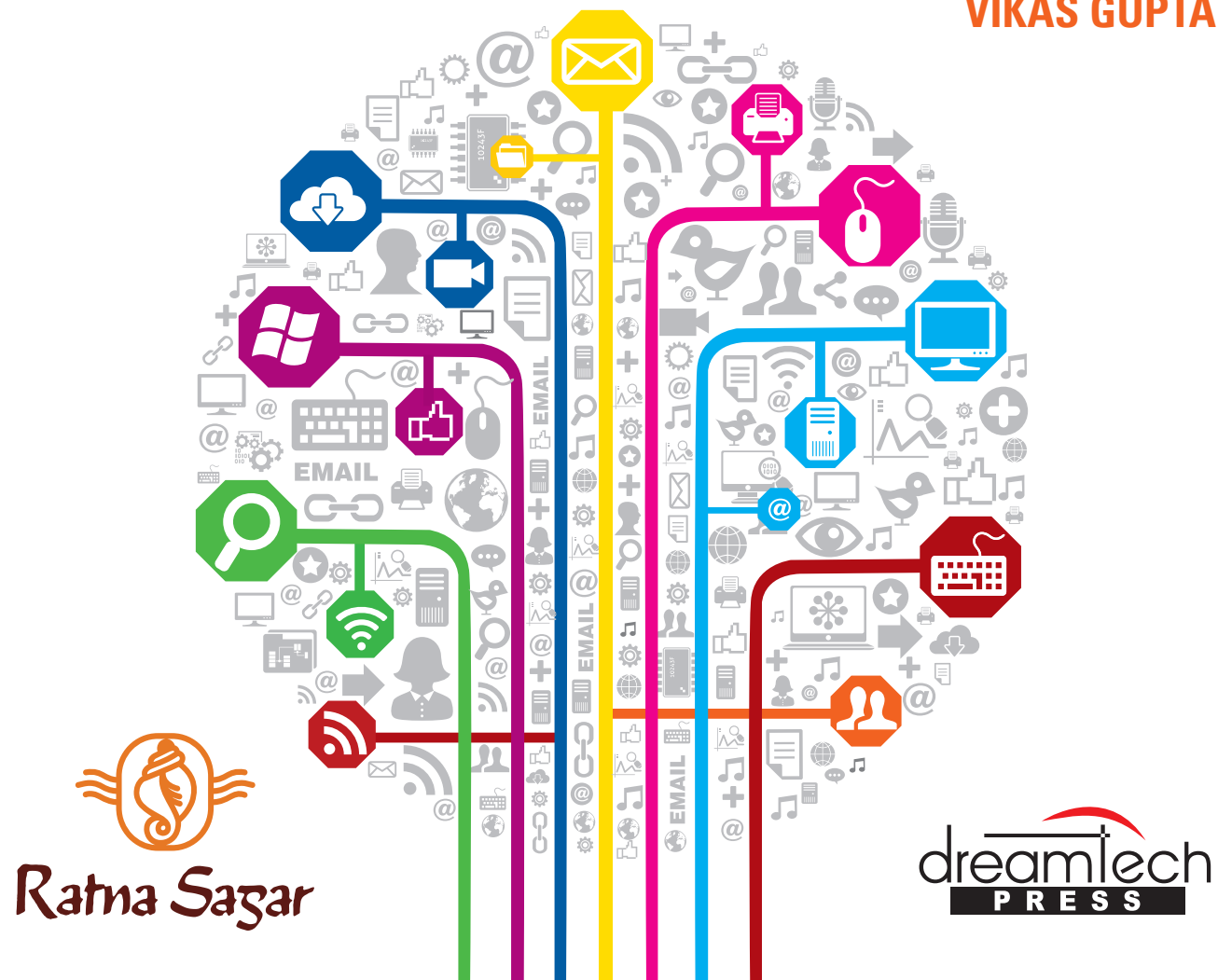
# Information Technology

SUPPLEMENTARY BOOKLET FOR  
CLASS 10 TEXTBOOK

PART B (Subject Specific Skills)

(As per the latest CBSE Curriculum for the Academic Year 2025-26)

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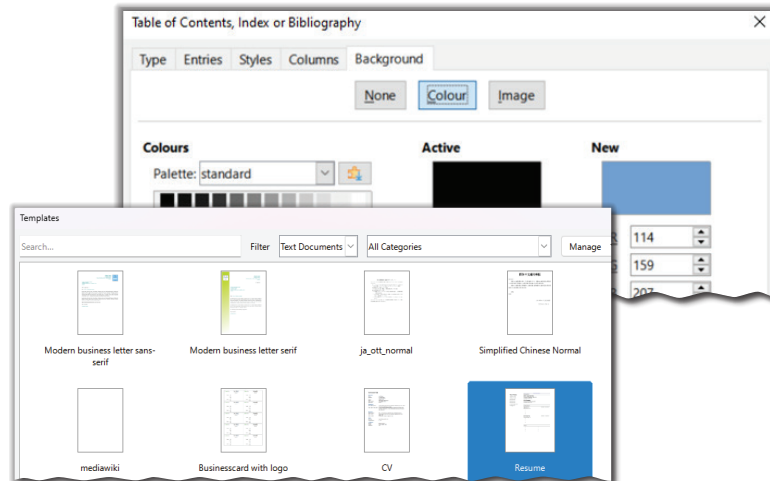
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# UNIT 6A

## THIS UNIT COVERS

- Opening LibreOffice Writer
- Apply styles in the document
- Insert and use images in document
- Create and use templates
- Create table of contents



## Digital Documentation (Advanced) using LibreOffice Writer

### Introduction


You have already studied that Word Processing is the process to create, edit, save, and print text documents on the computer using a word processor. A word processor is a computer application that is used to create, edit, and organize a document. One of the examples of Word Processing applications is LibreOffice Writer. It is a free and open-source word processing software that is part of the LibreOffice suite. It is a powerful alternative to other word processors like Microsoft Word, providing similar functionalities with support for various file formats. LibreOffice Writer helps you create different types of neat and attractive text documents, such as fax documents, reports and personal and professional letters.

One of the standout features of LibreOffice Writer is its compatibility with multiple file formats, including .docx and .odt, ensuring that users can open, edit and save documents across different platforms seamlessly. Additionally, Writer offers advanced functionalities such as mail merge, styles and formatting and support for footnotes and endnotes.

In this unit, you learn about how to open LibreOffice Writer. Next, you learn how to create, update, and apply styles in a document. After this, you learn to work with images and templates. Towards the end, the chapter discusses the concept of table of contents.

## Session 1: Opening LibreOffice Writer

Perform the following steps to open the LibreOffice Writer application:

- 1 Press the Windows key  on the keyboard.
- 2 Start typing LibreOffice. The LibreOffice icon should appear in the search results, as shown in Figure 1.

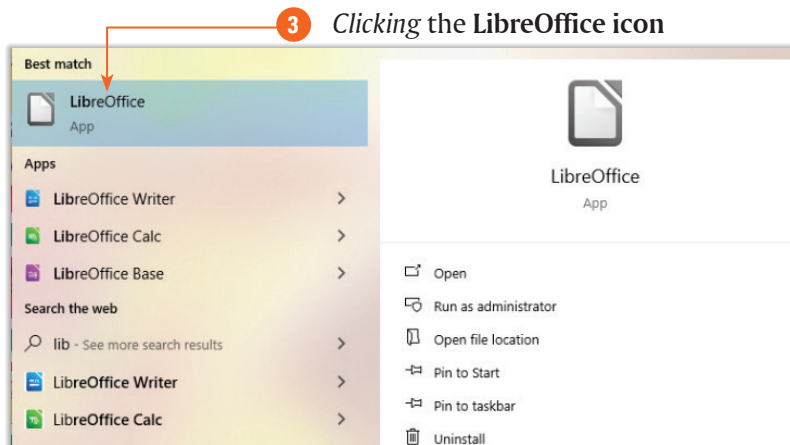


Figure 1: Selecting LibreOffice Application

- 3 Click the **LibreOffice** icon to open the application.
- 4 Search for the **Writer Document** within the Create shelf in the LibreOffice Starter window. It usually resembles a document or a page with text. Click on it to open LibreOffice Writer, as shown in Figure 2.

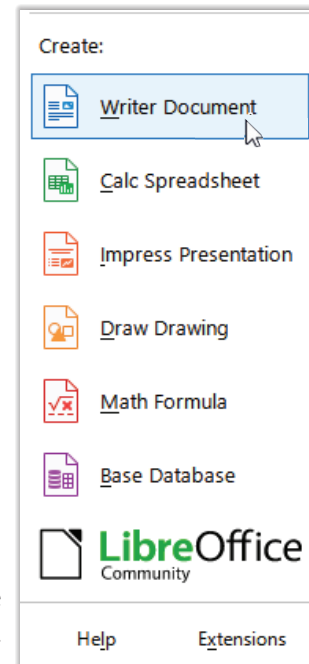


Figure 2: Selecting Writer Document

When you open LibreOffice Writer, you'll typically see several key components on the screen:

- **Title bar:** Displays the name of the application and the document on which work will be done.
- **Menu bar:** Located at the top of the window, the menu bar contains various menus such as File, Edit, View, Insert, Format, and others, providing access to different functions and settings.
- **Standard toolbar:** Below the menu bar, the standard toolbar includes icons for commonly used functions such as Save, Undo, Redo, Print, and more. These icons provide quick access to frequently used commands.
- **Formatting toolbar:** This toolbar allows you to change the formatting of text and paragraphs easily. It includes options for font selection, text alignment, bold, italic, underline, bullet points, and numbering.
- **Ruler:** The horizontal and vertical rulers are useful for setting margins, indents, and tab stops. The horizontal ruler is located at the top, and the vertical ruler is on the left side of the document window.
- **Document area:** The large central area is where you compose and edit your document. This is where you type your text, insert images, tables, charts, and other elements.
- **Status bar:** At the bottom of the window, the status bar displays information about the current page number, word count, language settings, and other document-specific details.

### Note

You can type **LibreOffice Writer** in the start menu to directly open the **Writer Document**, and double-click the **LibreOffice Writer** icon to open it.

The components of LibreOffice Writer are shown in Figure 3:

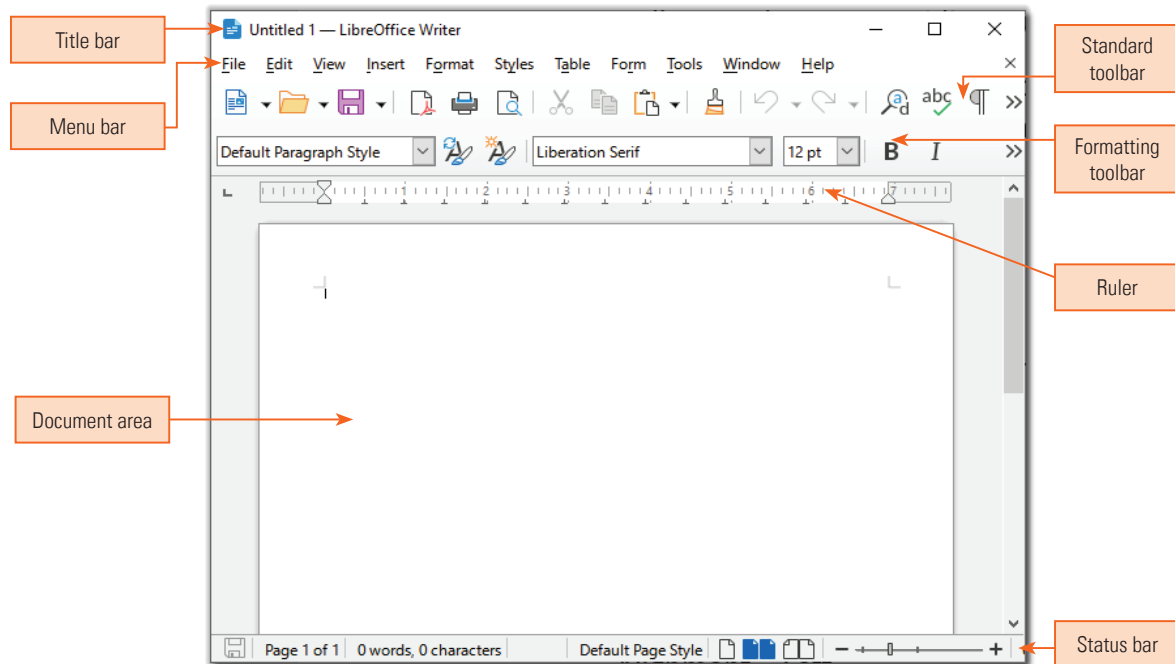


Figure 3: LibreOffice Writer Window

## Session 2: Introduction to Styles

In LibreOffice Writer, styles are powerful features that streamline the formatting of documents, ensuring consistency and efficiency. Styles allow users to apply predefined formatting to text, paragraphs and other elements throughout the document. By utilizing styles, you can easily manage and modify the appearance of various sections without having to manually adjust each one individually.

### Style Categories

Following is an overview of the primary style categories:

- **Paragraph styles:** Paragraph styles define the appearance of entire paragraphs. They control elements such as font size, line spacing, indentation, alignment, and paragraph borders.
- **Character styles:** Character styles apply formatting to specific characters or words within a paragraph without affecting the entire paragraph. They are useful for highlighting or emphasizing text.
- **Frame styles:** Frame styles are used to format text frames and graphical elements like images or tables. They control the size, border, and background of the frames.
- **Page styles:** Page styles manage the layout of entire pages. They include settings for page size, margins, headers, footers, and page numbering.
- **List styles:** List styles are used to format numbered or bulleted lists. They define the appearance of the list numbers or bullets and their alignment.
- **Table styles:** Table styles control the appearance of tables, including border styles, shading, and cell formatting. They help ensure that tables are consistently formatted throughout a document.

#### **DID YOU Know**

You can also press **Ctrl + 1** after selecting the text to instantly apply the **Heading 1** style.

## Styles and Formatting Windows

In LibreOffice Writer, the “Styles and Formatting” window is a crucial tool for managing the appearance and layout of your document. This feature allows you to apply, modify, and create styles, which are predefined sets of formatting instructions that control the look of text and other elements in your document. By using styles, you ensure consistent formatting across your document, making it easier to maintain a uniform appearance and making global changes more manageable.

Perform the following steps to apply styles:

- 1 Open a new or existing document containing some text.
- 2 Select the text in the document on which you want to apply the styles. In our case, we have selected **What is LibreOffice Writer?**
- 3 Click on the **Styles** button on the **Menu** toolbar. A drop-down list appears.
- 4 Select the desired style you want to apply to the text. In our case, we have selected **Heading 1** as shown in Figure 4.
- 5 Double click the style that you want to apply on the selected text.

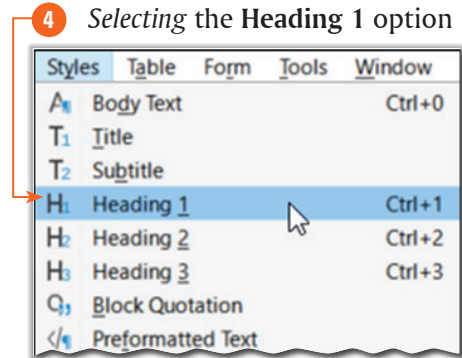


Figure 4: Heading 1 Option

The selected style is applied to the selected text, as shown in Figure 5:

### What is LibreOffice Writer?

LibreOffice Writer is a powerful word processing application that is part of the LibreOffice suite, a free and open-source office software package. It allows users to create, edit, and format documents such as letters, reports, and books.

Figure 5: Displaying Text after Applying Style

## Using Fill Format

The “Fill Format” feature allows users to quickly apply formatting styles from one part of a document to another. This is particularly useful when you want to replicate specific formatting attributes—such as font type, size, colour, or background shading—without having to manually adjust each element.

Perform the following steps to apply Fill Format:

- 1 Click on the **Styles** icon in the right Sidebar.
- 2 Select the style you want to apply. This could be a paragraph style, character style, or any other style available in the list.
- 3 Click the **Fill Format Mode** icon in the Styles window. It looks like a paint bucket, as shown in Figure 6.
- 4 Click on the text or paragraphs in your document where you want to apply the selected style.

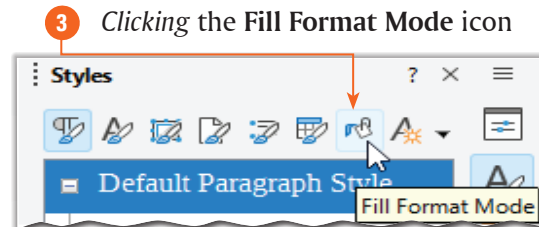


Figure 6: Fill Format Mode

### What is LibreOffice Writer?

LibreOffice Writer is a powerful word processing application that is part of the LibreOffice suite, a free and open-source office software package. It allows users to create, edit, and format documents such as letters, reports, and books.

Figure 7: Displaying Text after Applying Style

### — GUESS Who?

I am a style that manages the layout of entire pages.

Ans. Page Style

## Creating and Updating New Style from Selection

LibreOffice Writer offers powerful tools for document formatting, and one of its most useful features is the ability to create and update styles. Styles in LibreOffice Writer are predefined sets of formatting attributes that can be applied to various elements of a document. They help ensure consistency and efficiency in document formatting.

### Note

You can also update your selected style by directly using **Style Action** button in the right sidebar by clicking on **Update Selected Style**.

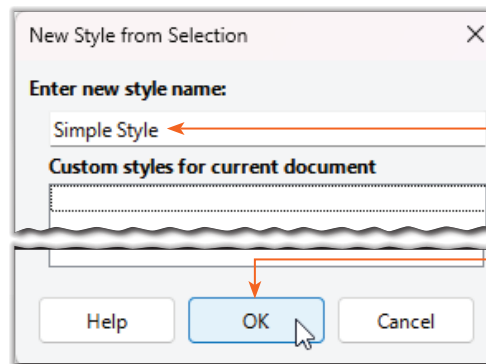
### Creating New Style from a Selection

Perform the following steps to create a new style from a selection:

- 1 Open a blank or existing document.
- 2 Select the text based on which you want to create a new style.
- 3 Click on the **Styles** button on the toolbar. A drop-down list appears.
- 4 Select the **New Style from Selection** option from the drop-down list.

A **New Style from Selection** dialog box appears (Figure 8).

- 5 Type the name of the style in the **Enter new style name** text box. In our case, we have typed **Simple Style** (Figure 8).
- 6 Click the **OK** button, as shown in Figure 8. The newly created style, **Simple Style**, is displayed in the Styles dialog box.



5 Typing the name for the style

6 Clicking the OK button

Figure 8: New Style from Selection Dialog Box

### Updating Style from a Selection

Perform the following steps to update style using selection:

- 1 Select the text based on which you want to create a new style.
- 2 Click on the **Styles** button on the **Menu** toolbar. A drop-down list appears.
- 3 Select the **Update Selected Style** option from the drop-down list as shown in Figure 9.

The style in the document will be updated to reflect the new formatting you applied to the selected text.

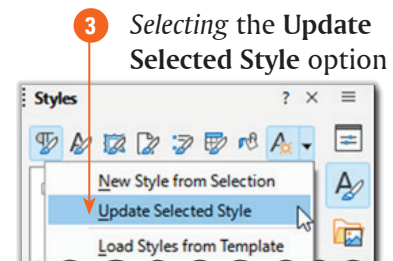


Figure 9: Update Selected Style

## Load Style from Template or Another Document

LibreOffice Writer allows users to load styles from templates or other documents, ensuring consistent formatting across multiple files. This feature saves time and effort, especially for collaborative projects or document series, by promoting uniform presentation.

Perform the following steps to load style from template or another document:

- 1 Select the **Styles** button from the **Menu** toolbar. A drop-down list appears.

- 2 Click on the **Load Styles from Template** option from the drop-down list. A **Load Styles from Template** dialog box appears.
- 3 Click on the **From File** button to select a document (if loading from another document), as shown in Figure 10.  
If you chose **From File**, a file browser will open.
- 4 Navigate to and select the document whose styles you want to load.
- 5 Click on the **OK** button to load the styles into your document.

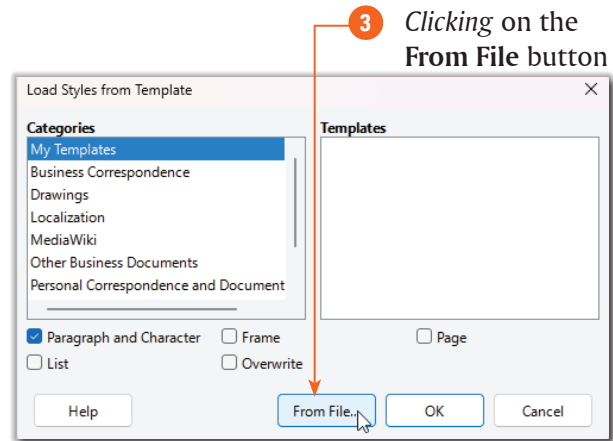


Figure 10: From File Button

## Creating a New Style Using Drag-and-Drop

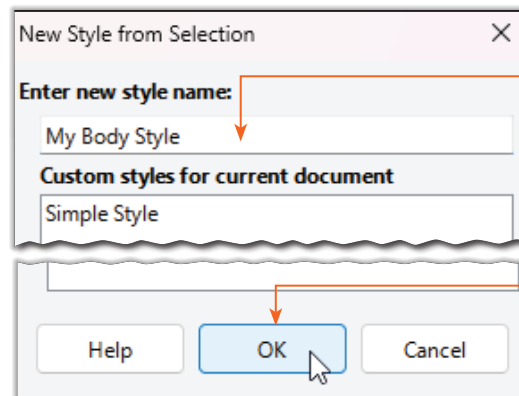
Creating a new style using the drag-and-drop method is a straightforward and efficient way to customize your document's formatting. This feature allows users to easily apply consistent formatting across a document by defining and reusing styles.

Perform the following steps to create a new style using drag-and-drop:

- 1 Click on the **Styles** icon in the right Sidebar. A drop-down list appears.
- 2 Select the text based on which you want to create a new style.
- 3 Drag and drop the selected text to the desired style category in the Styles dialog box. In our case, we have dragged and dropped it into the **Body Text** category.

The **New Style from Selection** dialog box appears (Figure 11).

- 4 Type the name of the style in the **Enter new style name** text box. In our case, we have typed **My Body Style** (Figure 11).
- 5 Click the **OK** button, as shown in Figure 11.



4 Typing the name of the style

5 Clicking the OK button

The newly created style, **My Body Style**, is displayed in the **Styles** dialog box.

Figure 11: New Style from Selection Dialog Box

### ACTIVITY

1. Create a text paragraph in your document. Use the Fill Format tool to change the background color of the paragraph.
2. Apply the new style to a different paragraph to see the changes.
3. Create a new document and then load styles from an existing template.

### ASSESS YOURSELF

1. .... method allows users to easily apply consistent formatting across a document by defining and reusing styles.
2. .... styles are used to format text frames and graphical elements like images or tables.



## Session 3: Working with Images

In LibreOffice Writer, images play a crucial role in enhancing the visual appeal and effectiveness of documents. Integrating images into a document can help illustrate concepts, add visual interest, and break up text to improve readability. The process of inserting images in LibreOffice Writer is straightforward and versatile. Users can insert images from various sources, including files on their computer, web links, or even directly from a clipboard.

Perform the following steps to insert an image in a document:

- 1 Click on the **Insert** button from the **Menu** toolbar. A drop-down list appears.
- 2 Select the **Image** option from the drop-down list. An **Insert Image** dialog box appears.
- 3 Navigate to and select the desired picture you want to insert. In our case, we have selected the **Social Media** picture.
- 4 Click the **Open** button to insert the picture in the document as shown in Figure 12.

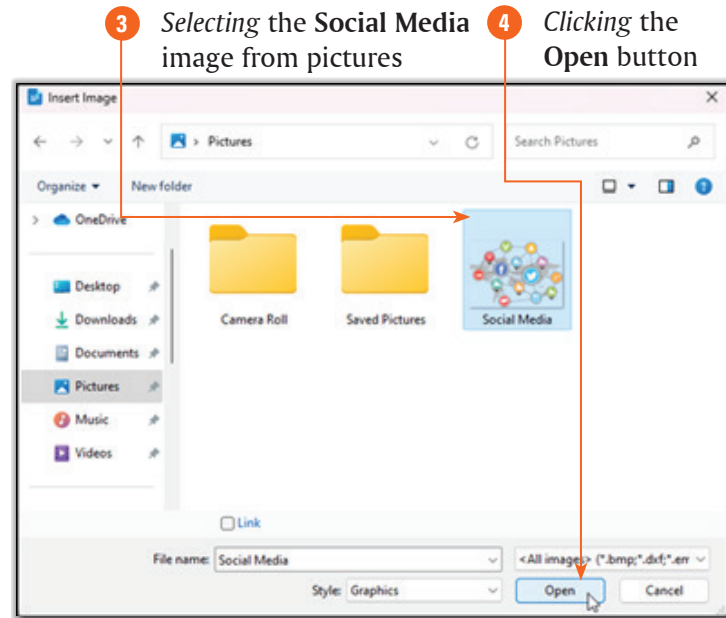


Figure 12: Inserted Image in the Document

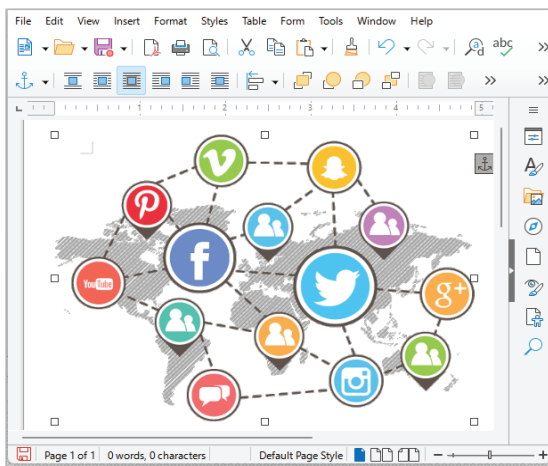


Figure 13: Inserted Image in the Document

### Modifying Image

Modifying images in LibreOffice Writer allows users to adjust visuals within their documents to better align with their content's needs. Once an image is inserted, it can be resized, cropped, and rotated to fit the desired space. Users can also adjust the image's brightness, contrast and transparency through the "Image" toolbar or the "Format" menu.

#### Quick Quiz

\_\_\_\_\_ in LibreOffice Writer are predefined sets of formatting attributes that can be applied to various elements of a document.

Ans. Styles

#### Note

You can also use the **Insert Image** button on the toolbar to insert images into a document.

## Resizing an Image

Perform the following steps to resize an image:

- 1 Click on the image to select it. A selection frame with eight handles will appear around the image.
- 2 Click and drag one of the corners handles to maintain the aspect ratio of the image.

After resizing, you can reposition the image as needed by clicking and dragging it to the desired location in the document.

## Resize the Image Using the Right-Click Menu

Perform the following steps to resize an image using the right-click menu:

- 1 Right-click on the desired image. A drop-down list appears.
- 2 Select **Properties** option from the right-click menu. An **Image** dialog box appears.
- 3 Go to the **Type** tab.

Under the **Size** section, you will see options to adjust the **Width** and **Height** of the image. Manually type the desired dimensions in these fields.

You can resize the image by adjusting the **Width** and **Height** values. Ensure that the **Keep ratio** option is checked if you want to maintain the image's aspect ratio.

- 4 Click **OK** to apply the changes, as shown in Figure 14.

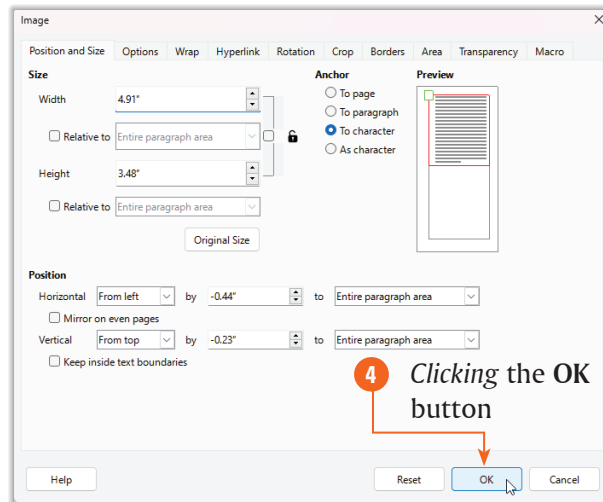


Figure 14: Image Dialog Box

## Cropping an Image

Perform the following steps to crop an image:

- 1 Click on the desired image to select it.
- 2 Click on the **Format** button from the **Menu** toolbar. A drop-down list appears.
- 3 Select the **Image** option from the drop-down list.
- 4 Right-click the drop-down arrow from **Image** option.
- 5 Select the **Crop** option from the submenu.

The document displays the cropped image as shown in Figure 15.



Figure 15: Cropped Image

## Delete an Image

Deleting an image from a document is a simple process that allows users to maintain a clean and organized layout.

Perform the following steps to delete an image from a document:

- 1 Select the desired image in the document to delete.
- 2 Press the **Delete** key from the keyboard.

Now, the image gets deleted from the document.

### Note

You can also right-click on the image and select **"Crop"** from the context menu to access cropping options directly.

## Working with Drawing Objects

In LibreOffice Writer, drawing objects like shapes, lines, and text boxes help enhance documents with visual elements. These tools are useful for creating diagrams, charts, and illustrations, making content more engaging and informative. The Drawing Toolbar offers various tools for creating and editing these objects.

- **Select tool:** Allows you to select and move objects. It can also be used to resize and rotate objects.
- **Line tool:** Draws straight lines. You can adjust the line style and thickness.
- **Arrow tool:** Draws arrows. You can customize the arrow style, size, and direction.
- **Rectangle tool:** Creates rectangles and squares. You can modify the corner radius and line properties.
- **Ellipse tool:** Draws circles and ellipses. You can adjust the shape's dimensions and outline properties.
- **Polygon tool:** Draws polygons with a specified number of sides. You can control the number of sides and their lengths.
- **Freeform tool:** Draws freehand shapes. This tool is useful for creating custom shapes and designs.
- **Text tool:** Allows you to add text to your drawing. You can format the text as needed.
- **Image tool:** Inserts images into the drawing. You can adjust the size and position of the image.
- **Bezier Curve tool:** Draws complex curves by defining control points. This tool is useful for more intricate designs.
- **Line Style tool:** Lets you customize the style of lines, such as dashed or dotted lines.
- **Fill Color tool:** Applies colour or gradient fills to shapes.
- **Line Color tool:** Changes the colour of the lines in your drawing.
- **Shadow tool:** Adds shadow effects to shapes to give them a 3D appearance.
- **3D Effects tool:** Applies 3D effects like extrusion or bevel to shapes.
- **Group/Ungroup tool:** Allows you to group multiple objects together or ungroup them for individual editing.
- **Align and Distribute tool:** Aligns and distributes selected objects relative to each other or the page.
- **Rotate tool:** Rotates objects by a specified angle.

## Inserting a Drawing Object in a Document

Perform the following steps to insert a drawing object in a document:

- 1 Open a new or existing document.
- 2 Click on the **View** button from the **Menu** toolbar. A drop-down list appears.
- 3 Select **Toolbars** option from the drop-down list. A submenu appears.
- 4 Select **Drawing** option from the submenu. A list of shapes appears on the status bar as shown in Figure 16.
- 5 Select the shape from the list. In our case, we have selected the **Circle** shape.

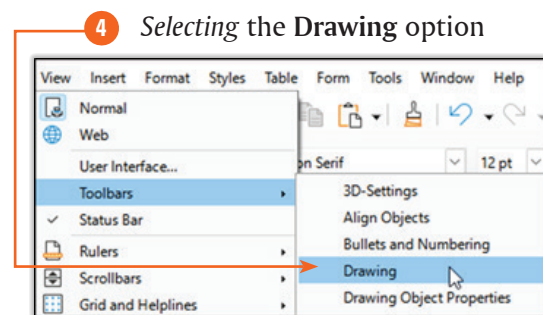


Figure 16: Displaying Drawing Option

The shape of the mouse pointer changes to the crosshair shape.

- 6 Click and drag on your document to create the drawing object.
- 7 Release the mouse button to draw the shape. The shape is drawn on the document, as shown in Figure 17.

Similarly, you can insert more shapes in the document.

### Setting or Changing Properties of the Drawing Object

LibreOffice Writer offers a variety of tools to enhance documents with drawing objects such as shapes, lines, and text boxes. These drawing objects can be customized to improve the visual appeal and clarity of your document. Setting or changing the properties of these objects allows users to adjust attributes like size, position, colour, line style, and transparency.

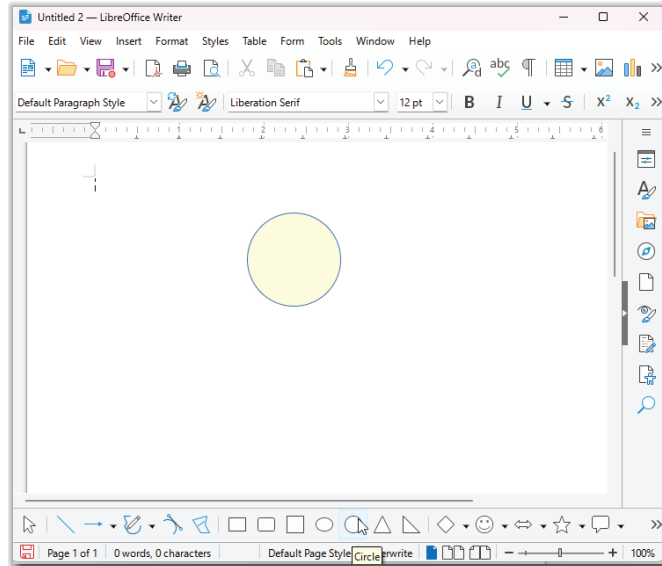


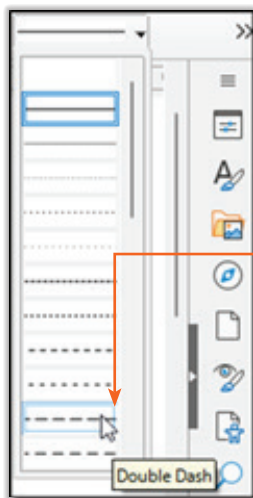
Figure 17: Inserted Circle Shape

### Changing the Style, Width and Colour of the Border Line of the Object

Perform the following steps to change the style, width, and colour of the border line of the shape:

- 1 Select the desired object whose width, style, and colour of border line you want to change.
- 2 Click the down arrow button of the **Line Style** on the formatting toolbar. A drop-down list appears.
- 3 Select the desired line style from the drop-down list. In our case, we have selected **Double Dash** line style from the drop-down list as shown in Figure 18.

The line style of the border line of the object gets changed, as shown in Figure 19.



3 Selecting the Double Dash line style

Figure 18: Displaying Double Dash Option

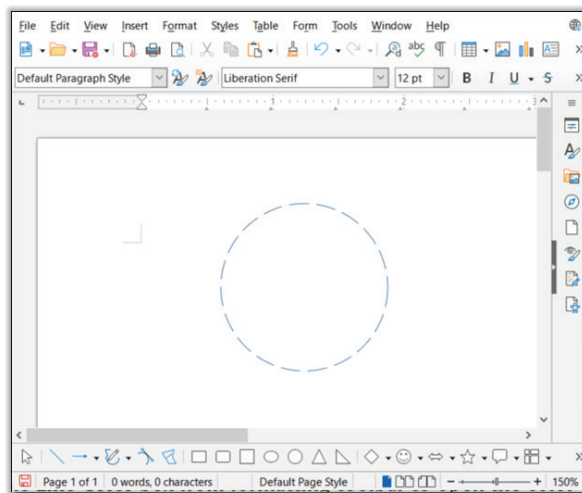


Figure 19: The Double Dash Line Style on the Border Line of the Object

- 4 Click on the up/down arrows from formatting toolbar to adjust the width of the border of the object.

- 5 Click on the **Line Colour** box from formatting toolbar to open the colour palette. A **Line Colour** palette appears.
- 6 Select the desired colour from the colour palette. In our case, we have selected **Dark Red 1** as shown in Figure 20.

The border line colour of the object gets changed, as shown in Figure 21.

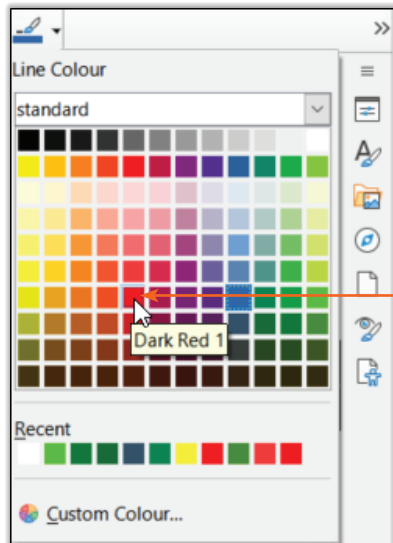


Figure 20: Dark Red 1 Option

6 Selecting the Dark Red 1 colour from line colour

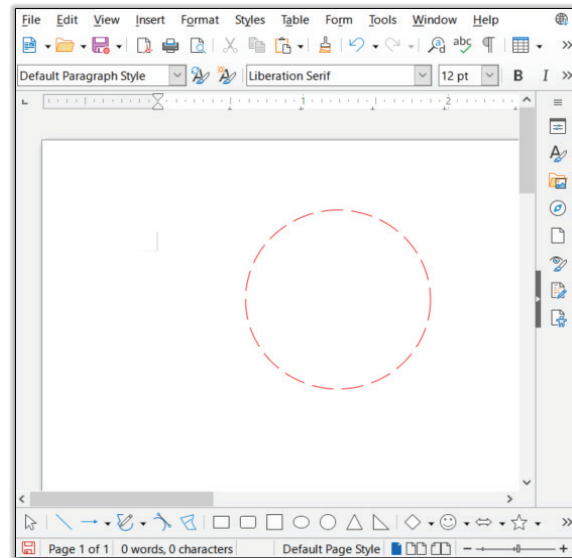


Figure 21: Changed Colour of the Border Line of an Object

### Changing the Fill Colour of an Object

In LibreOffice Writer, changing the fill colour of an object, such as a shape or text box, is a simple process that enhances the visual appeal of your document. Fill colours are used to highlight or differentiate specific elements, making your document more engaging and easier to read.

Perform the following steps to change the fill colour of an object:

- 1 Click on the object whose fill colour you want to change.
- 2 Click on the down arrow of **Fill Colour** box from the formatting toolbar. A **Standard** colour palette appears.
- 3 Select the desired colour from the colour palette. In our case, we have selected **Light Yellow 4**.

The selected colour will immediately fill the object, as shown in Figure 22.

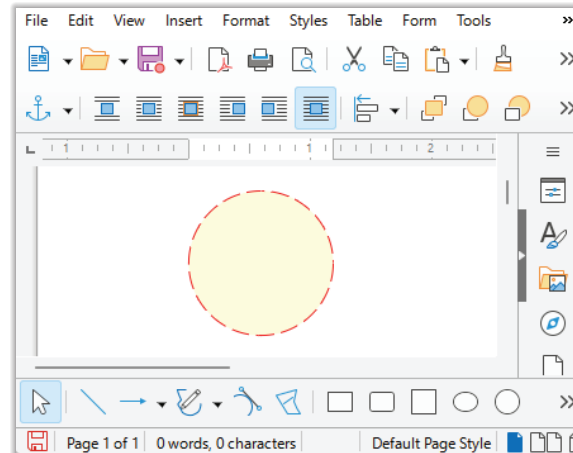


Figure 22: The Selected Fill Colour

### Resizing and Grouping Objects

Resizing and grouping objects help manage document layouts with multiple graphical elements. Resizing adjusts the dimensions of images, shapes, or text boxes using handles or specific values. Grouping combines multiple objects into a single unit, making it easier to move, align, or format them consistently, especially in complex layouts.

## Resizing Drawing Objects

Perform the following steps to resize a drawing object:

- 1 Click on the drawing object that you want to resize. You will see small handles or squares around the edges of the object.
- 2 Move your mouse pointer over one of the handles on the corners or sides of the object. The pointer will change to a resizing icon (a double-headed arrow).
- 3 Click and hold the left mouse button then drag the handle inward to reduce the size or outward to increase the size.

## Grouping Drawing Objects

Perform the following steps to group objects in a document:

- 1 Click on the first object to select it.
- 2 Drag a selection box around all the objects you want to group as shown in Figure 23.
- 3 Click on the **Format** button on the **Menu** toolbar. A drop-down list appears.
- 4 Navigate to Group from the drop-down list, and then select **Group** from the submenu.

The selected objects will now be grouped together, as shown in Figure 24.

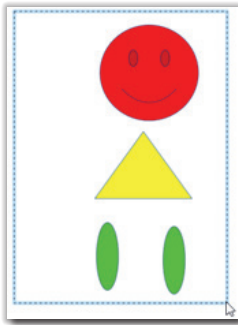


Figure 23: Ungrouped Objects

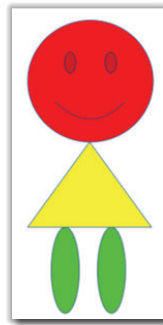


Figure 24: Grouped Objects

### Quick Quiz

Which of the following toolbar provides various tools for creating and editing drawings and shapes?

- a. Drawing toolbar
- b. Format toolbar
- c. Style toolbar
- d. File toolbar

Ans. a. Drawing toolbar

## Positioning Image in the Text

Positioning an image within text enhances document presentation by allowing precise control over the image's location and text flow around it. In LibreOffice Writer, you can position the graphical objects in different ways. Some of the ways are as follows:

### Wrapping Text around a Graphical Object

The feature to wrap text around graphical objects is a powerful tool that enhances document layout and presentation. This functionality allows you to position images, shapes and other graphical elements within your text in a way that the surrounding text flows around the object, creating a more integrated and visually appealing document.

Perform the following steps to wrap the text around a graphical object:

- 1 Select the image that you want to wrap around the text.
- 2 Click on the **Format** button from the **Menu** toolbar. A drop-down list appears.

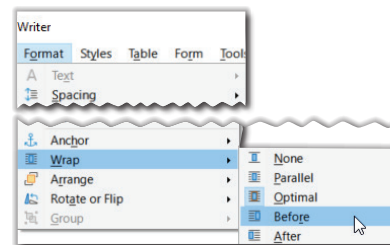
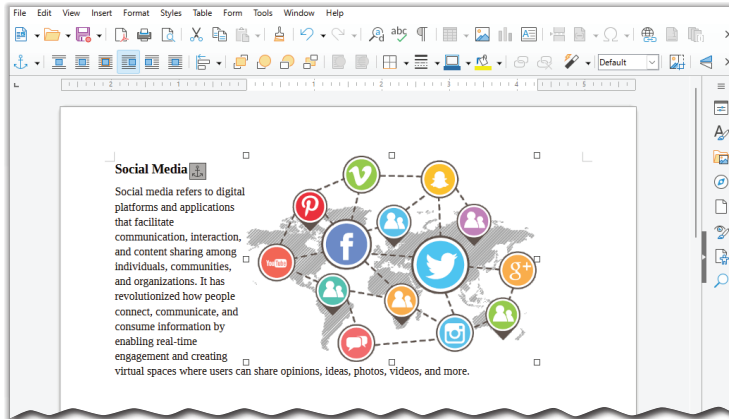


Figure 25: Displaying Before Option From Submenu

- 3 Hover over **Wrap** option, this will display a submenu with various arranging options.
- 4 Select the desired option from the submenu. In our case, we have selected **Before** option from the submenu as shown in Figure 26.
- 5 Move the image to wrap the text.

The text is wrapped around the selected object, as shown in Figure 26.



**Figure 26:** The Wrapped Text around the Image

### **DID YOU Know** ?

You can also right-click on the image and select "**Align Objects**" from the context menu to access aligning options directly.

### **GUESS Who?**

I am a tool that allows adding shadow effects to shapes to give them a 3D appearance.

Ans. Shadow tool

## **ASSESS YOURSELF**

1. .... objects can be customized to improve the visual appeal and clarity of your document.
2. .... enables users to combine multiple objects into a single unit, making it easier to move, align, or apply formatting consistently.

## **ACTIVITY**

1. Create a new drawing object in your document using the Drawing toolbar and fill it with a colour.
2. Draw multiple shapes, resize them, and then group them together for easier manipulation.
3. Insert an image and apply text wrapping so that the text flows around the image on one side.

## Session 4: Working with Template

Working with templates in LibreOffice is a convenient way to streamline the creation of documents, presentations and spreadsheets. Templates serve as pre-designed formats that include various elements like text styles, formatting, images and layout. By using a template, you can ensure consistency across multiple documents, saving time and effort. LibreOffice provides a variety of built-in templates, and users can also create and customize their own templates to suit specific needs. Templates can be easily accessed and applied through the "File" menu, enabling efficient document creation and maintaining a professional appearance throughout your work.

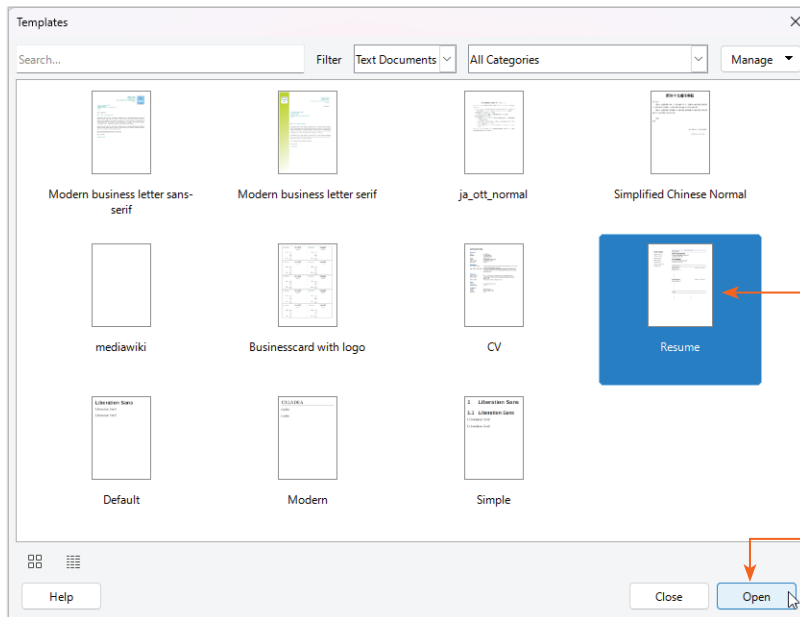
### Creating a Document Using a Predefined Template

Templates in LibreOffice are pre-designed documents that serve as a foundation for creating new documents with a consistent layout, style, and structure.

Perform the following steps to create a new document using the predefined template:

- 1 Click on the **File** button of the **Menu** toolbar. A drop-down list appears.

- 2 Select the **Templates** option from the drop-down list. A **Templates** dialog box appears.
- 3 Select the desired template based on which you want to create a document. In our case, we have selected **Resume** (Figure 31).
- 4 Click the **Open** button, as shown in Figure 27.



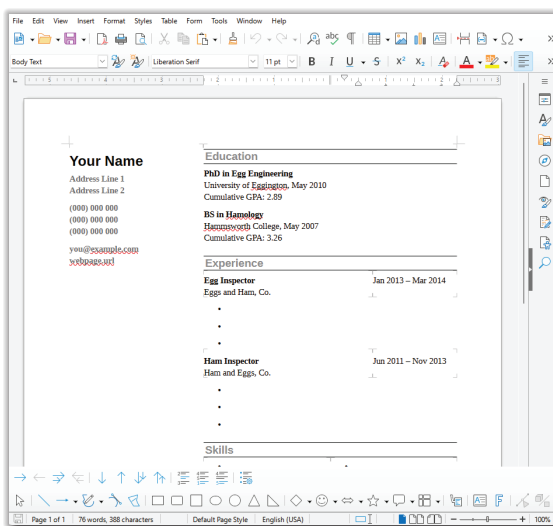
**DID YOU Know?**  
You can press **Ctrl + Shift + N** on your keyboard to open the **Templates Manager**.

3 Selecting the desired template

4 Clicking the **Open** button

**Figure 27:** Templates Dialog Box

The new document is created based on the selected template, as shown in Figure 28.



**Figure 28:** Resume Template

**Note**  
You can select the **Create a letter from this template** radio button to create a document based on the letter template.

**GUESSWho?**  
I am a pane where you want to save the document.

## Creating a Template

A template serves as a blueprint for new documents, providing predefined styles, formatting and content layouts that can be reused across multiple projects. To create a template, users typically start by designing a document with the desired formatting, including font styles, headings, page layouts and other design elements.



In LibreOffice Writer, you can create a template by using two ways, which are as follows:

- From a document
- From a wizard

### Creating a Template from a Document

Perform the following steps to create a template from a document:

- 1 Open a new or existing document to use as a template.
- 2 Edit the document as per your requirement such as formatting, adding placeholders, or including headers and footers.
- 3 Click on the **File** button from the **Menu** toolbar. A drop-down list appears.
- 4 Hover over the **Templates** option. A submenu appears.
- 5 Select the **Save as Template** from the submenu. A **Save As Template** dialog box appears (Figure 29).
- 6 Type the desired name for the template in the **Enter Template Name** text box. In our case, we have typed **Class Template** (Figure 29).
- 7 Select the desired category for your template in the **Select Template Category** list box. In our case, we have selected **My Templates** category (Figure 29).
- 8 Click the **Save** button to save the template, as shown in Figure 29.

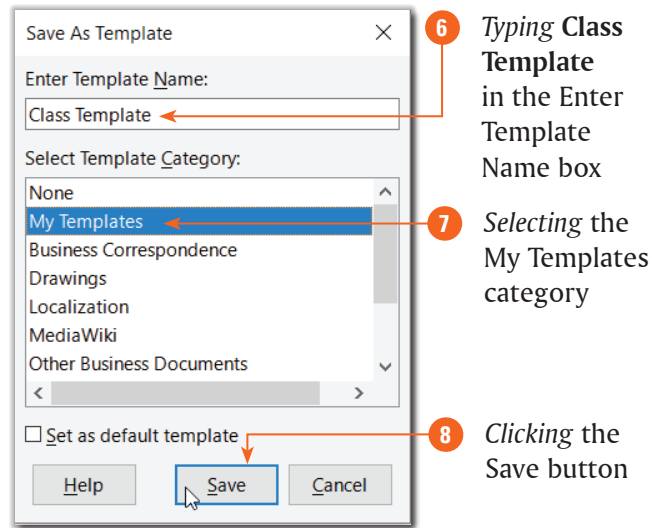


Figure 29: Save As Template Dialog Box

### Creating a Template from a Wizard

Perform the following steps to create a template from a Wizard:

- 1 Click on the **File** button from the **Menu** toolbar. A drop-down list appears.
- 2 Hover over the **Wizard** option. A submenu appears. Select the **Letter** option from the submenu. A **Letter Wizard** dialog box appears (Figure 30).
- 3 Select the desired radio button with the **Please choose the type of letter and page design** page. In our case, we have selected **Business Letter** (Figure 30).
- 4 Select the desired page design from the **Page design** drop-down list. In our case, we have selected the **Elegant** option (Figure 30).
- 5 Click the **Next** button, as shown in Figure 30.

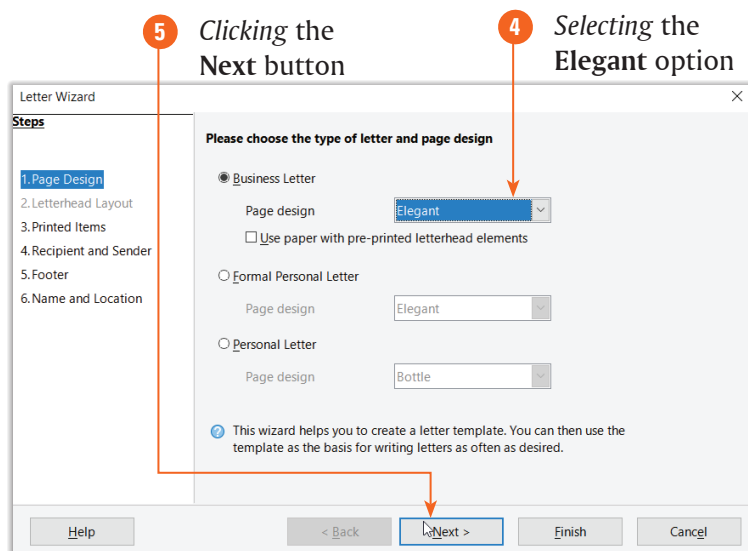


Figure 30: Choose the Type of Letter and Page Design Page

The **Select the items to be printed** page appears (Figure 31).

- 6 Select the desired salutation from the drop-down list under the **Salutation** check box. In our case, we have selected **Dear Sir or Madam** (Figure 31).
- 7 Select the desired option from the drop-down list under the **Complimentary close** check box. In our case, we have selected **Best regards** (Figure 31).
- 8 Click the **Next** button, as shown in Figure 31:

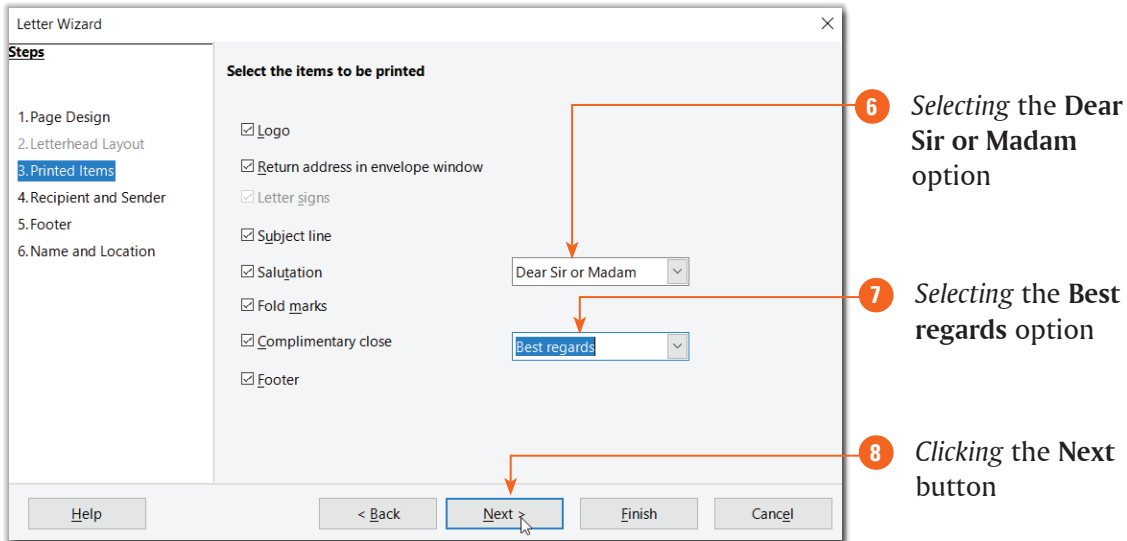


Figure 31: Items to be Printed Page

The **Specify the sender and recipient information** page appears (Figure 32).

- 9 Select the desired radio button with the **Sender's address**. In our case, we have selected **New sender address** radio button (Figure 32).
- 10 Enter the details under the **New sender address** (Figure 32).
- 11 Click the **Next** button, as shown in Figure 32:

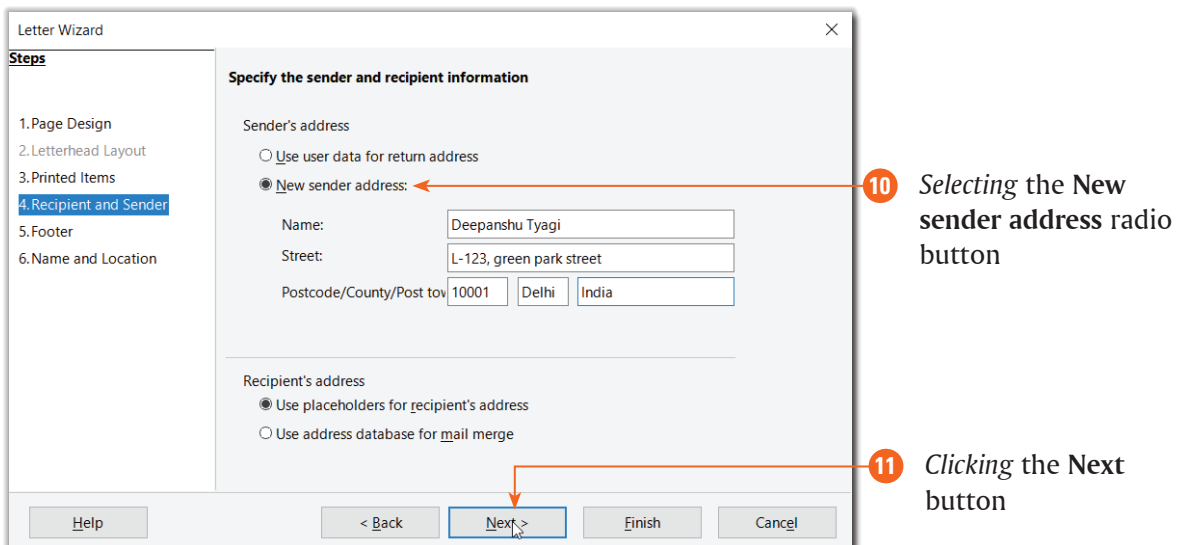


Figure 32: Sender and Recipient Information Page

The Fill in the information you would like in the footer page appears (Figure 33).

- 12 Type the desired information to the Footer of your letter template (Figure 33).
- 13 Click the Next button, as shown in Figure 33:

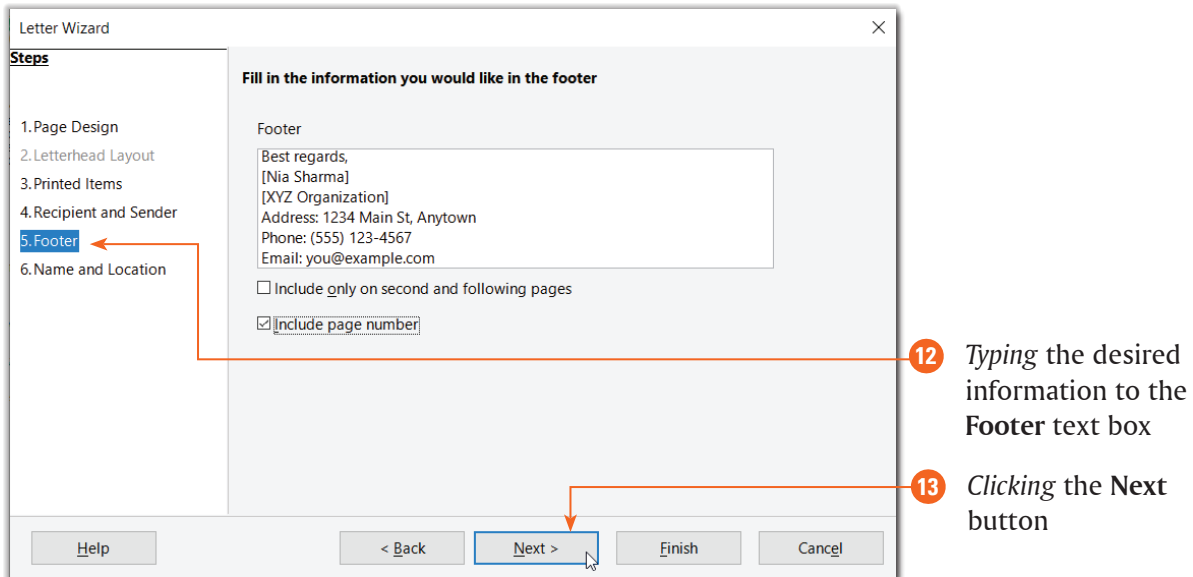


Figure 33: Filling in the Information in the Footer

The Please specify last settings page appears (Figure 34).

- 14 Select the Make manual changes to this letter template radio button (Figure 34).
- 15 Click the Finish button, as shown in Figure 34:

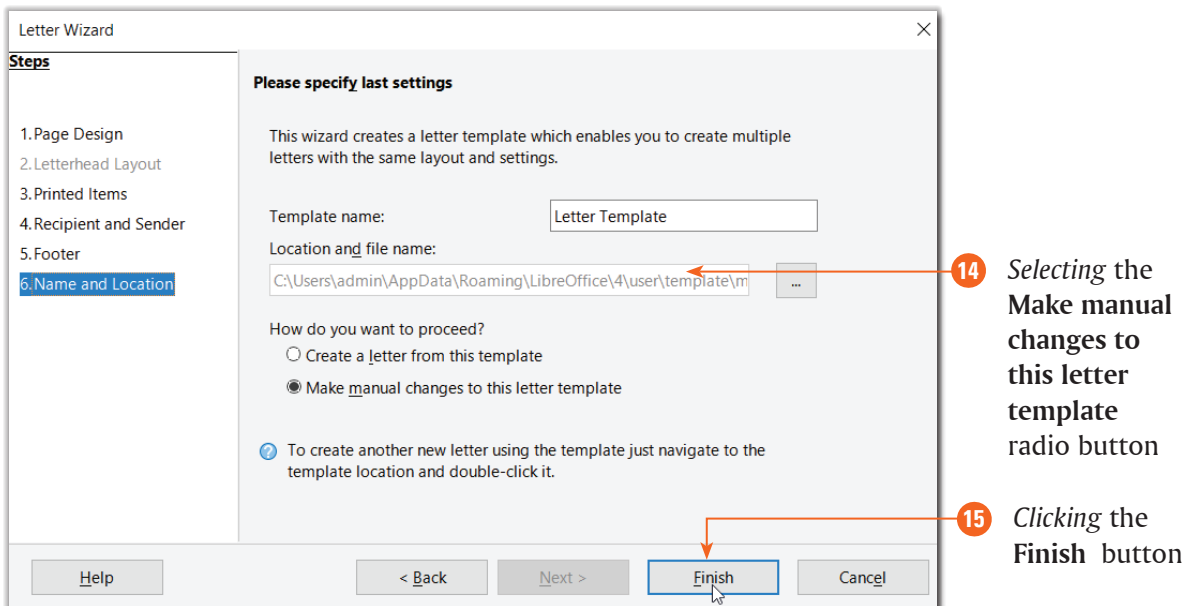


Figure 34: Specifying Last Settings

A Save As dialog box appears.

- 16 Navigate the location for the template. In our case, we have navigated towards Documents.

- 17 Type the desired name for your template in the File name combo box. In our case, we have typed **My\_LetterTemplate**.
- 18 Click the **Save** button.  
A **LibreOffice-Security Warning** message box appears (Figure 35).
- 19 Click the **Disable Macros** button, as shown in Figure 35.  
The **Letter Template** is opened, as shown in Figure 36.



Figure 36: Letter Template

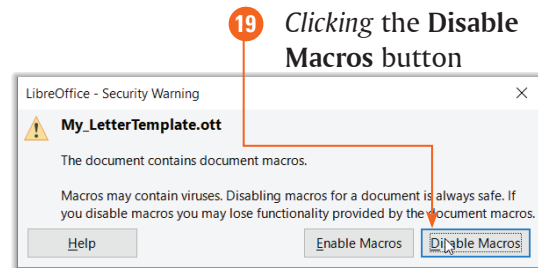


Figure 35: LibreOffice - Security Warning Message Box

## Setting Up a Custom Default Template

A custom default template in LibreOffice Writer can streamline your document creation process, ensuring that every new document starts with your preferred settings and styles.

Perform the following steps to setting up a custom default template:

- 1 Click on the **File** → **Templates** → **Save as Template** option from the submenu. A **Save As Template** dialog box appears.
- 3 Type the desired name for the template in the **Enter Template Name** text box. In our case, we have typed **My New Template**.
- 4 Select the desired category under the **Select Template Category** drop list. In our case, we have selected **My Templates**.
- 5 Click the **Save** button. The desired template is saved as shown in Figure 37.

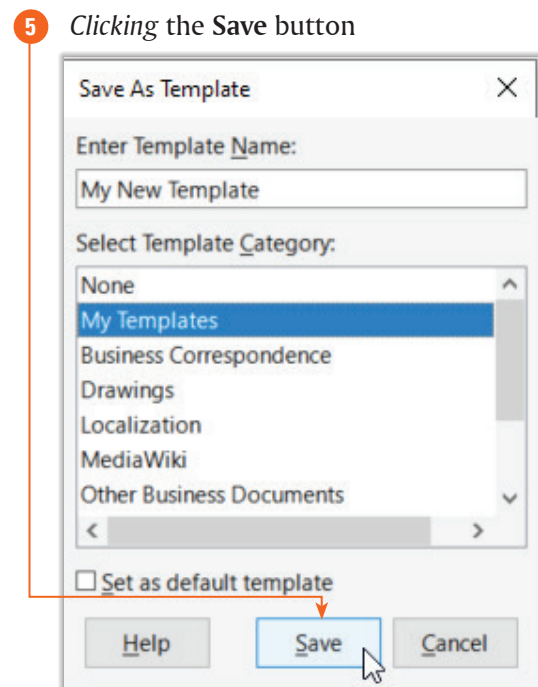


Figure 37: Save As Template Dialog Box

6 Click on the **File** button from the **Menu** toolbar. A drop-down list appears.

7 Select the **New** → **Templates** option from the submenu as shown in Figure 38.

A **Templates** dialog box appears.

8 Click on the desired template to which you want to set as a default. In our case, we have selected **My New Template**.

9 Right-click over the desired template and select **Set as Default** option from the submenu as shown in Figure 39:

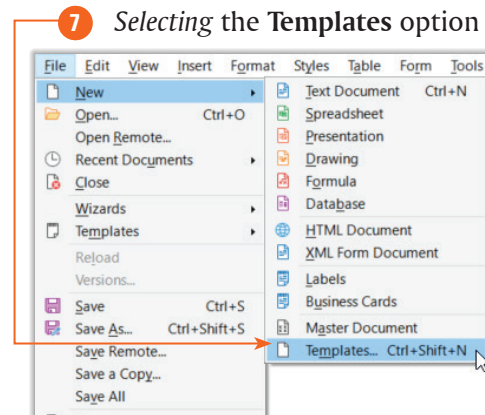


Figure 38: Drop-Down List

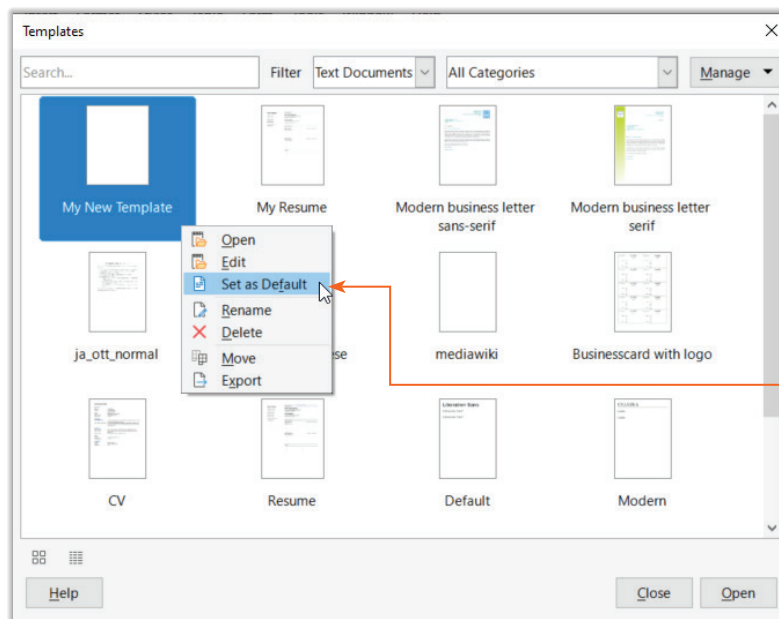


Figure 39: Templates Dialog Box

9 Selecting the **Set as Default** option

## Changing to a Different Template

To change to a different template in LibreOffice Writer, you can switch your document's format and style quickly by applying a new template that aligns with your preferred layout and design.

Perform the following steps to change to a different template:

- 1 Download the **Template Changer** extension from <https://extensions.libreoffice.org/en/extensions/show/27416> website.
- 2 Open LibreOffice Writer. Go to **Tools**, then **Extensions**. Select **Add** and browse to the downloaded **.oxt** file.
- 3 Select the file and right-click **Open** to install the extension. Restart LibreOffice Writer if prompted.
- 4 Open the document that needs to change its template. Go to **File**, then **Templates**, then **Assign Template** (current document). In the dialog that appears, navigate to and select the desired template. Select **Open** to apply the new template to the document.
- 5 Check the document to ensure that the styles and formatting have been updated according to the new template.

## Updating a Document Based on Modified Template

Perform the following steps to update a document based on a modified template:

- 1 Open an existing document and make any style change.
- 2 Click on the **File** button from the **Menu** toolbar. A drop-down list appears
- 3 Select the **Save** option from the drop-down list.

If the document is linked to a template and the template is updated, the document will prompt to update styles when opened.

- 4 Select **Update Styles** to update the styles based on the new template, if prompted.

### ASSESS YOURSELF

1. A custom default template in LibreOffice Writer ensures that every new document starts with your preferred settings and styles. (True/False)
2. .... provides a variety of built-in templates, and users can also create and customize their own templates to suit specific needs.

### ACTIVITY

1. Create a new document by selecting a predefined template from the available options.
2. After saving the document, modify the template by changing the font style, heading format or adding a new section.
3. Download a new Writer template from the internet.

## Session 5: Create Table of Contents

In LibreOffice Writer, a Table of Contents (TOC) provides an organized overview of document headings. It generates automatically based on the applied styles, making navigation easy. Users can customize its structure, format and update it as content changes, ensuring an accurate reflection of the document's layout.

### Creating a Table of Contents

Perform the following steps to create a TOC in LibreOffice Writer:

- 1 Open a new or existing document containing rough sections and subsections.
- 2 Click on the **Insert** button from the **Menu** toolbar. A drop-down list appears.
- 3 Hover over **Table of Contents and Index** option; a submenu appears.
- 4 Select the **Table of Contents, Index or Bibliography** option from the submenu. A **Table of Contents, Index or Bibliography** dialog box appears.
- 5 Type the title of table of contents in the **Title** text box. In our case, we have typed **Table of Contents**.
- 6 Select the type of index from the **Type** drop-down list. In our case, we have selected **Table of Contents**.
- 7 Click the **OK** button as shown in Figure 40.

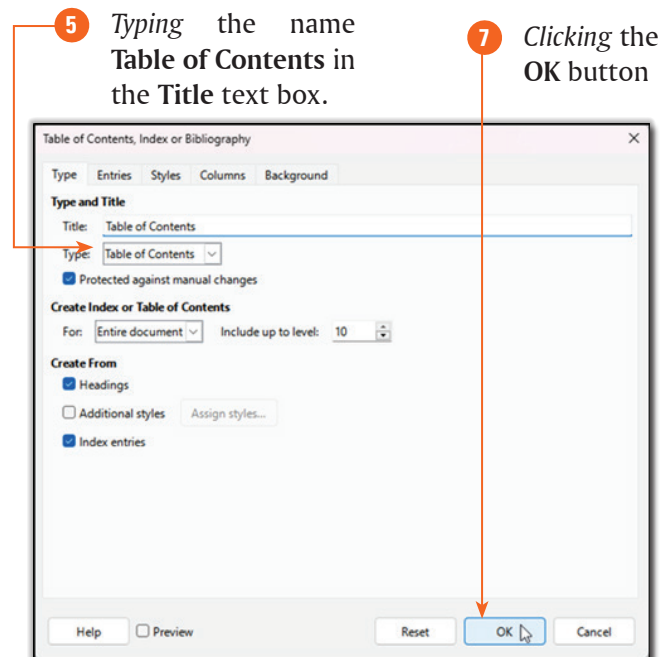
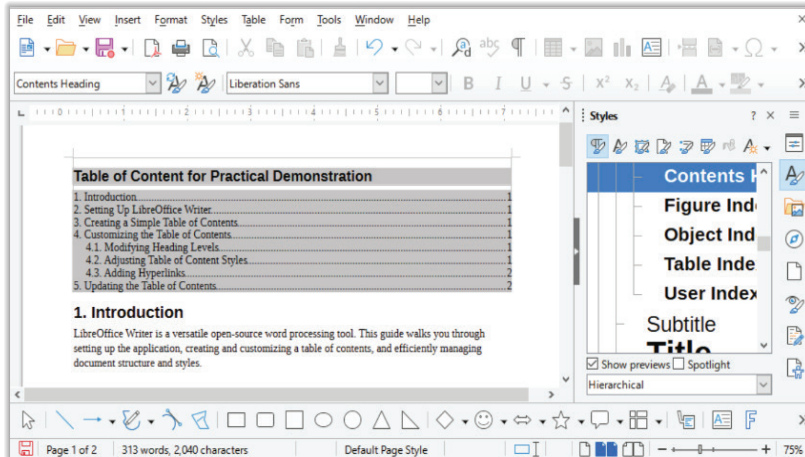


Figure 40: Table of Contents, Index or Bibliography Dialog Box

The output of the document is shown in Figure 41.



**GUESS Who?**  
I am a tab to modify the structure of TOC entries.

**DID YOU Know?**  
You can press the **Alt + Shift + O** to open the **Insert Table of Contents and Index** dialog box.

Figure 41: Table of Contents in the Document

## Customization of a Table of Contents

Customizing a TOC in LibreOffice Writer allows users to tailor the appearance and structure of the TOC. Options include adjusting formatting styles, changing levels of headings displayed, adding hyperlinks, and modifying entries. This customization ensures that the TOC aligns with specific document requirements and enhances readability.

Perform the following steps to customize a TOC in LibreOffice Writer:

1 Right-click on the **Table of Contents**. A drop-down list appears.

2 Select **Edit index** option from the drop-down list. A **Table of Contents, Index or Bibliography** dialog box appears.

3 Click on the **Entries** tab to modify the structure of TOC entries.

4 Click on the **Structure** line to add elements such as page numbers, tabs, and hyperlinks.

5 Click on the **Styles** icon from right sidebar to change the formatting of TOC levels.

6 Click on the **Assign Styles** option to apply different paragraph styles to various levels of the TOC. In our case, we have used **Caption** as the **Heading 2** level as shown in Figure 42.

7 Click the **OK** button.

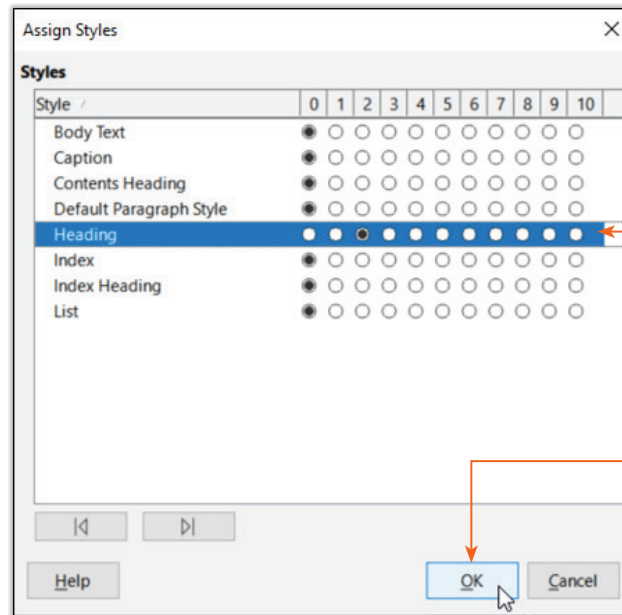
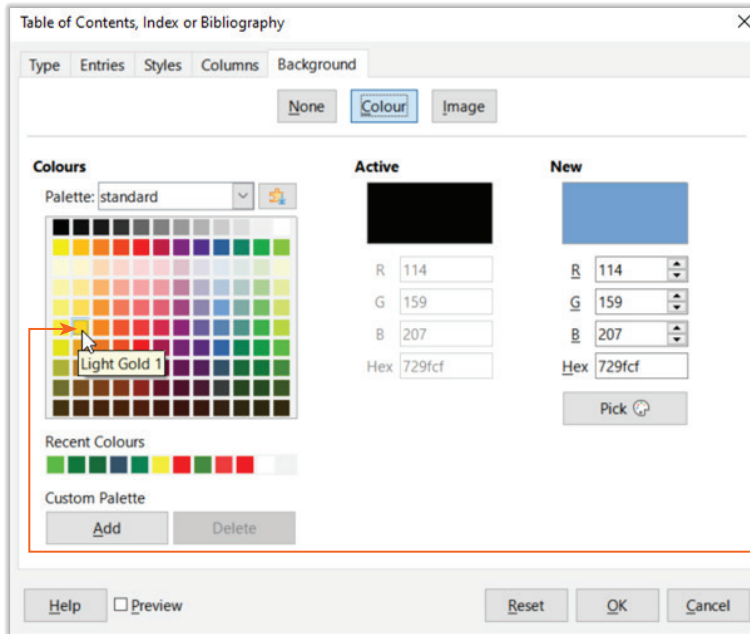


Figure 42: Assign Styles Dialog Box

6 Selecting the **Heading 2** level style

7 Clicking the **OK** button

- Click on the **Background** tab to change the background colour. In our case, we have selected **Light Gold 1** as shown in Figure 43.



**Quick Quiz**  
 ..... provides an organized overview of document headings.  
 Ans. Table of Contents (TOC)

- Selecting **Light Gold 1** colour from standard palette.

Figure 43: Displaying Light Gold 1 Colour

The output of the customized TOC is shown in Figure 44.

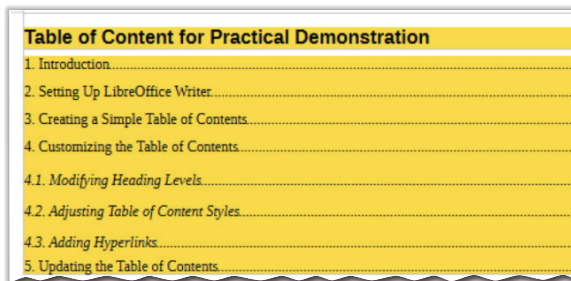


Figure 44: The Customized Table of Contents

### ACTIVITY

- Create a new document and type at least three sections (e.g., Introduction, Methods, Conclusion) and apply heading styles (Heading 1, Heading 2) from the Styles menu.
- Apply the character style to the page numbering in the table of contents.
- Create a table of contents on the created document.

## Applying Character Styles

Perform the following steps to apply character styles to a TOC in LibreOffice Writer:

- Click the **Styles** icon from the right sidebar.
- Click on the desired style for the document. In our case, we have clicked on the **Character Styles** icon.
- Select the desired text to format. Double-click on the desired character style in the **Styles** icon.
- Right-click on an empty area and select **New in the Styles and Formatting** window to create a new style. Define the properties for the new character style.
- Click on the **OK** button.

### ASSESS YOURSELF

- In the Table of Contents, Index, or Bibliography dialog box, you cannot change the title of the Table of Contents. (True/False)
- ..... style is used to apply different paragraph styles to various levels of the TOC.



# Summary

- A word processor is a computer application that is used to create, edit, and organize a document.
- Styles allow users to apply predefined formatting to text, paragraphs, and other elements throughout the document.
- Character styles apply formatting to specific characters or words within a paragraph without affecting the entire paragraph.
- The “Styles and Formatting” window is a crucial tool for managing the appearance and layout of your document.
- The “Fill Format” feature allows users to quickly apply formatting styles from one part of a document to another.
- Images play a crucial role in enhancing the visual appeal and effectiveness of documents in LibreOffice Writer.
- Resizing objects, such as images, shapes or text boxes, allows users to adjust their dimensions either by dragging the object’s handles or by entering specific values in the position and size dialog box.
- Templates in LibreOffice are pre-designed documents that serve as a foundation for creating new documents with a consistent layout, style and structure.



## KEY TERMS

- **Drag-and-drop:** Drag-and-drop feature allows users to easily apply consistent formatting across a document by defining and reusing styles.
- **Drawing objects:** Drawing objects feature is particularly useful for creating diagrams, charts, and other illustrations that can make a document more engaging and informative.
- **Grouping:** Grouping in LibreOffice Writer allows you to combine multiple objects (such as shapes, images, or text boxes) into a single entity. This makes it easier to move, resize, or format them collectively.
- **LibreOffice Writer:** LibreOffice Writer helps you create different types of neat and attractive text documents, such as fax documents, reports and personal and professional letters.
- **Styles:** Styles in LibreOffice Writer are predefined sets of formatting attributes that can be applied to various elements of a document.
- **Templates:** Templates serve as pre-designed formats that include various elements such as text styles, formatting, images and layout.



## PRACTICE QUESTIONS

### Solved Questions

#### Multiple-Choice Questions (MCQs)

1. Which toolbar in LibreOffice Writer includes icons for commonly used functions such as Save, Undo and Print?  
a. Formatting toolbar    b. Standard toolbar  
c. Status bar              d. Ruler
2. Which dialog box in LibreOffice Writer is used to modify image properties such as size, rotation and cropping?  
a. Format dialog box    b. Edit menu  
c. Picture settings box    d. Image dialog box
3. Which style category is used to apply formatting to specific characters or words without affecting the entire paragraph?  
a. Table styles              b. Page styles  
c. Character styles        d. Frame styles
4. Where should you drag-and-drop the selected text to create a new style?  
a. Toolbar                    b. Styles dialog box  
c. File menu                 d. Status bar
5. Which toolbar option is used to change the fill colour of an object in LibreOffice Writer?  
a. Text Formatting toolbar  
b. Table toolbar  
c. Style toolbar  
d. Formatting toolbar

#### ANSWERS

1. b.      2. d.      3. c.      4. b.      5. d.

#### Very Short Answer Questions

1. How can you create a template in LibreOffice Writer?  
Ans. To create a template, design your database, then save it as a template via File > Templates > Save.
2. What tool is used to insert drawing objects in LibreOffice Writer?  
Ans. The Drawing Toolbar is used to insert drawing objects like shapes and lines.
3. How do paragraph styles affect a document?  
Ans. Paragraph styles affect a document by controlling the appearance and formatting of entire paragraphs, including alignment, indentation, spacing, and font styles.
4. How can you access the template categories when saving a document as a template?

Ans. When saving the document as a template, you will be prompted to select a category in the "Save As Template" dialog box.

5. Where can you change the formatting for each heading level in a Table of Contents?

Ans. In the Table of Contents dialog box, under the "Styles" tab, you can modify the formatting for each level.

#### Short Answer Questions-I

1. What are the main style categories in LibreOffice Writer, and what is their purpose?

Ans. LibreOffice Writer offers five main style categories: Paragraph, Character, Page, Frame, and List styles. Paragraph styles format entire paragraphs, Character styles focus on specific text, Page styles handle layout settings, Frame styles customize objects like text boxes and List styles format bulleted and numbered lists.

2. What is the purpose of a template in LibreOffice Writer?

Ans. A template in LibreOffice Writer is a pre-designed document layout that can be reused, helping users maintain consistency in formatting across multiple documents.

3. What is a Table of Contents (TOC) in LibreOffice Writer?

Ans. A Table of Contents (TOC) is an automatically generated list of headings and subheadings in a document that helps users quickly navigate to different sections of the document.

4. What is a word processor in LibreOffice Writer?

Ans. A word processor in LibreOffice Writer is a software application used for creating, editing, formatting, and printing text documents, allowing users to manage content efficiently.

5. What is the function of the menu bar in LibreOffice Writer?

Ans. The menu bar provides access to various menus such as File, Edit, and View, which contain commands and options for document management and editing.

#### Short Answer Questions-II

1. What is the process for wrapping text around a graphical object in LibreOffice Writer?

Ans. Click on the graphical object to select it. Right-click and select "Wrap," then select the desired text wrapping option (e.g., "Page Wrap," "Optimal Page Wrap"). Adjust the wrap settings if needed in the Format dialog to control text flow around the object.

2. How can you set or change the properties of a drawing object in LibreOffice Writer?

Ans. To set or change the properties of a drawing object, select the object and right-click to open the context menu. Select “Properties” to access options like size, position, and style. Alternatively, use the “Format” menu or the side panel to adjust properties such as line width, fill colour, and effects.

3. How do you set the alignment of a drawing object relative to the page in LibreOffice Writer?

Ans. To set the alignment of a drawing object, select the object, then go to the “Format” menu and select “Position and Size.” In the dialog box, use the alignment options under the “Position” tab to specify how the object should align relative to the page or margins.

4. How do you ensure that the styles are correctly applied after loading from a template?

Ans. After loading styles from a template, review the styles in the “Styles” sidebar to ensure they are applied correctly. You can also apply these styles to various elements in your document to verify that the formatting is as expected.

5. How can you rotate an image in LibreOffice Writer?

Ans. Select the image, then click and drag the green rotation handle at the top of the image to rotate it. For precise rotation, right-click the image, select “Position and Size,” and set the angle in the “Rotation” box.

### Long Answer Questions

1. What is a Table of Contents (TOC) in LibreOffice Writer, and why is it important for document organization?

Ans. A Table of Contents (ToC) in LibreOffice Writer is a structured list that outlines the headings and subheadings within a document, along with their corresponding page numbers. It serves as a navigational tool, enabling readers to quickly locate specific sections of the document. To create a ToC, LibreOffice Writer automatically generates it based on the document’s heading styles, such as Heading 1, Heading 2, and Heading 3. This ensures that as the document evolves, the ToC can be updated easily to reflect changes in the content’s structure. The ToC is essential for large or complex documents, such as reports, theses, or books, as it enhances readability and provides a clear overview of the document’s organization. It helps both authors and readers by summarizing the content and improving navigation, which is particularly useful when dealing with extensive information.

2. What techniques can you use to ensure images are properly aligned and integrated into a LibreOffice Writer document?

Ans. To ensure proper alignment and integration of images, first, insert the image via Insert > Image. Use the image handling options to position it correctly. To align the image, select it and then use the alignment tools in the Format menu or the toolbar, such as Align Left, Center, or Align Right. Adjust the image’s text wrapping settings to ensure it integrates smoothly with the text, choosing options like Wrap Through for text to flow around the image. For consistent spacing, use the Spacing options in the Properties dialog box to set margins and padding around the image.

3. How can you format an image in LibreOffice Writer to fit the text layout of your document?

Ans. To format an image to fit the text layout, first, insert the image by going to Insert > Image. Select the image and right-click to access Properties. Under the Text Wrapping tab, select the wrapping style that suits your layout: Page Wrap, Optimal Page Wrap, or Through. Adjust the image’s position and alignment within the document by using the alignment options and dragging it to the desired location. For further control, you can resize the image and adjust the spacing around it using the Position and Size settings in the Properties dialog box.

4. How can the Freeform tool in LibreOffice Writer be utilized to create complex shapes and designs, and what are its key features?

Ans. The Freeform tool in LibreOffice Writer allows users to create intricate shapes and custom designs with precision. Accessible from the Drawing toolbar or the “Insert” menu, it enables free drawing of lines and curves through anchor points. This tool offers flexibility in modifying shapes, making it ideal for detailed illustrations and unique designs. By using the Freeform tool, users can enhance documents with personalized and visually appealing content.

5. How can you precisely position an image within text in LibreOffice Writer, and what are the key options available for aligning it with surrounding text?

Ans. To position an image within text in LibreOffice Writer, use the “Wrap” options. Insert your image by selecting Insert > Image and choosing your file. Once inserted, click on the image to select it. A toolbar will appear; click on the Wrap icon. Select a wrapping style: “Page Wrap” for text flowing around the image, “Optimal Page Wrap” for precise control, or “In Line with Text” for treating the image as text. Adjust the image’s position by dragging or using alignment tools in the toolbar.

### Higher Order Thinking Skills (HOTS) Question

1. Alex’s document is outdated and needs to be updated according to a newly revised template. How can Alex update the document?

Ans. Alex should first open the document and then select “Styles” from the sidebar. By choosing “Load Style from Template,” Alex can apply the latest template styles to the document, ensuring that it is consistent with the updated template guidelines.

2. Jane needs to create a presentation with grouped drawing objects. How can she ensure they move together?

Ans. Jane should select the objects, right-click, and select “Group” to group them. They will now move together.

3. Lisa wants her table of contents to show only specific headings. How can she customize it?

Ans. Lisa should modify the heading styles in the document and adjust the table of contents settings to include only the desired headings.

## Assignment

### Multiple-Choice Questions (MCQs)

1. Which document types can be created using LibreOffice Writer?
  - a. Spreadsheets and presentations
  - b. Reports and personal letters
  - c. Database tables and queries
  - d. Graphs and charts
2. Which tool should you use if you want to apply a gradient fill to a shape?
  - a. Line Style tool
  - b. Fill Color tool
  - c. Arrow tool
  - d. Image tool
3. After clicking on the File button, which option should you select to save the document?
  - a. Open
  - b. Save As
  - c. Print
  - d. Close
4. When you drag-and-drop the selected text into a style category, which dialog box appears?
  - a. New Style from Selection
  - b. Style Properties
  - c. Format Style
  - d. Style Manager
5. Which menu must you access to start cropping an image?
  - a. File
  - b. Edit
  - c. Format
  - d. View

### Very Short Answer Questions

1. What is LibreOffice Writer?
2. What is a word processor?
3. What do you understand by Frame style?
4. How do you exclude certain headings from appearing in the Table of Contents?
5. Can you control the distance between the text and the graphical object?

### Short Answer Questions-I

1. What is a Paragraph style, and how does it differ from a Character style?
2. What are the advantages of a predefined template?
3. What is the purpose of updating a document based on a modified template?
4. What is the first step in creating a new template using the Template Wizard?
5. What menu option allows you to delete a Table of Contents in LibreOffice Writer?

### Short Answer Questions-II

1. What steps are involved in modifying, resizing, cropping and deleting an image in LibreOffice Writer?
2. Which type of document can be created using the "Report Wizard" in LibreOffice Writer?
3. What is the primary function of a word processor like LibreOffice Writer?
4. What is the purpose of the 'Load Styles' feature in the Styles and Formatting window?
5. What are the benefits of using graphical objects in a writer document?

### Long Answer Questions

1. Describe the process for applying a style to text using the Fill Format option in LibreOffice Writer, including how to access the Styles and Formatting window.
2. Describe the procedure for generating and customizing a Table of Contents (ToC) in LibreOffice Writer.
3. Explain the process of creating a professional document layout in LibreOffice Writer. Discuss the steps for setting up page margins, configuring header and footer settings and applying styles to ensure consistency throughout the document.
4. How can you use the drag-and-drop method to create a new character style in LibreOffice Writer, and what steps should you follow to edit this style later if you change the text formatting?
5. How would you go about creating a new table style based on a table you have formatted in your document, and what is the process for updating this style if you later alter the table design or cell formatting?

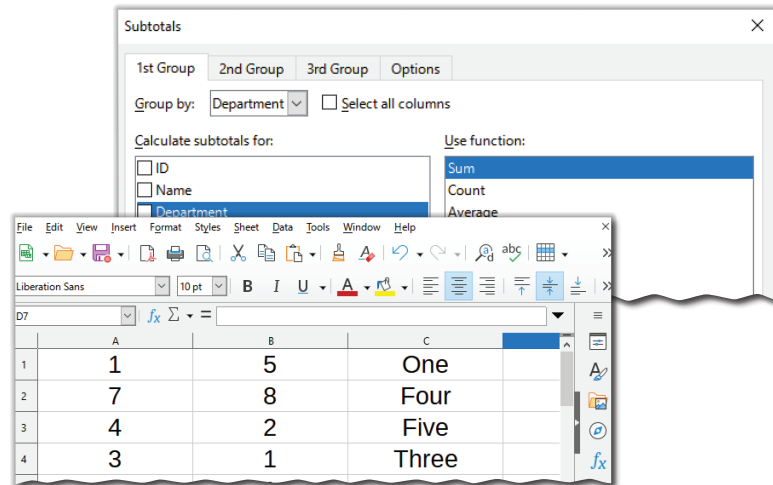
### Lab Activities

1. Anjali is a content creator at a company called TechPro Solutions. Her manager, Alice, has asked her to create a professional report using a predefined template. The company has several report templates, but you need to customize one to meet specific branding guidelines. The goal is to:
  - Open an existing template in LibreOffice Writer.
  - Modify the title style by changing its font size to 18pt, the colour to blue, and making it bold.
  - Add the company's logo to the header.
  - Save the changes as a new template named "TechPro\_Report\_Template" and apply it to a blank document.
2. You are working on a research document for your company, "Tech Innovators Inc.," and the document has multiple chapters and sections. The company requires you to include a Table of Contents (TOC) at the beginning of the document for easy navigation. Your task is to format the document headings, create the TOC, and ensure it is dynamically updated whenever changes are made in the document.

# UNIT 7A

## THIS UNIT COVERS

- Analyse data using scenarios and goal seek
- Link spreadsheets data
- Share and review a spreadsheet
- Use macros in spreadsheet



## Electronic Spreadsheet (Advanced) using LibreOffice Calc

### Introduction

LibreOffice Calc is a versatile spreadsheet application within the LibreOffice suite, designed for data analysis and management. It features advanced calculations, chart generation and data visualization tools, making it suitable for both casual and professional users. Calc supports various file formats, including Microsoft Excel, ensuring easy sharing and collaboration. Its extensive functions and data manipulation capabilities allow for efficient handling of complex analyses and organized data.

In today's digital age, counting and calculations are essential from daily tasks to professional work. Spreadsheet software, like LibreOffice Calc, helps manage large datasets efficiently, similar to an accountant's ledger. This supplement explores advanced spreadsheet features, including data analysis, automation with macros, linking multiple sheets, collaborative editing, enhancing decision-making and streamlining tasks across shared documents.

In this unit, you learn about how to open LibreOffice Calc. Next, you learn about the concept of data analysis. After this, you learn how to link data and spreadsheets. Further, you learn how to share and review spreadsheets. Towards the end, the chapter discusses the concept of macros in spreadsheets.

## Session 1: Opening LibreOffice Calc

To open LibreOffice Calc, start by clicking on the Start Menu (Windows) or Applications Menu (Linux) on your computer. Next, type LibreOffice into the search bar to locate the LibreOffice suite. Select Calc Spreadsheet from the list of applications. Wait for the program to load, and once it opens, you will see a blank spreadsheet ready for use as shown in Figure 1:

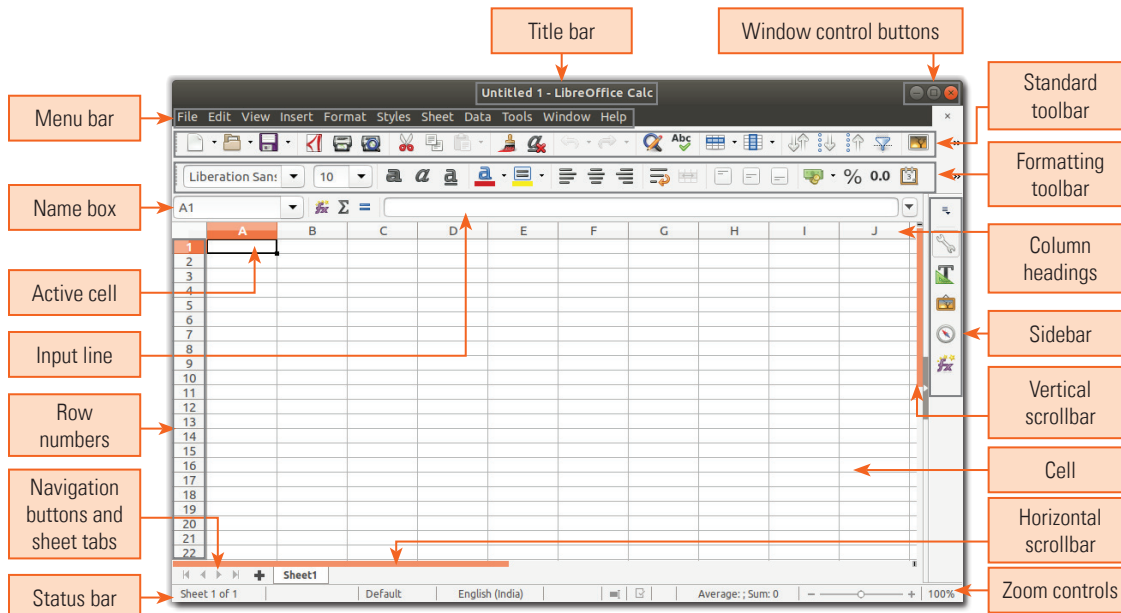


Figure 1: LibreOffice Calc Window

The LibreOffice Calc window comprises the following components:

- **Title bar:** Displays the name of the currently open workbook.
- **Window control buttons:** Allow you to minimize, maximize/restore and close the LibreOffice Calc window.
- **Standard toolbar:** Consists of tools for performing basic functions, such as open, save, copy, cut and paste.
- **Formatting toolbar:** Consists of tools for formatting the text.
- **Column headings:** Refer to the names of the columns.
- **Sidebar:** Contains the icons for displaying various panels, such as Properties, Styles and Formatting, Gallery, Navigator, and Functions. It is located to the right of the LibreOffice Calc window.
- **Vertical scrollbar:** Allows you to move the worksheet in vertical direction (up and down).
- **Cell:** Refers to the area of intersection of a row and a column.
- **Horizontal scrollbar:** Allows you to move the worksheet in horizontal direction (left and right).
- **Zoom controls:** Allow you to zoom in or zoom out the worksheet.
- **Menu bar:** Consists of menus, such as File, Edit, View and Insert.
- **Name box:** Displays the address of the active cell or a range of selected cells.

### Note

In a spreadsheet, the term "**function**" encompasses a broader range of capabilities beyond just mathematical functions.

### - GUESS Who?

I am a toolbar that consists of tools for performing basic functions, such as open, save, copy, cut, and paste.

Ans: Standard

- **Active cell:** Refers to the cell that is currently active. It is the cell where the data you enter will be placed. You can only enter data in an active cell.
- **Input line:** Contains the content of the selected cell or formula applied to the selected cell.
- **Row numbers:** Refer to the numbers of the rows.
- **Navigation buttons and sheet tabs:** Allow you to navigate from one worksheet to another in a workbook. Sheet tabs display names of the worksheets present in a workbook. You can change the default name of a worksheet by double-clicking its sheet tab and typing the desired name in the Rename Sheet dialog box.
- **Status bar:** Displays information about the current worksheet.

## ASSESS YOURSELF

1. .... refers to the area of intersection of a row and a column.
2. The sidebar in LibreOffice Calc is located at the bottom of the window and contains icons for displaying various panels. (True/False)

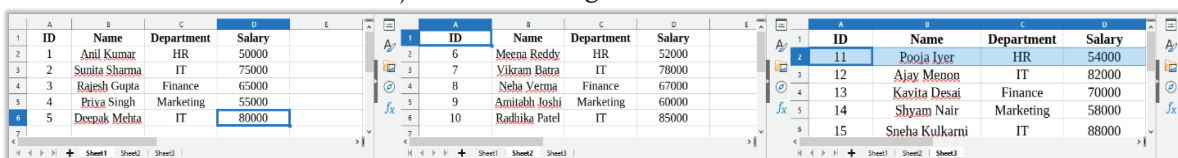
## Session 2: Data Analysis

Data analysis in LibreOffice Calc involves organizing, interpreting and visualizing data using features such as formulas, functions, and charts. It allows users to efficiently analyze trends, patterns and insights from datasets, aiding in informed decision-making and reporting.

### Consolidating Data

Consolidating data in LibreOffice Calc combines data from multiple sheets or ranges into a single summary. It simplifies data analysis by aggregating information, offering insights from various sources at once. Perform the following steps to consolidate the data in LibreOffice Calc:

- 1 Ensure that the data to consolidate is organized in separate sheets, with the same layout (i.e., the same columns in the same order) as shown in Figure 2:



ID	Name	Department	Salary
1	Anil Kumar	HR	50000
2	Sunita Sharma	IT	75000
3	Rajesh Gupta	Finance	65000
4	Pritya Singh	Marketing	55000
5	Deepak Mehta	IT	80000


ID	Name	Department	Salary
6	Meena Reddy	HR	52000
7	Vikram Batra	IT	78000
8	Neha Verma	Finance	67000
9	Amitabh Joshi	Marketing	60000
10	Radhika Patel	IT	85000

ID	Name	Department	Salary
11	Pooja Iyer	HR	54000
12	Ajay Menon	IT	82000
13	Kavita Desai	Finance	70000
14	Shyam Nair	Marketing	58000
15	Sneha Kulkarni	IT	88000

Figure 2: Data for Consolidation

- 2 Open a new sheet by right-clicking the plus sign before Sheet1 (+) and name it **Consolidated Sheet** by double-clicking the sheet name.
- 3 Click the **Data** button from the **Menu** toolbar. A drop-down list appears.
- 4 Select the **Consolidate** option from the drop-down list. The **Consolidate** dialog box appears.
- 5 Select the function that you want to use for consolidation (e.g., Sum, Average, Count, Max, Min, etc.) from the drop-down list in the **Function** section. In our case, we have selected **Sum**.
- 6 Enter the range for the first data set from **Sheet1**. In our case, we have entered (**Sheet1.A1:D6**).

**DID YOU Know**   
If you frequently consolidate the same cell ranges, you can convert them into reusable named ranges to simplify the process.

- 7 Click the **Add** button to add the ranges you want to consolidate.
- 8 Repeat step 7 to add further ranges from **Sheet2** and **Sheet3**. In our case, we have entered range (**Sheet2.A1:D6**) from Sheet2 and the range (**Sheet3.A1:D6**) from Sheet3.
- 9 Configure Options by checking the Row labels and Column labels boxes for adding labels in the **Consolidated Data** sheet.
- 10 Click **OK** button to consolidate the data. The final output shown in Figure 3.

ID	Name	Department	Salary
1			50000
2			75000
3			65000
4			55000
5			80000
6			52000
7			78000
8			67000
9			60000
10			85000
11			54000
12			82000
13			70000
14			58000
15			88000

Figure 3: Consolidated Data

## Creating Subtotals

Subtotals in LibreOffice Spreadsheet are intermediate summaries that help break down data into smaller, manageable sections for better analysis and understanding. They are used to perform calculations, such as sums, averages, counts, or other functions, on specific groups of data within a larger dataset.

Perform the following steps to create a subtotal:

- 1 Copy the data in **Sheet2** and **Sheet3** and paste it in **Sheet1** after ID 5.
- 2 Select the range of data to add subtotals. In our case, we have selected cell range **A1:D16**.
- 3 Click the **Data** button from the **Menu** toolbar. A drop-down list appears.
- 4 Select the **Subtotals** option from the drop-down list. The **Subtotals** dialog box appears (Figure 4).
- 5 Select the desired option from the **Group by** drop-down list based on which you want to group the subtotal. In our case, we have selected **Department** (Figure 4).
- 6 Select the desired check box under **Calculate subtotals for** list box to specify the column where you want to apply the subtotal. In our case, we have selected the **Salary** check box (Figure 4).
- 7 Select the desired function under the **Use function** section to calculate the desired subtotals. In our case, we have selected **Sum** (Figure 4).
- 8 Click the **OK** button, as shown in Figure 4.

The output is shown in Figure 5.

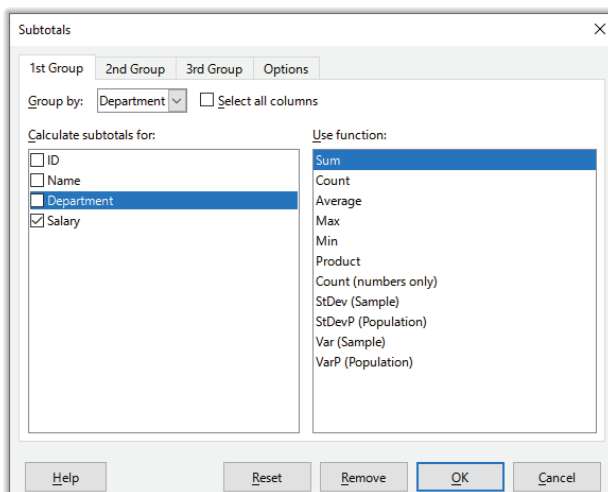


Figure 4: Subtotal dialog box

ID	Name	Department	Salary
3	Rajesh Gupta	Finance	65000
8	Neha Verma	Finance	67000
13	Kavita Desai	Finance	70000
<b>Finance Sum</b>			<b>202000</b>
1	Anil Kumar	HR	50000
6	Meena Reddy	HR	52000
11	Pooja Iyer	HR	54000
<b>HR Sum</b>			<b>156000</b>
2	Sunita Sharma	IT	75000
5	Deepak Mehta	IT	80000
7	Vikram Batra	IT	78000
10	Radhika Patel	IT	85000
12	Ajay Menon	IT	82000
15	Sneha Kulkarni	IT	88000
<b>IT Sum</b>			<b>488000</b>
4	Priya Singh	Marketing	55000
9	Amitabh Joshi	Marketing	60000
14	Shyam Nair	Marketing	58000
<b>Marketing Sum</b>			<b>173000</b>
<b>Grand Sum</b>			<b>1019000</b>

Figure 5: Subtotal Output



## Using What-If Tools

What-If tools in LibreOffice Spreadsheets are powerful features designed to analyze and forecast potential outcomes by altering the input data and observing the resulting changes. These tools allow users to explore different scenarios and make informed decisions based on various potential future conditions. The primary What-If tools, including Goal Seek, Data Tables, and Scenarios, are as follows:

- **Scenarios:** It allows users to define and save different sets of input values to compare various potential outcomes.
- **Goal Seek:** It is used to find the input value needed to achieve a desired result in a formula.
- **Solver:** Solver is a tool in LibreOffice Calc that optimizes a target cell's value by adjusting multiple variables, subjected to specific constraints.

### Using Scenario

A What-If scenario is a collection of variables that can be plugged into a spreadsheet's calculations. Each scenario is assigned a unique name, allowing you to create multiple scenarios within the same sheet. These scenarios are helpful for exploring and comparing different outcomes based on varying conditions.

Perform the following steps to use What-If scenario:

- 1 Create the following sheet as shown in Figure 6. Enter the function  $=ABS(PMT(B3/1200,D2,B2))$  for calculating EMI,  $=B4*D2$  for calculating Total Amount Paid, and  $=B5-B2$  for Total Interest Paid.

	A	B	C	D
1				
2	Loan Amount	10000000	Time Period (Months)	144
3	Rate of Interest	19.00%		
4	EMI	70244.616720371		
5	Total Amount Paid	10115224.8077334		
6	Total Interest Paid	115224.807733428		

Figure 6: What-If Spreadsheet

- 2 Select the cells B2 and D2 using Ctrl + Right-click on these cells, as these two are the variables in this situation.
- 3 Click the Tools button from the Menu toolbar. A drop-down list appears.
- 4 Click the Scenarios button from the drop-down list. A Create Scenario dialog box appears (Figure 7).
- 5 Type the desired name of the scenario in the text box. In our case, we have typed Scenario\_1 (Figure 7).
- 6 Select the Display Border check box to display a border around the scenario. In our case, we keep the display border as a default (Figure 7).
- 7 Uncheck the Copy back check box to not modify the scenario while changing the values (Figure 7).
- 8 Click the OK button to add this to the scenario list as shown in Figure 7.
- 9 Modify the values in the scenario to create a new scenario.

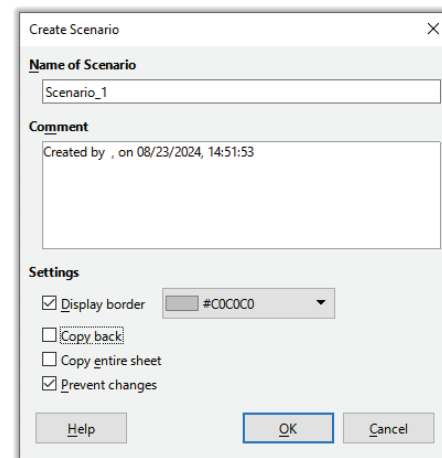


Figure 7: Create Scenario dialog box

In this example, we modified the value of Loan Amount to 15000000 and Time Period (months) to 180 in first case and Loan Amount to 35000000 and Time Period (months) to 120 in second case.

- 10 Repeat Steps 3 to Step 7 and change the colour to **Light Lime 1** and **Light Gold 1** respectively. Name the scenarios as **Scenario\_2** and **Scenario\_3** respectively.
- 11 Right-click the down arrow button of the scenario to switch from one scenario to another. Select the scenario you want to display, as shown in Figure 8.

	Scenario_1	Tim
<b>Loan Amount</b>		
<b>Rate of Interest</b>	19.00%	
<b>EMI</b>	70244.616720371	
<b>Total Amount Paid</b>	10115224.8077334	
<b>Total Interest Paid</b>	115224.807733428	

Figure 8: Switching Scenarios

## Using Goal Seek

Goal Seek in LibreOffice Spreadsheet is a powerful tool used for what-if analysis. It allows users to determine the input value needed to achieve a specific goal or result in a formula. By automating the process of trial and error, Goal Seek simplifies complex calculations and helps users make informed decisions based on specific targets or goals.

Perform the following steps to use the Goal Seek tool for analyzing data:

- 1 Open a new or existing spreadsheet containing the data you want to analyze. In this case, we have used the data as shown in Figure 9.
- 2 Select the desired cell. In our case, we have selected **B7** for calculating the average marks obtained as shown in Figure 9.
- 3 Click the **Tools** button under the **Menu** toolbar. A drop-down list appears.
- 4 Select the **Goal Seek** option from the drop-down list.

Subject	Marks
English	60
Hindi	90
Mathematics	50
Science	
General Knowledge	85
<b>Average</b>	<b>71.25</b>

Figure 9: Goal Seek Data

- 5 Select the desired cell with the formula you want to achieve a target. In our case, we have selected cell **B7**. The address of the selected cell appears in the **Formula cell** text box.
- 6 Enter the desired value in the **Target value** text box to specify the result you want. In our case, we have entered value **70** (Figure 10).
- 7 Enter the desired value in the **Variable cell** text box to specify the cell whose value needs to change to reach the target. In our case, we have entered **B5** (Figure 10).
- 8 Click the **OK** button (Figure 10).

Goal Seek

Default Settings

Formula cell:

Target value:

Variable cell:

Buttons: Help, OK, Cancel

Figure 10: Entering Goal Seek Variables

- 9 Clicking the **OK** button triggers an error in LibreOffice Calc if the Variable cell is empty. A dialog box will prompt you to enter a 0 value in the cell.
- 9 Click the **Yes** button on the error dialog box, which will automatically add a **0** in the variable cell.
- 10 Repeat step 3 and step 4 to re-enter your target and variable cells as before, and proceed.
- 11 Click the **OK** button (Figure 10).

The **LibreOffice Calc** will display a dialog box asking whether to update the cell with the calculated value.

- 12 Selecting the **Yes** button will replace the original value with the calculated one in the sheet. The final output is shown in Figure 11.

Subject	Marks
English	60
Hindi	90
Mathematics	50
Science	90
General Knowledge	85
<b>Average</b>	<b>75</b>

Figure 11: Goal Seek Output

## Using Solver

The Solver in LibreOffice Spreadsheet is a tool used for optimizing complex decision-making problems by adjusting variables to achieve a desired outcome, such as maximizing profits or minimizing costs. It defines an objective cell for optimization, variable cells for adjustments, and constraints to guide the solution.

Perform the following steps to use Solver for analyzing data:

- 1 Open a new or existing spreadsheet that contains data. In our case, we have opened a new spreadsheet and entered the data as shown in Figure 12.
- 2 Click the **Tools** button from the **Menu** toolbar. A drop-down list appears.
- 3 Select the **Solver** option from the drop-down list. A **Solver** dialog box appears.
- 4 Select the desired cell from the sheet for the **Target cell** text box to specify the goal. In our case, we have selected **B7**.
- 5 Select the desired radio button for the **Optimise result** to specify the value for the target cell. In our case, we have selected **Maximum** option.
- 6 Select the cell ranges for **By changing cells** to specify the cells that you want to change for achieving the set objective. In our case, we have selected the cell **B8**. The output of data is shown in Figure 12.
- 7 Enter the desired cell for the **Cell reference** text box under the **Limiting Conditions** section as shown in Figure 13.
- 8 Click the **Solve** button. A **Solving Result** dialog box appears.
- 9 Click the **Keep Result** button to verify the output provided by LibreOffice Calc, if it's correct. Otherwise, click the **Restore Previous** button. In our case, we have clicked on **Keep Result**. The output of the Solver tools is shown in Figure 14.

Category	Amount
Income	3000
Rent	800
Utilities	150
Groceries	250
Entertainment	100
Savings	1700
Total Expenses	1300

Figure 12: Solver Data

Cell reference	Operator	Value
\$B\$4	>=	100
	<=	
	<=	
	<=	

Figure 13: Limiting Constraints dialog box

Category	Amount
Income	3000
Rent	800
Utilities	100
Groceries	250
Entertainment	100
Savings	1750
Total Expenses	1250

Figure 14: Solver Output

## ASSESS YOURSELF

1. .... is a collection of variables that can be plugged into a spreadsheet's calculations.
2. Goal Seek is a What-If tool that helps find the input value needed to achieve a desired result in a formula. (True/False)

## Session 3: Linking Data and Spreadsheets

Linking data and spreadsheets in LibreOffice Calc allows you to connect and update data across multiple sheets or external sources. This feature ensures data consistency and automates updates when source data changes. It's useful for managing complex datasets, consolidating reports or referencing data from different sheets without manual copying, enhancing efficiency and accuracy.

### Setting up Multiple Sheets

When a new spreadsheet opens, it contains only one sheet named as **Sheet1**. Open a new sheet by right-clicking the plus sign before Sheet1 (+). A new sheet opens named as **Sheet2**. If required, you can add more sheets in the spreadsheet and rename them according to your needs. Before you perform any of the tasks, you need to select the sheet you want to work on the sheet tab as shown in Figure 15.

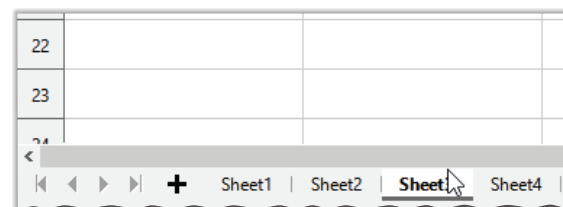


Figure 15: Displaying the Sheet Tab

## Creating References Between Sheets

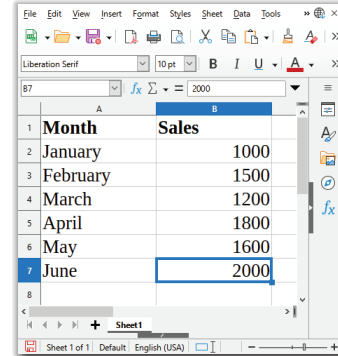
Creating references between sheets in LibreOffice Calc allows you to link data across multiple sheets, making it easier to manage complex datasets. By referencing cells from other sheets, you can consolidate, compare, or calculate data seamlessly.

### Referencing a Cell in Another Sheet

Perform the following steps to reference a cell in another sheet:

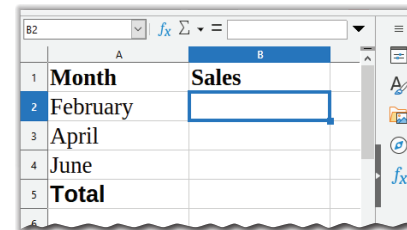
- 1 Open a new or existing worksheet that contains data. In our case, we opened a new worksheet and saved it as **Demonstration.ods**.
- 2 Enter the following data as shown in Figure 16 in **Sheet1** and create another sheet.
- 3 Go to **Sheet2**. Select a cell where you want to place the reference. In our case, we have entered data in **Sheet2** as shown in Figure 17, and selected **B2** cell in **Sheet2** for the reference.
- 4 Enter the following Formula **=Sheet1.B3** in cell **B2** to pull values from **Sheet1** to create summaries or perform calculations.
- 5 Press **Enter** key in the keyboard. The output will be the **Sales** data from **Sheet1** of the month of February as shown in Figure 18.
- 6 Continue to enter the following formulas **=Sheet1.B5** and **=Sheet1.B7** to reference the Sales amount of the months April and June respectively.
- 7 Select cell **B5** in **Sheet2** and enter the formula **=Sheet1.B3 + Sheet1.B5 + Sheet1.B7** to obtain sum of the sales in the three months by referencing from **Sheet1**.
- 8 Press the **Enter** key in the keyboard.

This will add the sales from February, April and June and display the total, which is 5300 as shown in Figure 19.



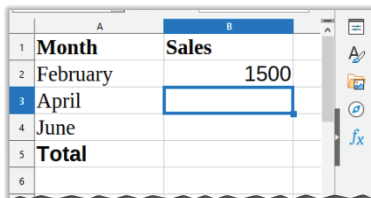
Month	Sales
January	1000
February	1500
March	1200
April	1800
May	1600
June	2000

Figure 16: Demonstration.ods Data



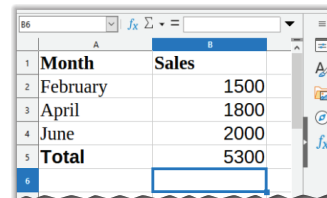
Month	Sales
February	
April	
June	
Total	

Figure 17: Selecting the B1 Cell



Month	Sales
February	1500
April	
June	
Total	

Figure 18: Referencing Data from Sheet1



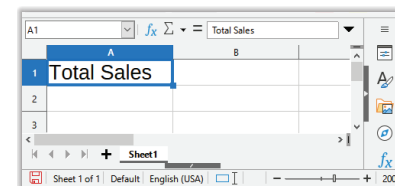
Month	Sales
February	1500
April	1800
June	2000
Total	5300

Figure 19: Displaying Total Sales of Three Months

## Creating References from Other Documents

Perform the following steps to reference a cell from another document:

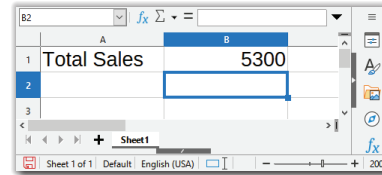
- 1 Open a new spreadsheet by selecting the **File** → **New** → **Spreadsheet** option from the **Menu** toolbar.
- 2 Enter the required information in the spreadsheet as shown in Figure 20.
- 3 Enter the = formula in **B1** cell.
- 4 Click the **Window** button from the **Menu** toolbar. A drop-down list appears.



Total Sales

Figure 20: Information in the spreadsheet

- 5 Select the **Demonstration.ods** option from the drop-down list. The **Demonstration.ods** spreadsheet appears.
- 6 Select the relevant cell in the demonstration spreadsheet and return to the new spreadsheet.
- 7 Press the **Enter** key from the keyboard.



**Figure 21:** Referencing Cell from Another Document

The referenced cell will show the exact value, as shown in Figure 21.

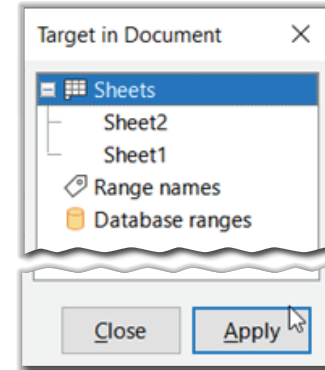
## Using Hyperlink in LibreOffice Calc

A hyperlink in LibreOffice Calc is a clickable link that navigates to a web page, another sheet, a specific cell, or an external document. It's useful for quickly accessing related resources or data within a spreadsheet.

### Hyperlinking External Sheet

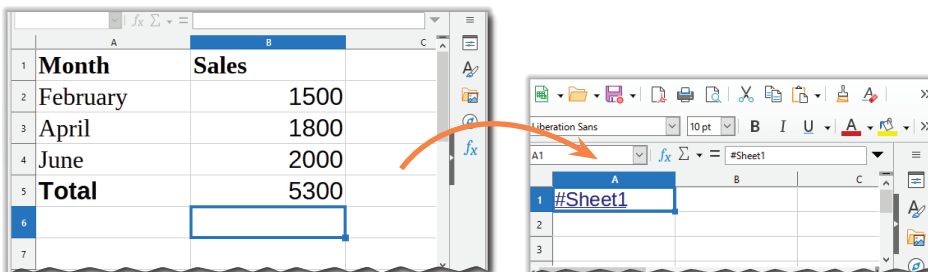
Perform the following steps for hyperlinking external sheet:

- 1 Open a new or existing spreadsheet that contains some data. In our case, we have selected the previously saved **Demonstration.ods**.
- 2 Open a new spreadsheet. Select the desired cell where you want to insert the hyperlink.
- 3 Click the **Insert** button from the **Menu** toolbar. A drop-down list appears.
- 4 Select the **Hyperlink** option from the drop-down list  
A **Hyperlink** dialog box appears.
- 5 Click the **Document** button in the list box to create a hyperlink to the document.  
The **Hyperlink** dialog box shows the options to insert a document hyperlink.
- 6 Right-click the folder icon in the **Path** field and navigate to the external sheet (**Demonstration.ods**).
- 7 Click the **Target in Document** button in the Hyperlink dialog box. The **Target in Document** dialog box appears (Figure 22).
- 8 Select the desired sheet that you want to use for the hyperlink. In our case, we have selected **Sheet1**.
- 9 Click the **Apply** button as shown in Figure 22.
- 10 Click the **Close** button in the **Hyperlink** dialog box to close it.  
The hyperlink is displayed in the spreadsheet as shown in Figure 22.
- 11 Enter **#Sheet1** in **Text** option in **Further Settings** shelf.
- 12 Click the **OK** button.



**Figure 22:** Target in Document Dialog Box

The reference of hyperlink is shown in Figure 23.



**Figure 23:** Hyperlink

## Hyperlinking Registered Data Sources

Perform the following steps for hyperlinking registered data source:

- 1 Click the **Tools** → **Options** → **LibreOffice Base** → **Databases**.
- 2 Click the **New** button to register a data source (e.g., an existing database or spreadsheet).
- 3 Select the cell where you want to insert the hyperlink. Go to **Insert** → **Hyperlink**.
- 4 Choose **Internet** on the left panel and select **Database**. In the URL field, enter the registered data source URL (e.g., `sdbc:embedded:hsqldb:dataSourceName`). Optionally, set the table or query within the data source that you want the hyperlink to access.
- 5 Click the **Apply** → **Close** to create the hyperlink. Clicking on the hyperlink will open the registered data source, allowing you to interact with the specified table or query.

### DID YOU Know?

The reference for a file includes three forward slashes (///), whereas a hyperlink reference contains two forward slashes (//).

### ACTIVITY

1. Create a sales performance table with targets for various products, using the Goal Seek feature to determine required sales volumes for specific revenue targets. Link data across multiple sheets, add a hyperlink to the registered data source, and demonstrate retrieval.

### ASSESS YOURSELF

1. .... allow users to manage and organize data across several separate tabs within one file in LibreOffice Spreadsheet.
2. .... allows you to link data across multiple sheets, making it easier to manage complex datasets.

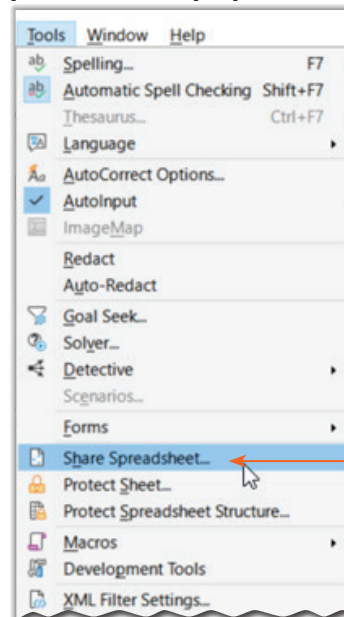
## Session 4: Sharing and Reviewing Spreadsheet

LibreOffice Calc provides the facility of sharing a spreadsheet at a location on a network from where multiple users can work on the spreadsheet at the same time. Sometimes, many people review the spreadsheet before it is marked as final or submitted for printing. While reviewing the spreadsheet, every reviewer can give their suggestions in the form of comments or can directly change the content. After reviewing the document, a final draft of the spreadsheet is prepared, incorporating all the suggestions and changes in it, if there are any.

### Setting Up a Spreadsheet for Sharing

Perform the following steps for setting up a spreadsheet for sharing:

- 1 Open a new or existing spreadsheet. In our case, we have opened the Demonstration.ods worksheet.
- 2 Click the **Tools** button from the **Menu** toolbar (Figure 24). A drop-down list appears (Figure 24).
- 3 Select the **Share Spreadsheet** option from the drop-down list as shown in Figure 24:  
A **Share Document** dialog box appears (Figure 25).



3 Selecting the **Share Spreadsheet** option

Figure 24: Share Spreadsheet Option

- 4 Select the **Share this spreadsheet with other users** check box (Figure 25).
  - 5 Click the **OK** button as shown in Figure 25.
- A LibreOffice **Confirmation** message box appears (Figure 26).
- 6 Click the **Yes** button to activate the sharing mode as shown in Figure 26.

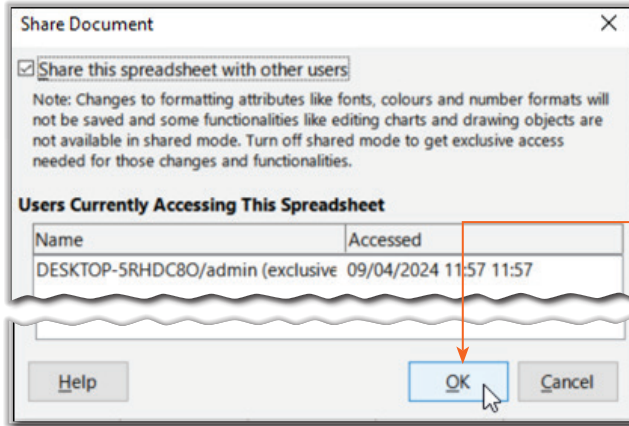


Figure 25: Share Document Dialog Box

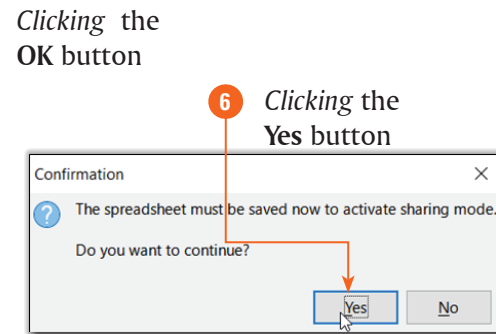


Figure 26: Confirmation Message Box

## Opening and Saving a Shared Spreadsheet

Perform the following steps for opening and saving a shared spreadsheet:

- 1 Click the **File** button from the **Menu** toolbar. A drop-down list appears.
- 2 Select the **Open** option from the drop-down list that appears. An **Open** dialog box appears.
- 3 Navigate the location of the desired file.
- 4 Select the desired file from the location. In our case, we have selected the **Demonstration.ods** spreadsheet.
- 5 Click the **Open** button.

When you open a shared document, the LibreOffice message box appears that shows the spreadsheet is in shared mode. This allows multiple users to access and edit the spreadsheet at the same time, as shown in Figure 27.

- 6 Click the **Save As** option under the **File** button from the **Menu** toolbar. To save the desired file.

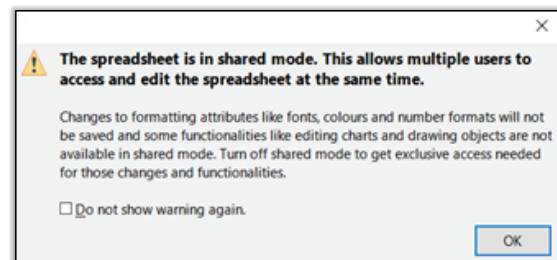


Figure 27: LibreOffice Message Box

## Adding, Editing and Formatting Comments

Perform the following steps for adding, editing and formatting comments:

- 1 Select the cell where the comment will be added. Right-click and choose **Insert Comment**. Enter the comment text and click outside the comment box to save it.
- 2 Right-click the cell with the comment. Choose **Edit Comment**. Modify the comment text and click outside the comment box to save changes.
- 3 Select the text to format, while editing a comment. Use the **Formatting** toolbar to apply formatting (e.g., bold, italics, font size).

### Note

When the cursor is hovering over a cell containing both a change comment and a general comment, a tooltip will display both comments.

## Reviewing Changes – View, Accept or Reject Changes

Perform the following steps for reviewing changes – view, accept or reject changes:

- 1 Click on the **Edit** → **Track Changes** → **Show** to see all tracked changes.
- 2 Click on the **Edit** → **Track Changes** → **Manage Changes**. In the **Manage Changes** dialog box, review each change. Use the **Accept** or **Reject** buttons to accept or reject the changes.

### ACTIVITY



1. Create a spreadsheet that will be shared with team members for a project. Include the following steps:
  - a. One student will upload a spreadsheet to a shared drive or platform.
  - b. The other student will open the shared spreadsheet, make some changes (e.g., add new data, format cells), and save it.

### ASSESS YOURSELF



1. When you open a shared document, a message box indicates that the spreadsheet is in private mode, allowing only one user to access and edit it. (True/False)
2. LibreOffice Calc allows multiple users to work on a spreadsheet simultaneously from a shared network location. (True/False)

## Session 5: Using Macros In Spreadsheet

A macro can be defined as a set of commands or actions that are recorded and then executed in a spreadsheet when required. Macro provides the facility to reuse the recorded action in a spreadsheet several times when required, thereby making your work easier. By using macros, you can reduce the wastage of time in performing repeated tasks.

### Record a Macro in LibreOffice

Recording a macro in LibreOffice Calc allows you to automate repetitive tasks, saving time and reducing errors. Perform the following steps to record a macro:

- 1 Click **Tools** → **Macros** → **Record Macro** to begin recording. A small dialog box with a **Stop Recording** button will appear, indicating that the macro recording is active. Make sure to enable macro recording under **Optional Features**. By default, this feature is turned off in LibreOffice Calc.
- 2 Enter the desired text that you want the macro to execute. For instance, type your name.
- 3 Click the **Stop Recording** button in the small dialog box. This will open the **Basic Macros** dialog box. Open the library container, **My Macros**.
- 4 Locate the library named **Standard within My Macros**.
- 5 Select the **Standard** library and choose an existing module to save the macro. Alternatively, you can create a new module by clicking **New Module**.
- 6 In the **Macro Name** text box at the top left section of the dialog box, enter a name for the macro, such as **EnterMyName**.
- 7 Click **Save** button to save the macro and close the **Basic Macros** dialog box.

### Note



Each library container includes a Standard library.

### DID YOU Know



You can also press **Alt+F11** from the keyboard to open a Basic Macros dialog box.

### Creating a Simple Macro as a Function

Perform the following steps for creating a simple macro as a function:

- 1 Click the **Tools** → **Macros** → **Organize Macros** → **Basic** for opening macros editor. Select **Libraries from Organizer** dialog box. Ensure the **Location** dropdown is set to **My Macros & Dialogs**.



- 2 Click the **New** button, enter a library name (e.g., Library2), and click **OK** button. In the **Modules** tab, expand **My Macros** and select your library (**Library2**). Use the existing **Module1** or create a new module by clicking **New**.
- 3 Select the module (e.g., Module1) and click **Edit** to open the **Integrated Development Environment (IDE)**. Insert your macro code into the module. For example:

```
Sub HelloMacro
    Print Hello
End Sub
Sub Main
End Sub
```

Then click on **Run** or press **F5**. Choose the **HelloMacro** and click on **Run**. The output is shown in Figure 28.

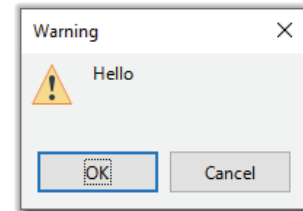


Figure 28: Basic Macros

### Passing Arguments to a Macro

Perform the following steps for passing arguments to a macro:

- 1 Open the macro editor and enter the following code:

```
Function PositiveSum(Optional x)
    Dim TheSum As Double
    Dim iRow As Integer
    Dim iCol As Integer
    TheSum = 0.0
    If NOT IsMissing(x) Then
        If NOT IsArray(x) Then
            If x > 0 Then TheSum = x
        Else
            For iRow = LBound(x, 1) To UBound(x, 1)
                For iCol = LBound(x, 2) To UBound(x, 2)
                    If x(iRow, iCol) > 0 Then TheSum = TheSum + x(iRow, iCol)
                Next
            Next
        End If
    End If
    PositiveSum = TheSum
End Function
```

#### ■ GUESSWho?

I am a set of commands or actions that are recorded and then executed in a spreadsheet when required.

Ans. Macro

- 2 Assign the macro to a button or call it from another macro with **=PositiveSum(7)**.

### Passing Arguments as Values

In LibreOffice Calc, arguments are values or references that you pass to functions in order to perform calculations or operations. Understanding how to use arguments effectively allows users to leverage the full power of spreadsheet functions, making data analysis more efficient and effective. Perform the following steps for passing arguments as values:

- 1 Open the macro editor and enter the following code:

```
Sub MultiplyValues(a As Double, b As Double)
    Dim result As Double
    result = a * b
    MsgBox "The result is " & result
End Sub
```

- 2 Use **MultiplyValues(5, 10)** in the macro editor to see the result.

## Accessing Cells Directly

Perform the following steps for assessing cells directly:

- 1 Open LibreOffice Calc. Click the **Tools** → **Macros** → **Edit Macros** to open the macro editor.
- 2 Create a new module and enter the script for **SumCellsAllSheets** in the macro editor. Enter the following code:

```
Function SumCellsAllSheets()  
    Dim TheSum As Double  
    Dim i As Integer  
    Dim oSheets  
    Dim oSheet  
    Dim oCell  
    TheSum = 0  
    oSheets = ThisComponent.getSheets()  
    For i = 0 To oSheets.getCount() - 1  
        oSheet = oSheets.getByIndex(i)  
        oCell = oSheet.getCellByPosition(0, 1) ' Get cell A2  
        TheSum = TheSum + oCell.getValue()  
    Next i  
    SumCellsAllSheets = TheSum  
End Function
```

- 3 Click the **View** → **Toolbars** → **Form Controls** to show the form controls toolbar for assigning the **Macro** to a button. Click the button icon and draw a button on the spreadsheet.
- 4 Right-click the button and select **Control Properties**. In the **Events** tab, assign the **Execute Action** event to the **SumCellsAllSheets** macro.
- 5 Call the **Macro** from another **Macro** by using the code:

```
Sub CallSumCellsAllSheets()  
    Dim result As Double  
    result = SumCellsAllSheets()  
    MsgBox "The sum of values in cell A2 from all sheets is: " & result  
End Sub
```

- 6 Run the **CallSumCellsAllSheets** macro to ensure it correctly sums the values in cell A2 from all sheets and displays the result in a message box.

## Sorting Columns Using a Macro

Perform the following steps for sorting columns using a macro:

- 1 Open LibreOffice Calc. Enter the following data, as shown in Figure 29.
- 2 Create a new module and enter the code for **SortRange** in the macro editor, as shown below:

```
Sub SortRange  
    Dim oSheet ' Calc sheet containing data to sort.  
    Dim oCellRange ' Data range to sort.  
  
    REM An array of sort fields determines the columns that are  
    REM sorted. This is an array with two elements, 0 and 1.  
    REM To sort on only one column, use:
```

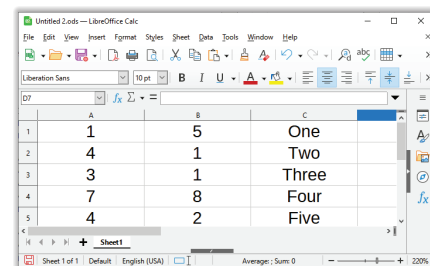


Figure 29: Unsorted Columns

```

REM Dim oSortFields(0) As New com.sun.star.util.SortField
REM Dim oSortFields(1) As New com.sun.star.util.SortField
REM The sort descriptor is an array of properties.
REM The primary property contains the sort fields.
Dim oSortDesc(0) As New com.sun.star.beans.PropertyValue

REM Get the sheet named "Sheet1"
oSheet = ThisComponent.Sheets.getByName("Sheet1")

REM Get the cell range to sort
oCellRange = oSheet.getCellRangeByName("A1:C5")
REM Select the range to sort.
REM The only purpose would be to emphasize the sorted data.
'ThisComponent.getCurrentController.select(oCellRange)

REM The columns are numbered starting with 0, so
REM column A is 0, column B is 1, etc.
REM Sort column B (column 1) descending.
oSortFields(0).Field = 1
oSortFields(0).SortAscending = FALSE

REM If column B has two cells with the same value,
REM then use column A ascending to decide the order.
oSortFields(1).Field = 0
oSortFields(1).SortAscending = TRUE

REM Setup the sort descriptor.
oSortDesc(0).Name = "SortFields"
oSortDesc(0).Value = oSortFields()

REM Sort the range.
oCellRange.Sort(oSortDesc())
End Sub

```

- 3 Save your macro by clicking the save icon or using **File → Save**.
- 4 Click the **Run** icon in the **Macro** toolbar of the **LibreOffice Basic IDE** to execute the macro. The output is shown in Figure 30:

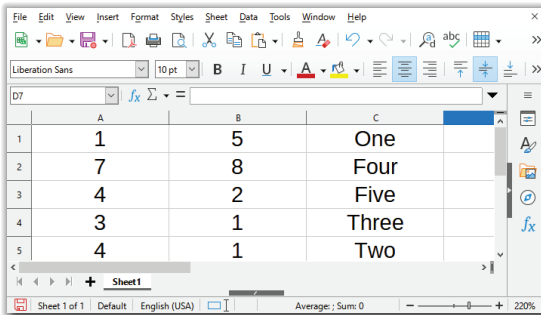



Figure 30: Sorted Columns Using Macros

**ACTIVITY** 

1. Record a macro that performs a series of actions in a database.
2. Create a simple macro that performs a calculation.
3. Develop a macro to sort records in a table based on specified criteria.

### ASSESS YOURSELF

1. .... are values or references that you pass to functions in order to perform calculations or operations.
2. The macro recording feature is enabled by default in LibreOffice Calc. (True/False)

# Summary

- Data analysis in LibreOffice Calc involves organizing, interpreting, and visualizing data using features such as formulas, functions, and charts.
- Consolidating data combines data from multiple sheets or ranges into a single summary.
- Subtotals in LibreOffice Spreadsheet are intermediate summaries that help break down data into smaller, manageable sections for better analysis and understanding.
- A What-If scenario is a collection of variables that can be plugged into a spreadsheet's calculations.
- What-If tools in LibreOffice Spreadsheets are powerful features designed to analyze and forecast potential outcomes by altering the input data and observing the resulting changes.
- Goal Seek in LibreOffice Spreadsheet is a powerful tool used for What-If analysis.
- The Solver in LibreOffice Spreadsheet is a tool used for optimizing complex decision-making problems by adjusting variables to achieve a desired outcome, such as maximizing profits or minimizing costs.
- Multiple sheets in LibreOffice Spreadsheet allow users to manage and organize data across several separate tabs within one file.
- A hyperlink in LibreOffice Calc is a clickable link that navigates to a web page, another sheet, a specific cell, or an external document.
- A macro can be defined as a set of commands or actions that are recorded and then executed in a spreadsheet when required.
- Recording a macro in LibreOffice Calc allows you to automate repetitive tasks, saving time and reducing errors.



## KEY TERMS

- **LibreOffice Calc:** A spreadsheet application within the LibreOffice suite, used for creating, editing and managing spreadsheets.
- **Consolidating data:** The process of combining data from multiple sources or ranges into a single summary view or report.
- **Comments:** The comments in LibreOffice Calc can be used for collaboration or to explain the purpose of specific data points.
- **Spreadsheet:** A digital grid consisting of rows and columns used for organizing, analyzing and storing data.
- **Data tables:** Data tables can be used to perform various calculations and analyses, such as generating summary statistics.
- **Solver:** An optimization tool used to find the best solution for a problem by changing variables to meet specific criteria.
- **Linking:** The process of connecting data or cells between different sheets or workbooks, so that changes in one location are automatically reflected in another.
- **Hyperlink:** A clickable link within a spreadsheet that directs users to another location within the same document, a different document or a web page.
- **Macros:** An automated sequence of instructions recorded and saved to perform repetitive tasks in spreadsheets, often used to streamline processes and improve efficiency.
- **Arguments:** Values or references used in functions or formulas to perform calculations.



## PRACTICE QUESTIONS

### Solved Questions

#### Multiple-Choice Questions (MCQs)

1. Which menu option should you select to create a hyperlink in LibreOffice Calc?  
a. Format                      b. Insert  
c. Data                         d. Tools
2. Which component in LibreOffice Calc allows you to move the worksheet in a vertical direction?  
a. Vertical scrollbar        b. Horizontal scrollbar  
c. Zoom controls            d. Status bar
3. Which section allows you to specify the function used for calculations when creating subtotals?  
a. Group by                    b. Calculate subtotals for  
c. Use function                d. Select range
4. Which button do you click to finalize the results and apply the solution when using Solver?  
a. Restore Previous        b. Keep Result  
c. Cancel                      d. Solve
5. Which dialog box allows you to name and save your macro after recording a macro?  
a. Save As Dialog Box  
b. Module Dialog Box  
c. Macro Options Dialog Box  
d. Basic Macros Dialog Box

#### ANSWERS

1. b.      2. a.      3. c.      4. b.      5. d.

#### Very Short Answer Questions

1. How can you quickly sum a column of numbers in LibreOffice Calc?  
Ans. Select the column, then click the “AutoSum” button on the toolbar.
2. What is a cell in spreadsheet software?  
Ans. A cell is a single data unit in a grid, identified by a column letter and row number.
3. How can you view a comment in LibreOffice Calc?  
Ans. Hover over the cell with the comment, and it will appear as a tooltip.
4. What is the purpose of the Subtotals feature in LibreOffice Calc?  
Ans. To summarize data by grouping and calculating subtotals for selected columns.
5. What does Goal Seek do in LibreOffice Calc?

Ans. It finds the input value needed to achieve a specific output value in a formula.

#### Short Answer Questions-I

1. How can you use a data table to perform a sensitivity analysis?  
Ans. Select the range of cells that include your input and output values. Go to Data > Data Table, and specify the row or column input cell. The table will automatically compute the output values based on the input variations.
2. What is the benefit of linking data between spreadsheets in LibreOffice Calc?  
Ans. Linking data between spreadsheets allows for dynamic updates. Changes made in the source spreadsheet are automatically reflected in the target spreadsheet, ensuring consistency and reducing manual data entry.
3. How can you format a comment in LibreOffice Calc?  
Ans. To format a comment, right-click the cell with the comment, select “Edit Comment,” then use the formatting options in the toolbar or right-click within the comment box to format text and adjust the comment’s appearance.
4. How can you record a macro in LibreOffice Calc?  
Ans. To record a macro in LibreOffice Calc, go to “Tools” > “Macros” > “Record Macro.” Perform the actions you want to record, and then click “Stop Recording.” Save the macro with a name and assign it to a specific function or shortcut if needed.
5. How can you edit an existing hyperlink in LibreOffice Calc?  
Ans. To edit an existing hyperlink, right-click on the cell containing the hyperlink, choose “Edit Hyperlink” from the context menu, make the necessary changes in the dialog box, and click “Apply” or “OK” to save the changes.

#### Short Answer Questions-II

1. How do you pass arguments to a macro in LibreOffice Calc?  
Ans. To pass arguments to a macro in LibreOffice Calc, you use the ParamArray in the macro definition. Define the macro with a parameter list, such as Sub MyMacro(ParamArray args()). When calling the macro, provide the arguments as a comma-separated list. Inside the macro, access arguments using the args array, e.g., args(0) for the first argument.
2. How can you sort a column in LibreOffice Calc using a macro?  
Ans. To sort a column using a macro in LibreOffice Calc, first, you need to record or write a macro. Start by selecting the column you wish to sort. Go to Tools > Macros > Record Macro, and perform the sorting action via Data > Sort. After recording, stop the macro recording and save it. The macro script will include the sort operation, which you can run to sort the column automatically.

3. How can you edit or remove a hyperlink in a LibreOffice Spreadsheet?

Ans. To edit or remove a hyperlink in a LibreOffice Spreadsheet, right-click on the cell containing the hyperlink and select "Hyperlink" from the context menu. For editing, in the "Insert Hyperlink" dialog box, you can modify the URL or display text as needed. After making changes, click "Apply" and then "Close" to update the hyperlink. To remove the hyperlink, right-click the cell, choose "Hyperlink," and then click "Remove Link" in the dialog box that appears. This action will delete the hyperlink while keeping the text in the cell intact.

4. How do you create a simple formula in LibreOffice Calc?

Ans. To create a simple formula in LibreOffice Calc, start by selecting the cell where you want the result to appear. Enter an equal sign (=), followed by the formula. For example, to add the values in cells A1 and B1, you would type =A1+B1. Press Enter to calculate the result, which will be displayed in the selected cell.

5. How can you consolidate data from multiple sheets into one using the "Consolidate" function in LibreOffice Calc?

Ans. To consolidate data from multiple sheets, first, select the cell where you want the consolidated data to appear. Then, go to Data > Consolidate. In the Consolidate dialog, choose the function (e.g., Sum, Average) and click Add to select the ranges from each sheet. After adding all ranges, click OK to consolidate the data into the selected cell.

### Long Answer Questions

1. How can Goal Seek be applied to financial forecasting in LibreOffice Spreadsheet?

Ans. In financial forecasting, Goal Seek in LibreOffice Spreadsheet can be invaluable for determining the required inputs to meet specific financial targets. For instance, suppose you are preparing a financial model to forecast the future value of an investment based on variable interest rates. You might have a formula calculating the future value of an investment based on the initial amount, interest rate, and time period. If you want to determine what interest rate is needed to achieve a target future value, you can use Goal Seek. First, ensure your formula is correctly set up in your spreadsheet. Then, navigate to Tools > Goal Seek and enter the following details: set the target cell to the cell containing the future value formula, specify the target value you want to achieve, and indicate the cell that represents the interest rate. Goal Seek will then adjust the interest rate until the future value matches your target. This method allows for precise financial planning and scenario analysis by automatically solving for unknown variables that will help achieve desired financial outcomes.

2. Describe how you can use formulas and functions in LibreOffice Calc to perform data analysis, and provide an example of a common analytical function.

Ans. Formulas and functions in LibreOffice Calc are essential for performing data analysis as they allow users to perform

complex calculations, automate repetitive tasks, and derive meaningful insights from datasets. To use a formula, you start by selecting a cell and entering an equal sign (=), followed by the desired formula. For example, if you want to calculate the sum of values in a range of cells, you would use the SUM function: =SUM(A1:A10). A common analytical function is the AVERAGE function, which calculates the mean of a range of values. For instance, if you have a list of monthly expenses in cells B1 through B12, you can determine the average monthly expense with the formula =AVERAGE(B1:B12). This function helps in understanding trends and making budgetary decisions by providing a central value that represents the typical expense.

3. How can you use the What-If analysis feature in LibreOffice Calc to evaluate different financial outcomes based on varying interest rates and loan terms?

Ans. In LibreOffice Calc, the What-If analysis feature allows you to explore various scenarios by adjusting input values to see how these changes affect your financial outcomes. For instance, to evaluate different financial outcomes based on varying interest rates and loan terms, you would start by setting up a basic loan calculation model. Create a spreadsheet where you input the principal amount, interest rate, and loan term. Use formulas to calculate monthly payments and total interest paid based on these inputs. Next, implement the Scenario Manager to define different scenarios. Enter varying interest rates and loan terms as separate scenarios, and link these to your calculation model. By switching between scenarios, you can observe how changes in interest rates or loan terms affects your monthly payments and total interest. This analysis helps in making informed financial decisions by comparing how different conditions affect your overall financial commitments.

4. What is Solver in LibreOffice Calc, and how can it be used to optimize a business problem?

Ans. Solver in LibreOffice Calc is an advanced optimization tool that helps users find the best solution for complex decision-making problems by adjusting multiple variables. It is particularly useful for optimizing business problems, such as determining the most cost-effective way to allocate resources or maximize profits. To use Solver, you need to define an objective cell, which is the cell that contains the formula you want to optimize (e.g., total profit). You then specify the decision variable cells, which are the cells that Solver can change to achieve the desired outcome. Additionally, you can set constraints to ensure that the solution adheres to certain restrictions or limits, such as budgetary constraints or resource limits. For example, if a company wants to maximize its profit by deciding how many units of different products to produce, Solver can help by adjusting the production quantities to maximize total profit while meeting constraints like production capacity and budget. By running Solver, users receive an optimal solution that satisfies the objective function and constraints, thus aiding in informed and effective business decisions.

5. How can you set up multiple sheets in LibreOffice Calc, and what are the benefits of organizing data across different sheets?

**Ans.** To set up multiple sheets in LibreOffice Calc, you start by creating a new spreadsheet or opening an existing one. Then, to add additional sheets, click the “+” button next to the sheet tabs at the bottom of the window. Each new sheet is initially named “Sheet1,” “Sheet2,” etc., but you can rename them by right-clicking on the sheet tab and selecting “Rename.” This allows you to give each sheet a meaningful name related to its content. Organizing data across multiple sheets can greatly enhance the management and clarity of complex projects. For instance, you might use separate sheets for different months in a financial report or different departments in a company’s budget. This separation helps to keep data organized, reduces clutter, and allows for easier navigation and reference. By using formulas and references between sheets, you can also aggregate data from multiple sheets, making analysis and reporting more streamlined and efficient.

### Higher Order Thinking Skills (HOTS) Questions

1. John is applying a formula and wants to start from cell B5 but accidentally starts from cell A1. How can he quickly move the active cell to B5?

**Ans.** John can click directly on cell B5 to make it active or press Ctrl + G, type B5, and press Enter to jump directly to the cell.

2. Sarah needs to determine how changes in sales volume affect her company’s revenue. How can Sarah use What-If tools in LibreOffice Calc to analyze different sales volume scenarios?

**Ans.** Sarah can use the Scenario Manager to create and compare various sales volume scenarios, assessing how each affects revenue projections.

3. Alex wants to simplify data entry for a weekly sales report. How can Alex use a macro to enhance data entry efficiency in LibreOffice Calc?

**Ans.** Alex can create a macro to insert predefined templates, validate inputs, and auto-fill cells, streamlining the data entry process for his weekly sales reports.

### Assignment

#### Multiple-Choice Questions (MCQs)

1. In the Consolidate dialog box, which section allows you to choose the type of calculation for consolidation?
- Range
  - Function
  - Data
  - Sheet

2. Which of the following What-If tools in LibreOffice Spreadsheets is used to find the input value needed to achieve a desired result in a formula?

- Data Tables
- Scenarios
- Goal Seek
- Solver

3. After selecting the ‘Hyperlink’ option, which button allows you to link to an external document?

- Folder button
- Document button
- Web button
- Email button

4. Which feature does LibreOffice Calc provide to allow multiple users to work on a spreadsheet at the same time?

- Protected Sheet
- Lock Sheet
- Track Changes
- Share Spreadsheet

5. Which menu option allows you to create subtotals in LibreOffice Spreadsheets?

- Data
- Insert
- Tools
- View

### Very Short Answer Questions

- What is LibreOffice Calc?
- What is data analysis?
- What do you understand by What-If scenario?
- What symbol is used to separate the sheet name and cell reference in LibreOffice Calc?
- What is the purpose of the “Target” field in the Hyperlink dialog box in LibreOffice Calc?

### Short Answer Questions-I

- What is the purpose of the Solver tool in LibreOffice Calc, and how can it be used for scenario analysis?
- What are the steps to create a reference to a cell in a different LibreOffice Calc document?
- How do you create a hyperlink to an external sheet within a LibreOffice Calc document?
- What is the process for grouping data and inserting subtotals in LibreOffice Calc?
- What is the function of the ‘Data Pilot’ feature in analyzing data within LibreOffice Calc?

## Short Answer Questions-II

1. What steps are involved in hyperlinking registered data sources in LibreOffice Calc?
2. How can the 'Goal Seek' function in LibreOffice Calc be used to find the necessary input value to achieve a desired outcome?
3. What is the primary function of macro with examples?
4. What is the purpose of the 'Load Styles' feature in the Styles and Formatting window?
5. How can you customize subtotals in LibreOffice Calc to accommodate different types of data analysis needs, and what are the implications for data presentation?

## Long Answer Questions

1. How can you troubleshoot and update hyperlinks to external sheets or workbooks in LibreOffice Calc if the external files are moved or renamed, and what are the best practices for managing such links?
2. Explain how you can pass arguments to a macro in LibreOffice Calc and describe the steps involved in creating a macro that takes parameters.
3. Describe the process of consolidating data from multiple worksheets into a single summary worksheet in LibreOffice Calc. Include steps for both using the built-in consolidation feature and manual methods.
4. Explain how to use the What-If analysis feature in LibreOffice Calc to assess the impact of varying different input values on a financial model. Provide a step-by-step guide on setting up a scenario where you want to evaluate how changes in interest rates

and loan amounts affect the monthly payments of a loan.

5. Discuss the limitations of Goal Seek in LibreOffice Calc. In what situations might Goal Seek not provide an optimal solution, and how could you address these limitations using other tools or methods available in LibreOffice Calc?

## Lab Activities

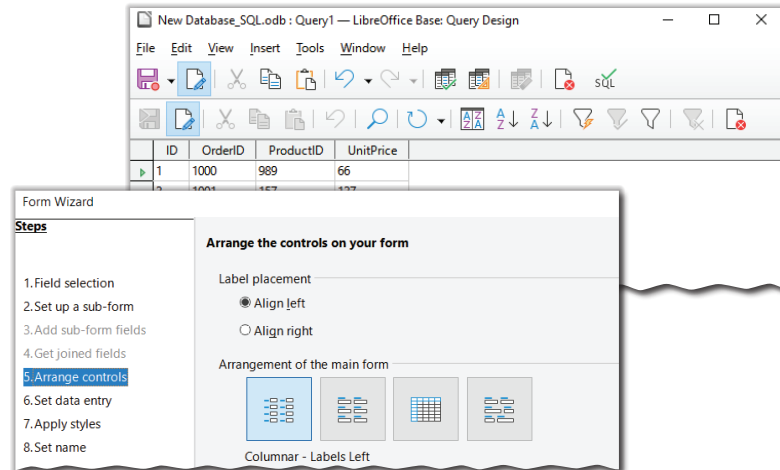
1. You are tasked with consolidating data from multiple departments within a company using LibreOffice Calc. Each department (Sales, Marketing, and Finance) has separate spreadsheets containing quarterly revenue figures. Your goal is to consolidate the data into one master sheet to get an overall picture of the company's performance. Open the individual spreadsheets and use the "Data > Consolidate" feature to merge the quarterly figures by selecting the relevant ranges. Ensure that the data is consolidated based on the same row and column labels. After consolidation, analyze the total revenue by department for each quarter and create a summary report that displays the company's overall performance.
2. Imagine you are tasked with preparing a financial report for BrightStar Finance. The report includes links to external documents, such as detailed expense reports and external websites for additional information. You need to add hyperlinks in your LibreOffice Calc spreadsheet to external files located on your computer and URLs of relevant financial sites. Explain how you would create both types of hyperlinks in the spreadsheet and demonstrate how users can open the linked files and websites directly from the document.



# UNIT 8A

## THIS UNIT COVERS

- Appreciate the concept of database management system
- Create and edit tables using Wizard and SQL commands
- Perform operations on table
- Retrieve data using query
- Create forms and report using Wizard



## Database Management System using LibreOffice Base

### Introduction

A Database Management System (DBMS) is software that enables the creation, management, and manipulation of databases. It provides a systematic and organized way to store, retrieve and manage data in a database, ensuring that the data is easily accessible, secure, and consistently maintained. A DBMS abstracts the complexities of data storage, allowing users to interact with the data using queries reports, and other tools without needing to understand the underlying architecture.

Key functions of a DBMS include data storage, retrieval, update and administration. It supports various types of databases, such as relational, hierarchical, network, and object-oriented databases. A relational DBMS (RDBMS), which uses tables to represent data, is the most common type. The DBMS also enforces data integrity, ensuring that data is accurate and consistent, and provides tools for data backup, recovery and security.

In this unit, you learn about how to create a database. Next, you learn how to create a Table in Base. After this, you learn to perform operations on a table. Towards the end, the chapter discusses how to create a query, form and report in LibreOffice Base.

## Session 1: Creating a Database

LibreOffice Base allows you to design and manage databases with ease. You can create tables, forms, queries and reports to organize and retrieve data efficiently. The process begins by defining a new database file and selecting the appropriate database type (e.g., embedded HSQLDB). You can then create tables to store your data, define relationships between them, and use forms to enter and manage the data. Queries allow you to extract specific information, and reports help present the data in a structured format. LibreOffice Base provides a user-friendly interface, making database management accessible even to users with limited technical knowledge.

Perform the following steps to create a database:

- 1 Click the LibreOffice icon to open the LibreOffice Start Center on your desktop or in the Start menu. In the LibreOffice Start Center, you will see various application icons, such as Writer, Calc, Impress, and Base.
- 2 Click the **Base Database** option from the list of available applications. A **Database Wizard** dialog box appears, as shown in Figure 1.
- 3 Select the **Create a new database** radio button Figure 1.
- 4 Click the **Next** button, as shown in Figure 1.

The **Decide How to Proceed After Saving the Database** page appears, as shown in Figure 2.

- 5 Select the **Yes, register the database for me** option (Figure 2).
- 6 Click the **Finish** button, as shown in Figure 2.

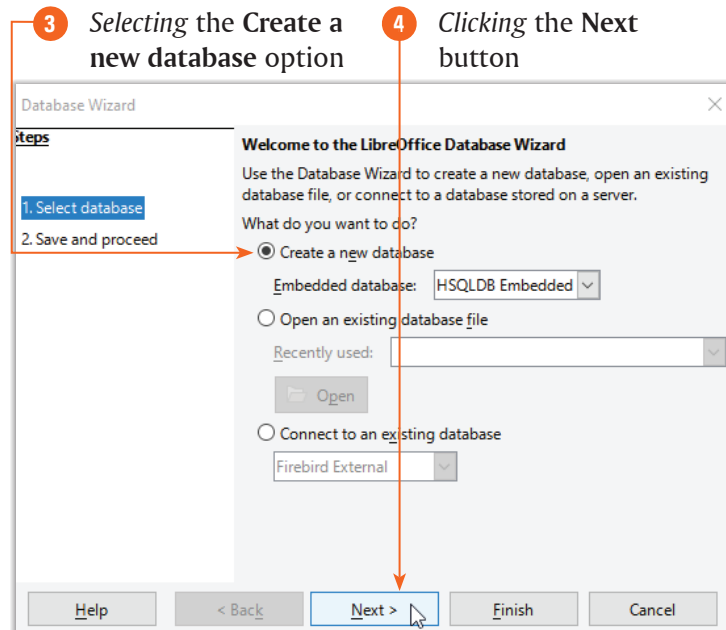


Figure 1: Creating a New Database

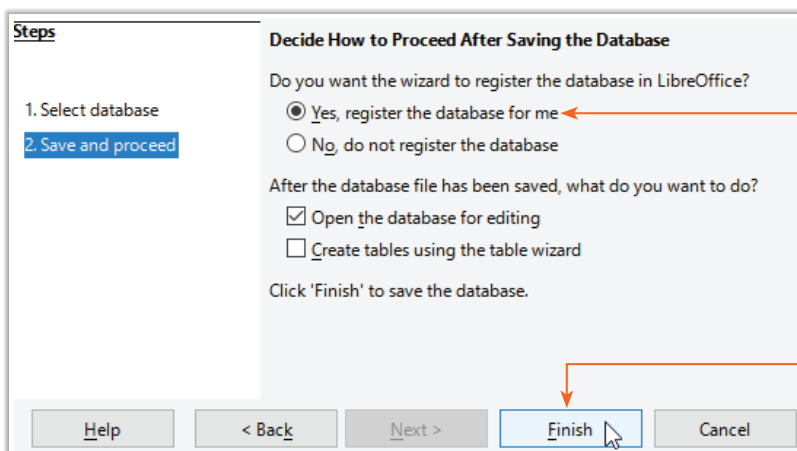


Figure 2: Deciding How to Proceed After Saving the Database

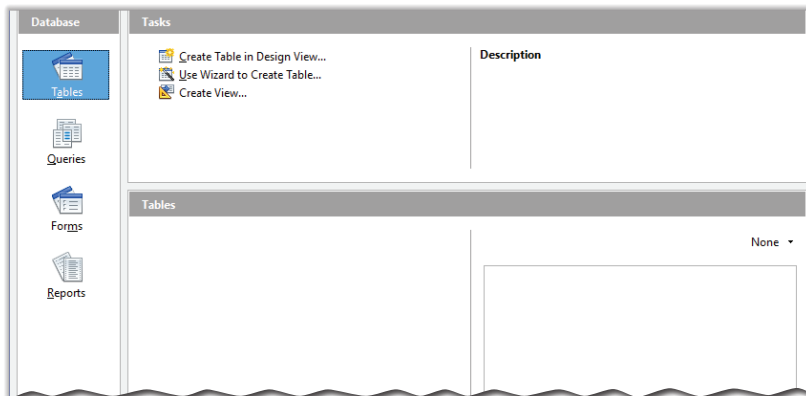
### ■ GUESSWho?

I am a bar that shows the progress of any task being performed on the database.

Ans. Status bar

A **Save As** dialog box appears.

- 7 Select the location in the **Navigation** pane where you want to save the database. In our case, we have selected **Desktop**.
- 8 Type the name of the document in the **File name** combo box. In our case, we have typed **My Database**.
- 9 Click the **Save** button. The desired database is saved with the specified name, as shown in Figure 3.



**Figure 3:** Displaying a Database in the OpenOffice Base Window

### Quick Quiz

Which of the following is software that enables the creation, management, and manipulation of databases?

- a. Database Management System
- b. Relational Database Management System
- c. HyperSQL Database
- d. NoSQL Database

Ans. a. Database Management System

## Closing the Database and Quitting the LibreOffice Base Application

When you finish working with a database in LibreOffice Base, it's important to close it properly to ensure that your data is saved and to prevent any potential corruption.

Perform the following steps to close a database:

- 1 Click the **File** button from the **Menu** toolbar. A drop-down list appears.
- 2 Select the **Close** option from the drop-down list.

The current database gets closed, and the **LibreOffice Base** window appears.

In LibreOffice Base, quitting a database involves closing the application or ending your current database session. Perform the following steps to quit a database:

- 1 Click the **File** button from the **Menu** toolbar. A drop-down list appears.
- 2 Select the **Exit LibreOffice** option from the drop-down list. The LibreOffice Base application gets closed.

## Opening an Existing Database

Perform the following steps to open an existing database document:

- 1 Click the **File** button from the **Menu** toolbar. A drop-down list appears.
- 2 Select the **Open** option from the drop-down list.
- 3 Navigate to the location where your database file is stored. In our case, we have selected **Desktop**.
- 4 Select the desired database document that you want to open. In our case, we have selected **My Database**.
- 5 Click the **Open** button to load the selected database document.

## ASSESS YOURSELF

1. .... allow you to extract specific information, and reports help present the data in a structured format.
2. The Database Object buttons are found at the bottom of the LibreOffice Base window. (True/False)

## Session 2: Creating a Table in Base

In LibreOffice Base, a database table organizes data into rows and columns. Rows represent records, while columns define specific fields. Creating a table involves setting field names, data types, and constraints like primary keys. Base provides a user-friendly interface for creating, managing, querying, and manipulating data efficiently.

### DEFINITION

The Wizard in LibreOffice Base is a user-friendly tool designed to simplify the process of creating and managing database elements, such as tables, queries, forms, and reports.

### Creating Using Wizard

The Wizard simplifies table creation by guiding users through steps with predefined templates for common scenarios like contacts or invoices. Users can customize fields, define field types, set primary keys, and establish relationships. It ensures a structured approach, making it ideal for beginners to create tables ready for data entry.

Perform the following steps to create a table using Wizard:

1. Open a new or existing database in which you want to create a table.
2. Click the **Tables** option from the left sidebar.  
Various options related to the selection are displayed in the **Tasks** pane.
3. Select the **Use Wizard to Create Table** option under the **Tasks** pane. The **Table Wizard** window appears (Figure 4).
4. Select the desired option under the **Category** section from the **Select fields** for your table page. In our case, we have selected **Business**, as shown in Figure 4.
5. Click the down arrow button in the **Sample tables** (Figure 4). A drop-down list appears (Figure 5).
6. Select the desired **Sample tables** from the drop-down list. In our case, we have selected **Employees**, as shown in Figure 5.

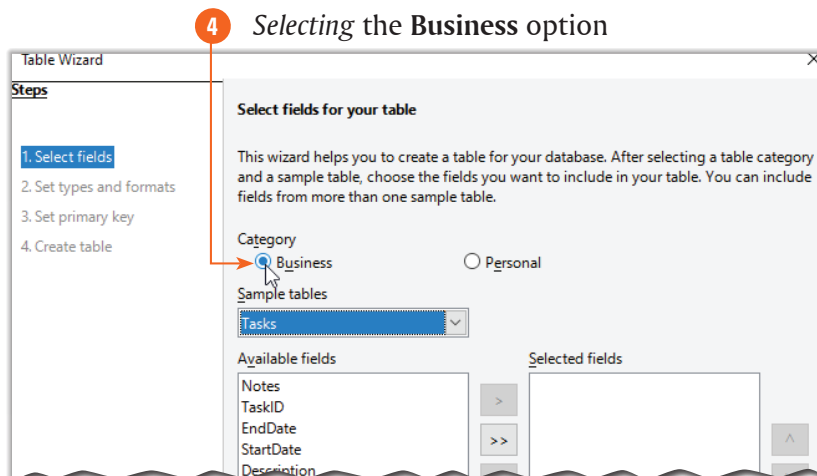


Figure 4: Select Category for Your Table Page

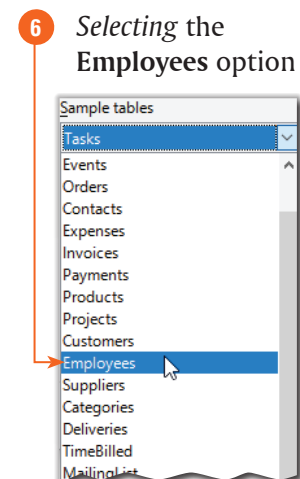


Figure 5: Select Fields for Your Table Page

- 7 Move the fields from the **Available Fields** shelf by using (>>) buttons, and then click the **Finish** button to finish setting up table using **Wizard**. The window to add records in the table will open next.

### ACTIVITY

1. Create a new database and save it with the name School\_Database.
2. Create a table using the Wizard in LibreOffice Base and add the following fields to your table:
 

a. ID	c. Last Name	e. Phone Number
b. First Name	d. Email Address	f. Date Joined
3. Create a student database and a table using the Design View feature in LibreOffice Base.

### ASSESS YOURSELF

1. .... in LibreOffice Base is a methodical process that allows for precise control over the structure of a database table.
2. The Wizard in LibreOffice Base allows users to define field types and set primary keys. (True/False)

## Session 3: Operations on Table

Tables are the fundamental structures used to store data in a relational database, such as those created in LibreOffice Base. They consist of rows (records) and columns (fields), where each field represents a specific attribute of the data (e.g., name, age, salary), and each row represents a single record containing data values. Operations on tables in LibreOffice Base refer to the various tasks you can perform to manage, manipulate, and analyze your data.

### Entering Records in a Table

Perform the following steps to enter records in a table:

- 1 Open a new or existing database in which you want to create a table.
- 2 Click the **Tables** → **Create Table in Design View** option under the **Tasks** pane.
- 3 Click in the first empty row at the bottom of the table to begin entering your data.
- 4 Type **Employee\_Id** in the Field Name.
- 5 Press the Enter key to move to the **Field Type** column. In the **Field Type** column, the **Text [VARCHAR]** field type is selected by default.
- 6 Click the down arrow button in the **Field Type**. A drop-down list appears.
- 7 Select the **Number [NUMERIC]** fields type from the dropdown list. Similarly, you can define the various fields and their types in the **Table Design window**.
- 8 Click the **Save** button from the quick access toolbar to save the current file manually.

Once you have finished entering all your records, you can close the table by clicking the **X** in the upper-right corner of the table window. This will open the table in a spreadsheet-like view, as shown in Figure 6.

#### Quick Quiz

\_\_\_\_\_ is a structured format that stores data in rows and columns, allowing for organized and efficient data management.

Ans. Table

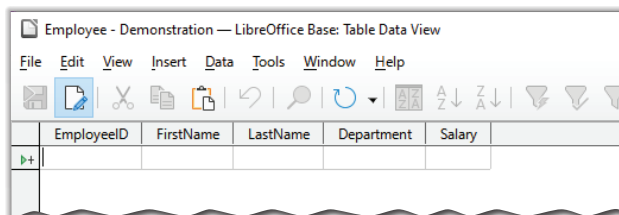


Figure 6: Spreadsheet View for Entering Records

- 9 Click on the first cell to the enter data. The cursor will appear in the cell.
- 10 Type the desired data for each field in the record. The record entered is shown in Figure 7:

	EmployeeID	FirstName	LastName	Department	Salary
▶	101	Shashank	Mittal	QA	25000
	102	Kajal	Jain	IT	30000
	103	Priyanka	Verma	HR	15000
	104	Varun	K	R&D	32000
	105	Nishel	Rakshita	Management	29000
+					

**DID YOU Know?** You can also press **Ctrl + -** (minus key) to delete the selected row. Alternatively, you can press **Delete** after selecting the row.

Figure 7: Entering Records in the Table

- 11 Click on the Save icon in the toolbar or press **Ctrl + S** on the keyboard to save the data.

## Editing and Deleting Records in a Table

Perform the following steps for editing or deleting records in the table:

- 1 Double-click on the table you want to edit. In our case, we have double-clicked on **Employee-Demonstration**.

The table will open in **Data View**, where you can see all the records.

- 2 Right-click on the desired cell to edit the current data.

- 3 Type the new value or make the necessary changes.

	103	Priyanka	Verma	HR	15000
	104	Varun	K	R&D	32000
▶	105	Nishel	Rakshita	Management	29000
+					

Figure 8: Editing Records in the Table

- 4 Press the **Enter** key from the keyboard to save the changes, as shown in Figure 8.
- 5 Click on the row header (the grey box on the left of the row) to select the entire row.
- 6 Right-click on the desired row header. A drop-down list appears.
- 7 Select the **Delete Rows** option from the drop-down list, as shown in Figure 9.

	EmployeeID	FirstName	LastName
	101	Shashank	Mittal
	102	Kajal	Jain
	103	Priyanka	Verma
	104	Varun	K
			Rakshita

Table Format...

Row Height...

Copy

Delete Rows

- 7 Selecting the **Delete Rows** option

Figure 9: Deleting Records in the Table

**GUESS Who?** I am a fundamental structure used to store data in a relational database, such as those created in LibreOffice Base.

Ans: Tables

The **LibreOffice** message box appears, asking you to confirm the deletion.

- 8 Click the **Yes** button to delete the record.

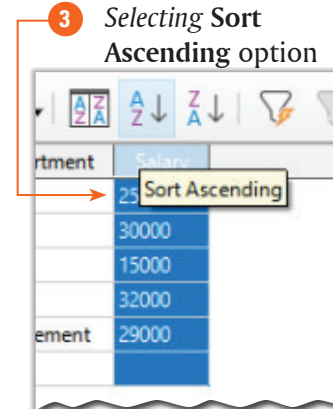
## Sorting Records in a Table

Sorting in LibreOffice Base allows users to organize records in a table by arranging them in ascending or descending order based on specific fields, such as names, dates, or numbers. This operation helps in managing data efficiently, making it easier to identify trends and locate information. Users can sort

directly from the Datasheet View using toolbar buttons or use the “Sort” dialog for multi-level sorting, offering flexibility in handling complex datasets.

Perform the following steps for sorting records in a table:

- 1 Select the desired column/row header of the field you want to sort.
- 2 Click on the **Salary** tab in the **Table Data View**.
- 3 Click on the desired sorting button from the **Formatting** toolbar. In our case, we have selected **Ascending Order**, as shown in Figure 10.



**Figure 10:** Sorting Salary in Ascending Order

### ASSESS YOURSELF

1. In LibreOffice Base, relationships help to maintain data integrity and avoid redundancy by establishing connections between tables. (True/False)
2. .... define the characteristics and behavior of data within a table's columns in LibreOffice Base.

### ACTIVITY

1. Create a new database for a small library system. Define a table named Books with the following fields:
  - a. Book ID (Integer, Primary Key)
  - b. Title (Text, Required)
  - c. Author (Text, Required)
  - d. Publication Year (Integer)
  - e. Genre (Text)

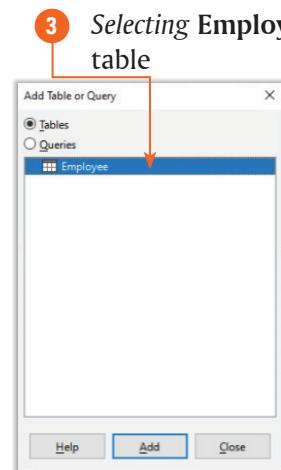
## Session 4: Creating Query in LibreOffice Base

Creating a query in LibreOffice Base allows you to retrieve and manipulate data from one or more tables. Queries enable you to filter, sort, and summarize information according to specific criteria, providing customized views and reports to better analyze and understand your database data.

### Creating Query in Design View

Perform the following steps to create a query in the design view:

- 1 Open a new or existing database in which you want to create a table.
- 2 Click the **Queries** → **Create Query in Design View** option under the **Tasks** pane. The **Add Table or Query** dialog box appears.
- 3 Select the **Tables** radio button that you want to use in your new query. In our case, we have selected **Employee** table, as shown in Figure 11.
- 4 Click the **Add** button to add the table. The selected table is added to the **Query Design** window.
- 5 Click the **Close** button to close the **Add Table or Query** dialog box.
- 6 Select the desired fields that you want to include in your query from the tables listed in the top section. In our case, we have selected **EmployeeID, FirstName, LastName, Department, and Salary**.
- 7 Enter criteria in the Criteria row for the corresponding field to filter the data in the lower part of the **Query Design View**. Here, criteria for **Department IT** are used, and for **Salary <50000** are used.



**Figure 11:** Adding Table for Query

- Click on the **Run Query** icon (a green checkmark) in the toolbar to see the query results. The output is shown in Figure 12.

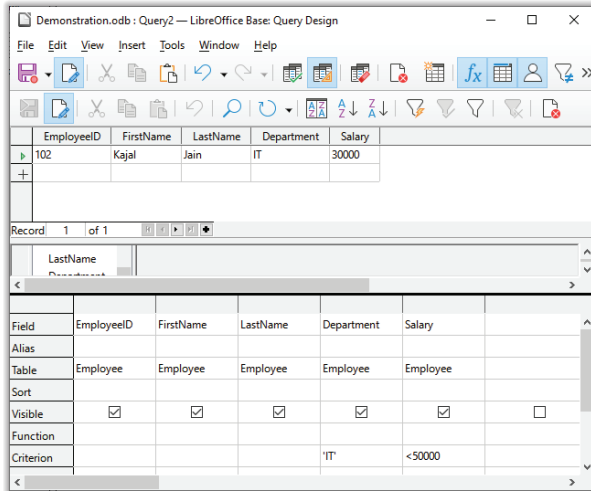


Figure 12: Query in Design View

**Quick Quiz**

\_\_\_\_\_ allows users to organize records in a table by arranging them in ascending or descending order based on specific fields, such as names, dates, or numbers.

Ans. Sorting

## Creating Query with Wizard

Perform the following steps for creating a query using the Wizard:

- Open the **Tables** drop-down menu in the **Query Wizard – Field Selection** step.
- Move desired fields from **Available fields** to **Fields in the Query** by selecting them and clicking the >> button.
- Click the **Next** to go to the **Sorting Order** step, and select **Employee Salary** in Ascending order.

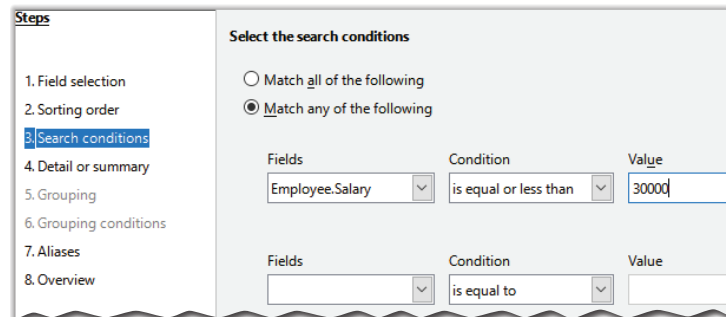


Figure 13: Search Condition of the Query

- Click the **Next** button to reach the **Search Conditions** step. Set conditions to filter data, selecting the field, condition, and value to compare. Add multiple conditions if needed as shown in Figure 13.
- Click the **Next** button to go to the **Grouping** step (if grouping is required). Select fields to group by and set any aggregate functions (e.g., SUM, AVG).
- Click the **Next** button to reach the **Detail or Summary** step, and choose between a detail or summary query.
- Click the **Next** button to reach the **Alias** step and assign aliases if desired.
- Click the **Next** button to reach the **Overview** step. Review selections and click **Back** to make changes if needed.
- Click the **Finish** button to save the query, enter a name, and click **OK** button. The output is shown in Figure 14.

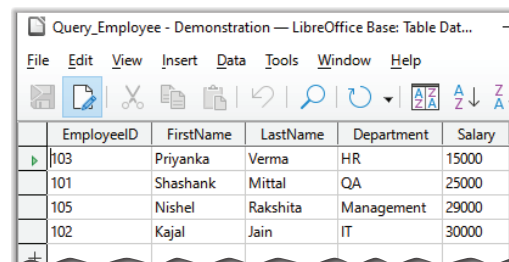


Figure 14: Query Using Wizard



## Handling Query with SQL Commands

Perform the following steps for handling query using SQL commands:

- 1 Go to the **Tables** section in LibreOffice Base and click on **Create Table in Design View**. Define the table structure as shown below and save the table as **InvoiceDetails**.

Enter the data provided below in the **InvoiceDetails** table, as shown in Table 1.

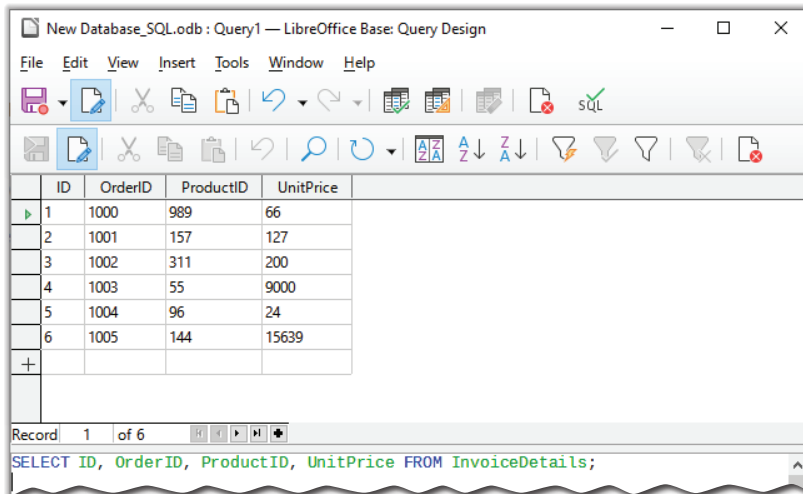
**Table 1:** InvoiceDetails Table

ID	ORDERID	PRODUCTID	UNITPRICE	QUANTITY	DISCOUNT
1	1000	989	66	2	10
2	1001	157	127	6	13
3	1002	311	200	1	10
4	1003	55	9000	8	10
5	1004	96	24	10	12
6	1005	144	15639	2	10

- 2 Go to the **Queries** section and click on **Create Query in SQL View**. Enter your SQL query for **SELECT** command. The outputs are shown in Figure 15 respectively.

### SQL Query 1

```
SELECT ID, OrderID, ProductID, UnitPrice FROM InvoiceDetails;
```



**Figure 15:** SQL Query 1

### ACTIVITY

1. Create a query in Design View that retrieves a list of employees from the "Employee" table, displaying only the fields "Employee Name," "Department," and "Salary."
2. Write an SQL command to display the "Customer Name" and "Order Date" from the "Orders" table where the order amount is greater than 500.

## ASSESS YOURSELF

1. .... in a query are conditions used to filter records from a table.
2. Queries in LibreOffice Base do not allow you to filter, sort or summarize information. (True/False)

## Session 5: Creating Form in LibreOffice Base

In LibreOffice Base, forms are user-friendly interfaces for entering, viewing and editing data in your database tables. Creating a form simplifies data management by allowing you to interact with multiple fields at once. You can design a form using the Form Wizard, which guides you step-by-step in selecting fields, layout and style. Alternatively, forms can be customized in Design View for advanced formatting. Forms are essential for enhancing the usability and functionality of your database.

## Creating Form Using Wizard

Perform the following steps to create a form using Wizard:

- 1 Open a new or existing database in which you want to create a table.
- 2 Click the **Forms** option from the left sidebar. Various options related to the selection are displayed in the **Tasks** pane.
- 3 Select the **Use Wizard to Create Form** option under the **Tasks** pane. The **Form Wizard** window appears.
- 4 Select the desired table from the **Tables or queries** drop-down list. In our case, we have selected **Employees\_details**.
- 5 Select the desired fields from the **Available fields** box to the **Fields in the form** box.
- 6 Click the **Add** button. The added fields are displayed in the **Fields in the form** list box.
- 7 Click the **Next** button. The **Decide if you want to set up a sub-form** page appears on the Form Wizard.
- 8 Click the **Next** button.

The **Arrange the controls on your form page** appears.

- 9 Select the desired button in the **Arrangement of the main form** section to specify the arrangement of the labels in the form. In our case, we have selected **Columnar-Labels Left**, as shown in Figure 16.
- 10 Select the desired button in the **Arrangement of the sub form** section to specify the arrangement of the form. In our case, we have selected **As Data Sheet**, as shown in Figure 16.

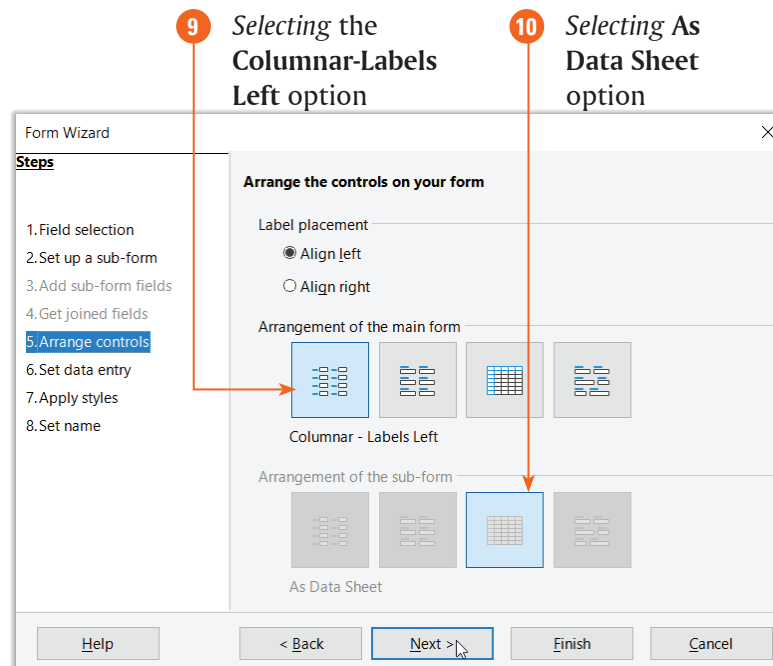


Figure 16: Arrange the Controls on Your Form Page

- 11 Click the **Next** button.  
The **Select the data entry mode page** appears.
- 12 Select the desired check box to specify the permission. In our case, we have selected **Do not allow deletion of existing data**. The **Apply the style of your form page** appears.
- 13 Select the desired style for the form in the **Apply styles** list box. In our case, we have selected **Violet**.
- 14 Click the **Next** button, The **Set the name of the form page** appears.
- 15 Type the desired name of the form in the **Name of the form** text box. In our case, we have typed **Employees\_details\_Forms**.
- 16 Select the desired radio button in the **How do you want to proceed after creating the form?** option. In our case, we have selected **Work with the form**.

- 17 Click the **Finish** button, as shown in Figure 11:

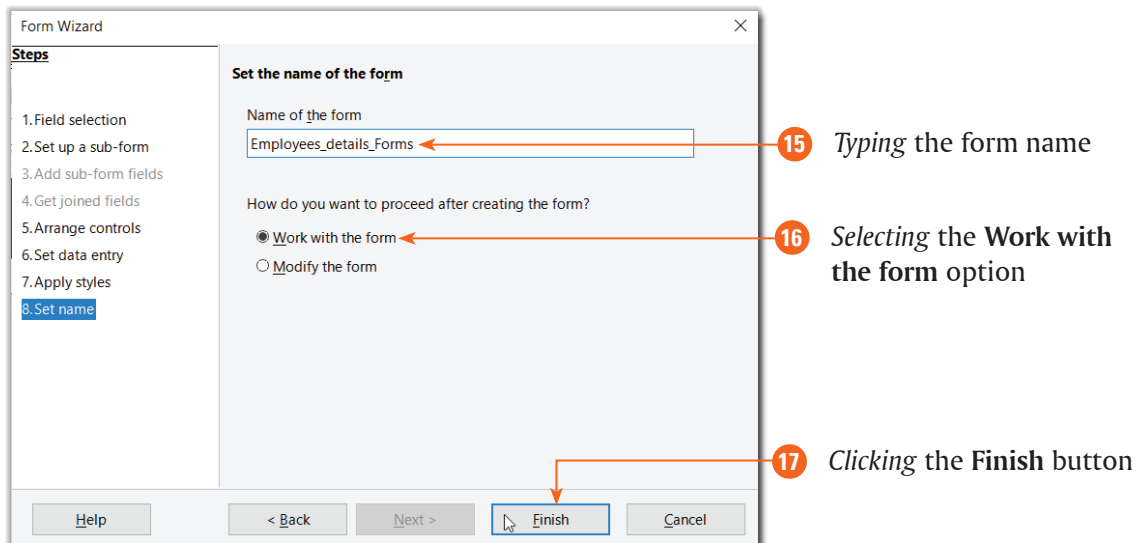


Figure 17: The Set the Name of the Form Page

## ACTIVITY



1. Create a custom form to input data into an existing table using Design View.
2. Create a simple data entry form quickly using the form wizard.

## ASSESS YOURSELF



1. .... are user-friendly interfaces for entering, viewing, and editing data in your database tables.
2. To create a form in Design View, you need to click the "Forms → Create Form in Design View" option under the Tasks pane. (True/False)

## Session 6: Creating Report in LibreOffice Base

Creating a report in LibreOffice Base allows you to generate formatted summaries of your database data for analysis or presentation. The Report Wizard guides you through selecting fields, grouping, sorting, and defining layouts. You can also customize the design and structure. Reports provide a clear, organized view of data for printing or sharing.

### Creating Report Using Wizard

Perform the following steps to create a report using Wizard:

- 1 Open a new or existing database in which you want to create a table.
- 2 Click the **Reports → Use Wizard to Create Reports** option under the **Tasks** pane.  
The **Report Wizard** window appears.
- 3 Select the desired table from the **Tables or queries** drop-down list in **Which fields do you want to have in your report?** page. In our case, we have selected **Employess\_details**.
- 4 Select the desired fields from the **Available fields** box to the **Fields in the form** box.
- 5 Click the **Add** button. The added fields are displayed in the **Fields in the form** list box.
- 6 Click the **Next** button.  
The **How do you want to label the fields** page appears.
- 7 Click the **Next** button. The **Do you want to add grouping levels?** page appears.

- 8 Click the Next button. The **According to which fields do you want to sort the data?** page appears.
- 9 Select the desired fields in the **Sort by** drop-down list. In our case, we have selected the data based on **EmployeeID**.
- 10 Click the Next button. The **How do you want your report to look?** page appears.
- 11 Select the layout for the data in the **Layout of data** list box. In our case, we have selected the Tabular, columnar and more option.
- 12 Select the **Landscape** radio button in the **Orientation**.
- 13 Click the Next button. The **Decide how you want to proceed** page appears.
- 14 Type the desired name for your report in the **Title of report** text box. In our case, we have typed **Employee Report**.
- 15 Select the desired radio button in the **What kind of report do you want to create?** option. In our case, we have selected **Static** report.
- 16 Select the desired radio button in the **How do you want to proceed after creating the report?** option. In our case, we have selected **Create report now**.
- 17 Click the **Finish** button.  
The report is displayed in the LibreOffice Writer document, as shown in Figure 18.

The screenshot shows a LibreOffice Writer window titled 'Demonstration.odt: Employee Report'. The report content is a table with the following data:

EmployeeID	FirstName	LastName	Department	Salary
101	Shashank	Mittal	QA	25000
102	Kajal	Jain	IT	30000
103	Priyanka	Verma	HR	15000
104	Varun	K	R&D	32000
105	Nishel	Rakshita	Management	29000

Figure 18: Report Using Wizard

## ACTIVITY



1. Create a custom report for the "Sales" table using the Design View in LibreOffice Base.
2. Generate a report summarizing student information from a student database.

## ASSESS YOURSELF



1. .... allows you to generate formatted summaries of your database data for analysis or presentation in LibreOffice Base.
2. In the Report Wizard, fields are added to the report by selecting them from the Fields in the form box and clicking the Next button. (True/ False)

# Summary

- DBMS is software that enables the creation, management, and manipulation of databases.
- Queries allow you to extract specific information, and reports help present the data in a structured format.
- In LibreOffice, a table in a database is a structured format that stores data in rows and columns, allowing for organized and efficient data management.
- Design View in LibreOffice Base is a methodical process that allows for precise control over the structure of a database table.
- The Wizard guides users through a series of steps, making it easy for those who may not be familiar with database design.
- Operations on tables in LibreOffice Base refer to the various tasks you can perform to manage, manipulate and analyze your data.
- Field properties in LibreOffice Base define the characteristics and behavior of data within a table's columns.
- Sorting in LibreOffice Base allows users to organize records in a table by arranging them in ascending or descending order based on specific fields, such as names, dates or numbers.
- Relationships in a database establish connections between tables based on common fields.
- In LibreOffice Base, forms are user-friendly interfaces for entering, viewing and editing data in your database tables.
- A report in LibreOffice Base allows you to generate formatted summaries of your database data for analysis or presentation.



## KEY TERMS

- **LibreOffice Base:** LibreOffice Base is a DBMS that is part of the LibreOffice suite. It allows users to create and manage databases, design forms, queries and reports, and interact with data for various tasks such as inventory management, contact lists or academic records.
- **Relational Database Management System (RDBMS):** An RDBMS is software that manages data stored in a relational database. Data is organized into tables with rows and columns, and relationships between different data entities are defined through primary and foreign keys.
- **Hyper Structured Query Language Database (HSQLDB):** HSQLDB is the default embedded database engine used in LibreOffice Base. It is a lightweight, SQL-based database management system written in Java, providing in-memory and disk-based tables for managing data within the LibreOffice Base environment.
- **Primary key:** A primary key is a unique identifier for each record in a database table. It ensures that each entry in the table is distinct and can be referenced unambiguously.
- **Wizard:** In LibreOffice Base, a Wizard is a step-by-step guide that helps users perform complex tasks like creating tables, queries, forms, and reports. It simplifies the process by asking a series of questions and then generating the appropriate database object.
- **Scenarios:** In LibreOffice Base, scenarios typically refer to different possible sets of data or configurations that users might want to evaluate.
- **Datasheet:** A datasheet in LibreOffice Base is the spreadsheet-like view used to display and enter data in a table. It shows records in rows and fields in columns, allowing for easy data manipulation, sorting and filtering.
- **Data handling:** Data handling refers to the processes of collecting, storing, managing, and manipulating data within the database. In LibreOffice Base, data handling includes tasks like entering data, sorting, filtering, querying and updating records in tables and forms.



## PRACTICE QUESTIONS

### Solved Questions

#### Multiple-Choice Questions (MCQs)

- Which component allows you to create various database objects such as tables, queries, forms, and reports?
  - Status bar
  - Toolbar
  - Tasks pane
  - Database object buttons
- What does each row in a LibreOffice Base table represent?
  - Field
  - Database
  - Record
  - Primary key
- Which of the following is not a field property in LibreOffice Base?
  - Field size
  - Data type
  - Default values
  - Field colour
- Which option should be selected from the File menu to quit the LibreOffice Base application?
  - Exit LibreOffice
  - Close
  - Save
  - Minimize
- Which type of relationship allows a record in Table A to relate to multiple records in Table B, but each record in Table B relates to only one record in Table A?
  - One-to-One (1:1)
  - One-to-Many (1:∞)
  - Many-to-Many (N:∞)
  - Many-to-One (∞:1)

#### ANSWERS

1. d.      2. c.      3. d.      4. a.      5. b.

#### Very Short Answer Questions

- What is a database in LibreOffice Base?

Ans. A collection of data organized for easy retrieval, management, and updating.

- What does the Design View in a table allow you to do?

Ans. It allows you to define and modify the structure of .....the table, including fields and their properties.

- How do you set the data type of a field in LibreOffice Base?

Ans. By selecting the field and choosing the data type from the Field Properties section in Design View.

#### Short Answer Questions-I

- How can SQL commands be used in LibreOffice Base queries?

Ans. SQL commands can be used in LibreOffice Base to write custom queries for complex data retrieval, manipulation, and updating tasks beyond the capabilities of the graphical query design interface.

- What can you do in Design View when creating a report in LibreOffice Base?

Ans. In Design View, you can customize the layout and appearance of a report, including arranging fields, adding labels, and setting properties to present data in a structured and visually appealing manner.

- What does RDBMS stand for, and what is its primary function?

Ans. RDBMS stands for Relational Database Management System. Its primary function is to manage and organize data into tables that can be linked through relationships, enabling efficient data retrieval and manipulation.

#### Short Answer Questions-II

- What is a Relational Database Management System (RDBMS) and how does it relate to LibreOffice Base?

Ans. A Relational Database Management System (RDBMS) is software that manages databases by organizing data into tables that can be linked based on relationships. LibreOffice Base is an RDBMS that allows users to create, modify, and manage relational databases, enabling users to organize and query data efficiently.

- What are criteria in a query, and how are they used in LibreOffice Base?

Ans. Criteria in a query define the conditions that records must meet to be included in the query results. In LibreOffice Base, you set criteria in the Query Design View by specifying conditions in the criteria row of the query grid. This allows you to filter data based on specific values or ranges, enabling precise data retrieval.

- How do you create a report in LibreOffice Base?

Ans. To create a report in LibreOffice Base, use the Report Wizard or Design View. In the Report Wizard, select the data source, choose fields, and set sorting and grouping options. The wizard generates a report layout based on

your selections. In Design View, you can manually design the report layout by dragging and dropping fields, adding labels, and adjusting formatting.

### Long Answer Questions

1. How can you create a table in LibreOffice Base using the Table Wizard, and what are the key steps involved in this process?

Ans. Creating a table using the Table Wizard in LibreOffice Base is a simplified method for beginners to set up database tables without requiring extensive knowledge of database design. The Table Wizard provides predefined categories and templates for commonly used fields. The process begins by selecting the Table Wizard option from the database objects list. In the first step, you choose a category (e.g., Business or Personal) and a table template that matches your needs, such as "Employees" or "Customers." The next step involves selecting fields for your table from the template. You can add or remove fields as necessary. After this, the Wizard asks you to set field types and properties like primary key designation. Finally, the table is named, and the user has the option to immediately open the table for input or modify its structure further in Design View. The Wizard streamlines table creation by automating many design choices while still offering flexibility.

2. Explain how to customize field properties in a table using LibreOffice Base and discuss the significance of field properties in database design.

Ans. In LibreOffice Base, customizing field properties is essential for defining the data characteristics and behaviour within a table. Field properties include attributes such as field type (e.g., text, number, date), length, format, and default value. To edit field properties, the user opens the table in Design View, where each field's properties can be adjusted. For instance, if a field is designated as a "Number" type, you can specify whether it should allow decimal places, whether it has a minimum or maximum value, or if it should auto-increment. Customizing field properties ensures data integrity and consistency within the database. Setting a field to "Required" ensures that data cannot be left blank, while setting a unique constraint ensures no duplicate values are entered. Proper field property customization contributes to a more efficient and reliable database system by controlling how data is input, stored, and managed.

3. Describe the process of editing and deleting records in a table in LibreOffice Base and explain the precautions to consider during this process.

Ans. Editing and deleting records in a table in LibreOffice Base can be done through the Table Data View or using SQL commands. To edit records, users can open the table and simply click on the fields they want to modify, updating the values directly in the cells. When deleting a record, the user selects the row they wish to remove and presses the delete key or uses the delete option in the right-click menu. However, care must be taken when performing these actions, especially when deleting records, as this is often irreversible. Backing up data is recommended before

deleting records to prevent accidental loss. In multi-user environments, record-locking mechanisms should be considered to prevent conflicts when multiple users are editing the same table simultaneously. Additionally, updating foreign key values or deleting records that have dependent data in related tables should be done with caution to maintain data integrity across the database.

### Higher Order Thinking Skills (HOTS) Question

1. You are managing a small business and need to keep track of customer orders, payments, and inventory. You want to create a system that automates the process of generating invoices and tracking payment statuses. How would using a Database Management System (DBMS) in LibreOffice Base help you achieve this?

Ans. Using a DBMS in LibreOffice Base allows you to efficiently store and organize your data. You can create tables for customers, orders, and inventory, establish relationships between them, and automate invoice generation using queries and reports. This ensures data integrity, eliminates redundancy, and allows for easy retrieval of payment statuses, leading to better decision-making and streamlined business operations.

2. You have created a database in LibreOffice Base to track employee attendance. How would you use the Report Wizard to generate a report that summarizes each employee's monthly attendance?

Ans. Using the Report Wizard in LibreOffice Base, you can select the attendance table and specify the fields you want in your report, such as employee name, attendance dates, and hours worked. You can group the data by employee and sort it by date to get a clear summary of each employee's monthly attendance. This report can be used for performance reviews or payroll purposes.

3. You are developing a database for a library where each book is associated with multiple authors. How would you establish relationships in LibreOffice Base to ensure accurate data linking between books and authors?

Ans. In LibreOffice Base, you can establish a many-to-many relationship between books and authors by creating a junction table that links the two tables. The book table and author table will each have primary keys, which are then linked in the junction table via foreign keys. This ensures accurate data representation, allowing each book to have multiple authors and each author to be associated with multiple books.

### Assignment

#### Multiple-Choice Questions (MCQs)

1. Which tool in LibreOffice Base helps you to create a formatted summary of your database data?
  - a. Report Wizard
  - b. Table Designer
  - c. Query Builder
  - d. Form Wizard

2. Which type of DBMS uses tables to represent data?
  - a. Hierarchical DBMS
  - b. Network DBMS
  - c. Object-oriented DBMS
  - d. Relational DBMS
3. Which component of the LibreOffice Base interface shows the progress of any task being performed?
  - a. Menu bar
  - b. Tasks pane
  - c. Status bar
  - d. Toolbar
4. Which tool allows you to create a form in LibreOffice Base's Design View?
  - a. Form Controls toolbar
  - b. Table Design tool
  - c. Form Wizard
  - d. Report Wizard
5. Which view allows users to sort records directly using toolbar buttons in LibreOffice Base?
  - a. Design view
  - b. Report view
  - c. Datasheet view
  - d. Form view

### Very Short Answer Questions

1. What does RDBMS stand for in LibreOffice Base?
2. What is LibreOffice Base?
3. What is the benefit of using the Report Wizard in LibreOffice Base?

### Short Answer Questions-I

1. What is the primary purpose of a form in LibreOffice Base, and how does it enhance user interaction with the database?
2. How can you set the database file format when creating a database in LibreOffice Base?
3. Which SQL command is commonly used to retrieve data from a table in LibreOffice Base?

### Short Answer Questions-II

1. How does LibreOffice Base ensure data integrity in an RDBMS environment?

2. How can you customize the toolbar in LibreOffice Base to include specific window control buttons?
3. Describe the process of importing data from a spreadsheet into a table in LibreOffice Base.

### Long Answer Questions

1. How does HSQLDB function as the default database engine for LibreOffice, and what are the advantages and limitations of using HSQLDB for small to medium-sized database applications? Discuss its capabilities in terms of data storage, retrieval, and manipulation.
2. Describe the different types of queries available, such as select, action, and parameter queries. Provide examples of how each type can be used to extract or manipulate data from a database, and discuss the importance of queries in the context of database design and reporting.
3. How can users sort records in a table or a query result set? Explain the various sorting options available, such as ascending and descending order, and how multiple fields can be sorted simultaneously. Additionally, elaborate on how sorting impacts data presentation and analysis.

### Lab Activities

1. Your university wants to track student enrollments and course registrations using a relational database. Create two tables: "Students" with fields for Student ID, Name, and Major, and "Courses" with fields for Course ID, Course Name, and Credits. Establish a relationship between the two tables using a junction table called "Enrollments" that links Student IDs to Course IDs. Populate the tables with sample data and demonstrate how to use SQL queries to retrieve a list of students enrolled in a specific course.
2. You are tasked with creating a simple Employee Management System using a flat-file database in LibreOffice Base. Start by designing a table named "Employees" with fields for Employee ID, Name, Position, and Salary. Populate the table with data for five employees. Afterward, demonstrate how to query this table to retrieve information about specific employees based on their positions. Discuss the limitations of using a flat-file database for managing employee records compared to an RDBMS.



# UNIT 9

## THIS UNIT COVERS

- Maintaining Workplace Safety
- Understanding First-aid
- Accidents
- Case Studies of Hazardous Situations
- Emergency
- Emergency and Evacuation Plan
- Understanding Hazards
- Healthy Living



## Maintain Healthy, Safe and Secure Working Environment

### Introduction

Managing health and safety involves creating and maintaining a safe workplace by identifying potential hazards, implementing safety protocols and ensuring compliance with regulations. It includes risk assessments, safety training and the use of Personal Protective Equipment (PPE). Effective management requires fostering a safety culture, encouraging reporting of incidents and continuous monitoring and improvement of safety practices. Key aspects include emergency preparedness, accident investigation and adherence to legal standards.

A proactive approach to managing health and safety not only protects employees but also benefits the organization by reducing costs associated with accidents and illnesses. It enhances employee productivity and morale as they feel valued and secured in their work environment. Involving employees in safety discussions and decision-making fosters a collaborative culture where everyone takes responsibility for safety. Overall, effective health and safety management is integral to building a sustainable and responsible workplace culture.

In this unit, you will learn about maintaining workplace safety. Then you will learn about first-aid, accidents and emergency and evacuation plans. At the end, you will learn hazards and healthy living.

## Session 1: Maintaining Workplace Safety

Workplace safety involves creating and maintaining a safe environment to prevent accidents and health issues. It helps in preventing injuries, illnesses and ensuring a productive work environment. Every workplace accident, illness, or conflict carries a cost for the organization, as well as for the affected individuals and their families. It is our duty to establish a safe working environment, which will enhance both the workplace atmosphere and overall productivity. Employees must take ownership of their own health and safety, rather than relying entirely on the 'safety officer' or management as shown in Figure 1. Some common ways to maintain safety at the workplace are as follows:

- Employee health encompasses physical, mental and social well-being. Organizations must provide a safe and healthy workplace to prevent diseases.
- Cleanliness is crucial, so workspaces should be cleaned daily. Proper air conditioning and filtered water are essential, and a cafeteria offering fresh food supports health. Additionally, well-maintained washroom facilities must be provided.
- The work environment must be safe and free from hazards and risks. A hazard is any factor that can cause harm, while a risk is the likelihood of that harm occurring.
- The organization must develop and strictly adhere to comprehensive safety guidelines. Employees should regularly practice these safety procedures.
- The Department of Information Technology (DoIT) has established a policy to ensure a safe and healthy work environment. This policy is a formal statement by the employer, committing to the protection of employees and the public, and demonstrates management's dedication to maintaining a secure workplace.
- The policy outlines the necessary elements and objectives to safeguard workers and must meet government-required standards. Additionally, the company should have a specific health, safety, and security committee to identify and address workplace hazards.

The following reasons highlight the importance of a safety policy:

- It demonstrates the company's dedication to the health and safety of its employees.
- It aligns business performance with safety performance, showing that they are mutually supportive.
- It specifies the accountability of everyone in the company regarding workplace health, safety, and security.
- It ensures compliance with national Occupational Health and Safety (OH&S) policies as outlined by the government of India.
- It helps prevent employee injuries and illnesses through established policies.



Figure 1: Office Safety

Some of the potential sources of hazards in an organization are as follows:

- **Unsafe work practices:** Employees may engage in unsafe work practices, such as improper use of equipment or tools, failing to follow established safety procedures, or lacking adequate training and awareness about safety protocols.
- **Workplace conditions:** Poorly maintained or cluttered workspaces can pose hazards. Additionally, inadequate lighting or ventilation, as well as unstable or uneven flooring, can contribute to unsafe working conditions.
- **Machinery and equipment:** Faulty or poorly maintained machinery presents a risk. The absence of appropriate machine guards and inadequate safety features or controls can increase the likelihood of accidents.
- **Chemical substances:** Improper storage or handling of hazardous chemicals can create risks. Inadequate labelling or documentation, such as missing Material Safety Data Sheet (MSDS) and the lack of proper Personal Protective Equipment (PPE) also contribute to potential hazards.
- **Electrical systems:** Exposed wiring or faulty electrical equipment pose a significant hazard. Overloading electrical outlets or circuits, combined with inadequate grounding or insulation, further increases the risk.
- **Fire safety:** Blocked or inaccessible fire exits can impede emergency evacuations. The absence of functional fire alarms or extinguishers and the improper storage of flammable materials also create fire hazards.
- **Ergonomic issues:** Poorly designed workstations or seating can lead to ergonomic hazards. Repetitive strain from awkward postures and inadequate lifting techniques or equipment are also common concerns.
- **Human factors:** Fatigue or stress among employees can result in decreased attention and performance, increasing the risk of accidents. Inadequate supervision or safety leadership, along with communication breakdowns regarding safety procedures, can further contribute to hazards.

## Cautions While Working on the Computer

Some important cautions to consider while working on a computer:

- **Maintain proper posture:** To ensure comfort and reduce the risk of strain, follow these guidelines:
  - ◆ Sit upright with your back supported.
  - ◆ Keep your feet flat on the floor.
  - ◆ Position your computer screen at eye level to avoid neck strain.
- **Take regular breaks:** To take regular breaks, follow these guidelines:
  - ◆ Follow the 20-20-20 rule: Every 20 minutes, look at something 20 feet away for 20 seconds.
  - ◆ Stand up, stretch, and move around every 30-60 minutes to reduce strain on your body.
- **Use proper lighting:** To use proper lighting, follow these guidelines:
  - ◆ Avoid glare by positioning your screen away from direct light sources.
  - ◆ Use ambient lighting that is not too bright or too dim.
  - ◆ Consider using a desk lamp with adjustable brightness.

- **Adjust screen settings:** To adjust screen settings, follow these guidelines:
  - ◆ Set the screen brightness to a comfortable level.
  - ◆ Use larger font sizes to reduce eye strain.
  - ◆ Adjust the colour temperature to warmer tones to reduce blue light exposure.
- **Protect your eyes:** To protect your eyes from computer screen, follow these guidelines:
  - ◆ Blink frequently to keep your eyes moist.
  - ◆ Use anti-glare screen protectors if necessary.
  - ◆ Consider blue light filtering glasses if you spend long hours at the computer.
- **Maintain proper keyboard and mouse usage:** To maintain proper keyboard and mouse usage, follow these guidelines:
  - ◆ Keep your wrists straight while typing.
  - ◆ Use a wrist pad for support if needed.
  - ◆ Position the keyboard and mouse at a comfortable height to avoid strain.
- **Keep your work area clean and organized:** To keep your work area clean and organized, follow these guidelines:
  - ◆ Keep liquids away from the computer to prevent spills.
  - ◆ Ensure cables are properly managed to avoid tripping hazards.
  - ◆ Clean your screen, keyboard, and mouse regularly to prevent dirt buildup.
- **Ensure adequate ventilation:** To ensure adequate ventilation, follow these guidelines:
  - ◆ Avoid blocking the computer's ventilation ports.
  - ◆ Use a cooling pad if you are using a laptop for extended periods.
  - ◆ Keep the room well-ventilated to avoid overheating.
- **Practice proper hand and finger care:** To practice proper hand and finger care, follow these guidelines:
  - ◆ Avoid excessive pressure on the keys while typing.
  - ◆ Take short breaks to stretch your fingers and wrists.
  - ◆ Use ergonomic keyboards and mice to minimize strain.
- **Back up important data:** To back up important data, follow these guidelines:
  - ◆ Regularly back up files to external storage or cloud services.
  - ◆ Keep antivirus software up-to-date to protect against malware.
  - ◆ Avoid downloading software from untrusted sources to prevent infections.
- **Follow electrical safety guidelines:** For electrical safety follow these guidelines:
  - ◆ Use surge protectors to prevent damage from power fluctuations.
  - ◆ Unplug devices when not in use for extended periods.
  - ◆ Avoid overloading power outlets with multiple devices.
- **Be mindful of ergonomics:** To ensure ergonomics issues, follow these guidelines:
  - ◆ Use an ergonomic chair that provides good lumbar support.

- ◆ Keep frequently used items within easy reach to avoid excessive stretching.
- ◆ Adjust the desk and chair height to maintain comfortable positioning.

Figure 2 shows the correct sitting postures in an office while working with a computer.

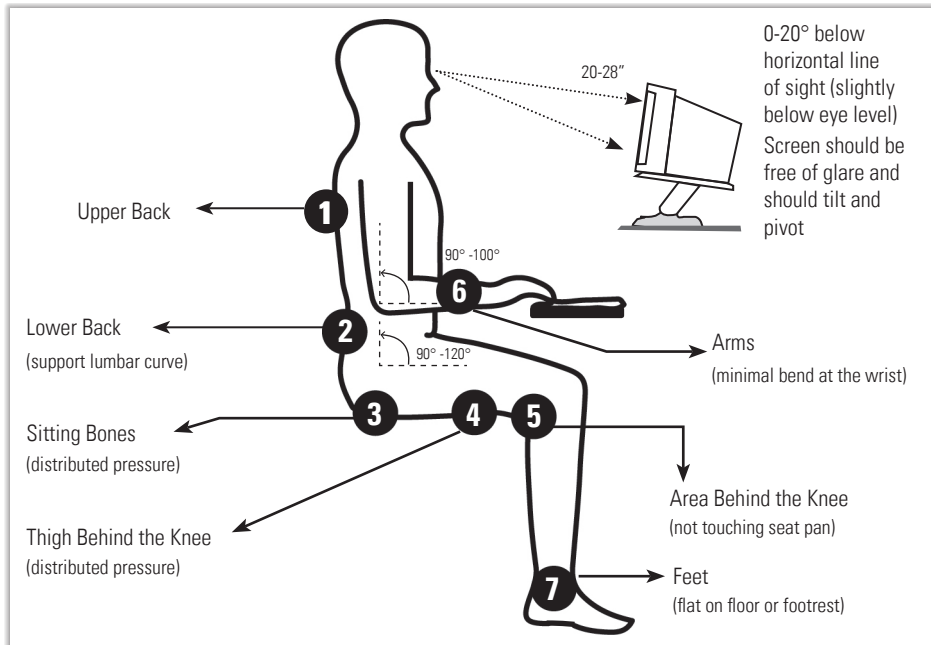


Figure 2: Correct Sitting Postures in an Office

### Quick Quiz

Which department has established a policy to ensure a safe and healthy work environment?

Ans. Department of Information Technology (DoIT)

## Fire Prevention

Some fire preventing measures are as follows:

- **Maintain clean workspaces:** Keep work areas free of clutter, especially flammable materials such as paper, chemicals and textiles. Ensure that waste is disposed of regularly and appropriately.
- **Proper storage of flammable materials:** Store flammable materials in designated areas with proper labeling and ventilation. Use fire-resistant cabinets and keep these materials away from the sources of ignition.
- **Safe electrical practices:** Avoid overloading electrical outlets and circuits. Use power strips with surge protectors and ensure that electrical cords are in good condition without fraying or exposed wires.
- **Regular maintenance of equipment:** Ensure that machinery and electrical equipment are regularly inspected and maintained to prevent malfunctions that could lead to fires.
- **No smoking in restricted areas:** Enforce strict no-smoking policies in areas where flammable materials are present and provide designated smoking areas away from the main building.
- **Proper use of heating equipment:** Ensure that space heaters and other heating equipment are used safely and are equipped with automatic shut-off features. Keep them away from combustible materials.

### DID YOU Know?

Safety is a shared responsibility. Everyone has a role to play in creating a safe workplace.

## General Safety Rules

Some common safety rules are as follows:

- **Report hazards immediately:** This means promptly informing supervisors or relevant authorities about any dangerous or unsafe conditions in the workplace.
- **Follow safety procedures:** This involves adhering to established guidelines, protocols, or rules designed to minimize risk and ensure safety.
- **Wear PPE as required:** PPE stands for Personal Protective Equipment, which includes items such as helmets, gloves, safety goggles and masks.
- **Be aware of your surroundings:** This involves staying alert to potential hazards and changes in the work environment that could cause harm.
- **Take breaks to rest and avoid fatigue:** Taking regular breaks allows your body and mind to rest, refresh and maintain focus, especially during demanding or repetitive tasks.
- **Participate in safety training:** This ensures that workers are informed about safety procedures, proper use of equipment and how to respond to emergencies.

### ACTIVITY

1. Make a list of hazards such as flammable chemicals, gas leaks, or malfunctioning equipment in your chemistry lab.
2. Write a story that incorporates fire safety rules, helping students understand and remember the importance of following these rules.

### ASSESS YOURSELF

1. Workplace safety involves only preventing physical injuries and does not consider mental or social well-being. (True/False)
2. Flammable materials should be stored in areas with poor ventilation to minimize the risk of fire. (True/False)

## Session 2: Understanding First-Aid

First-aid is a critical skill that can make a life-saving difference in emergency situations. It involves providing immediate medical care and support to individuals who are injured or ill until professional medical help can take over. By being prepared and knowledgeable about first-aid techniques, you can effectively manage various medical emergencies and potentially save lives.

### Basic Principles of First-Aid

Some basic principles of first-aid are as follows:

- **Assess the situation:** Ensure the area is safe for both the responder and the injured person. Check for potential hazards like fire, electrical wires, or toxic fumes before approaching.
- **Call for help:** Contact emergency services as soon as possible. Provide clear information about the location, nature of the injury or illness and the number of people involved.
- **Stay calm:** Keep a calm attitude to comfort the injured person and handle the situation efficiently.

## Techniques of First-Aid

Some first-aid techniques are as follows:

- **Cardiopulmonary Resuscitation (CPR):** Used when a person is unconscious and not breathing. Perform chest compressions and rescue breaths to maintain circulation and oxygen flow. Follow the latest guidelines or training protocols for CPR, as shown in Figure 3.

- **Control bleeding:** Apply pressure to the wound using a clean cloth or bandage to stop the bleeding. If the bleeding is severe, elevate the injured limb above heart level if possible and continue to apply pressure.

- **Treating burns:** For minor burns, cool the area with cool (not cold) running water for at least 10 minutes. Do not apply ice directly to the burn. Cover the burn with a clean, non-stick bandage. For severe burns, seek medical help immediately.

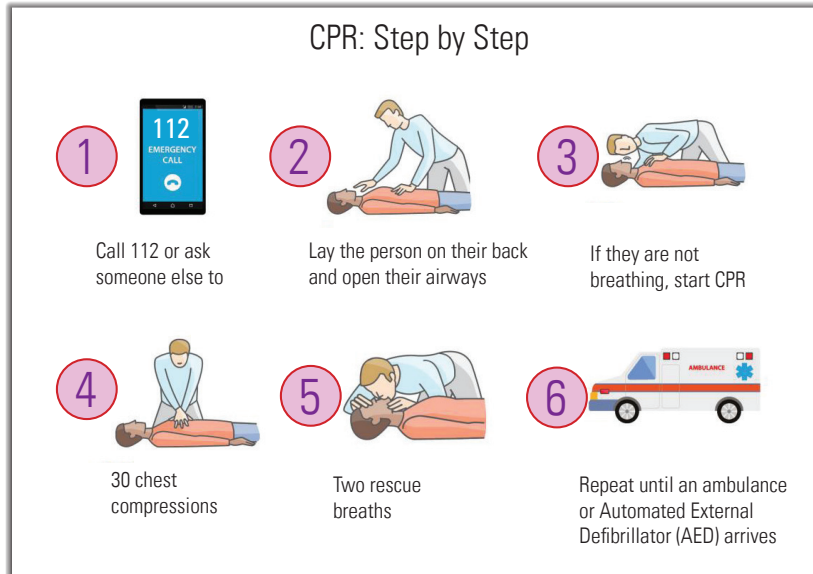
- **Fractures and sprains:** Immobilize the injured area to prevent further damage. Use a splint or padding to stabilize fractures. For sprains, use the Rest, Ice, Compression, Elevation (RICE) method to reduce swelling and pain.
- **Choking:** Perform the Heimlich maneuver if someone is choking and cannot breathe. Stand behind the person, place your hands above the navel, and give quick, upward thrusts until the object is dislodged.
- **Poisoning:** Identify the substance involved and follow specific first-aid procedures for that type of poisoning. Do not induce vomiting unless instructed by a medical professional.

- **Shock:** Lay the person down and elevate their legs if possible. Keep them warm and comfortable, and do not give them anything to eat or drink. Monitor their condition until help arrives.

- **Seizures:** Clear the area of any objects that could cause injury. Do not restrain the person or put anything in their mouth. Once the seizure subsides, place them in the recovery position and monitor their breathing.

- **Heat exhaustion and heatstroke:** Move the person to a cooler environment, loosen tight clothing, and provide cool (not cold) water to drink. For heatstroke, cool the person with a cold compress or fan and seek immediate medical help.

- **Hypothermia:** Warm the person gradually, starting with the core of the body. Use warm, dry clothing and blankets, and provide warm, non-alcoholic beverages.



**Figure 3:** Step-by-Step CPR Process

### **DID YOU Know?**

The three essential steps of first-aid are Check, Call, Care. First, check the scene and the person, then call for help, and finally, provide appropriate care based on the situation.

## First-Aid Kit Essentials

First-aid kit helps address minor injuries and provide initial care in emergencies. The essential items in a first-aid kit are shown in Figure 4. A first-aid kit should include the following key items:

- **Adhesive bandages and sterile gauze pads:** They are crucial for covering minor wounds and preventing infection. These items help protect the injury from dirt and bacteria while promoting healing.

- **Antiseptic wipes and antibiotic ointment:** Antiseptic wipes help disinfect the area around a cut or scrape, while antibiotic ointment can be applied afterward to further reduce the risk of infection.

- **Tweezers and scissors:** They are important tools in a first-aid kit as tweezers can be used to remove splinters, ticks or debris from wounds, and scissors are necessary for cutting tape, gauze, or clothing if needed.

- **Pain relievers:** Pain relievers, such as ibuprofen or aspirin, are important for managing discomfort or pain resulting from injuries, headaches, or fever.

- **Thermometer:** A thermometer is a vital instrument for monitoring body temperature, which can help assess whether someone has a fever or other health issues.

- **Cold packs:** Instant cold packs are valuable for treating sprains, strains, or swelling. These packs can be activated easily and provide immediate cold therapy to reduce inflammation and numb pain at the injury site.

- **CPR mask or face shield:** A CPR mask or face shield should be included in the first-aid kit to ensure safe rescue breaths during CPR.

- **Emergency blanket:** An emergency blanket is a lightweight, compact blanket that helps retain body heat in situations where someone may be in shock or experiencing hypothermia.

- **First-aid manual:** A first-aid manual is an essential resource that provides step-by-step instructions on how to handle various medical emergencies.



Figure 4: Essentials in First-Aid Kit

### ACTIVITY

1. Role-play a scenario where one student pretends to have a minor injury and others practice providing first-aid, such as cleaning the wound, applying a bandage and offering comfort.
2. Create a step-by-step guide to administering first-aid, including stopping the bleeding and cleaning the wound. Work with your group to demonstrate each step using first-aid supplies.

### ASSESS YOURSELF

1. To control severe bleeding, apply pressure to the wound and ..... the injured limb above heart level if possible.
2. The Heimlich maneuver is used for a person who is ..... and cannot .....



## Session 3: Accidents

An accident is defined as an unfortunate event that happens unpredictably as well as unintentionally and may lead to harm and injury to people. They can happen in various settings, including the workplace, at home, on the road, or in public spaces.

### Common Causes of Accidents

Some common causes of accidents are as follows:

- **Human error:** Mistakes or negligence, such as failing to follow safety protocols, lack of attention, or reckless behaviour, often contribute to accidents.
- **Environmental hazards:** Slippery floors, poor lighting, uneven surfaces and adverse weather conditions can lead to slips, trips, falls and other accidents.
- **Equipment and machinery malfunctions:** Faulty or poorly maintained equipment can cause accidents, especially in industrial or construction settings.
- **Improper use of tools and equipment:** Using tools or machinery without proper training or for unintended purposes increases the risk of accidents.
- **Inadequate safety measures:** Lack of safety equipment, such as helmets, gloves, seatbelts, or harnesses, can lead to injuries in case of accidents.
- **Fatigue and stress:** Physical and mental fatigue can impair judgment and reaction times, increasing the likelihood of accidents.
- **Substance abuse:** Alcohol or drug use can impair a person's ability to function safely and effectively, leading to accidents.

### Types of Accidents

Some common types of accidents at the workplace are as follows:

- **Slip, trip and fall:** Accidents caused by slipping, tripping or falling due to uneven surfaces or obstacles as shown in Figure 5.
- **Moving, lifting or pushing heavy objects:** Injuries resulting from the physical effort involved in moving, lifting or pushing heavy items.
- **Hit by falling objects:** Injuries sustained when objects fall and strike an individual.
- **Leakage of toxics:** Exposure to harmful chemicals or gases due to leaks or spills.
- **Struck by objects in walkway:** Injuries from being hit by objects that are improperly placed or unsecured in walkways.
- **Repetitive strain injuries:** Injuries caused by repetitive motion or strain, often affecting muscles or tendons.
- **Falling from a height:** Accidents where individuals fall from elevated surfaces or structures.



Figure 5: Slip, Trip and Fall Accident

- **Burn injuries:** Injuries resulting from exposure to heat, chemicals or electrical sources that cause burns.
- **Electrocutions:** Injuries or fatalities caused by electric shock or contact with live electrical sources.
- **Violence at the workplace:** Incidents involving physical or verbal aggression between individuals in the workplace.
- **Vehicle-based accident:** Accidents involving vehicles, such as forklifts or company cars that occur on or near the work site.
- **Faulty and unhealthy machinery:** Injuries resulting from malfunctioning or poorly maintained machinery.

## Handling Accidents at the Workplace

Some rules and guidelines followed for handling accidents at the workplace are as follows:

- Provide first-aid to the victim during an accident.
- Report about the accident to the superior or manager.
- Follow the Standard Operating Procedure (SOP) designed by the organization for handling accidents.
- Ensure that sufficient safety equipment is available at the workplace to avoid accidents.
- Call the doctor or medical team immediately in the wake of an accident.
- Follow emergency drills set by the organization during an emergency.

### ACTIVITY



1. Create a report on some common causes of accidents in your school and how they might be prevented.
2. Develop a safety checklist for your classroom or workplace that includes items to regularly inspect to prevent accidents.

### ASSESS YOURSELF



1. Environmental hazards like poor lighting can contribute to accidents. (True/False)
2. Slipping, tripping and falling are common workplace accidents. (True/False)

## Session 4: Case Studies of Hazardous Situations

### Case 1: Fall from the Ladder

Mr. Suresh is an electrician at Artofence Pvt. Ltd. for the last 15 years. He shared his experience of meeting with an accident.

One morning in 2013, I started work as per my normal routine. I had to reconnect some electrical wires that were previously cut off due to some upgrades. The wires were located on a wall, so I used a ladder to reconnect the wires. This ladder was about 35 feet long. I was on the ladder about 25 feet up and reconnecting the cables. Suddenly, I slipped and fell down from the ladder. I tried to keep my head up while falling. I fell on my back and arms. I could not breathe properly, and every breath was very painful. I waved my hands towards other employees, and they called an ambulance for me. I was laid on a stretcher and given oxygen. When I reached the hospital, a team of doctors examined me. Meanwhile, my employer informed my family about the accident. My family was very upset at the news. I was diagnosed with cracked and bruised ribs. The hospital released me after two days, but it took almost eight weeks to get rid of the pain completely.

## Case 2: Tripped on Network Cables

Mr. Kadam is a network engineer at APS Pvt. Ltd. He sets up the network cables in the organization.

Once, while working, I tripped on the cables and fell down. The ankle of my left foot got twisted, and my knee was displaced.

When I fell on the floor, two of my colleagues came to my help. One of them gave me first-aid, and the other called an ambulance. In the hospital, I was given injections to alleviate my pain, and immediate surgery was suggested to fix my knee.

I remained hospitalized for a week and thereafter had to take physiotherapy sessions to regain the strength in my leg. I joined the office after three months of surgery.

### Quick Quiz

What is the sudden shaking of the ground caused by seismic activity called?

Ans. Earthquake

## Case 3: Accident at the Time of Repairing Machine

Mr. Yash is a machine engineer at a manufacturing plant. He has to face an accident while repairing machines. He shares his experiences.

One morning of 2017, I started working like my normal routine. An employee of the manufacturing plant reported me about some malfunction in a machine. I checked the machine and found that one part was jammed. I was clearing the blockage from the machine.

At the same time, some other worker switched on the machine. This caused the blades to rotate, and my thumb and middle finger got cut off from the middle. I pulled my hand back from the machine and immediately took the first-aid. My fingers were tied by the nurse at the workplace. At the hospital, the doctors bandaged my wound but could not rejoin my fingers. The accident affected me in many ways, as I can no longer use my left hand properly and am faced with various problems to perform daily tasks. I returned to work after nine months of leave.

## Session 5: Emergency

An emergency is defined as an unforeseen situation that requires immediate attention and action to prevent risk of health, life, wealth or atmosphere. Emergencies can range from natural disasters and medical crises to fires and security threats. Effective emergency management involves preparation, quick response and recovery strategies.

Some common types of emergencies at the workplace are as follows:

- **Natural disaster:** They are serious incidents that cause major damage to people and nature. Examples of the natural disaster are:
  - ◆ **Earthquakes:** Sudden shaking of the ground caused by seismic activity.
  - ◆ **Floods:** Overflow of water that submerges land and can damage property and endanger lives.
  - ◆ **Hurricanes and tornadoes:** Severe weather events characterized by strong winds and heavy rain.
  - ◆ **Wildfires:** Uncontrolled fires that spread rapidly, often in forested or rural areas.
  - ◆ **Blizzards and extreme weather:** Severe snowstorms and other extreme weather conditions.
- **Medical emergencies:** In medical emergencies, quick action can save lives, ensuring immediate care for injuries, illnesses, or sudden health issues. Examples of the medical emergencies are:
  - ◆ **Heart attacks:** Sudden blockage of blood flow to the heart muscle.
  - ◆ **Strokes:** Interruption of blood supply to the brain.

### DID YOU Know

The word 'emergency' comes from the Latin 'emergere,' meaning 'to arise or bring to light.'

- ◆ **Choking:** Blockage of the airway preventing breathing.
- ◆ **Allergic reactions:** Severe reactions to allergens, which can cause anaphylaxis.
- ◆ **Traumatic injuries:** Injuries from accidents, falls or violence.
- **Fire emergencies** It can happen suddenly and spread quickly, causing serious risks to life and property. Examples of the fire emergencies are:
  - ◆ **Building fires:** Fires in homes, offices or other structures.
  - ◆ **Industrial fires:** Fires in factories or facilities handling flammable materials.
  - ◆ **Kitchen fires:** Fires caused by cooking equipment or flammable kitchen items.
- **Chemical and hazardous material emergencies:** It occur when dangerous substances leak or spill, posing risks to health and the environment. Examples of the chemical and hazardous material emergencies are:
  - ◆ **Spills and leaks:** Release of hazardous substances like chemicals, gases, or radioactive materials.
  - ◆ **Poisoning:** Exposure to toxic substances.
- **Security emergencies:** They happen when there is a threat to people's safety, such as violent events. It's crucial to be prepared and know how to respond to keep ourselves safe. Examples of the security emergencies are:
  - ◆ **Violence or terrorism:** Acts of violence, including shootings, bomb threats or other attacks.
  - ◆ **Break-ins or robberies:** Unauthorized entry or theft.
  - ◆ **Kidnapping or hostage situations:** Unlawful confinement of individuals.
- **Public health emergencies:** They are serious situations that require immediate action and coordination among health officials, communities and governments to ensure public safety. Examples of the public health emergencies are:
  - ◆ **Pandemics and epidemics:** Widespread outbreaks of infectious diseases.
  - ◆ **Food or water contamination:** Outbreaks due to contaminated food or water sources.

Some general emergency handling procedures for the workplace are as follows:

- **Emergency contact information:** Ensure that all employees are aware of emergency contact numbers, including internal contacts, emergency services (e.g., police, fire department, medical), and the building's emergency coordinator. Display emergency contact numbers prominently in common areas.
- **Emergency evacuation plan:** Develop and clearly mark evacuation routes and exits. Conduct regular evacuation drills to ensure all employees know how to evacuate quickly and safely. Designate assembly points outside the building where employees should gather after evacuation.
- **Fire safety procedures:** Install and maintain fire alarms, smoke detectors and fire extinguishers. Train employees on how to use fire extinguishers and how to respond to a fire alarm. Ensure that fire exits are not blocked and are easily accessible.
- **First-aid procedures:** Provide first-aid kits in accessible locations throughout the workplace. Train employees in basic first-aid and Cardiopulmonary Resuscitation (CPR). Designate individuals as first-aid responders and ensure they are available during work hours.
- **Medical emergencies:** Instruct employees to call emergency services immediately in the event of a medical emergency. Provide clear guidelines on how to report medical emergencies and assist injured individuals until professional help arrives.

- **Chemical spill response:** Have spill containment kits readily available and ensure employees know how to use them. Train employees on proper procedures for handling chemical spills, including evacuation if necessary. Follow manufacturer guidelines and Safety Data Sheets (SDS) for specific chemical spill responses.
- **Natural disasters:** Prepare for natural disasters such as earthquakes, hurricanes, or tornadoes by developing specific response plans. Educate employees on the appropriate actions to take during each type of natural disaster. Ensure that emergency supplies, such as first-aid kits, food and water, are readily available.
- **Violence and security threats:** Establish procedures for handling workplace violence or security threats, including protocols for lockdowns or evacuations. Provide training on recognizing and reporting suspicious behaviour or security risks. Implement access control measures and maintain security systems, such as cameras and alarms.
- **Communication during emergencies:** Implement a system for communicating emergency information to all employees, such as emergency notification systems or loudspeakers. Ensure that employees know how to receive and respond to emergency alerts and instructions.
- **Post-emergency procedures:** Conduct a debriefing session after an emergency to evaluate the response and identify areas for improvement. Provide counselling or support services for employees affected by the emergency. Review and update emergency procedures based on lessons learned from the incident.

### ACTIVITY

1. Make a group to create a plan of simple evacuation drill for a fire emergency. Identify and mark the primary and secondary evacuation routes from various locations in the building.

### ASSESS YOURSELF

1. Hurricanes and tornadoes are characterized by strong ..... and .....
2. Emergency contact information should be displayed prominently in ..... areas of the workplace.

## Session 6: Emergency and Evacuation Plan

An emergency and evacuation plan is a comprehensive strategy designed to ensure the safety of individuals during emergencies, such as fires, natural disasters, chemical spills or other crises. The primary goal of such a plan is to provide clear guidelines for safely evacuating a building or facility, minimizing risks and ensuring the well-being of all individuals.

An emergency and evacuation plan should include the following steps:

- **Planning and preparation:** It refers to the organized steps and actions taken to ensure a safe, efficient and timely evacuation during emergencies.
  - ◆ **Risk assessment:** It involves conducting a risk assessment to identify potential hazards such as fires, chemical spills, natural disasters, or security threats. It also includes evaluating the workplace layout, including exits, stairwells and assembly points.
  - ◆ **Designated roles and responsibilities:** Evacuation coordinators oversee the process, ensuring everyone is accounted for. Fire wardens or monitors assist others in evacuating, checking rooms and using fire extinguishers.
  - ◆ **Evacuation routes and exits:** They must be clearly marked and kept free of obstructions, with maps posted in visible locations throughout the workplace.

- ◆ **Safe assembly points:** These should be located away from the building and free from hazards and should be designated to provide a gathering area for employees after evacuation.
- **Communication and notification:** This refers to the methods and processes used to inform individuals about emergencies and provide clear instructions for safe evacuation.
  - ◆ **Alarm systems:** To ensure effective communication and notification during emergencies, organizations should install alarm systems, such as fire alarms and public address systems.
  - ◆ **Emergency communication plan:** This plan should be developed to guide communication with employees. This plan should incorporate multiple communication methods, such as loudspeakers, emails, text messages, or mobile apps.
- **Training and drills:** It refers to the organized activities designed to prepare individuals for emergency evacuations.
  - ◆ **Employee training:** Regular training sessions should cover the evacuation plan, including exit locations, evacuation routes, assembly points, and how to assist employees with disabilities during emergencies.
  - ◆ **Evacuation drills:** The drill should be conducted at least once a year, with more frequent sessions if possible. These drills must cover various scenarios to prepare everyone for different types of emergencies effectively.
- **During an evacuation:** It refers to the procedures, actions, and considerations that need to be followed when an evacuation is taking place.
  - ◆ **Evacuation procedure:** It is crucial for employees to remain calm and avoid panic in emergency situations. They should listen to the evacuation coordinator and follow their instructions closely. It is important to use the stairs to exit the building during emergencies because elevators may stop working or become unsafe.
  - ◆ **Headcounts and reporting:** Once at the assembly point, a headcount should be conducted to ensure everyone has evacuated safely, and any missing persons should be reported to emergency personnel immediately.
- **Post-evacuation procedures:** They are essential steps to ensure safety, accountability and easy access to normal activities after an evacuation.
  - ◆ **Do not re-enter the building:** Post-evacuation procedures include several important steps to ensure safety. Firstly, do not re-enter the building until it has been declared safe and if there are injuries, provide first-aid as needed.
  - ◆ **Incident review:** Following the evacuation, conduct an incident review to assess the evacuation process and identify any issues. Based on feedback and observations from this review, update the evacuation plan and procedures accordingly.
- **Special considerations:** It refers to specific factors or accommodations that need to be addressed to ensure the safety and effective evacuation of all individuals during an emergency.
  - ◆ **Special needs:** When planning evacuations, it's crucial to support employees with disabilities or special needs by providing necessary resources. Procedures should also ensure visitors and contractors are included in the emergency response plan.
- **Continuous improvement:** It refers to the ongoing process of evaluating, updating and enhancing the evacuation procedures and strategies based on feedback and experiences from drills or actual evacuations.

- ◆ **Review and update:** It is essential to regularly review and update to reflect changes in the workplace, such as new hazards, alterations in building layout or the addition of new employees.

## General Evacuation Procedures

General evacuation procedures are essential for ensuring the safety of individuals during an emergency. A step-by-step guide to typical evacuation procedures:

- 1. Alert:** The system has detected unusual activity and requires immediate attention to ensure security and prevent potential issues. Some key aspects of alert are as follows:
  - ◆ An emergency alert (alarm, notification, or announcement) is triggered to inform everyone about the need to evacuate. This could be due to fire, gas leaks, natural disasters, or other emergencies.
  - ◆ Ensure the alarm system is clear, loud, and easily heard across the facility.
- 2. Assess the situation:** Before making any decisions, it's important to assess the situation thoroughly by gathering all relevant information and understanding the context of the issue at hand. Some key aspects of assessing the situation are as follows:
  - ◆ Quickly evaluate the emergency situation (if it's safe to do so) and determine if evacuation is necessary. If in doubt, evacuate immediately.
  - ◆ Designate or identify a safe assembly point away from the hazardous area.
- 3. Follow evacuation routes:** In the event of an emergency, it is crucial to follow the designated evacuation routes to ensure your safety and reach the nearest exit promptly. Some key aspects of evacuation routes are as follows:
  - ◆ Employees or individuals should immediately leave the premises via pre-designated evacuation routes, marked with exit signs.
  - ◆ Ensure that all pathways are clear of obstructions, well-lit, and accessible.
  - ◆ Do not use elevators, as they might malfunction during certain emergencies.
- 4. Assistance for people with disabilities:** Assistance for people with disabilities involves providing tailored support, accommodations, and resources to help them navigate daily tasks, access services, and participate fully in society. Some key aspects of assistance for people with disabilities are as follows:
  - ◆ Designate specific personnel to assist those who may have mobility impairments or other disabilities, ensuring they are safely evacuated.
  - ◆ Use designated equipment (such as evacuation chairs) where necessary.
- 5. Evacuate calmly and quickly:** Evacuating calmly and quickly is crucial for safety in emergency situations. Some key aspects to follow:
  - ◆ Evacuees should proceed quickly and calmly, without pushing or shoving.
  - ◆ Stay together as a group, and do not return for personal belongings.
  - ◆ Follow instructions from emergency personnel or designated safety officers.
- 6. Accountability:** Accountability refers to the obligation of an individual or organization to explain, justify, and take responsibility for their actions, decisions, or performance. Some key aspects of accountability are as follows:
  - ◆ Once outside, individuals should proceed to the assembly point where a headcount will be conducted.

- ◆ Ensure that all personnel are accounted for. Report any missing individuals to emergency services.
7. **Wait for official clearance:** Wait for official clearance refers to the process of awaiting formal approval or authorization from the relevant authorities or parties before proceeding with a specific action, project, or task. Some key aspects of official clearance are as follows:
- ◆ Do not re-enter the building until it is officially deemed safe by emergency services or designated authorities.
8. **Review and update procedures:** Review and update procedures should include conducting post-event debriefings to assess the evacuation's effectiveness, identifying challenges, and regularly updating the plan. Some key aspects of review and update procedures are as follows:
- ◆ After the event, conduct a debriefing to assess the evacuation's efficiency, any challenges faced, and areas for improvement.
  - ◆ Regularly update evacuation procedures and conduct drills to ensure preparedness.

### ACTIVITY



1. Conduct a mock evacuation drill for your classroom or school. Outline the steps for the drill, including how to alert everyone, the route taken, assembly points and any special considerations.
2. Draw a simple evacuation map for your home or workplace. Mark all exits and safe assembly points.

### ASSESS YOURSELF



1. An evacuation plan outlines specific steps to safely exit a building during emergencies. (True/False)
2. Evacuation routes should be ..... of obstructions at all times.
3. Alarm systems should be tested regularly to ensure they are functioning properly. (True/False)

## Session 7: Understanding Hazards

Hazard is defined as a potential source that causes harm to an individual. Hazards can be physical, chemical, biological, ergonomic, or psychosocial in nature, and they can exist in various environments, including workplaces, homes and public spaces. Identifying and managing hazards is essential for maintaining safety and preventing accidents or health issues. In an organization, there are several types of hazards that may harm the life and health of an employee or worker. Some common types of hazards are as follows:

- **Physical hazard:** Refers to the hazard that could harm an individual with or without making a physical contact. The common sources of physical hazards are slippery floors, excessive noise, poor lighting, fire, fall, etc.
- **Ergonomic hazard:** Refers to the hazard in which the working condition and environment, body posture, and type of work, etc., put the strain on the body of an employee. The common sources of ergonomic hazards are bad sitting posture, repetitive and awkward movement, stretching the body, lifting heavy objects, etc.
- **Psychological hazard:** Refers to the hazard that affects or harms the employee mentally. The common sources of psychological hazards are extra workload, working shift, harassment, violence at the workplace, work stress, partial judgment of seniors, lack of respect, continuous low-level noise, etc.
- **Biological hazard:** Refers to the hazard that includes viruses, bacteria, insects, animal and bird droppings, etc., which can cause an adverse impact on the health of the employee. Common sources of biological hazards are mildew, blood, harmful plants, bodily fluids, sewage, dust, insect bites, etc.



- **Chemical hazard:** Refers to the hazard that harms employees when they prepare a chemical or deal with any form of chemical (solid, liquid, or gas). The sources of chemical hazard are paints, acids, solvents, vapours, fumes, varnishes, gases, flammable materials, pesticides, etc.
- **Safety hazard:** Refers to the hazard that creates an unsafe working atmosphere. The sources of safety hazards are unguarded machinery, loose or frayed carpets, hanging cables, faulty cables, unsafe and malfunctioning equipment, etc.

## Mitigation Strategies

To effectively manage these hazards, workplaces should:

- Conduct regular risk assessments to identify potential hazards.
- Implement appropriate safety measures, such as protective equipment, signage and safety protocols.
- Provide regular training and education for employees on hazard recognition and safe work practices.
- Ensure proper maintenance and inspection of equipment and facilities.
- Foster a culture of safety and encourage reporting of hazards and near-misses.



## Workplace Safety Hazards and Basic Safety Rules

Workplace safety is paramount for a healthy and productive work environment. Identifying potential hazards and adhering to safety rules can prevent accidents and injuries.

### Common Workplace Hazards

Some of the most common hazards at the workplace are as follows:

- **Slip and fall hazards:** Hazards that can cause falls, including wet or uneven floors, poor lighting, cluttered walkways, or poorly maintained stairs, are called slip and fall hazards as shown in Figure 5. Safety rules for slip and fall hazards include:
  - ◆ Keep walkways clear of obstacles and clutter.
  - ◆ Immediately clean up spills and mark wet areas with warning signs.
  - ◆ Ensure floors and stairs are well-maintained and have proper non-slip surfaces.
  - ◆ Use appropriate footwear with good traction.
- **Electrical hazards:** Electrical hazards can arise from exposed wiring, faulty equipment, or improper use of electrical tools. Safety rules for electrical hazards include:
  - ◆ Ensure all electrical equipment is properly maintained and regularly inspected.
  - ◆ Use equipment with proper grounding and safety certifications.
  - ◆ Avoid overloading electrical outlets and use extension cords correctly.
  - ◆ Turn off and unplug equipment before servicing.
- **Fire hazards:** Fire hazards can occur due to faulty wiring, flammable materials, or improper storage of combustibles. Safety rules for fire hazards include:
  - ◆ Keep flammable materials away from ignition sources.
  - ◆ Install and maintain smoke detectors and fire extinguishers.

- ◆ Conduct regular fire drills and train employees on evacuation procedures.
- ◆ Ensure clear access to fire exits and maintain fire lanes.
- **Chemical hazards:** Chemical hazards include exposure to harmful substances such as solvents, acids, or other toxic chemicals. Safety rules for chemical hazards include:
  - ◆ Store chemicals in properly labelled containers and use them according to manufacturer instructions.
  - ◆ Use PPE such as gloves and goggles when handling chemicals.
  - ◆ Ensure proper ventilation in areas where chemicals are used.
  - ◆ Have Material Safety Data Sheet (MSDS) readily available.
- **Machinery hazards:** Machine hazards involve risks from operating machinery, such as moving parts or inadequate safeguards. Safety rules for machine hazards include:
  - ◆ Install and maintain machine guards to protect operators from moving parts.
  - ◆ Train employees on safe machine operation and proper use.
  - ◆ Keep machinery in good working condition and conduct regular maintenance.
  - ◆ Ensure emergency stop controls are accessible.

### Quick Quiz

What is the recommended duration of sleep for each night?

- a. 5-6 hours
- b. 7-9 hours
- c. 10-12 hours
- d. 3-4 hours

Ans. b. 7-9 hours

## Health and Safety Requirements for Computer Workplace

Health and safety requirements for a computer workplace are crucial to ensure a safe, comfortable, and productive environment. Some of the key guidelines:

- **Ergonomics:** Ergonomics focuses on designing work environments and tools that optimize human well-being and productivity. Some key aspects of ergonomics are as follows:
  - ◆ **Workstation setup:** Ensure the desk, chair, and computer equipment are arranged to maintain a neutral posture.
  - ◆ **Chair:** Should be adjustable (height, backrest, armrests) to support the lower back.
  - ◆ **Desk:** Should have enough space for all work materials without clutter.
  - ◆ **Monitor:** Top of the screen should be at or slightly below eye level, about an arm's length away.
  - ◆ **Keyboard and mouse:** Should be at a height that keeps elbows at a 90-degree angle, wrists in a neutral position.
  - ◆ **Posture:** Encourage employees to sit upright, feet flat on the floor, knees at a 90-degree angle.
  - ◆ **Footrest:** If needed, use a footrest to support feet.
- **Lighting:** Lighting refers to the use of various light sources to illuminate a space in a way that enhances visibility and comfort while minimizing strain. Some key aspects of lighting are as follows:
  - ◆ **Natural lighting:** Utilize natural light as much as possible, minimizing glare.
  - ◆ **Artificial lighting:** Use adjustable, anti-glare lighting to avoid strain.
  - ◆ **Screen glare:** Position monitors perpendicular to windows or light sources to reduce glare.
  - ◆ **Task lighting:** Provide desk lamps for focused work.

- **Screen usage:** Screen usage refers to best practices aimed at minimizing the negative effects of prolonged screen time, especially in terms of eye strain and discomfort. Some key aspects of screen usage are as follows:
  - ◆ **Screen breaks:** Encourage short breaks every 20-30 minutes to reduce eye strain (20-20-20 rule: every 20 minutes, look at something 20 feet away for 20 seconds).
  - ◆ **Font size and contrast:** Adjust screen settings to have comfortable font size and contrast.
  - ◆ **Blue light filters:** Use blue light filters or screen settings to reduce eye strain.
- **Electrical safety:** Electrical safety refers to practices and precautions taken to prevent electrical hazards that could lead to injury, fire, or damage to equipment. Some key aspects of electrical safety are as follows:
  - ◆ **Cable management:** Ensure cables are organized and not a tripping hazard.
  - ◆ **Power outlets:** Use grounded outlets and avoid overloading sockets.
  - ◆ **Surge protectors:** Use surge protectors to safeguard equipment from power surges.
  - ◆ **Regular inspection:** Check and maintain electrical equipment regularly for safety.
- **Air quality and temperature:** Air quality and temperature are crucial factors in maintaining a comfortable and healthy workplace environment. Some key aspects of air quality and temperature are as follows:
  - ◆ **Ventilation:** Maintain good air circulation with proper ventilation.
  - ◆ **Temperature control:** Keep the workplace temperature comfortable (around 20-22°C or 68-72°F).
  - ◆ **Humidity levels:** Maintain adequate humidity (30-50%) to prevent dry air that can affect eyes and skin.
- **Noise levels:** Noise levels refer to the intensity or volume of unwanted sound in an environment, which can be distracting, disruptive, or harmful to productivity and well-being. Some key aspects of noise levels are as follows:
  - ◆ **Noise reduction:** Use noise-absorbing materials (carpets, curtains) to reduce ambient noise.
  - ◆ **Headphones:** Encourage using noise-canceling headphones if needed.
  - ◆ **Quiet zones:** Create quiet zones for focused work or meetings.
- **Breaks and movement:** Breaks and movement refer to strategies that promote physical activity and rest to reduce the negative effects of prolonged sitting and computer use. Some key aspects of breaks and movement are as follows:
  - ◆ **Regular breaks:** Encourage regular breaks away from the computer to reduce fatigue.
  - ◆ **Stretching:** Promote stretching exercises to relieve tension, especially for neck, back, and wrists.
  - ◆ **Movement:** Encourage standing up, walking around, or using a sit-stand desk to reduce sedentary behaviour.
- **Health and safety training:** Health and safety training is an essential part of creating a safe and healthy work environment. Some key aspects of health and safety training are as follows:
  - ◆ **Training:** Provide training on ergonomic practices, correct workstation setup, and safe use of equipment.

- ◆ **First aid:** Ensure easy access to first aid kits and provide training for basic first aid.
- ◆ **Emergency procedures:** Communicate clear procedures for emergencies (fire, electrical faults, evacuation routes).
- **Equipment maintenance:** Equipment maintenance refers to the ongoing process of ensuring that all equipment, such as computers, monitors, chairs, and other office or industrial tools, are in good working condition. Some key aspects of equipment maintenance are as follows:
  - ◆ **Regular checks:** Schedule routine inspections for all equipment (computers, monitors, chairs) to ensure they are functioning properly.
  - ◆ **Repairs and replacements:** Replace damaged or faulty equipment promptly.
- **Mental health considerations:** Mental health considerations in the workplace focus on creating a supportive environment that prioritizes the emotional and psychological well-being of employees. Some key aspects of mental health consideration are as follows:
  - ◆ **Workload management:** Encourage a balanced workload to avoid stress.
  - ◆ **Support:** Provide access to mental health resources and support, including counselling if necessary.
  - ◆ **Flexible work options:** If possible, offer flexible work arrangements to support employee well-being.

## ACTIVITY



1. Your school is conducting a safety audit to identify and address potential hazards in different areas, such as classrooms, hallways and playgrounds. Your task is to work in groups to identify these hazards and propose solutions.

## ASSESS YOURSELF



1. Ergonomic hazards mainly affect the mental health of workers. (True/False)
2. Regular fire drills are an important part of fire hazard prevention. (True/False)

## Session 8: Healthy Living

Healthy living involves adopting habits that promote physical, mental and emotional well-being, including proper nutrition, exercise, sleep and stress management. The healthy lifestyle of an individual makes a healthy environment at home as well as at the workplace. Happy and healthy employees always do their best at the workplace. It is important to understand how to follow a healthy lifestyle. Some key components and tips for healthy living are as follows:


- **Nutrition:** To maintain a healthy lifestyle, prioritizing a balanced diet is crucial by consuming a variety of foods, including fruits, vegetables, whole grains and healthy fats. Practice portion control to prevent overeating, stay hydrated with water and limit processed and sugary foods.
- **Physical activities:** To maintain a healthy lifestyle, aim for at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous exercise weekly, along with muscle-strengthening activities twice a week. Stay active throughout the day by taking breaks to walk or stretch and pursuing outdoor activities like playing sports.
- **Mental and emotional well-being:** Practice stress-relief techniques like deep breathing, meditation, yoga, or mindfulness. Building healthy relationships with family, friends and colleagues provides essential social support. Engaging in activities that relax and rejuvenate you, such as hobbies, reading or spending time in nature, can also promote emotional balance.

- **Sleep:** Adequate sleep is essential for physical and mental health, with 7-9 hours of quality sleep recommended each night. Good sleep hygiene includes maintaining a regular sleep schedule, creating a comfortable sleep environment, and reducing screen use before bedtime.
- **Healthy lifestyle choices:** Avoid smoking, alcohol and drugs, as they can lead to serious health problems. Maintain regular health check-ups for preventive screenings, vaccinations and ongoing health management.
- **Good hygiene and personal care:** This involves maintaining cleanliness to promote health and well-being. This includes regular handwashing, bathing, oral hygiene, grooming and wearing clean clothes. These habits prevent illness, reduce the spread of germs and enhance self-esteem, contributing to both personal health and a positive social impression.
- **Healthy mindset and personal growth:** It involves cultivating a positive attitude by practicing gratitude, engaging in lifelong learning and personal development, and setting realistic, achievable goals. Focusing on these areas helps foster continuous improvement in both personal and professional aspects of life.

The tips for healthy loving are shown in Figure 6:



Figure 6: Healthy Living Tips

**ACTIVITY** 

1. Plan a balanced meal for a week that includes healthy options for breakfast, lunch and dinner in a scrapbook along with pictures.
2. Develop a checklist of good sleep hygiene practices that can help improve the quality of your sleep.

**ASSESS YOURSELF** 

1. It is recommended to get ..... minutes of moderate-intensity aerobic exercise per week.
2. A good way to manage stress is by practicing .....

# Summary

- Health and safety of employees at the workplace play an important role in the overall effectiveness of an organization.
- First-aid is the initial aid given to an injured or sick person to save his/her life before the arrival of medical assistance.
- The main purpose of first-aid is to provide immediate relief to the patient until medical assistance arrives.
- An accident is defined as an unfortunate event that happens unpredictably as well as unintentionally and may lead to harm and injury to people.
- An emergency is defined as an unforeseen situation that requires immediate attention and action to prevent risk of health, life, wealth, or atmosphere.
- Fire emergencies can happen suddenly and spread quickly, causing serious risks to life and property.
- An emergency and evacuation plan is a comprehensive strategy designed to ensure the safety of individuals during emergencies, such as fires, natural disasters, chemical spills, or other crises.
- An evacuation plan provides a set of procedures to be used by the occupants of a building in an emergency.
- Hazard is defined as a potential source that causes harm to an individual. In an organization, there are several types of hazards that may harm the life and health of an employee or worker.
- Hazards that can cause falls, including wet or uneven floors, poor lighting, cluttered walkways or poorly maintained stairs, are called slip and fall hazards.
- A healthy lifestyle helps an individual to maintain and improve his health and happiness.
- The healthy lifestyle of an individual makes a healthy environment at home as well as at the workplace. Happy and healthy employees always do their best at the workplace.



## KEY TERMS

- **Bruised:** A condition where the skin and underlying tissues are injured, causing blood vessels to break and bleed into the surrounding area.
- **Electrocution:** It refers to death or severe injury caused by electric shock.
- **Ergonomic:** The study and practice of designing and arranging workspaces, tools, and tasks to fit the needs, capabilities and limitations of human body.
- **Equipment:** It refers to the tools, machines, devices or materials used for a specific purpose or task. It can include anything from simple hand tools (like hammers) to complex machinery (like computers or industrial machinery) required to perform work or achieve a goal.
- **Evacuation:** It is a planned evacuation of individuals from a dangerous place to ensure their safety, usually during emergencies such as natural disasters, fires, or military activities, with an emphasis on a quick and organized exit.
- **Extinguisher:** An extinguisher is a portable device designed to put out or control fires. It typically contains substances like water, foam, or chemicals, which help suppress flames and prevent fire spread.
- **Flammable:** It describes materials that can ignite quickly and catch fire when exposed to heat, flames, or sparks, posing fire hazards.
- **Harassment:** It refers to any unwanted, intrusive, or offensive behaviour that creates a hostile or intimidating environment for individuals.
- **Mitigation:** The process of reducing the severity, impact, or likelihood of a harmful event.
- **Physiotherapy:** It is a healthcare specialty that focuses on restoring movement and function through exercises, manual therapy and patient education for rehabilitation.
- **Rejuvenate:** It refers to the process of revitalizing or renewing something, restoring its youthful energy, vigour, or freshness, often associated with improving health, well-being or appearance.
- **Tourniquet:** A medical device used to apply pressure to a limb to control severe bleeding, typically in emergency situations.



## PRACTICE QUESTIONS

### Solved Questions

#### Multiple-Choice Questions (MCQs)

1. Which of the following is a “Don’t” in providing first-aid?
  - a. Assure the victim of immediate help
  - b. Use direct pressure to stop bleeding
  - c. Raise the victim’s head if bleeding is in the upper body
  - d. Apply a tourniquet
2. If a victim has a wound, how should it be cleaned according to the first-aid guidelines?
  - a. With a cloth
  - b. With sterile wipes
  - c. With unwashed hands
  - d. Not to clean at all
3. Which of the following is not mentioned as a tip for living a healthy life?
  - a. Eating healthy food
  - b. Maintaining a smoke-free environment
  - c. Avoiding physical exercise
  - d. Drinking sufficient amounts of water
4. What are common sources of chemical hazards in the workplace?
  - a. Loose or frayed carpets
  - b. Repetitive and awkward movements
  - c. Paints, acids and solvents
  - d. Extra workload and harassment
5. Which hazard involves issues such as unguarded machinery and faulty cables?
  - a. Psychological hazard
  - b. Safety hazard
  - c. Chemical hazard
  - d. Ergonomic hazard

#### ANSWERS

1. d.    2. b.    3. c.    4. c.    5. b.

#### Very Short Answer Questions

1. Why should fire safety signs be clearly visible?

Ans: Clear signs help guide employees to exits and firefighting equipment during emergencies.
2. How can employees ensure they are using safe electrical equipment?

Ans: Use equipment that meets government safety standards and is well-maintained.

3. Define first-aid.

Ans: First-aid is the initial aid given to an injured or sick person to save his/her life before the arrival of specialized medical assistance.

4. What is an accident?

Ans: An accident is defined as an unfortunate event that happens unpredictably as well as unintentionally and may lead to harm and injury to people.

#### Short Answer Questions-I

1. How should accidents be handled in the workplace to ensure safety?

Ans: Handling workplace accidents involves immediate response and reporting. First, provide first-aid to the injured and call emergency services if needed. Secure the area to prevent further injuries and document the incident. Investigate the cause and implement corrective measures, such as safety training or equipment repairs, to prevent recurrence. Maintain clear communication with all employees and ensure they are aware of safety procedures and their roles in emergency situations.

2. What are the different types of emergencies that can occur in a workplace, and how should they be addressed?

Ans: Workplace emergencies include natural disasters (earthquakes, floods), fires, chemical spills and medical emergencies. Each requires specific responses: evacuate for fires and natural disasters, use spill kits for chemical spills, and provide immediate first-aid for medical emergencies. Regular training, clear emergency plans, and proper safety equipment are essential. Ensuring all employees understand their roles and the procedures for different emergencies can significantly enhance workplace safety and readiness.

#### Short Answer Questions-II

1. What are the critical steps involved in general evacuation procedures at a workplace, and why are they essential for ensuring safety during an emergency?

Ans: General evacuation procedures include creating a detailed plan, marking emergency exits, conducting regular drills and training employees on their roles. The plan should outline routes, assembly points and actions for various emergencies. Employees must help people with special needs, ensure routes are clear, and maintain updated emergency contacts, promoting safe, efficient evacuations and minimizing risks.

2. What are the key components of providing effective first-aid in the workplace, and why are they essential?

Ans: Key components of effective workplace first-aid include having trained personnel, accessible first-aid kits, and clear procedures for common injuries like cuts, burns and fractures. Ensuring employees know how to summon professional medical help is also critical. These elements are essential because they enable immediate response to injuries, stabilize victims before medical professionals arrive, and prevent minor injuries from becoming more serious, thereby promoting a safer work environment.

### Long Answer Questions

1. What are the core principles of maintaining a healthy lifestyle, and how do they contribute to overall well-being and productivity?

Ans: Core principle of maintaining a healthy lifestyle involves eating a balanced diet with fruits, vegetables and whole grains while limiting processed foods. Regular physical activity supports heart health, boosts energy and improves mood. Managing stress through mindfulness or relaxation improves mental well-being, and adequate sleep is essential for recovery and brain function. These practices enhance physical and mental health and enhance productivity by improving focus and resilience in daily life.

2. What do you mean by hazard? Explain any three hazards at the workplace.

Ans. Hazard is defined as a potential source that causes harm to an individual. In an organization, there are several types of hazards that can harm the life and health of an employee or worker. Some common types of hazards at the workplace are as follows:

- **Biological hazard:** Refers to the hazard that includes viruses, bacteria, insects, animal and bird droppings, etc., which can cause an adverse impact on the health of the employee. Common sources of biological hazards are mildew, blood, harmful plants, bodily fluids, sewage, dust, insect bites, etc.
- **Ergonomic hazard:** Refers to the hazard in which the working condition and environment, body posture, and type of work, etc. puts strain on the body of an employee. The common sources of ergonomic hazards are bad sitting posture, repetitive and awkward movement, stretching the body, lifting heavy objects, etc.
- **Psychological hazard:** Refers to the hazard that affects or harms the employee mentally. The common sources of psychological hazards are extra workload, working shift, harassment, violence at the workplace, work stress, partial judgment of seniors, lack of respect, continuous low-level noise, etc.

### Higher Order Thinking Skills (HOTS) Questions

1. An employee experiences frequent back pain due to poor posture at their workstation. What should the company implement to address this issue effectively?

Ans: The company should implement ergonomic assessments, provide adjustable furniture, offer posture training, encourage regular breaks, and supply ergonomic accessories. These measures help correct poor posture and reduce back pain at work.

2. An employee notices that a fire extinguisher in their department is missing. What immediate actions should the employee take?

Ans. The employee should report the missing fire extinguisher to the safety officer and ensure the area is equipped with a replacement.

### Assignment

#### Multiple-Choice Questions (MCQs)

1. What kind of hazard includes factors like extra workload and work stress?
- a. Physical hazard
  - b. Chemical hazard
  - c. Psychological hazard
  - d. Safety hazard
2. What is a recommended frequency for physical exercise to maintain a healthy lifestyle?
- a. Once a week
  - b. Daily for at least 30 minutes
  - c. Once a month
  - d. Only on weekends

#### Very Short Answer Questions

1. What is hazard?
2. Why is it important to keep an eye on the victim's condition during first-aid?

#### Short Answer Questions-I

1. What type of emergency involves a chemical spill?
2. List down the different types of accidents.

#### Short Answer Questions-II

1. What are the primary objectives of first aid, and list any three key principles of first aid?
2. What are the benefits of regular physical exercise?

#### Long Answer Questions

1. Write a detailed note on emergency and evacuation plans.
2. Explain the rules for maintaining workplace safety from fire, falls, slips, trips and electricity.







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# Information Technology

## About the Booklet

This booklet on 'Information Technology (IT)' is designed to upgrade the skills and proficiency of the young generation. Using IT responsibly, effectively and safely is a vital attribute of a good 'digital citizen' in the 21st century.

This booklet has been designed as per the latest CBSE syllabus of the vocational course Information Technology, code 402, for Class X. It will help students understand the concepts and implement them in various practical applications. The booklet aims to develop a basic understanding of IT concepts among the beginners. It mainly focuses on:

- Explaining IT concepts in a simple language
- Using a step-by-step approach, supplemented by figures and callouts to explain the concepts
- Providing Definitions, Did You Know and Notes to enhance the reader's knowledge
- Providing Practice Questions at the end of each unit

## Highlights of the Booklet

- Full-colour Booklet
- Simple, clear and concise language, making the booklet easy and enjoyable to read
- Adhere to the latest Syllabus of CBSE
- Illustrations and real-life examples to explain concepts
- Practice questions include:
  - Multiple-Choice Questions (MCQs)
  - Fill in the Blanks
  - Theoretical Questions
  - Lab Activities

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