


# Digital Documentation (Advanced)

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.

## 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:

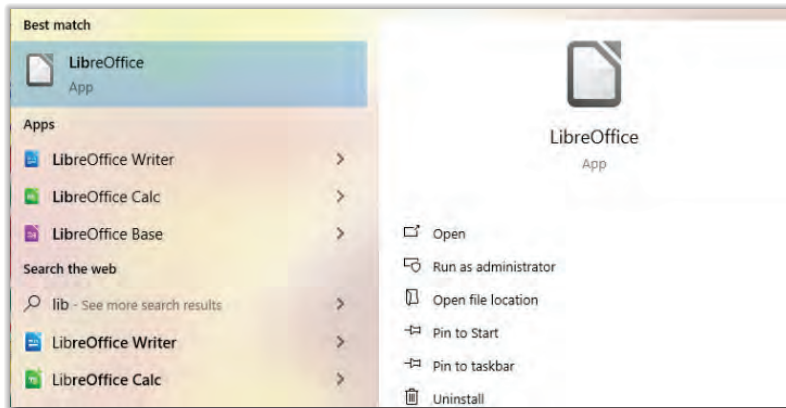


Figure 1: Selecting LibreOffice Application

- 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. Alternatively, Type LibreOffice Writer in the start menu to directly open the Writer, and double-click the LibreOffice Writer icon to open it.

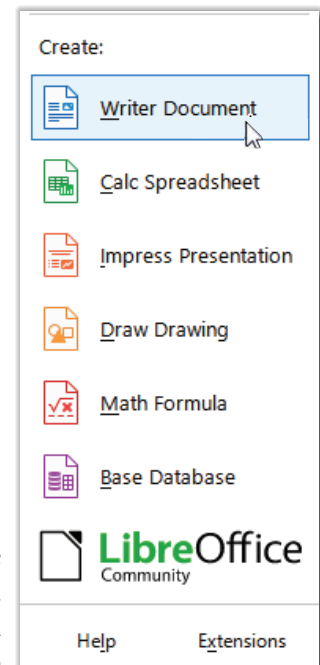


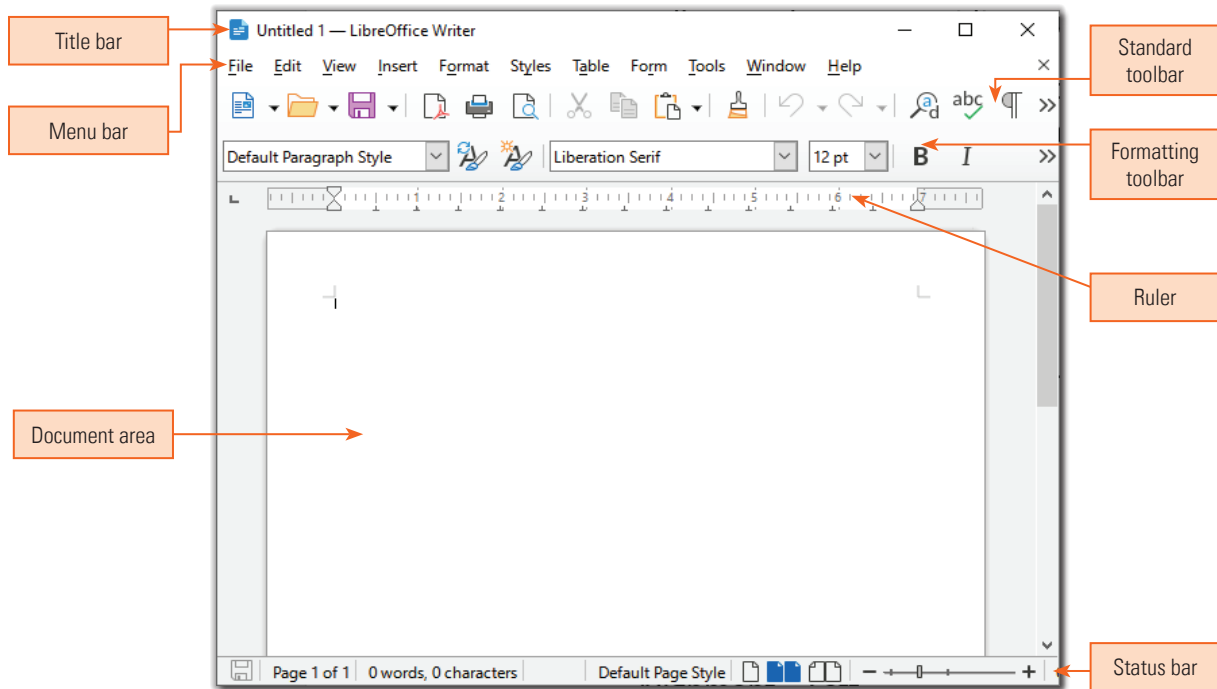
Figure 2: Selecting Writer Document

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.

The components of LibreOffice are shown in Figure 3:



**Figure 3:** LibreOffice Writer Window

## Session 2: Working with Styles in Document

A style is a collection of all formatting information, which you want to save and then apply to the document. For example, the following details of the Font are stored as default.

Size – 12

Name – Liberation Serif

Weight – None

Alignment – Left

## Style Categories

Writer provides six Style categories, as shown in Figure 4:

- Paragraphs organize document content, starting and ending with the Enter key. Formatting options include tab stops, text alignment, line spacing, borders, and character styles for individual formatting within paragraphs.
- Character styling modifies specific words or phrases within paragraphs without affecting the entire paragraph. It enables changes such as text color, size, highlighting, and emphasis.
- Frames organize document sections with distinct appearances, containing text, graphics, or lists. Frame Styles adjust size, position, borders, and text wrapping around images.
- Pages in Writer documents are formatted using Page Styles, which define layout aspects such as size, margins, headers, footers, footnotes, borders, and backgrounds. Each document can employ one or multiple page styles, defaulting to the built-in Default style if unspecified.
- Lists are styled separately to format numbering or bullet points with different styles or formats.
- Tables efficiently organize large amounts of information. Table Styles format tables with borders, text and border colors, text alignment, patterns, and text formatting within cells.

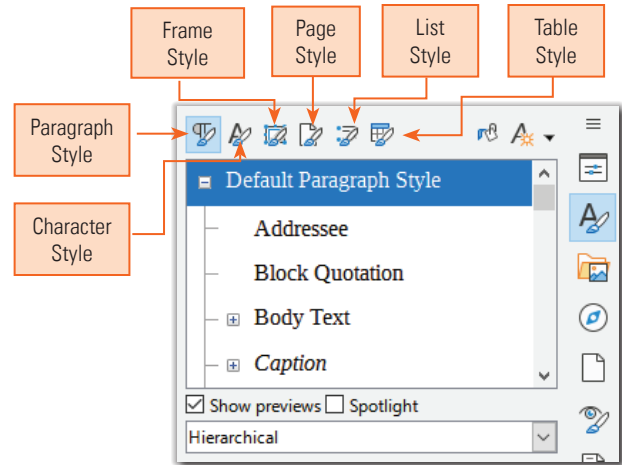


Figure 4: Different Styles in LibreOffice Writer

## Applying Styles in Documents

Working with styles streamlines document formatting by allowing the consistent application of predefined formatting options. This enhances efficiency, ensuring uniformity in text appearance, headings, and other elements across the document. Perform the following steps to apply styles using the Styles dialog box:

- 1 Open LibreOffice Writer. Open a new or existing document containing some text. Select the text in the document to which style operations will be applied.
- 2 Go to the Menu bar and select Styles, or press F11 on your keyboard. This will open the Styles and Formatting window on the right side of the screen.
- 3 Click on the desired style category in the Styles box. Double-click on the style that you want to apply.

In this case, we have selected LibreOffice Writer text, and from Paragraph Style, we chose Heading 1 as shown in Figure 5.

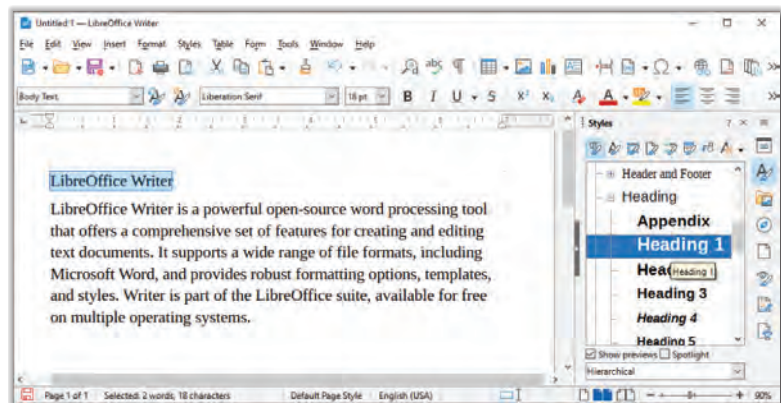
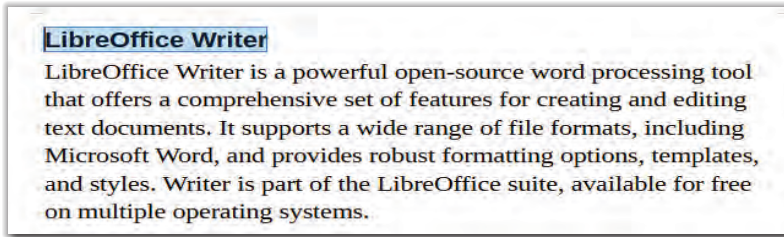


Figure 5: Selecting Styles

The output after applying the styles is shown in Figure 6:



**Figure 6:** Displaying Text after Applying Style

## Applying Styles Using Fill Format Option

Perform the following steps to apply styles using the Fill Format option:

- 1 Open LibreOffice Writer. Open a new or existing document containing some text. Select the text in the document to which style operations will be applied.
- 2 Go to the Menu bar and select Styles, or press F11 on your keyboard. In the Styles and Formatting window, click on the Fill Format Mode button. This button looks like a paintbrush icon and is typically located at the top of the Styles and Formatting window. After entering Fill Format Mode, your cursor will change to a paintbrush icon.
- 3 Click on the style you want to apply from the Styles and Formatting window. Now, click or drag over the text or paragraphs in your document where you want to apply the selected style. The style will be applied to the selected areas. To exit Fill Format Mode, either press Esc on your keyboard or click the Fill Format Mode button again in the Styles and Formatting window.

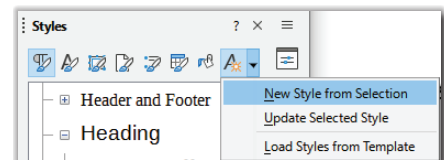
## Creating and Updating New Style from Selection

In LibreOffice Writer, you can create and update styles based on selected text to streamline formatting. This ensures a consistent appearance and simplifies style management across your document.

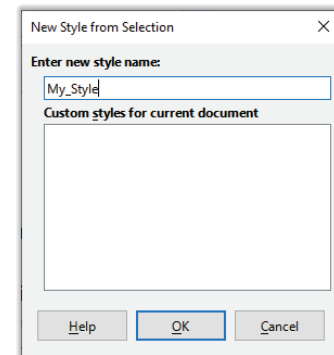
### Creating a New Style from Selection

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

- 1 Open LibreOffice Writer. Highlight the text that you want to base your new style on. This text will serve as a reference for your new style.
- 2 Go to the Styles menu in the top menu bar. Click on Styles and Formatting or press F11 to open the Styles and Formatting window.
- 3 Click on the Style actions button in the Styles and Formatting window, which looks like a Letter A with a star on it (A\*), and then select New Style from Selection as shown in Figure 7.
- 4 Enter a name for your new style in the Style Name field. In this example, we saved the Style as My\_Style, as shown in Figure 8. Right-click My\_Style from the Styles dialog box and select Edit Style. Adjust the formatting options (such as font,



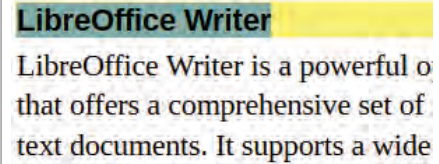
**Figure 7:** Selecting New Style from Selection



**Figure 8:** Saving a new style as My\_Style.

size, color, paragraph alignment, etc.) according to your preferences. These settings will be based on the selected text. In this case, we used the Highlighting color as Light Teal 2 and the Area color as Light Yellow 2.

- 5 Click OK to create the new style. Your new style will now be available in the Styles and Formatting window. The output of applying the styles is shown in Figure 9.



**LibreOffice Writer**  
LibreOffice Writer is a powerful open-source word processing tool that offers a comprehensive set of features for creating and editing text documents. It supports a wide range of file formats, including Microsoft Word, and provides robust formatting options, templates, and styles. Writer is part of the LibreOffice suite, available for free on multiple operating systems.

Figure 9: Output of Applying New Style

## Updating an Existing Style from Selection

Perform the following steps to update a style using the Styles dialog box:

- 1 Select the page or paragraph you want to modify.
- 2 Format the selected portion according to your requirements.
- 3 Navigate to the Style menu and click the update button.
- 4 Use the Style Action button to update the selected style.

## Creating a Style using the Drag and Drop Method

Perform the following steps to create a new style using the Drag and Drop method:

- 1 Select the category under which you want to create the new style in the Styles dialog box.
- 2 Click on the specific style where you want the new style to be created. Highlight the text that you want to base your new style on.
- 3 Drag the formatted text from your document into the Style Menu and save the new style with a new name.

In this case, we have selected Strong Emphasis from Character Style. The style is saved as Emphasis\_Style. The output is shown in Figure 10:

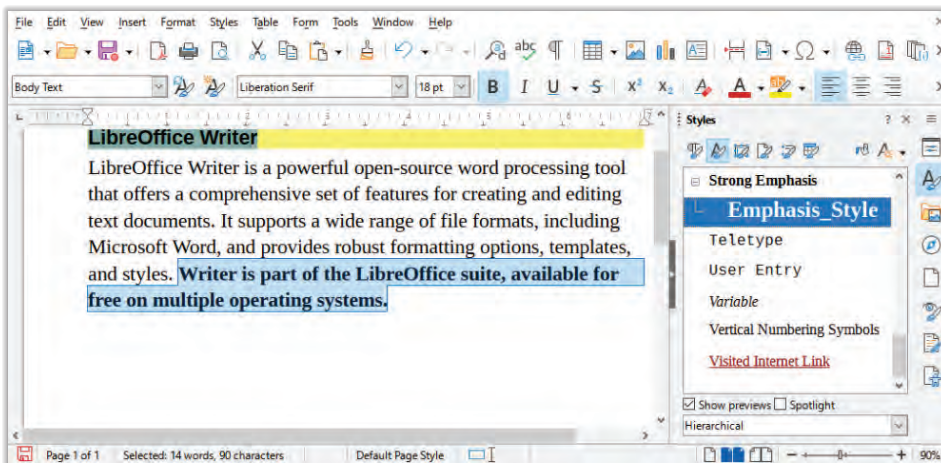


Figure 10: Creating a New Style using Drag and Drop

## Load Style from Template or Another Document

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

- 1 Open the Styles dialog box. Click on the style action button and select Load Styles from Template.
- 2 Select from File and navigate to the document or template containing the styles you want to import.

## Session 3: Working with Images and Graphical Objects

Working with images and graphical objects in LibreOffice Writer involves inserting, editing, and arranging elements such as images, shapes, and diagrams. This enhances document presentation, enabling users to create visually appealing and informative content through intuitive tools and formatting options.

### Inserting an Image from Various Sources

Perform the following steps to insert images in the document:

- 1 Open the document to insert an image in LibreOffice Writer.
- 2 Go to Insert → Image from the menu bar.
- 3 Browse to the image file in the Insert Image dialog box, select it, and click the Open button to insert an image into the document. The output of the steps is shown in Figure 11.

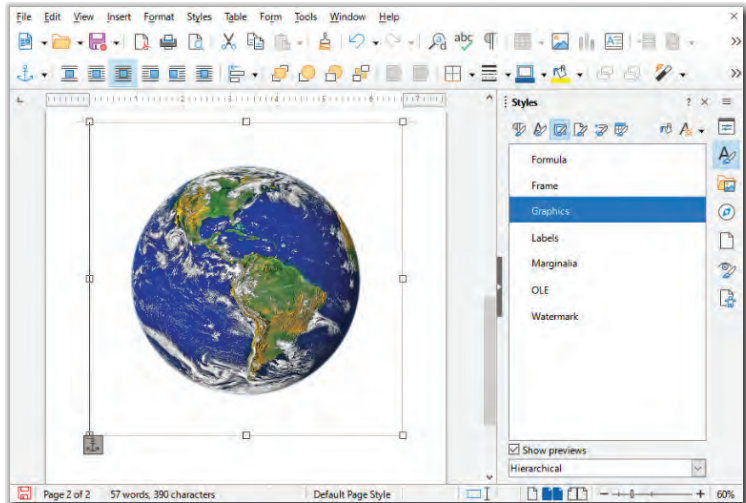


Figure 11: Inserting Image in Document

- 4 Alternatively, insert an image using the Copy and Paste method by copying the image and then pasting it into the desired location of the document.

### Modifying, Resizing, Cropping, and Deleting an Image

In LibreOffice Writer, modifying, resizing, cropping, and deleting images and graphical objects allows users to customize document visuals. These functions enhance the layout, improve design, and ensure graphics fit seamlessly within the document's content and structure. Perform the following steps to modifying, resizing, cropping, and deleting images in the document:

- 1 Use the image inserted in the previous step. Double-click the image to open the Image dialog box. Access options such as Positions and Size, Rotation and Crop.
- 2 Enter the desired dimensions for precise resizing. Go to Crop, then click the arrows in the Keep scale options. Observe the preview shelf for better accuracy, as shown in Figure 12.

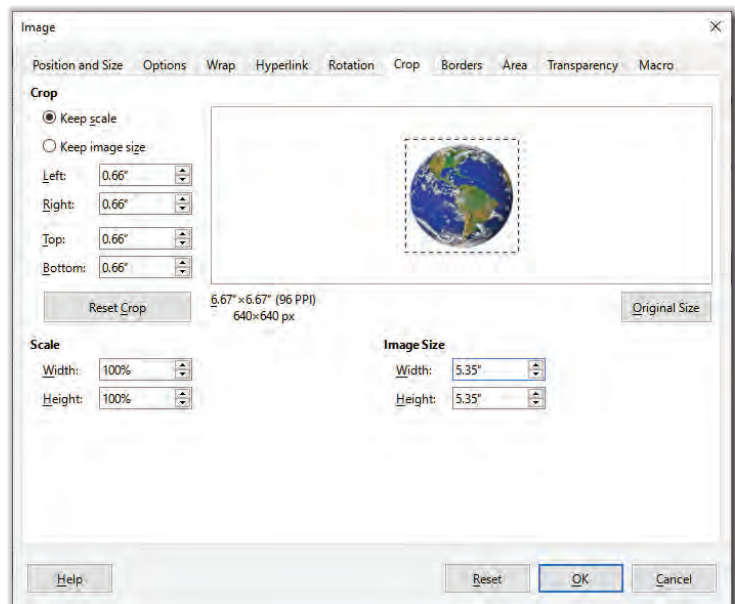


Figure 12: Cropping an Image

- 3 Click on the image to select it. Press Delete key on the keyboard to delete the image from the document.

## Working with Drawing Objects

Working with drawing objects in LibreOffice Writer allows users to create, modify, and format various graphical elements such as shapes, lines, and images. This feature enhances document presentation by integrating visual components seamlessly with text and other content.

To show the Drawing Toolbar in the Writer window, wclick on View → Toolbars → Drawing, as illustrated in Figure 13.

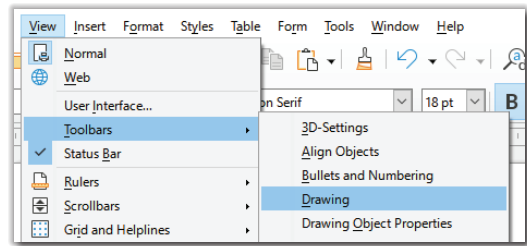


Figure 13: Enabling Drawing tools

This will open the Drawing Toolbar, depicted in Figure 14, which includes a variety of basic drawing objects for creating your desired design.



Figure 14: Drawing Toolbar

## Inserting Drawing Objects in a Document

Perform the following steps to insert drawing objects into a document:

- 1 Place the cursor in the document where you want the drawing to be placed. Select the tool from the Drawing toolbar, as shown in Figure 14. The mouse pointer changes to a drawing-function pointer.
- 2 Move the pointer to the place in the document where you want the image to appear, and then click-and-drag to create the drawing object.
- 3 Release the mouse button to finish drawing. The selected drawing function remains active, so you can draw another object of the same type.
- 4 Press the Esc key or click the Select icon (the arrow) on the Drawing toolbar to cancel the selected drawing function. The output of the steps is shown in Figure 15.

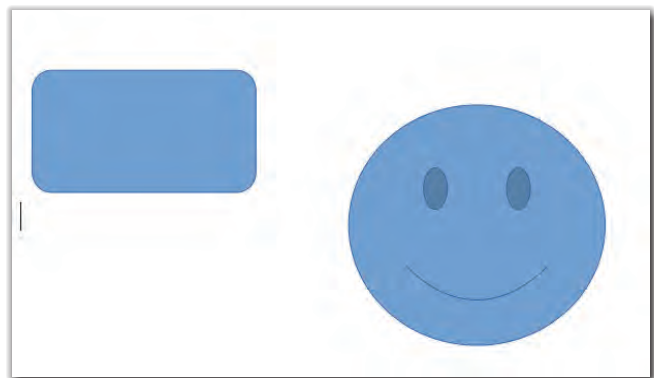


Figure 15: Inserting Drawing Objects in Document

## Setting or Changing Properties of Drawing Object

Perform the following steps to change the properties of a drawing object:

- 1 Click on the drawing object in the document. This will open the Drawing Object Properties toolbar just below the Standard toolbar, as shown in Figure 16.
- 2 Click the icon of the property to be modified in the Drawing Object Properties toolbar. In this case, we have selected the Fill Color as Light Lime 2, Line Color as Dark Lime 3, and Line Style as Dash (Rounded).

The output of the above steps is shown in Figure 17.

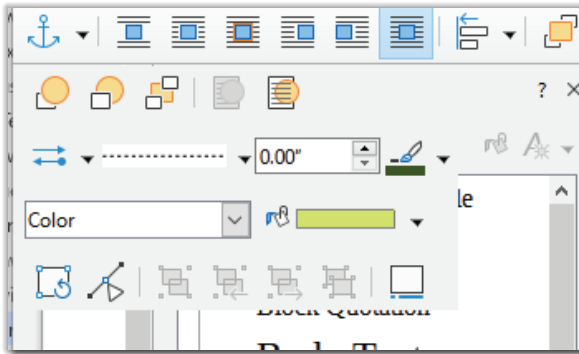


Figure 16: Drawing Object Properties toolbar

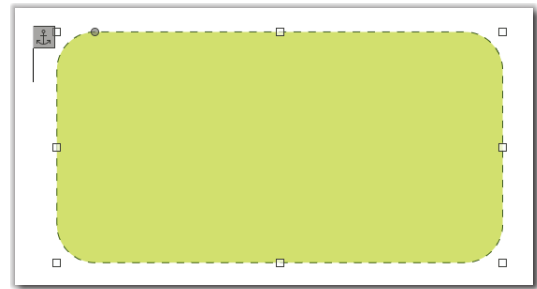


Figure 17: Displaying Object with Selected Properties

## Resizing and Grouping Drawing Objects

Perform the following steps to resize or group drawing objects:

- 1 Select the object to be resized. All eight handles on the corners and edges will become visible.
- 2 Click and drag any handle to resize the object. Use corner handles to maintain the object's original shape or edge handles for non-proportional resizing.
- 3 Select the first object by clicking on it.
- 4 Hold the Shift key and continue selecting additional objects to include in the group.
- 5 Select the group tool from the Drawing Object Properties Toolbar (Figure 16) or select Format → Group → Group from the main menu to group the selected objects.

## Positioning Image in the Text

Perform the following steps to position the image in the document:

- 1 Right-click on the image and select Anchor → To Paragraph.
- 2 Select Wrap → Optimal to wrap the image in the optimal space of the text. Select Flip → Flip Horizontally.

The output of the above steps is shown in Figure 18:

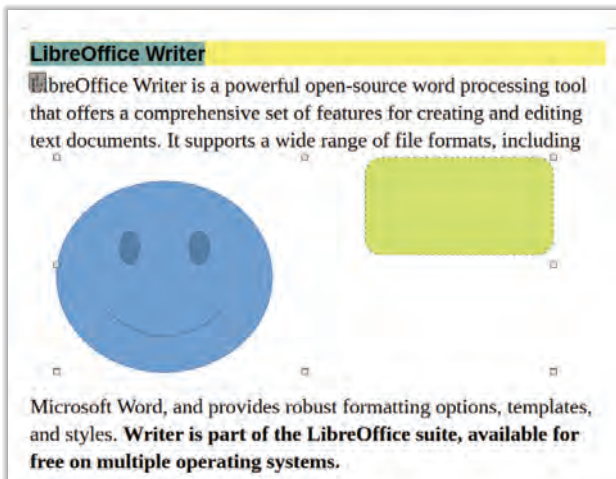


Figure 18: Positioning the Image in Text



# Session 4: Creating and Using Templates

Templates are preset layouts for creating professional documents easily. This session covers creating templates to include reusable content such as logos, images, and text, streamlining document creation by avoiding repetitive formatting. Templates can be used for resumes, reports, and more.

## Creating a Document using Predefined Templates

Creating a document using predefined templates streamlines the process by providing a ready-made layout. Templates ensure consistency and efficiency, allowing you to easily insert and format content like text, images, and graphics.

Perform the following steps to create a new document using templates:

- 1 Open LibreOffice Writer. Go to File → New → Templates, as shown in Figure 19. Browse through the available templates.

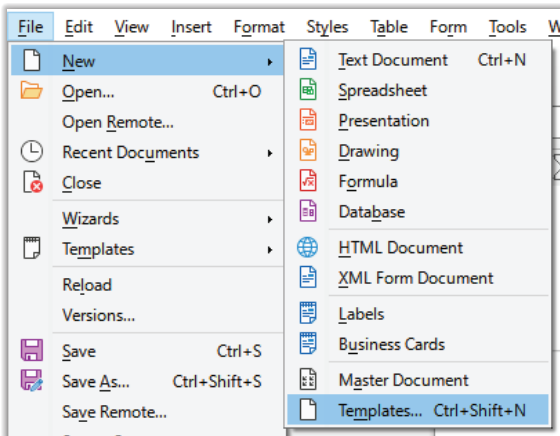


Figure 19: Finding Template Option

- 2 Select a template and right-click the Open button to create a new document based on that template. A new Untitled document opens up. In this example, we used the Modern template as shown in Figure 20.

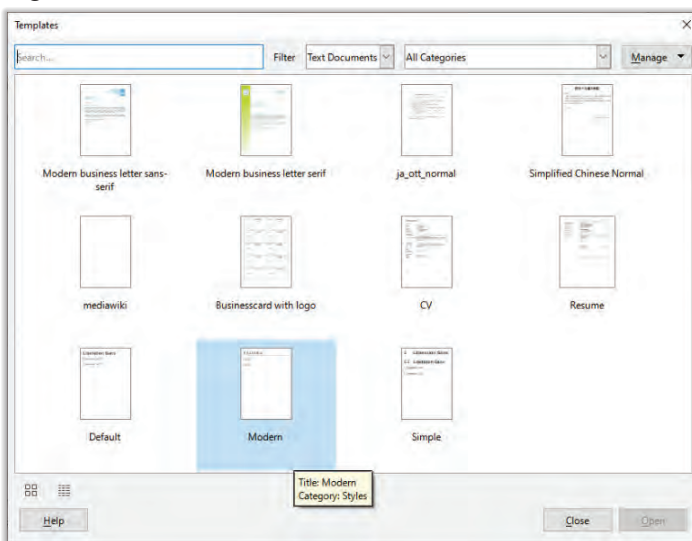


Figure 20: Selecting Modern Template

## Creating a Template

Creating a template in LibreOffice Writer streamlines document creation by allowing you to set up reusable layouts, styles, and elements, making it easy to generate consistent, professional documents efficiently. You can create templates from existing documents or use the built-in wizard for efficiency.

### Creating a Template from a Document

Perform the following steps for creating a template from a document:

- 1 Open a new document and format it as desired (styles, headings, footers, etc.).
- 2 Go to File → Templates → Save As Template. Name the template, choose a category, and select Save, as shown in Figure 21.

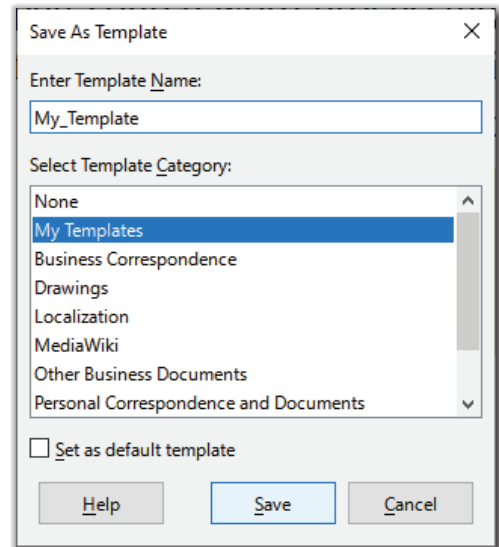


Figure 21: Saving a Newly Created Template

### Creating a Template using Wizard

Perform the following steps to create a template using the Wizard in LibreOffice Writer:

- 1 Go to File → Wizards → Letter or Fax, or select another available option depending on the type of document to create a template for.
- 2 Select the type of document (e.g., Business Letter, Personal Letter) and right-click on the Next button in the dialog box.
- 3 Select the layout and design for the template. Right-click on the Next button and select the elements to include in the template (e.g., header, footer, sender, and recipient information). Review the selections and right-click the Finish button.
- 4 Go to File, then Templates, and then Save As Template. Name the template, choose a category, and select Save.

## 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 Go to File → Save in the menu bar or press Ctrl + S on the keyboard to save the updates. If the document is linked to a template and the template is updated, the document will prompt to update styles when opened.
- 3 Select Update Styles to update the styles based on the new template, if prompted.

## Session 5: Working with Table of Contents

In LibreOffice Writer, a Table of Contents (TOC) provides an organized overview of document headings. It auto-generates 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 sub-sections.
- 2 Apply heading styles (e.g., Heading 1, Heading 2, etc.) by selecting them from the Styles dialog box as shown in Figure 22.
- 3 Position the cursor in the place where the Table of Contents will be displayed. Go to **Insert** → **Table of Contents and Index** → **Table of Contents, Index, or Bibliography** from the menu tab. In the dialog box that appears, ensure the **Type** tab is selected.
- 4 Choose **Table of Contents** as the type. Select **OK** button to insert the Table of Contents. The output of the document is shown in Figure 23:

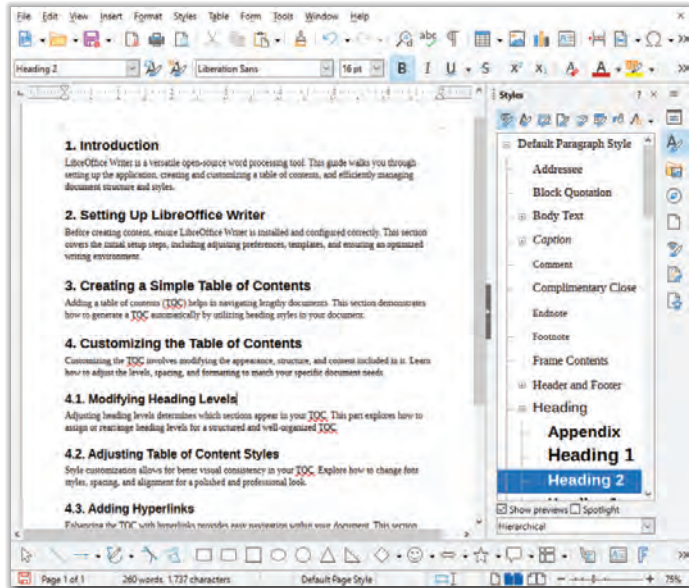


Figure 22: Applying Heading Style

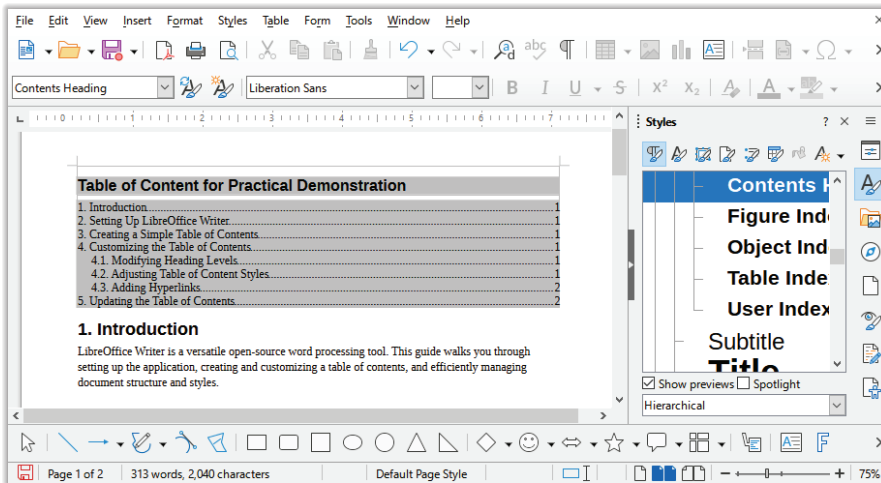


Figure 23: Table of Content in Document

## Customization of 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. These customizations ensure that the TOC aligns with specific document requirements and enhances readability.

## Deleting a Table of Contents

If you need to remove a TOC from your document, follow these steps to delete it without affecting the rest of your content:

- 1 Open LibreOffice Writer and select the document containing the TOC you want to delete.

- 2 Scroll through your document to find the Table of Contents. It is typically located at the beginning or in a designated section of the document and then select the TOC by right-clicking on the TOC title and dragging the mouse till the end of the TOC.
- 3 Press the Delete key on your keyboard, or right-click on the TOC and choose Delete from the context menu. This action removes the TOC from your document.
- 4 After deleting the TOC, save your document to ensure the changes are preserved. Right-click on File → Save or use the shortcut Ctrl + S on the keyboard.

### Note



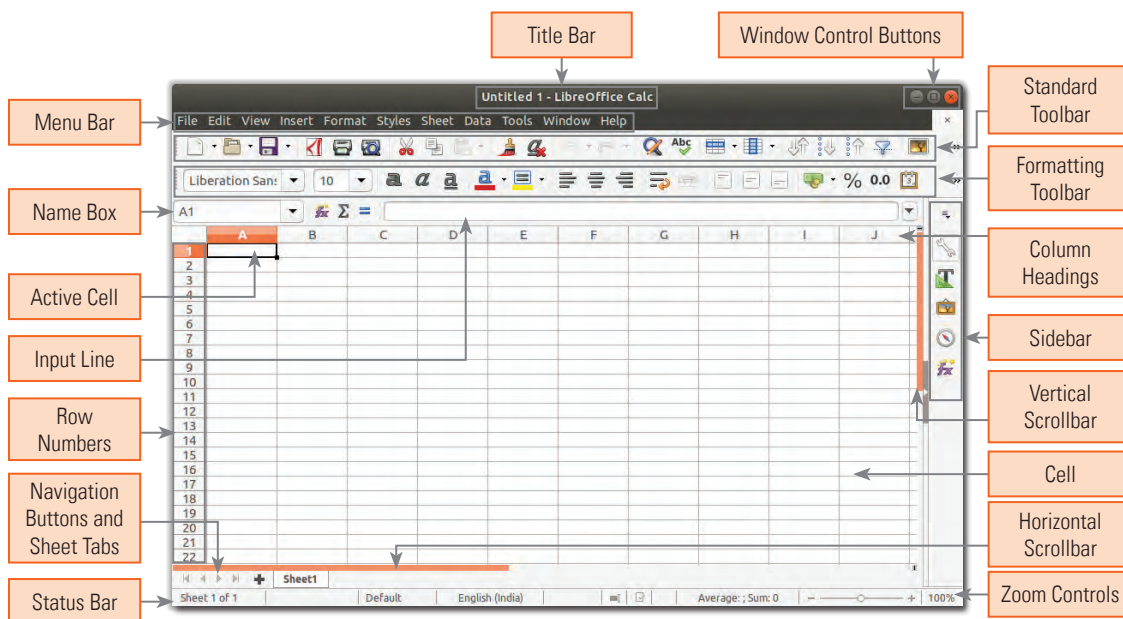
Refer "Digital Documentation (Advanced)" on pages 81-150 in Information Technology (402) book for Class 10 for more.

# Electronic Spreadsheet (Advanced)

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.

## 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:** Displaying the 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 minimise, maximise/restore and close the LibreOffice Calc window.
- **Menu Bar:** Consists of menus, such as File, Edit, View and Insert.
- **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.
- **Name Box:** Displays the address of the active cell or a range of selected cells.
- **Input Line:** Contains the content of the selected cell or formula applied on the selected cell.
- **Column Headings:** Refer to the names of the columns.

- **Row Numbers:** Refer to the row numbers.
- **Cell:** Refers to the area of intersection of a row and a column.
- **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.
- **Vertical Scrollbar:** Allows you to move the worksheet in vertical direction (up and down).
- **Horizontal Scrollbar:** Allows you to move the worksheet in horizontal direction (left and right).
- **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.
- **Zoom Controls:** Allow you to zoom in or zoom out the Calc worksheet.
- **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.

## Session 2: Data Analysis

Data analysis in LibreOffice Calc involves organizing, interpreting, and visualizing data using features like 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:

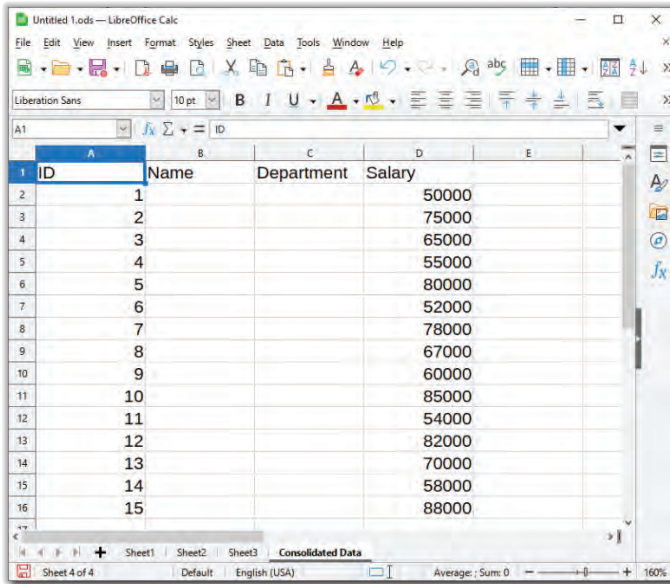
- 1 Ensure that the data to consolidate is organized in separate sheets or files, with the same layout (i.e., the same columns in the same order) as shown in Figure 2:

ID	Name	Department	Salary
1	Anil Kumar	HR	50000
2	Sunita Sharma	IT	75000
3	Rajesh Gupta	Finance	65000
4	Priya Singh	Marketing	55000
5	Deepak Mehta	IT	80000
6	Mecna Reddy	HR	52000
7	Vikram Batra	IT	78000
8	Neha Verma	Finance	67000
9	Amitabh Joshi	Marketing	60000
10	Radhika Patel	IT	85000
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 on the cell where the consolidated data will begin; generally, A1 is chosen. Go to Data → Consolidate from the Menu bar.
- 4 Set up the Consolidation:
  - a. Source Data Range
    - i. In the Consolidate dialog box, click on the Add button.
    - ii. Enter the range for the first data set from Sheet1 (e.g., Sheet1.A1:D6), then click Add.
    - iii. Repeat this for the ranges in Sheet2 (e.g., Sheet2.A1:D6) and Sheet3 (e.g., Sheet3.A1:D6).
  - b. Select the function you want to use to consolidate your data. For this example, use Sum.

- 5 Configure Options by checking the Row labels and Column labels boxes for adding labels in the Consolidated Data sheet. Click OK button to consolidate the data. The output is shown in Figure 3:



The screenshot shows a LibreOffice Calc spreadsheet with the following data:

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

Perform the following steps to create a subtotal in LibreOffice Calc:

- 1 Combine all the tables in Sheet1, Sheet2, and Sheet3 together in Sheet1. Select the range of data to add subtotals to (e.g., A1:D16). Go to Data → Subtotals in the Menu bar.
- 2 Select Department under Group by in the Subtotals dialog box. From Calculate subtotals for, check the Salary column. Under Use function, select Sum, as shown in Figure 4:

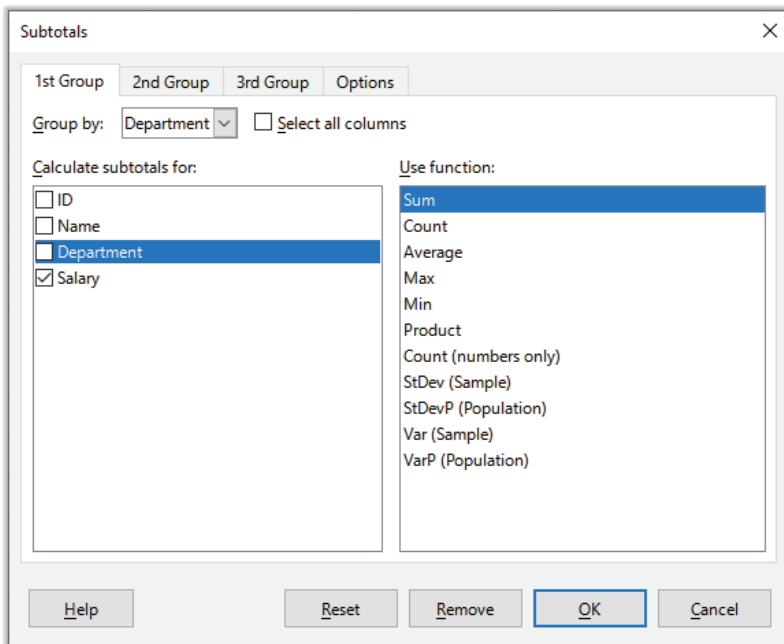


Figure 4: Selecting Options for Creating Subtotal

- 3 Check the Insert page breaks between groups box in the Options tab to insert page breaks between groups. To attain each subtotal on a new row, check the Pre-sort area according to groups. The output is shown in Figure 5:

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 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. They can be used at the start of a project to optimize results. By adjusting inputs and observing the corresponding outputs, you can predict potential outcomes and make informed decisions about the best course of action.

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	<b>Loan Amount</b>	10000000	<b>Time Period (Months)</b>	144
3	<b>Rate of Interest</b>	19.00%		
4	<b>EMI</b>	70244.616720371		
5	<b>Total Amount Paid</b>	10115224.8077334		
6	<b>Total Interest Paid</b>	115224.807733428		
7				

Figure 6: What-If Spreadsheet



- 2 Select the cells A2 and C2 using Ctrl + Right-click on these cells, as these two are the variables in this situation.
- 3 Go to Tools → Scenario from the Menu bar. Write the name of the scenario as Scenario\_1 as shown in Figure 7, and click the OK button to add this to the scenario list. Uncheck the Copy back check box. Keep the Display border as a default.
- 4 Modify the values in the scenario to create a new scenario. In this example, we modified the value of Loan Amount to 15000000 and Time Period (months) to 180 in the first case and Loan Amount to 35000000 and Time Period (months) to 120 in the second case.
- 5 Repeat Steps 2 and 3 and change the color to Light Lime 1 and Light Gold 1 respectively. Name the scenarios Scenario\_2 and Scenario\_3 respectively.
- 6 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.

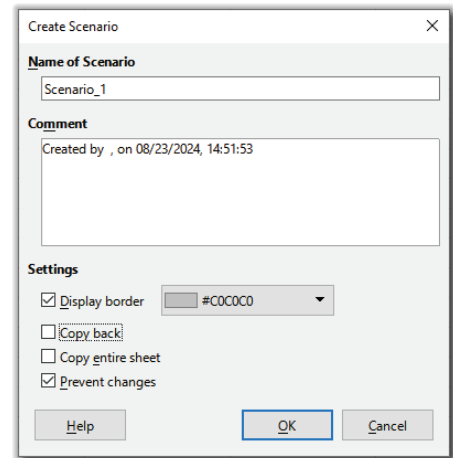


Figure 7: Creating a Scenario

	Scenario_1	Scenario_2	Scenario_3
<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 What-If Tools

Perform the following steps to create a formula using the what-if analysis tool with one formula and one variable:

1. Enter the data in the cells as shown in Figure 9, and then enter the formula  $=B4*(B1-B2)-B3$  to calculate the result in B5 from values in other cells, namely B1, B2, B3, and B4. Save the name of the sheet as Sale\_Sheet.
2. Select cells from D2 to E11. Go to Data → Multiple Operations. Click on cell B5 when the cursor is in the Formulas in Multiple Operations dialog box. Click on cell B4 when the cursor is in the Column input cell, and then click the OK button. The output generated is shown in Figure 10:

A	B	C	D	E
Selling Price	150		Annual Sale	Profit
Cost Price	70		500	32000
Fixed Cost	8000		1000	72000
Items Sold	1690		1500	112000
Profit	127200		2000	152000
			2500	192000
			3000	232000
			3500	272000
			4000	312000
			4500	352000
			5000	392000

Figure 9: Sale\_Sheet

	A	B	C	D	E
1	Selling Price	150		Annual Sale	Profit
2	Cost Price	70		500	32000
3	Fixed Cost	8000		1000	72000
4	Items Sold	1690		1500	112000
5	Profit	127200		2000	152000
6				2500	192000
7				3000	232000
8				3500	272000
9				4000	312000
10				4500	352000
11				5000	392000

Figure 10: What-If Analysis Tool Output

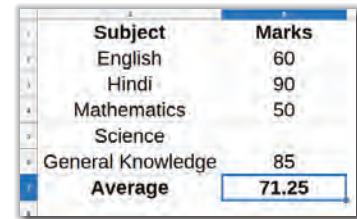
## Using Goal Seek and Solver

Goal Seek and Solver in LibreOffice Calc are powerful tools for finding the input value needed to achieve a specific goal (output) in a formula. Goal Seek is useful for single-variable problems, while Solver handles more complex, multi-variable scenarios with constraints.

## Using Goal Seek

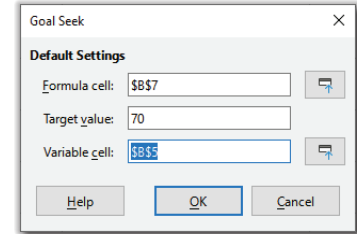
Perform the following steps to use Goal Seek tool for analyzing data:

- 1 Open a new sheet and enter the following data, as shown in Figure 11. Use the formula =AVERAGE(B2,B3,B4,B5,B6) for calculating the average marks obtained.
- 2 Select cell B7 and then go to Tools → Goal Seek from the Menu bar. Enter the target value as 75 and the Variable cell as B5, as this is the cell that is to be generated by the system, as shown in Figure 12.
- 3 Clicking OK button will trigger an error because LibreOffice Calc does not allow the Variable cell to be empty. An error dialog box will prompt you to add a 0 value in the Variable cell. Click Yes button, then repeat Step 2. LibreOffice Calc will display a dialog box asking whether to update the cell with the calculated value. Selecting Yes button will replace the original value with the calculated one in the sheet, as shown in Figure 13.



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

Figure 11: Goal Seek Data



Goal Seek

Default Settings

Formula cell:

Target value:

Variable cell:

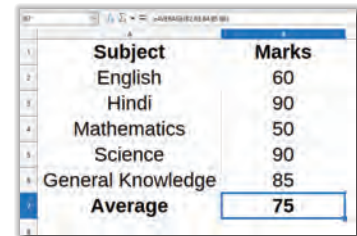
Buttons: Help, OK, Cancel

Figure 12: Entering Goal Seek Variables

## Using Solver

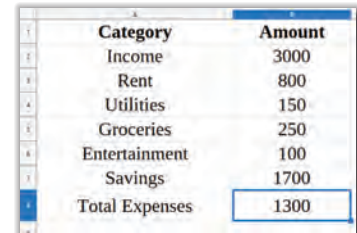
Perform the following steps to use Solver for analyzing data:

- 1 Open a new sheet and enter the data, as shown in Figure 14. Enter the formula =B2-SUM(B3:B6) in B7 to calculate the Savings and =B2-B7 to calculate the Total Expenses.
- 2 Select Tools → Solver from the Menu bar. In the Solver dialog box, select the desired cell for the Target cell text box to specify the goal. In this case, we have selected cell B7 as we need to change our savings. In the Optimize result to option, select Maximum. In the By changing cells text box, select cell B8, as we need to minimize the total expense.
- 3 Enter the Cell reference and the values in the Limiting Conditions section, as shown in Figure 15. Right-click the Solve button in the Solver dialog box.
- 4 Verify the output provided by LibreOffice Calc. If it's correct, then click the Keep Result button in the Solving Result dialog box. Otherwise, click Restore Previous and repeat Step 3 again. The output of the Solver tools is shown in Figure 16.



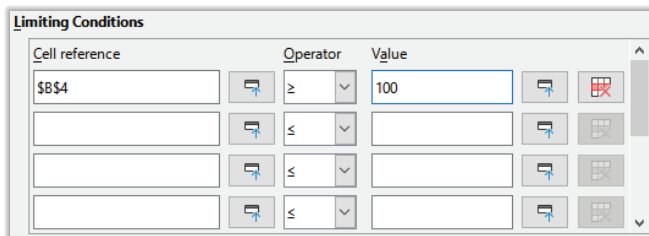
Subject	Marks
English	60
Hindi	90
Mathematics	50
Science	90
General Knowledge	85
<b>Average</b>	<b>75</b>

Figure 13: Goal Seek Output



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

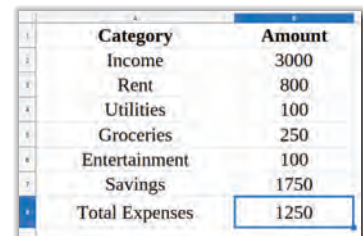
Figure 14: Solver Data



Limiting Conditions

Cell reference	Operator	Value
<input type="text" value="\$B\$4"/>	<input type="text" value="≥"/>	<input type="text" value="100"/>
<input type="text"/>	<input type="text" value="≤"/>	<input type="text"/>
<input type="text"/>	<input type="text" value="≤"/>	<input type="text"/>
<input type="text"/>	<input type="text" value="≤"/>	<input type="text"/>

Figure 15: Limiting Constraints



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

Figure 16: Solver Output

## 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

Perform the following steps for setting up multiple sheets in LibreOffice Calc:

1. Click the '+' icon next to the existing sheet tabs at the bottom of the window to add a new sheet, as discussed in the previous session. Alternatively, go to Sheets → Insert Sheet.
2. Select the After Current sheet option in the Position shelf and change the number in No. of sheets in the Sheet shelf in the Insert Sheet dialog box, as shown in Figure 17.
3. Click on the sheet tabs at the bottom to switch between sheets. You can also use the keyboard shortcuts Ctrl+Page Up to move to the previous sheet and Ctrl+Page Down to move to the next sheet.

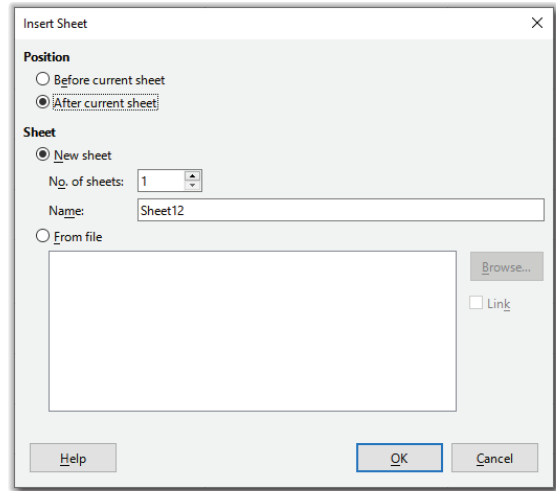


Figure 17: Insert Sheet Dialog Box

## 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 an existing worksheet that contains data, and then create a new sheet. Click a cell in the new sheet to enter the reference. In this case, we opened our previous existing sheet named Demonstration.ods, where we did our demonstrations as mentioned in Session 2.
2. Enter the sheet number and the cell number of the sheet where we created Subtotals. In this example, enter the following formula =Sheet5.B2. The output is shown in Figure 18.

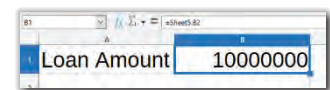


Figure 18: Referencing Data from Another Sheet

### Creating References from Other Documents

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

1. Create a new spreadsheet by selecting File → New → Spreadsheet or by pressing Ctrl + N button in Keyboard. Make sure that both spreadsheets are open.
2. Enter the required information in the spreadsheet. Click the cell where you want to create the reference. Type = to start a formula.
3. Go to Window → Demonstration.ods – LibreOffice Calc. Select the relevant cell in the Demonstration spreadsheet and return to new spreadsheet. Press the Enter key in the keyboard. The referenced cell will show the exact value, as shown in Figure 19. Fill the remaining cells by yourself.

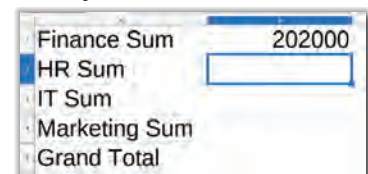


Figure 19: Referencing Cell from Another Document

## 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 sheet. Select the cell where the hyperlink will be created. Go to Insert → Hyperlink from the Menu bar. A dialog box named Hyperlink opens.
- 2 Select Document on the left side of the Hyperlink dialog box. In the Path field, click the folder icon and navigate to the external sheet (Demonstration.ods). Under Target in Document, click the button next to Target and choose the specific sheet (Sheet1) and cell in the external file as shown in Figure 20.
- 3 Click Apply button in the Target in the Document dialog box, then click Close button. The Sheet1 will appear in the Target textbox. Click Apply → Close in the Hyperlink dialog box to insert the hyperlink in the new sheet. Click on the hyperlink in your Calc sheet to open the external document at the specified location.

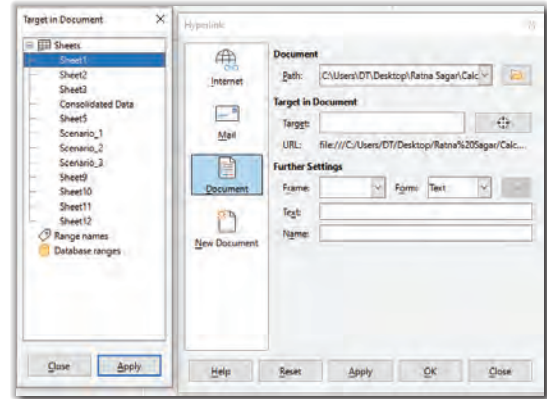


Figure 20: Steps for Hyperlinking External Sheet

### Hyperlinking Registered Data Sources

Perform the following steps for hyperlinking external sheet:

- 1 Go to Tools → Options → LibreOffice Base → Databases. Click New button to register a data source (e.g., an existing database or spreadsheet).
- 2 Select the cell where you want to insert the hyperlink. Go to Insert → Hyperlink.
- 3 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.
- 4 Click 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.

## 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 the spreadsheet that needs to be shared. Go to Tools → Share Document.

- 2 Check the box labeled Share this spreadsheet with other users in the Share Document dialog box. Then, click OK button.

## Opening and Saving a Shared Spreadsheet

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

- 1 Open LibreOffice Calc. Go to File → Open and select the shared spreadsheet file.
- 2 Save the spreadsheet by clicking File → Save or using the shortcut Ctrl+S using the keyboard. If there are conflicting changes, LibreOffice Calc will prompt you to resolve them.

## 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).

## Reviewing Changes – View, Accept, or Reject Changes

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

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

# 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

Perform the following steps to record a macro in LibreOffice Calc:

- 1 Select 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. Note that each library container includes a Standard library.
- 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. Click Save button to save the macro and close the Basic Macros dialog box.

## Creating a Simple Macro as a Function

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

- 1 Select 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 21.

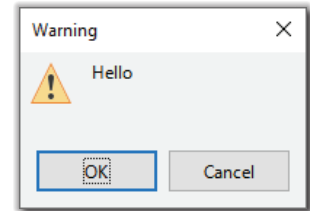


Figure 21: Basic Macros

## 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
```

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

## Passing Arguments as Values

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. Navigate to 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 Go to 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:

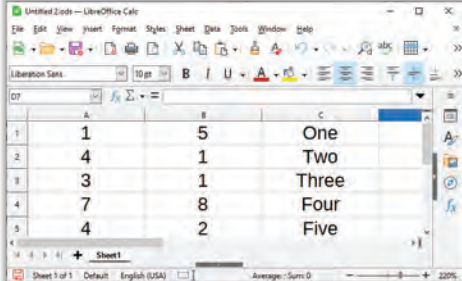
```
Sub CallSumCellsAllSheets()
    Dim result As Double
    result = SumCellsAllSheets()
    MsgBox "The sum of values in cell A2 from all sheets is: " & result
End Sub
```

- 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 22:



	A	B	C
1	1	5	One
2	4	1	Two
3	3	1	Three
4	7	8	Four
5	4	2	Five

Figure 22: Unsorted Columns

- 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:
    REM Dim oSortFields(0) As New com.sun.star.util.SortField
    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. Click the Run icon in the Macro toolbar of the LibreOffice Basic IDE to execute the macro. The output is shown in Figure 23:

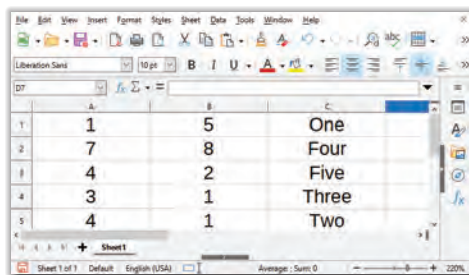


Figure 23: Sorted Columns Using Macros



**Note**  
Refer "Electronic Spreadsheet (Advanced)" on pages 155-203 in Information Technology (402) book for Class 10 for more.



# Database Management System

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 addition to handling the physical storage of data, a DBMS manages concurrent data access, allowing multiple users to interact with the database simultaneously without conflicts. It also optimizes query performance, ensuring efficient data retrieval and manipulation.

## 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:

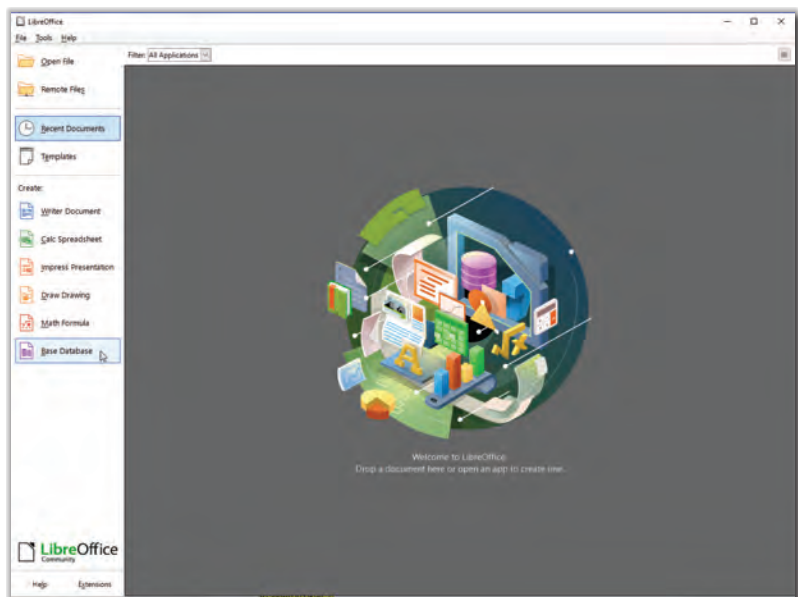
- 1 Click the LibreOffice icon to open the LibreOffice Start Center on your desktop or in the Start menu.

In the LibreOffice Start Center, you will see various application icons, such as Writer, Calc, Impress, and Base, as shown in Figure 1.

- 2 Click the Base Database icon from the list of available applications, as shown in Figure 1.

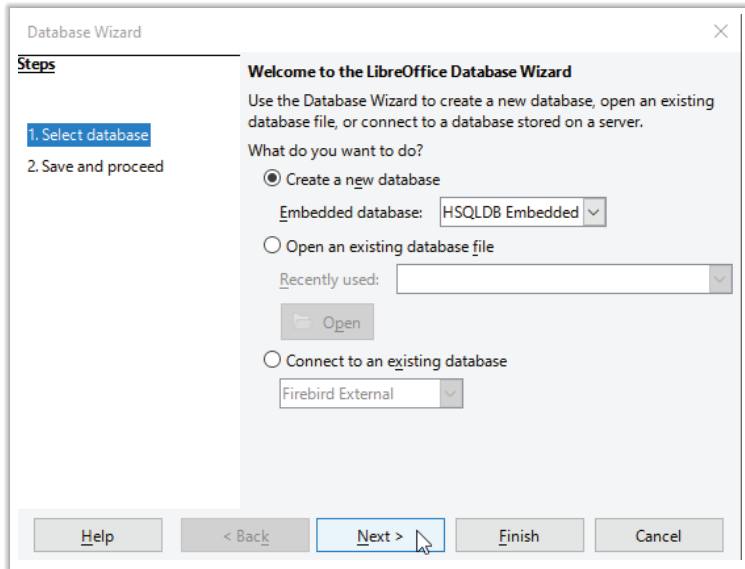
A Database Wizard dialog box appears, as shown in Figure 2.

- 3 Select the Create a new database radio button (Figure 2).



**Figure 1:** Displaying the Welcome to the LibreOffice Database

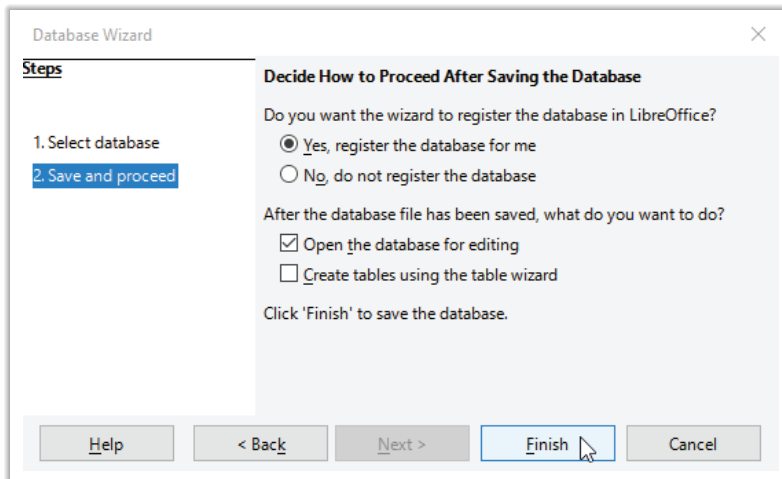
- Click the Next button, as shown in Figure 2:



**Figure 2:** Creating a New Database

The Decide How to Proceed After Saving the Database page appears, as shown in Figure 3.

- Select the Yes, register the database for me option (Figure 3).
- Click the Finish button, as shown in Figure 3:

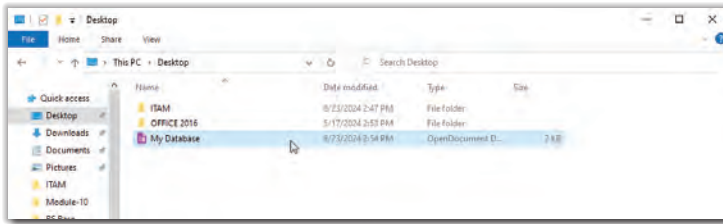


**Figure 3:** Deciding How to Proceed After Saving the Database

A Save As dialog box appears (Figure 4).

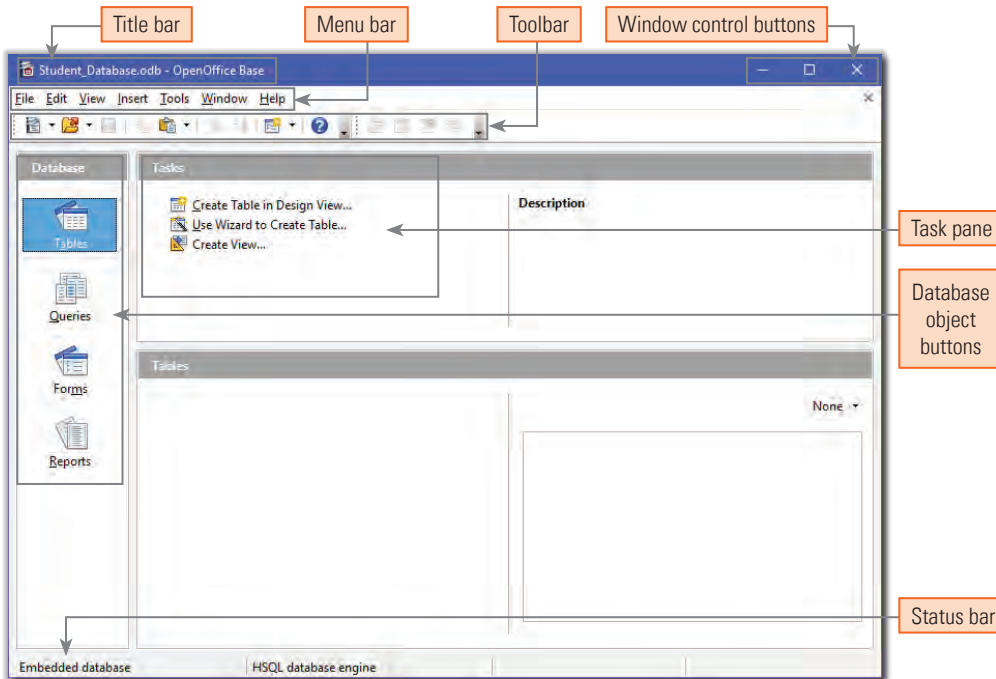
- Select the location in the Navigation pane where you want to save the database. In our case, we have selected Desktop (Figure 4).
- Type the name of the document in the File name combo box. In our case, we have typed My Database (Figure 4).
- Click the Save button (Figure 4).

The desired database is saved with the specified name, as shown in Figure 4:



**Figure 4:** Displaying the Saved Database on the Desktop

The OpenOffice Base window appears with the name of the newly created database, i.e., **Student\_Database.odb**. LibreOffice Base provides a user-friendly interface with several key components designed for efficient database management, as shown in Figure 5:



**Figure 5:** Displaying a Database in the OpenOffice Base Window

The LibreOffice Base application user interface components, shown in Figure 8, are described as follows:

- **Title bar:** Displays the title of the Open Office Base database.
- **Window Control buttons:** Allow you to minimize, maximize and close the OpenOffice Base window.
- **Menu bar:** Contains various menus such as File, Edit, View, Insert, Tools, Window and Help. It is located below the Title bar.
- **Toolbar:** Contains various tools for performing standard tasks such as creating a new database, opening an existing database and saving a database. It is located below the Menu bar.
- **Database Object buttons:** Allow you to create various objects of the database such as tables, queries, forms and reports. These buttons are located in the left pane of the OpenOffice Base window.

- **Tasks pane:** Contains different options to create a database object on the basis of the selection of database object button.
- **Status bar:** Shows the progress of any task being performed on the database. It is located at the bottom of the OpenOffice Base window.

## 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 (Figure 6).  
A drop-down list appears, as shown in Figure 6.
- 2 Select the Close option from the drop-down list, as shown in Figure 6.  
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.

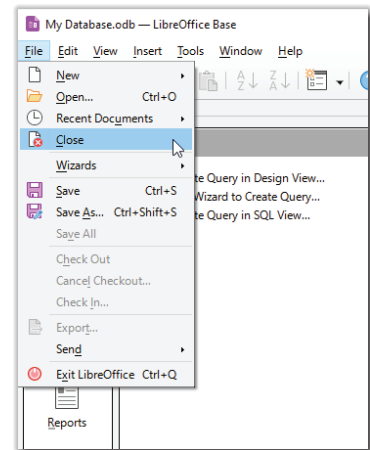
Perform the following steps to quit a database:

- 1 Click the File button from the Menu toolbar (Figure 7).  
A drop-down list appears (Figure 7).
- 2 Select the Exit LibreOffice option from the drop-down list, as shown in Figure 7.  
The LibreOffice Base application gets closed.

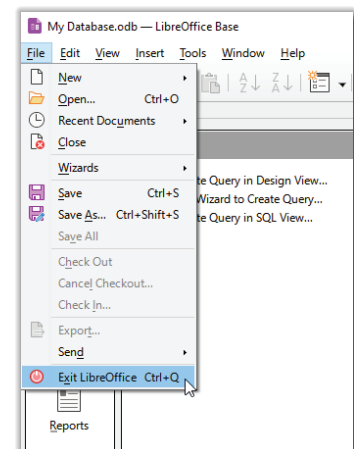
## Opening an Existing Database

Perform the following steps to open an existing database document:

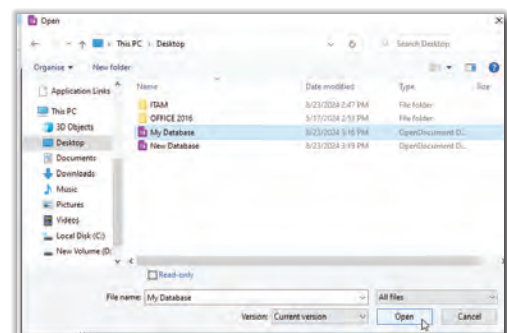
- 1 Click the File button from the Menu toolbar (Figure 8).  
A drop-down list appears (Figure 8).
- 2 Select the Open option from the drop-down list (Figure 8).
- 3 Navigate to the location where your database file is stored. In our case, we have selected Desktop (Figure 8).
- 4 Select the desired database document that you want to open. In our case, we have selected My Database (Figure 8).
- 5 Click the Open button to load the selected database document, as shown in Figure 8.



**Figure 6:** Close Option in LibreOffice Database Window

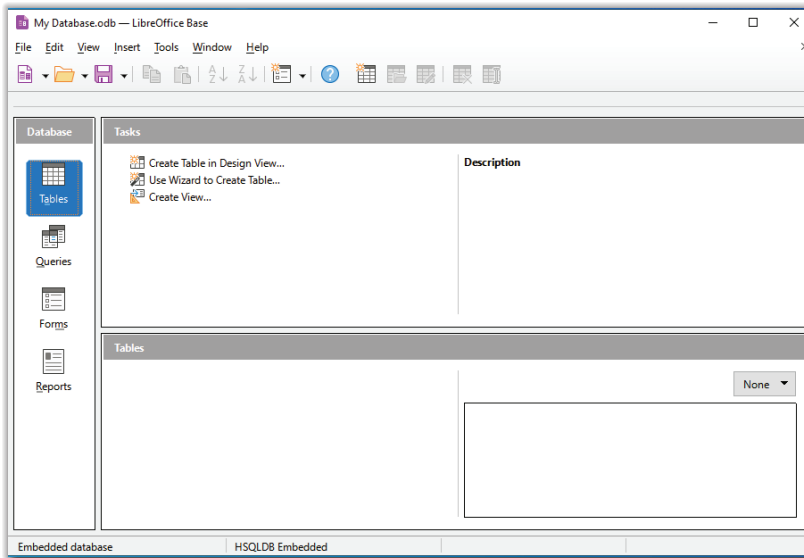


**Figure 7:** Exit LibreOffice Option



**Figure 8:** Selecting the Database Document Opened from Desktop

The desired database document gets opened, as shown in Figure 9:



**Figure 9:** Displaying the Opened My Database Document

## Session 2: Creating a Table in Base

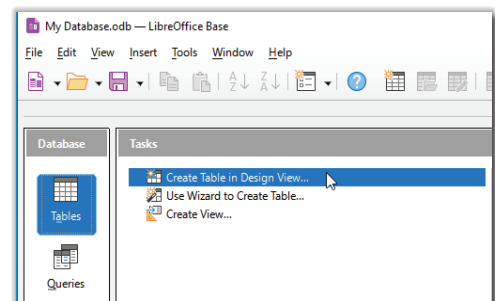
In LibreOffice, a table in a database is a structured format that stores data in rows and columns, allowing for organized and efficient data management. Each row in a table represents a record, while each column corresponds to a specific field within that record. The creation of a table involves defining the table's structure by specifying the field names, data types, and constraints such as primary keys or unique values. LibreOffice's database component, Base, offers a user-friendly interface for creating and managing tables, enabling users to input, query, and manipulate data effectively.

### Creating Using Design View

Design View in LibreOffice Base is a methodical process that allows for precise control over the structure of a database table. In Design View, users can define the table's fields, specify data types, set primary keys, and establish field properties. This interface provides a grid where each row represents a field in the table, and columns offer settings such as field name, type, and description. Design View is particularly useful for advanced users who need to customize how data is stored and validated. After defining the structure, the table is saved and can then be populated with data. This approach ensures that the database is tailored to the specific needs of the user, offering flexibility and precision in data management.

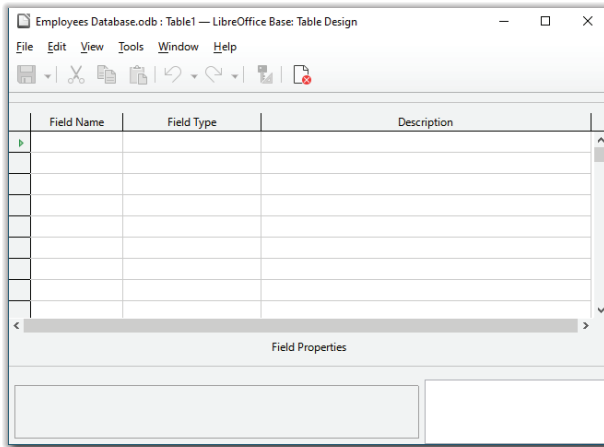
Perform the following steps to create a table using Design View:

- 1 Open a new or existing database in which you want to create a table.
- 2 Click the Tables option from the left sidebar (Figure 10). Various options related to the selection are displayed in the Tasks pane (Figure 10).
- 3 Select the Create Table in Design View option under the Tasks pane, as shown in Figure 10.



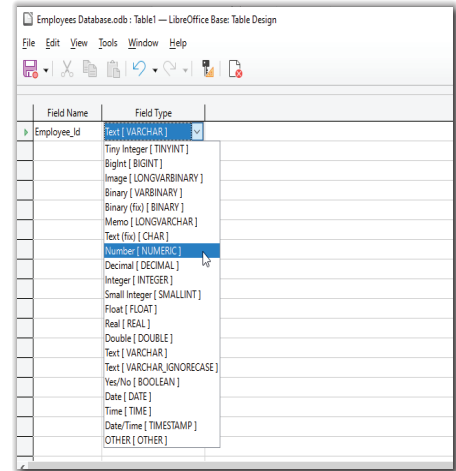
**Figure 10:** Selecting the Create Table in Design View Option

The Table Design window appears as shown in Figure 11:



**Figure 11:** Displaying the Table Design Window

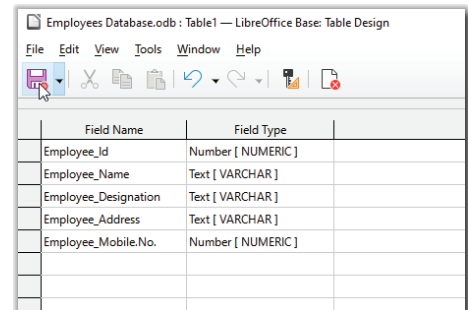
- 4 Type Employee\_Id in the Field Name (Figure 12).
- 5 Press the Enter key to move to the Field Type column. In the Field Type column, the Text [VARCHAR] field type is selected by default (Figure 12).



**Figure 12:** Defining the First Field and Its Type

- 6 Click the down arrow button in the Field Type (Figure 12). A drop-down list appears, as shown in (Figure 12).
- 7 Select the Number [NUMERIC] fields type from the drop-down list, as shown in Figure 12.

Similarly, you can define the various fields and their types in the Table Design window.

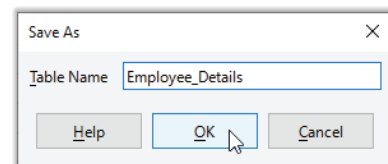


**Figure 13:** Defining Fields and Their Types

- 8 Type Employee\_Name in the Field Name (Figure 13).
- 9 Select the Text [VARCHAR] fields type from the drop-down list (Figure 13).
- 10 Type Employee\_Designation in the Field Name (Figure 13).
- 11 Select the Text [VARCHAR] fields type from the drop-down list (Figure 13).
- 12 Type Employee\_Address in the Field Name (Figure 13).
- 13 Select the Text [VARCHAR] fields type from the drop-down list (Figure 13).
- 14 Type Employee\_Mobile.No. in the Field Name (Figure 13).
- 15 Select the Number [NUMERIC] fields type from the drop-down list (Figure 13).
- 16 Click the Save button from the quick access toolbar, as shown in Figure 13.

The Save As dialog box appears, as shown in Figure 14.

- 17 Type the desired name for the table in the Table Name text box. In our case, we have typed Employee\_Details (Figure 14).
- 18 Click the OK button, as shown in Figure 14.



**Figure 14:** Displaying Save As dialog box

A LibreOffice Base message box appears, as shown in Figure 15.

- 19 Click the No button to create the primary key of your choice. If you want a primary key to be automatically created for the table, click the Yes button, as shown in Figure 15.

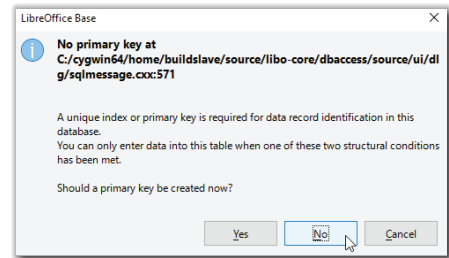


Figure 15: The LibreOffice Base Message Box

## Creating Using Wizard

The Wizard guides users through a series of steps, making it easy for those who may not be familiar with database design. The Wizard offers predefined table templates for common database scenarios, such as managing contacts or invoices. Users can select the most appropriate template and customize it by adding, modifying, or deleting fields. The Wizard also allows users to define field types, set primary keys, and choose table relationships. Once all the necessary adjustments are made, the Wizard completes the table creation, and the new table is ready for data entry. This tool is particularly useful for beginners, as it provides a structured approach to table creation, ensuring that all essential elements are included.

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 (Figure 16).

Various options related to the selection are displayed in the Tasks pane (Figure 16).

- 3 Select the Use Wizard to Create Table option under the Tasks pane, as shown in (Figure 16).

The Table Wizard window appears as shown in (Figure 16).

- 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 16:

- 5 Click the down arrow button in the Sample tables (Figure 17).

A drop-down list appears, as shown in (Figure 17).

- 6 Select the desired Sample tables from the drop-down list. In our case, we have selected Employees, as shown in Figure 17:

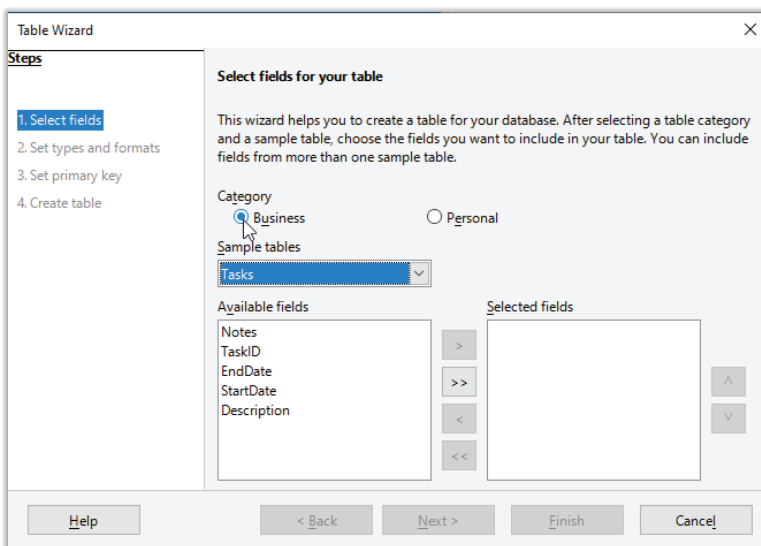


Figure 16: Select Category for Your Table Page

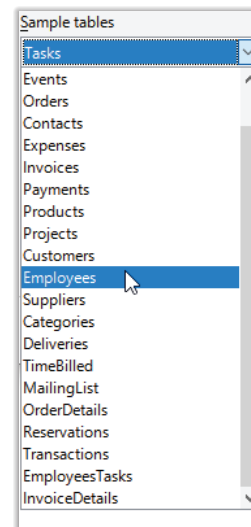


Figure 17: Select Fields for Your Table Page

- 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.

## 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.

### Field Properties

Field properties in LibreOffice Base define the characteristics and behavior of data within a table's columns. They include settings such as data type, field size, default values, validation rules, and formatting options. Configuring field properties ensures data integrity, accurate input, and proper data handling, enhancing the overall functionality and usability of the database.

### Entering Records in a Table

Perform the following steps to enter records in a table:

- 1 Open LibreOffice Base and create a database naming Demonstrations. Create a table using Design View and add the following fields: EmployeeID (Integer), FirstName (Text), LastName (Text), Department (Text), and Salary (Decimal). Make EmployeeID the primary key and save the table as Employee. Close the Design View. Double-click on the Employee table in Table Shelf to enter records. This will open the table in a spreadsheet-like view, as shown in Figure 18:

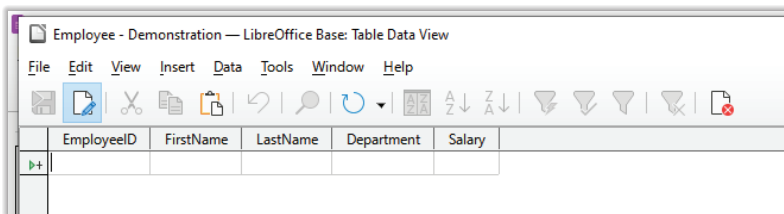



Figure 18: Spreadsheet View for Entering Records

- 2 Click on the first cell to enter data. The cursor will appear in the cell. Type in the data for each field in the record. Press the Tab key to move to the next field, or Enter to move to the next row. Continue entering data for each record, moving through the fields as needed. To add a new record, click on the empty row at the bottom of the table. This row is usually marked with a right facing triangle and a plus sign  (+) on the left side. The record entered is shown in Figure 19:

	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 19: Entering Records the Table



- 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:

- Right-click on a cell to edit the current data and type the new data, as shown in Figure 20. Press Enter or Tab to save the changes and move to the next field or row.

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

Figure 20: Editing Records in the Table

- Click on the row header (the grey box on the left of the row) to select the entire row. Right-click on the row header and select Delete Rows, as shown in Figure 21. Alternatively, press the Delete key on your keyboard. A dialog box will appear asking for confirmation. Click the Yes button to delete the record.

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

Figure 21: Deleting Records in the Table

## Sorting Records in a Table

Click on the Salary tab in the Table Data View. Select the Sort Ascending button on the toolbar, as shown in Figure 22. The Salary tab will be sorted in ascending order.

## Relationships in Base

In LibreOffice Base, relationships are crucial for organizing and managing data across multiple tables. They help you maintain data integrity, avoid redundancy, and enable more complex queries and reports. Relationships in a database establish connections between tables based on common fields. They help define how data in one table relates to data in another. By creating relationships, you can enforce rules about how records in one table are associated with records in another, which is essential for creating a well-structured and efficient database. The types of relationships in LibreOffice Base are:

Department	Salary
	25
	30000
	15000
	32000
Department	29000

Figure 22: Sorting Salary in Ascending Order

- One-to-One (1:1):** Each record in Table A corresponds to exactly one record in Table B, and vice versa. For example, a table of Employees and a table of EmployeeDetails where each employee has a unique record in both tables.
- One-to-Many (1:∞):** A single record in Table A can be associated with multiple records in Table B. For example, a Departments table and an Employees table where each department can have many employees, but each employee belongs to only one department.
- Many-to-Many (N:∞):** Records in Table A can be associated with multiple records in Table B, and vice versa. This type often requires a junction table to manage the relationships. For example, a Students table and a Courses table where students can enroll in multiple courses, and each course can have multiple students.

## 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 for creating a query in Design View:

- 1 Open LibreOffice Base and select Demonstration database to create the query. Click on the Queries icon on the left pane in the main database window.
- 2 Click on Create Query in Design View in the Tasks section. Select any saved tables (Employee) to include in the query in the Add Table or Query dialog box, as shown in Figure 23. Click the Add button for each table, and then click the Close button once all necessary tables are added.
- 3 Double-click on the fields to include in the query. These fields will appear in the lower part of the window. Alternatively, drag fields from the table boxes to the columns in the lower part of the window. In this case, the fields EmployeeID, FirstName, LastName, Department, and Salary are used.
- 4 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.
- 5 Click on the Run Query icon (a green checkmark) in the toolbar to see the query results. The output is shown in Figure 24:

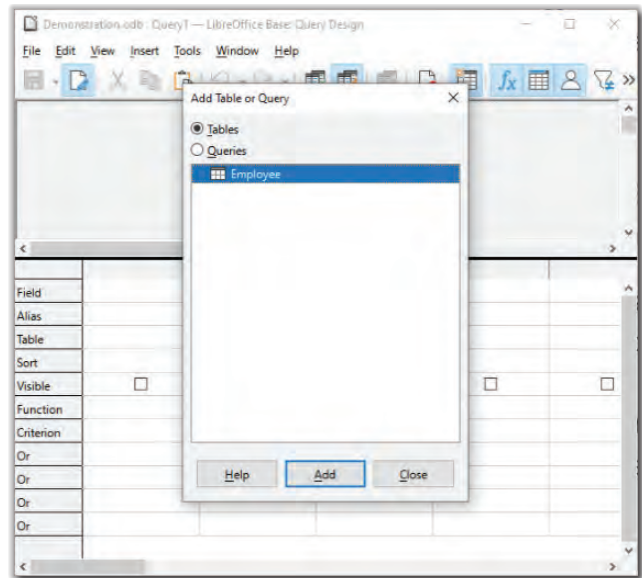


Figure 23: Adding Table for Query

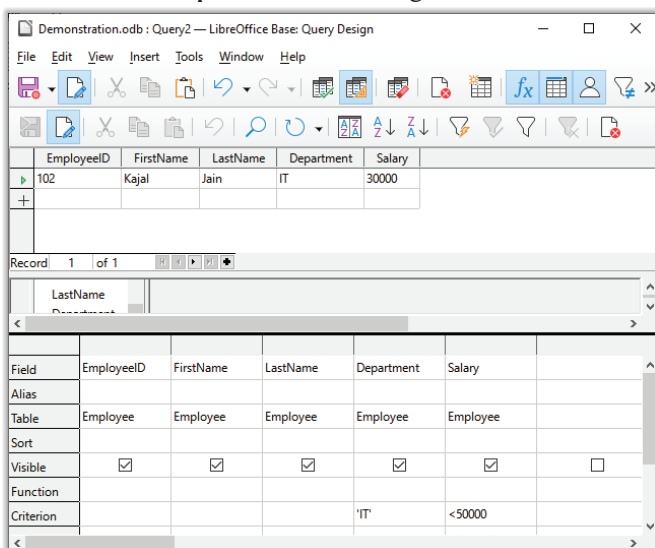


Figure 24: Query in Design View

## Creating Query with Wizard

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

- 1 Click the Use Wizard to Create Query in the Tasks section. Select the Employee table from the Tables drop-down menu in the Query Wizard – Field Selection step, as shown in Figure 25:

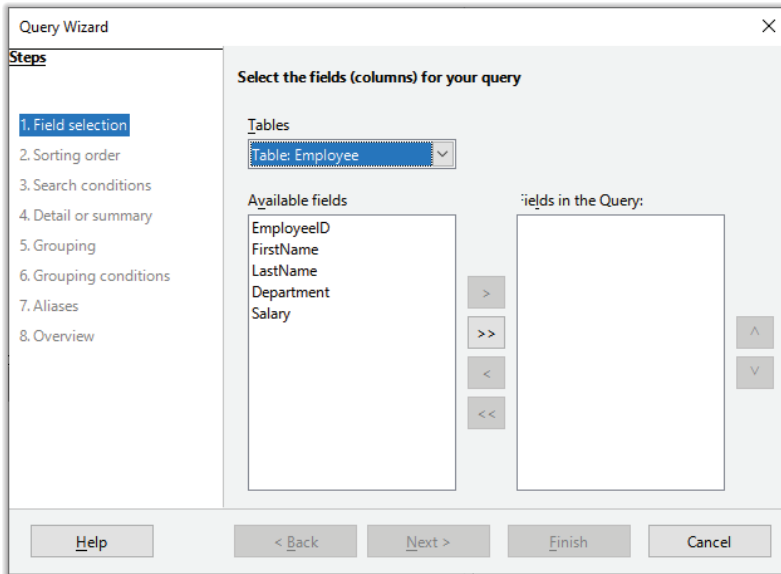


Figure 25: Field Selection Step of Creating Query with Wizard

- 2 Move the desired fields from the Available fields list to the Fields in the Query list by selecting them and clicking the >> button. Click the Next button to go to the Sorting Order step. Select Employee Salary in the Ascending order in the first text box of Select the sorting order dialog box.
- 3 Click the Next button to go to the Search Conditions step. Set conditions to filter the data. Choose the field and the condition, and enter the value to compare, as shown in Figure 26. Add multiple conditions if needed.

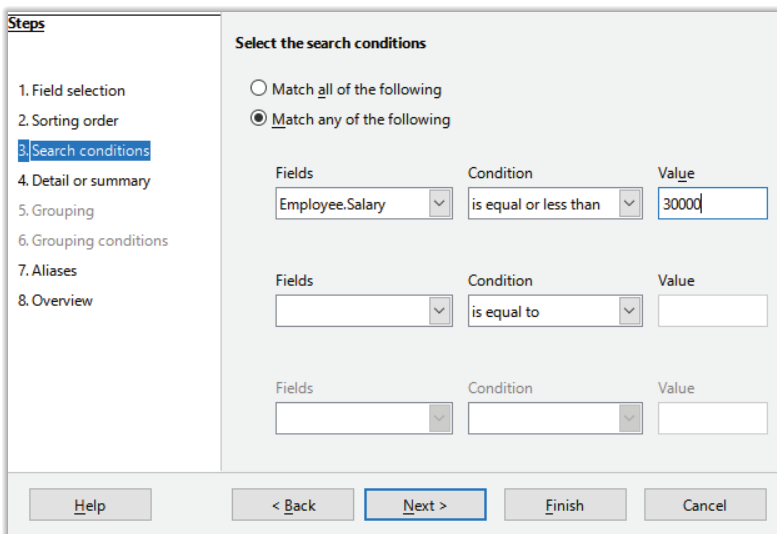


Figure 26: Search Condition of the Query

4 Click the Next button to go to the Grouping step if data grouping is required. Select the fields to group by and set any aggregate functions (e.g., SUM, AVG). Click the Next button to go to the Detail or Summary step. Choose whether to create a detail query (showing individual records) or a summary query (showing grouped data with aggregate functions).

5 Click the Next button to go to the Alias step. Optionally, assign aliases (alternate names) to the fields for better readability. Click the Next button to go to the Overview step. Review the choices made in the wizard. Click the Back button if any changes are needed. Click the Finish button to save the query. Enter a name for the query and click the OK button. The output is shown in Figure 27.

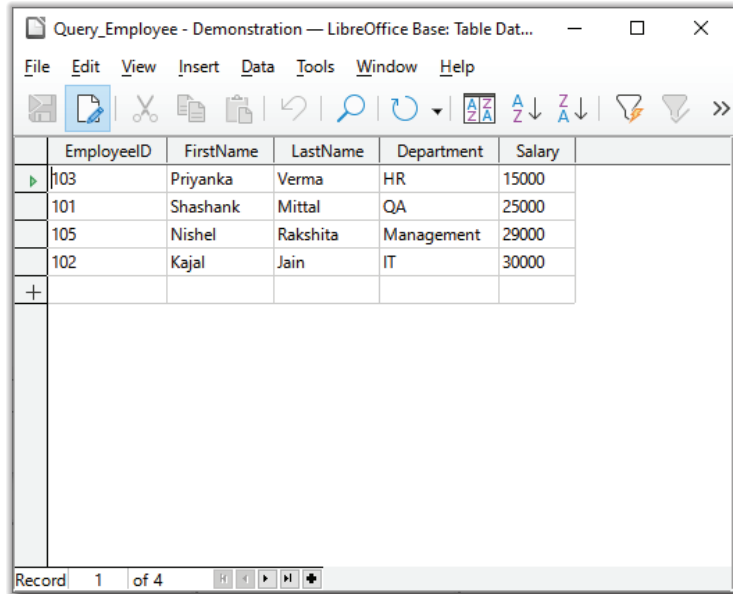


Figure 27: Query Using Wizard

## 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 Figures 28 and 29, respectively:

### SQL Query 1

```
SELECT * FROM InvoiceDetails
```

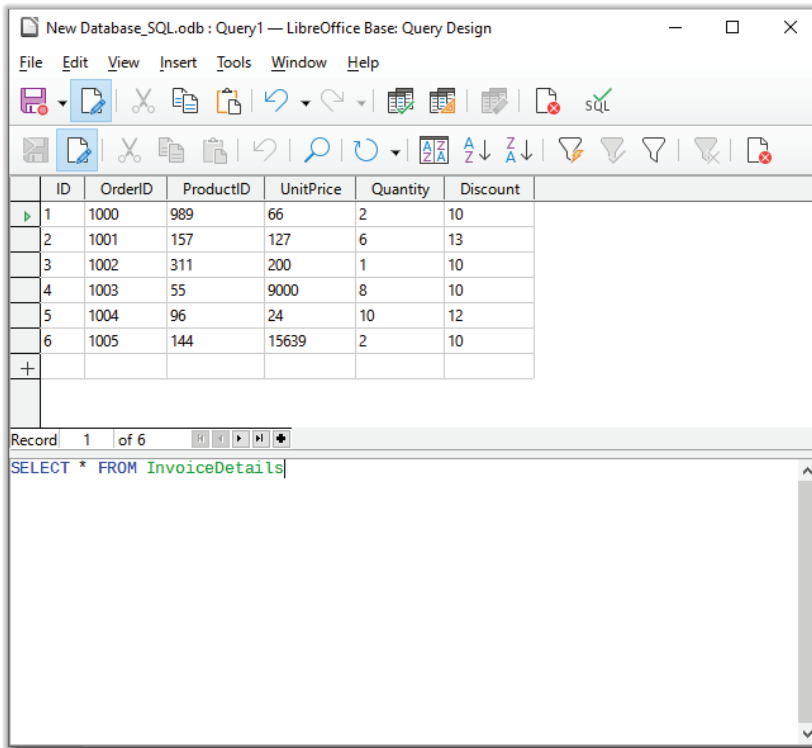


Figure 28: SQL Query 1

## SQL Query 2

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

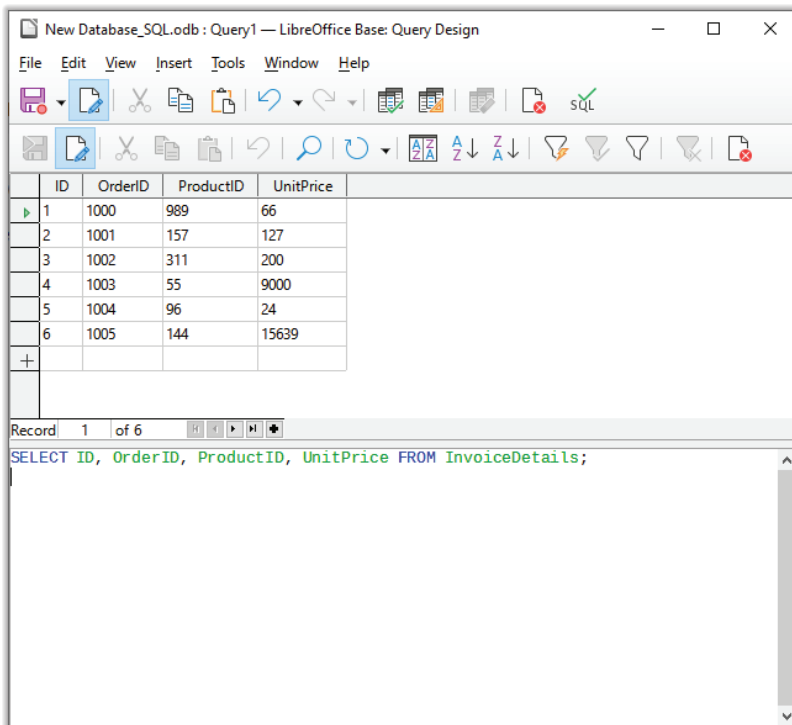


Figure 29: SQL Query 2

## Understanding Criteria in Query

In LibreOffice Base, criteria in a query are conditions used to filter records from a table. By setting criteria (such as specific values, ranges, or patterns), you can retrieve only the data that meets specified conditions within a query.

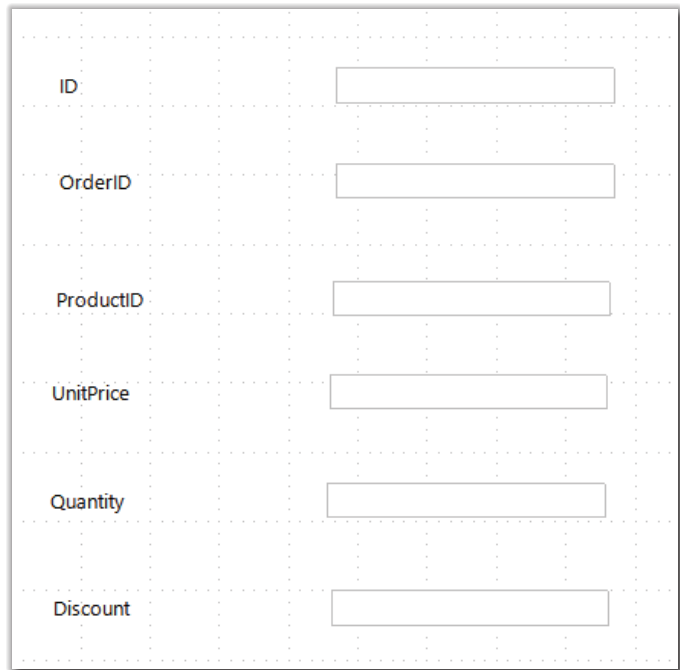
## Session 5: Creating Form in LibreOffice Base

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 a Form Using Design View

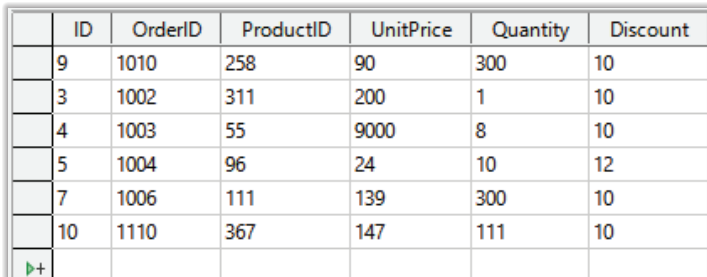
Perform the following steps for creating a form using Design View:

- 1 Open the LibreOffice Base file. In the main database window, click on the Forms section in the left pane. Click on Create Form in Design View.
- 2 Left-click on Form Properties from the Form option in the Menu Bar. In the Data tab, set the Content type to Table. Select the table (e.g., InvoiceDetails) in the Content field.
- 3 Click on Add Field from the Form Design Toolbar. Drag and drop the required field on the form. Then click the Design Mode option from the Form menu to leave the design mode. Then select the Data source as a Table for editing or deleting records. The output of this step is shown in Figure 30.
- 4 After adding and configuring all necessary controls, save the form by clicking File → Save. Close the design view and open the form to test data entry and navigation. The output is shown in Figure 31:



The image shows a form in Design View with a dotted grid background. It contains six text input fields, each with a label to its left: ID, OrderID, ProductID, UnitPrice, Quantity, and Discount. The fields are arranged vertically and are currently empty.

Figure 30: Creating Form Using Design View



The image shows a table with seven rows and six columns. The columns are labeled ID, OrderID, ProductID, UnitPrice, Quantity, and Discount. The first row has a green arrow icon in the first cell. The data in the table is as follows:

ID	OrderID	ProductID	UnitPrice	Quantity	Discount
9	1010	258	90	300	10
3	1002	311	200	1	10
4	1003	55	9000	8	10
5	1004	96	24	10	12
7	1006	111	139	300	10
10	1110	367	147	111	10

Figure 31: Inspection of the Records Added in Form

## Creating Form Using Wizard

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

- 1 Open the LibreOffice Base file. In the main database window, click on the Forms section in the left pane. Click on Use Wizard to Create Form.
- 2 Select the table (InvoiceDetails) to use for the form in the Form Wizard. Select the fields to include in the form by moving them from the left pane to the right pane.
- 3 Choose the layout for the form (e.g., columnar, tabular). Select the style for the form and set any other properties as needed. Name the form and click Finish button to create it.

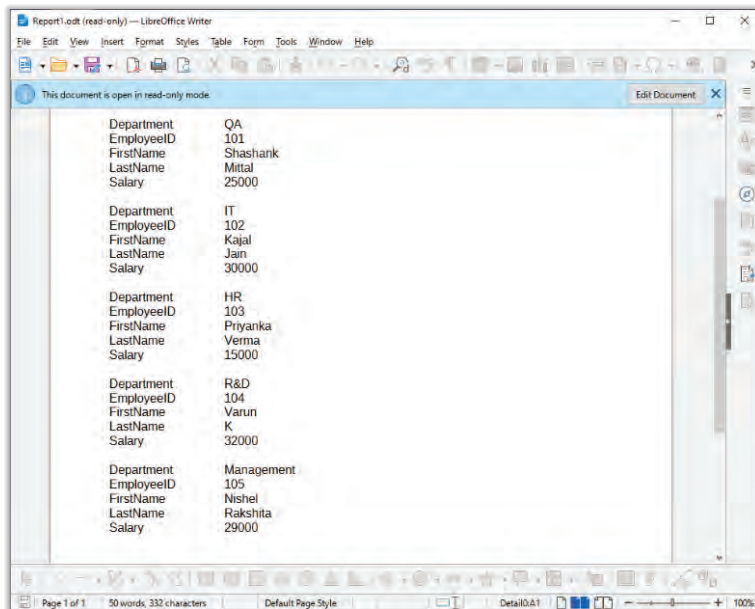
## Session 6: Creating Report in LibreOffice Base

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 in Design View

Perform the following steps to create a report in the Design View:

- 1 Open the LibreOffice Base from the applications menu. Select the Demonstration database. In the main database window, navigate to the Reports section.
- 2 Click Create Report in Design View for a blank report. In the Add Field: Employee, select all the fields and click the Insert button in the dialog box.
- 3 Click on Execute Report button () from the toolbar to create a report in LibreOffice. The output is shown in Figure 32:



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

Figure 32: Output of Report Creation in Design View

## Creating Report Using Wizard

Perform the following steps to create a report using the Wizard:

- 1 Open the LibreOffice Base and select the Demonstration database file, then click on the Reports section.
- 2 Click on Use Wizard to Create Report to start the Report Wizard. Select Table: Employee From Table or queries shelf in the Report Wizard dialog box, as shown in Figure 36. Select the fields to include in the report by moving them from the Available fields list to the Fields in report list using the arrow buttons. In this example, we use all the fields in the table and then click the Next button.
- 3 Modify the field labels if desired in the Labeling field step. These labels will be the column headers in the report. Click the Next button and select any fields to group the report data by in the Grouping step. In this example, we can ignore the grouping step. Move the fields to the Fields to group by list if grouping is needed, and then click the Next button again.
- 4 Set the sort order for the data in the report. In this example, we sort the data based on EmployeeID. Click the Next button, and then choose the layout of the report. Options include tabular, columnar, and more. Select the Landscape orientation and click the Next button.
- 5 Select a type for the report by choosing between creating a static or dynamic report. In this example, check the Static report option and give the report a title (Employee Report). Click the Finish button to generate the Employee Report, as shown in Figure 34:

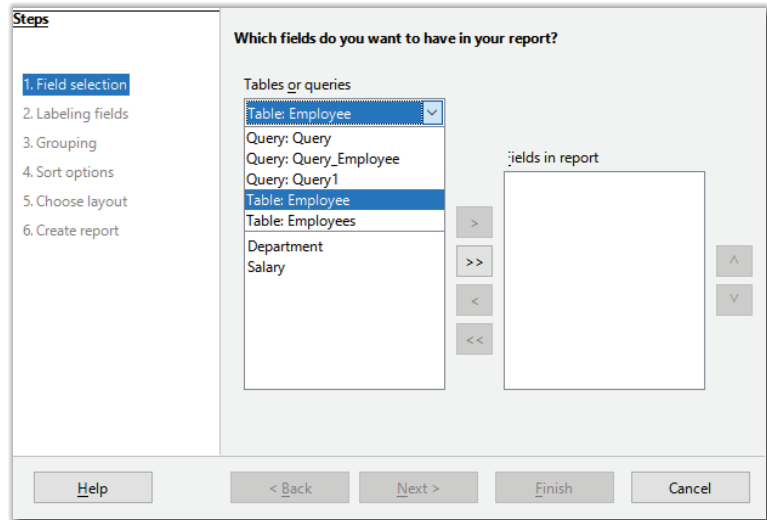


Figure 33: Selecting Table: Employee

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

Figure 34: Report Using Wizard

### Note

Refer "Database Management System" on pages 207-267 in Information Technology (402) book for Class 10 for more.



# Summary

- A word processor is a computer application that is used to create, edit, and organize a document.
- LibreOffice Writer is a powerful alternative to other word processors like Microsoft Word, providing similar functionalities with support for various file formats.
- In LibreOffice Writer, you can create and update styles based on selected text to streamline formatting.
- Spreadsheet software like LibreOffice Calc helps manage large datasets efficiently, similar to an accountant's ledger.
- Data analysis in LibreOffice Calc involves organizing, interpreting, and visualizing data using features such as formulas, functions, and charts.
- 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 is useful for quickly accessing related resources or data within a spreadsheet.
- DBMS 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.

- LibreOffice Base allows you to design and manage databases with ease. It provides a user-friendly interface, making database management accessible even to users with limited technical knowledge.
- Design View in LibreOffice Base is a methodical process that allows for precise control over the structure of a database table.
- In LibreOffice Base, relationships are crucial for organizing and managing data across multiple tables. They help you maintain data integrity, avoid redundancy, and enable more complex queries and reports.
- In LibreOffice Base, forms are user-friendly interfaces for entering, viewing, and editing data in your database tables. Forms are essential for enhancing the usability and functionality of your database.
- Creating a report in LibreOffice Base allows you to generate formatted summaries of your database data for analysis or presentation.



## KEY TERMS

- **Customize:** It refers to making changes to something according to individual specifications.
- **Datasets:** It refers to a collection of separate sets of information that is treated as a single unit by a computer.
- **Data analysis:** It refers to the process of examining information to find something out or to aid in decision-making.
- **Database:** It refers to a large amount of information that is stored in a computer system that can be read or changed.
- **Hyperlink:** It refers to connecting another document, image, page, etc. on a computer document or a website with the help of a hyperlink.
- **Open source:** Open source information or software can be obtained from the internet legally and for free. It can be used, shared, or modified.
- **Operating system:** It refers to software that is responsible for managing the hardware and software resources of a computer. It also provides common services for computer programs.
- **Redundancy (data):** It refers to the presence of data that is additional to the actual data in a database or a data storage system.



# PRACTICE QUESTIONS

## Solved Questions

### Multiple-Choice Questions (MCQs)

- Which toolbar in LibreOffice Writer includes icons for commonly used functions like Save, Undo, and Print?
  - Formatting toolbar
  - Standard toolbar
  - Status bar
  - Ruler
- Which dialog box in LibreOffice Writer is used to modify image properties such as size, rotation, and cropping?
  - Format dialog box
  - Edit menu
  - Picture settings box
  - Image dialog box
- Which menu option is used to create a What-If scenario?
  - Format > Cells
  - Data > Scenario
  - Tools > Scenario
  - View > Scenarios
- Which menu option should you select to create a hyperlink in LibreOffice Calc?
  - Format
  - Insert
  - Data
  - Tools
- Which component in LibreOffice Base provides quick access to context-sensitive tools and options?
  - Sidebar
  - Status Bar
  - Forms and Reports Area
  - Navigation Buttons

### ANSWERS

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

### Very Short Answer Questions

- 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.

- What is a macro in LibreOffice Spreadsheet?

Ans. A macro automates repetitive tasks by running a set of recorded or programmed commands.
- How can you edit an existing form in LibreOffice Base?

Ans. Open the form in Design View and modify fields or layout as needed.

### Short Answer Questions-I

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

Ans. LibreOffice Writer has several main style categories: Paragraph, Character, Page, Frame, and List styles. Paragraph styles control the formatting of entire paragraphs, including alignment and spacing. Character styles apply formatting to specific text within a paragraph. Page styles manage page layout, such as margins and headers. Frame styles adjust the appearance of objects like text boxes. List styles format bulleted and numbered lists, defining their appearance and indentation.
- What is a What-If Scenario in LibreOffice Calc?

Ans. A What-If Scenario in LibreOffice Calc allows users to test different values for specific cells to see how changes affect the outcome of formulas or calculations. This feature helps in forecasting and decision-making by comparing various possible outcomes based on different inputs.
- How does LibreOffice Base handle database management?

Ans. LibreOffice Base is a DBMS that provides a graphical interface for creating, managing, and querying databases. It supports various database formats like HSQLDB and MySQL. Users can create tables, forms, queries, and reports, define relationships, and perform data manipulation through an easy-to-use interface, making it suitable for both simple and complex database tasks.

### Short Answer Questions-II

- What is the purpose of the Fill Format option in LibreOffice Writer, and how can it be used to enhance document design?

Ans. The Fill Format option in LibreOffice Writer allows users to apply a background color or pattern to an object or text to enhance visual appeal and organization. This feature is particularly useful for creating visually distinct sections or highlighting important information. To use the Fill Format option, select the object or text you want to modify. Go to the "Format" menu, choose "Fill," and then select the desired color or pattern from the options available. You can adjust the Fill's transparency and gradient to achieve the desired effect. This option is beneficial for improving the readability of the document and making specific elements stand out.

2. 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.

3. How can you customize the layout of a report in LibreOffice Base?

Ans. To customize the layout of a report in LibreOffice Base, use the "Design View" of the report. In this view, you can modify the arrangement of fields by dragging and resizing them. To adjust the appearance, utilize the properties pane to change fonts, colors, and alignments. Add headers, footers, and page numbers by inserting the corresponding elements from the design toolbar. For more advanced customizations, you can use the "Report Wizard" to set specific parameters and group data. Save your changes frequently to preserve your customized layout.

## Long Answer Questions

1. What is a Table of Contents 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. 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.

3. How can relationships between tables be established in LibreOffice Base, and why are they important for database management?

Ans. In LibreOffice Base, relationships between tables are established through the Relationships window, accessible via the Database menu. Users can create these relationships by dragging and dropping fields from one table to another. Typically, a primary key from one table is linked to a foreign key in another, ensuring data integrity and consistency. This relational structure allows for efficient data retrieval and manipulation by maintaining logical connections between related data sets. Relationships are crucial because they enforce referential integrity, preventing orphaned records and reducing data redundancy. They also facilitate complex queries and reporting, enabling users to extract meaningful insights from interconnected data.

## 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 this be done?

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. An employee is preparing a financial forecast and needs to analyze different revenue scenarios. How can LibreOffice Calc's What-If tools help?

Ans. Use the "Data Tables" feature to create a table with varying revenue inputs and observe how changes affect the forecasted results. This tool allows you to test multiple scenarios quickly and efficiently.

3. A manager requests a detailed report of customer orders with their contact information and order dates. What steps would you take to produce this report?

Ans. Create a new report using the Report Wizard, join the customer and orders tables, and include fields for customer details and order dates. Adjust the report layout for clarity and completeness.

## Assignment

### Multiple-Choice Questions (MCQs)

- Which document types can be created using LibreOffice Writer?
  - Spreadsheets and presentations
  - Reports and personal letters

- c. Database tables and queries
  - d. Graphs and charts
2. Which feature of LibreOffice Calc helps with automating repetitive tasks?
    - a. Macros
    - b. Queries
    - c. Slide transitions
    - d. Forms
  3. What does LibreOffice Base provide to make database management accessible to users with limited technical knowledge?
    - a. Advanced coding tools
    - b. User-friendly interface
    - c. Complex query language
    - d. Automatic data entry

### Very Short Answer Questions

1. What is LibreOffice Writer?
2. How do you start a new spreadsheet in LibreOffice Calc?
3. What is the primary function of a Database Management System (DBMS)?

### Short Answer Questions-I

1. What is a paragraph style, and how does it differ from a character style?

2. What is the purpose of consolidating data in LibreOffice Calc?
3. What is the first step in creating a new database in LibreOffice Base?

### Short Answer Questions-II

1. What steps are involved in modifying, resizing, cropping, and deleting an image in LibreOffice Writer?
2. What is the primary function of the Goal Seek tool in LibreOffice Calc?
3. What is the purpose of a table in a LibreOffice Base database?

### 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. After combining data from Sheet1, Sheet2, and Sheet3 into Sheet1, how would you use the Subtotals feature to calculate the total salary expense for each department? Describe the specific steps and options you would select to achieve this.
3. Describe how to create a new table using the Wizard in a database application.