

DATABASE MANAGEMENT SYSTEM FOR ACCOUNTING

Database Management System (DBMS) such as LibreOffice Base, Oracle, SQL Server etc. provides a variety of software tools for storing, organising, processing and querying data very easily.

Data – Data are facts and figures about people, objects, entities or events.

Database – It is a collection of data that is stored and used for multiple purposes. Eg. Telephone directory, admission register, stock register of a business enterprise etc.

Data Processing – It is a series of actions by which the data are transformed into useful information meant for decision making.

Logical Structuring of Data in Tables

Systematic arrangement of data in columns (fields) and rows of a table is known as logical structuring of data.

LibreOffice Base and its components

It is one of the popularly used Database Management System (DBMS) to create, store and manage database. It has the following objects or components.

1. **Tables** – Tables allows a database designer to create the data tables with their respective field names, data types and its properties.
2. **Queries** – This component is used to retrieve filtered data and information from the table and to include computation fields.
3. **Forms** - It allows the front end user for entering data to a database file. It also facilitates displaying, updating and deleting the data.
4. **Reports:** This is used to create various reports by using the data from tables and queries. It is used to present selected set of contents in a format.

Steps for Creation of Database in LibreOffice Base

1. Open LibreOffice Base: Applications – Office – LibreOffice Base
2. Creating Tables in LibreOffice Base: Click on Tables – Create table in design view – Enter the field Name - Field Type – Description (optional) – Set the Primary Key – Save.
3. Creating Queries – Click on query icon on the left panel – Use Wizard to create query – Select appropriate options from the coming windows – Finish.
4. Creating Forms – Click on Forms from the database pane – Use Wizard to create form – Select the table or query to add the fields into the form – Select appropriate options from the coming windows – Finish.
5. Creating Report – Click on the object Report from the database pane – Create report by using wizard – Choose appropriate options from the coming windows – Give a suitable name for the report – Finish.

Primary Key : After defining all the columns of the table, the primary key column of the table can be specified as any of the columns that are expected to have unique data values.

To set Primary Key: Select the field – Right Click – Select Primary Key

Entering data into Table – Double click on table icon – Enter the data. We can also enter the data through **Forms**.

Editing Table Field Properties – Right Click on Table icon – Edit – Make changes.

Deleting Table – Right Click on Table icon – Delete.

To Enter the data through Forms, to Edit and Delete the Forms the above steps may be followed as in the case of Tables.

Queries and Reports can also be edited or deleted in the same way.

Query Criteria – Important operators and symbols to develop query criteria.

Operators and Symbols	Description	Operators and Symbols	Description
<=	Less than or equal	>=	Greater than or equal
Like a*	Starting with “a”	Like *a	Ending with “a”

If we enter the criteria **Like A*** in the criterion column, that will display the data of employees whose names starts with **A**.

Defining Relationship (Relationship Building) – Relationship means the connection among different tables in a database. When this connection is established it is called RDBMS(Relational Database Management System).

Tools – Relationship – Add Tables to make relationship – Create relationship by dragging the fields between two tables.

Editing and Deleting Relationships – The relationship between two data tables can be edited or deleted.

Steps:

1. Tools – Relationship – Edit
2. Right click on the line connecting two tables.
3. Select the Edit option to open relation window.
4. Make necessary changes.
5. Delete option is also available here, which will permanently delete the relation between two tables.

Push Buttons on Database

While creating Forms, push buttons can be used to execute certain tasks very easily. Eg: “Close Button” to close the file, “Save” button to save the file etc. Push Buttons for ‘Add Record’, ‘Delete Record’, etc. are also available.

Types of Reports in Database

1. Static Report – These reports present information that is not likely to change over time. Even if the data is updated later, the report will not be changed in this case.
2. Dynamic Report – These reports are always get updated to show the latest changes in data.

Steps in designing a report

1. Asses the requirements expected in the report.
2. Decide overall layout.
3. Determine the columns to be included.
4. Compose or build query.
5. Build the report.

Practical Work – 1

Create a database for Pay Roll Statement from the following:

Employee ID	Employee Name	Basic Pay	DA	Gross Pay
100	Ajith	70000	7000	?
101	Sunithabai	75000	7500	?
102	Beena George	75000	7500	?
103	Shaji	78000	7800	?
104	Jahseena	75000	7500	?
105	Vivek	85000	8500	?
106	Smitha	80000	8000	?
107	Vishwesh	71000	7100	?
108	Nayana	78000	7800	?

Procedure:

Step – 1. Create a database: Applications – Office – LibreOffice Base

Step – 2. Create table: Tables – Create table in design view – Enter the filed Name - Field Type – Description (optional) – Set the Primary Key – Save.

Table Name	Attributes	Primary Key
Employees	EmpID, EmpName, BasicPay, DA	EmpID

Step – 3. **Form** creation for data entry: Click on Forms from the database pane – Use Wizard to create form – Select the table add the fields into the form – Select appropriate options from the coming windows – Finish (Add Push Buttons if necessary from the left panel on edit mode).

Step – 4. Enter the given data through the form.

Step – 5. Create Query: Click on query icon on the left panel – Use Wizard to create query – Select appropriate options from the coming windows – Finish.

Step – 6. Edit the query to add Gross Pay – Right click on query icon – Edit – Enter the equation “bp”+“da” in Field row – Enter the label “Gross Pay” in Alias row – Save (Ctrl+S) as shown by the given figure.

Field	empid	empname	bp	da	"bp" + "da"
Alias	empid	empname	bp	da	Gross Pay
Table	Table1	Table1	Table1	Table1	
Sort					
Visible	<input checked="" type="checkbox"/>				

Step – 7. Press F5 button to run the query, so that the result will be displayed.

Step – 8. Report: Click on Report – Report Wizard – Create the report based on the above query.

Practical Work – 2

From the following details calculate Total Cost and Profit or Loss by using Query in LibreOffice Base.

Product	Sales	Cost	Expense	Total Cost	Profit / Loss
Pen	90000	62000	8000		
Books	85000	68000	2000		
Files	25000	22000	4000		
Gum	36000	25000	2000		

Procedure: Same steps to be followed with suitable changes based on question no. 1.

Hint: In Query, Total Cost = "Cost"+"Expense"

Profit / Loss = "Sales"-(“Cost”+“Expense”)

Practical Work – 3

Create tables Employee Details and Salary Details from the following:

Table 1	
Employee Details	
Empid	empname
100	Aji
101	Biji
102	Siji

Table 2		
Salary Details		
empid	bp	da
100	20000	1500
101	32000	2000
102	40000	3000

Find out the Gross Pay of all employees with the help of a query and display the report.

Procedure:

1. Open a database file.
2. Create two tables and enter the data and set the primary key for each table.
3. Establish relationship among the two tables:

Tools – Relationship – Drag and drop the mouse from empid of 1st table to the empid of 2nd table – Save.

4. Create form and sub form for data entry:

Forms – Use wizard to create forms – Select and add the fields from 1st table (empid and empname) – Next – Check (tick mark) Add sub form – Click the radio button “sub form based on existing relation” - Click on the name of 2nd table in the box on the right hand side of the window – Select and add the fields from 2nd table (bp and da) – Click on Arrangement of the main form and sub form for suitable lay out – Finish.

5. Add push button for next record in the form:

Right click on the form icon – Edit – Click on push button from the left panel – Drag the mouse to add push button in the form – Double click on the new push button – Change the **Label** as “Next Record” in properties window – Change the **Action** as “Next Record” – Close the properties window – Save the form.

6. Enter the data through the form and sub form:

Open the form – Enter the data in main form – move the cursor to sub form by Ctrl+Tab or by mouse click – Enter the data in sub form – Click on the push button for Next Record.

7. Query Creation:

Click on **Create Query inDesign View** (if we use Wizard to create query the data may be triplicated in the result) – Add both the tables – Drag and drop the necessary fields from each table to query work area – Enter the equation bp+da in the “Field” row and the label Gross Pay in “Alias” row of the query – Press F5 to run query – Save.

8. Report Creation:

Click on Report icon from the left panel – Use Wizard to create report – Create report based on the above query – Finish.

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