Creating tables for the list box

Now let us discuss about Simple List Box and its creation. When entering data it is easier to select a value from a list. Here we are trying to enter a fixed value from the list and choices are made from it while entering a particular record using forms. The user is limited to the choices given in list box and it is not possible for him to give a value of his own.

For example, if the list box holds values such as- quarter 1, quarter 2, quarter 3 and quarter 4, then the user is limited to select these four options only. He cannot input data other than what is stated in the box. The process of list box creation is explained below.

- Click on the list box tool. On selection the mouse pointer changes to plus sign(+), click and drag the mouse pointer against the "Name of Quarter" field and release the mouse button.
- A List box wizard will appear prompting to select a table from list of tables. Click cancel. (Do not add any table at this point)
- Now green border appears around the List Box with eight handles.
- Right Click→ Control→Data Tab
  - Data Field→Click and select field QUARTER_NAME
  - Input Required→Yes
  - Type of List Contents→Click and select Valuelist.
  - List Content: Click in the box and type Quarter 1 and press Shift+ Enter Key to type other values. Press Enter Key at the end.
  - General tab→List Entries→click and type four options inside. For each option press Shift+Enter key,and for the last option press Enter key only.
  - Save and close the wizard.
  - Switch the design mode off and see the changes reflected.

Try yourself

Create a LibreOffice Base small pro template to Create Account Groups under the following Primary Groups

1. *Assets*
2. *Liabilities*
3. *Capital*
4. *Expenses*
5. *Revenue*

(Hint: Current Asset group can be created under the primary Group Assets.) Create necessary table to contain the records added.

6.4.4 Working with Sub Forms

A sub form is a form inserted in to a Main Form, which works together with it. Sub Forms are used to input data into tables or show data from table or queries with one- to -many relationships.

(a) Creating subforms to view / show data

You know that form frmBUSFEE is used to enter receipts of bus fees. While entering details of fees of students in different quarters, we may like to view the details of these students like name, class, place, etc. Sub form provides an opportunity to view such details within the Main Form. The form so inserted is linked with table tblSTUDENT which contains such details. The procedures for sub form creation are illustrated as follows; (Figure 6.53).

- Create a main form
  - o Forms→Use Wizard to create Forms
- Select table tblBUSFEE for the Main Form and add fields
  - o Table or queries→Available Fields >> ADD fields

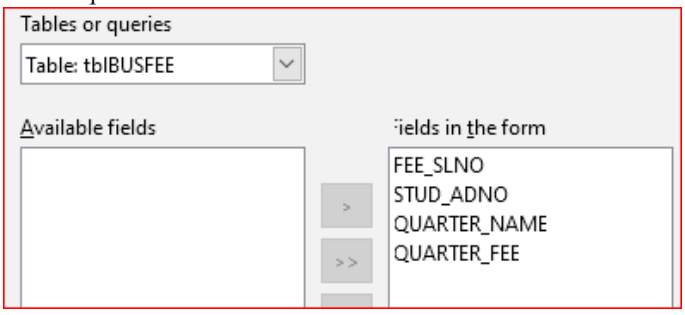


Fig 6.53 Adding Fields to The Main Form

- Put tick mark in the check box 'Add Subform'

- Decide the type of selection of fields
  - o Select sub form based on existing relation, if you wish to add fields, using wizard
  - o Select sub form based on manual selection of fields, if you wish to add fields manually.
- Add sub form field selection
  - o Select the table or queries for the subform
  - o Select available fields to be included in subform
- Available fields >> ADD fields. See the figure 6.54.

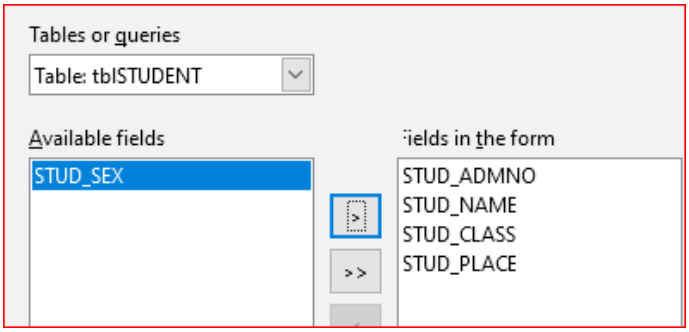


Fig 6.54 Adding fields to the Main subform

- Select joins between sub form and main form
- Connect first joined field of the sub form with first joined field of the Main Form. (Figure 6.55)

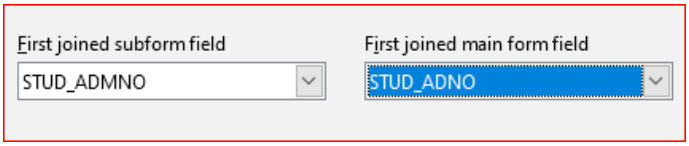


Fig 6.55 Joining fields

- Arrange controls : Select Main Form as Columnar-Left and Sub Form as Data Sheet (other controls may also be opted)
- Select the data entry mode: whether the form is to enter new data or display existing data.
- Apply style by selecting any one from the style palate : select Light Gray.
- Set Name: Give a name to the form. Type the name frmBUSFEEsub1 and save.(You may open the form in design mode (Edit Form) and change labels and alter properties for font, size colour etc.)
- You can use record pointers to move across various records. On selection of a particular record in the main form, its associated data will be displayed in the sub form. This can be seen from the figure 6.56.

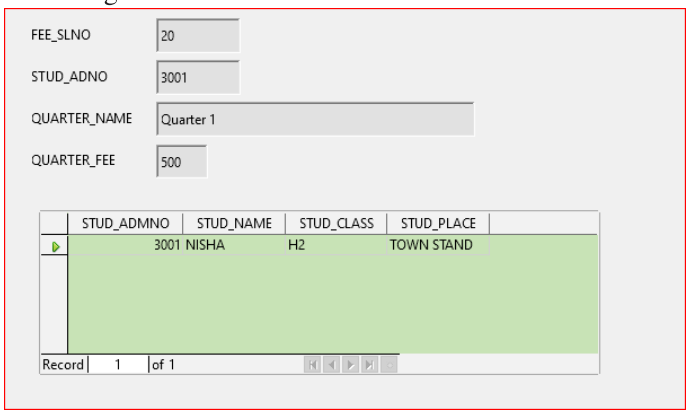


Fig 6.56 Working of a Subform to Show Data

- Similarly, if we create a form with sub form to display details of fees paid , it may look like the one given below. It may display fees details when name is given.

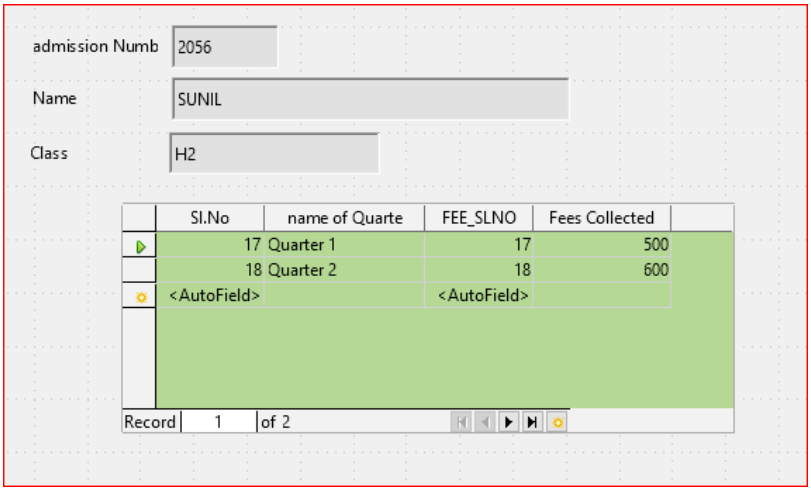


Fig 6.57 Subform to display data

(b) Subform to Input Data

Sub form within a main form can be used to input data. Initiate the following steps to input data using a sub form.

- Select 'tblSTUDENT', to set up a subform
- Put a tick (✓) mark in the check box "Add Subform", which will activate steps 3 and 4 namely 'Add Sub form fields' and 'Get Joined Fields'
- Select the table 'tblBUSFEE' to make 'field selection' and 'Get joined fields connected'
- Select both the lay out "columnar label on left, fields right" for 'arrangement of the main form' and 'arrangement of sub form'
- Select the option for new data entry
- Apply necessary styles and save the form
- Open the form in Design mode to change labels, align text boxes, etc.
- Switch off 'Design mode'

Now the form will be ready to accept data we input and all tables will be updated instantly.

Push Buttons

In the context of LibreOffice form, a push button is a visual representation of a button that executes a task when clicked or pressed. There will be some instructions attached to these buttons. On execution of these instructions it will perform a specific task. For example, to close a file we may press on "Close" button, to save "Save" button and so on.

The Push Button option is available in the tool bar menu as seen below.

In order to select a push button, click on the push button tool , then drag and drop it on the form. Now the mouse pointer turn to a plus sign (+), which allows us to draw required number of buttons in the form (Figure 6.58).

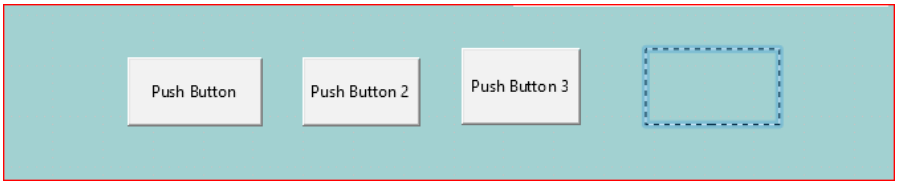


Fig 6.58 Inserting push button in a form

We can select these push buttons, move and place them on any part of the screen. Right clicking on the selection gives us next level options to align, arrange and wrap them.

You may open, control properties to change label and set properties and assign controls (Figure 6.59).

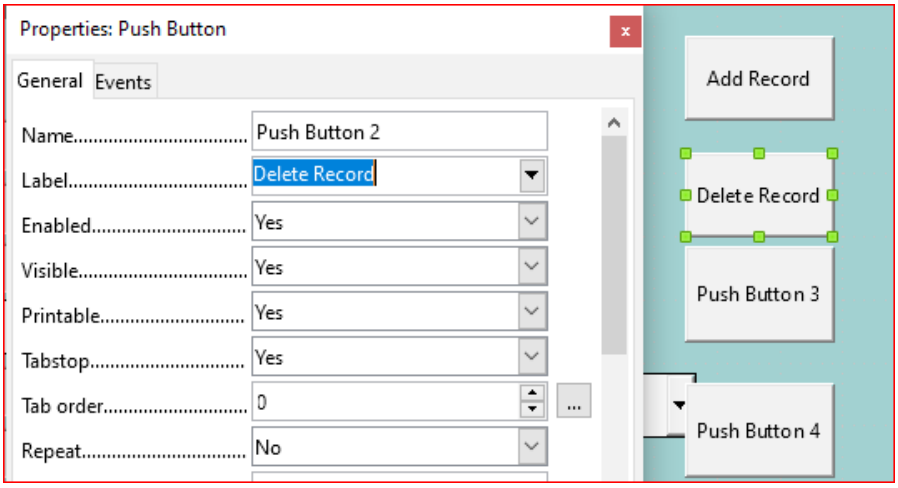


Fig 6.59 Changing Labels of Push Buttons

Defining Action for Push Button

Once the button is placed on the form screen, we should be able to execute the task when this button is pressed. Let us see how we can make this button work.

- Select a push button
- Right click→Control→General Tab→Action (scroll down to see action in list properties box)

- Click in the 'v shaped button' against the action property to get available list of actions to perform and click to select the one we want to assign (Figure 6.60).

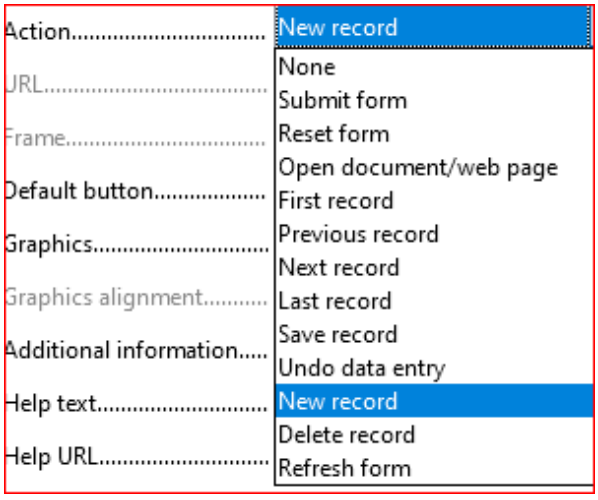


Fig 6.60 List of Executable Action

In this way, we can set or change properties for each button.

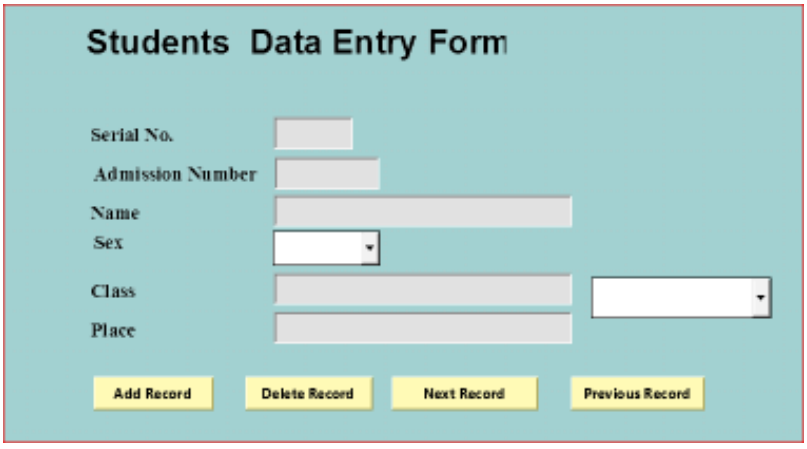


Fig 6.61 Data Entry Form with Push Button

Check Box

A check box is a small square box that can be placed on a form which allows user to show a choice and input that choice to a data field. It is alternatively called a selection box or a tick box. The check box tool can be picked from tools menu.

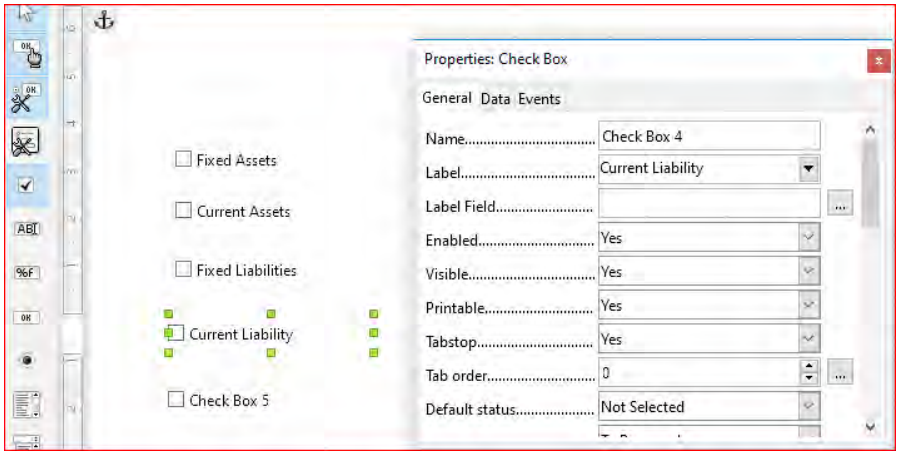


Fig 6.62 Changing Check Box Properties

Setting properties

- Right click→Control.
  - o General Tab→change general properties such as label, font, colour, height etc.
  - o Data Tab→set field properties.
- Data Field: specify the name of field which should hold the selected value.
- Input required: Yes
- Reference value (on): If a reference value is given, that value will be displayed at the time when the box is checked, and the value will be transferred to data field. If no reference value is given, the box when checked will return the value "true", and unchecked box will return "false".

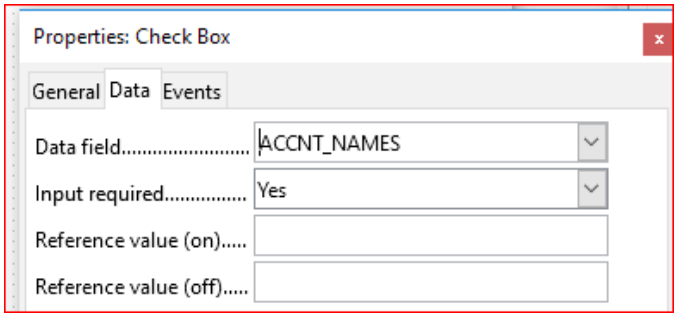


Fig 6.63 Data Properties of Check Box

Option Buttons/ Radio Buttons

Option buttons offer the user a set of mutually exclusive options. It means that the selection of one option automatically rejects all others. The user can select only one option. The

advantage of using radio button is that the selected option will be entered to the corresponding column of the table. For example radio button may be provided for selecting sex of a student (Male /Female). When several option buttons in the form are linked to the same table field, only one of the options can be selected. The properties are set in the same way we have set properties for a check box.

Try yourself

Create a LibreOffice Base Form template to Create Accounting Vouchers (Voucher Entry Forms)

- *Sales Voucher*
- *Payment Voucher*
- *Purchase Voucher*
- *Receipt Voucher*

The Voucher should contain controls to select date, debit and credit accounts (add list box to pick up account names), and text boxes to enter debit and credit amount, and a field to add narration.

Add Push button in a Main Form to load Voucher Entry Forms.

Receipt Voucher
Payment Voucher
Sales Voucher
Purchase Voucher

Let's assess

1. *What is a sub form?*
2. *..... is used by the front end user to enter data.*
3. *You can enter data using sub form - (Yes/No)*
4. *What is a list box?*
5. *What are the uses of push buttons?*

6.5 Creating queries in LibreOffice Base

A Query is a question asked or enquiry sent to a data base to bring together data from different tables, calculate results, and quickly filter any mass of data. More often query results can be a data source for forms and reports.

A database query can be either a select query or an action query. A select query is used to retrieve data while an action query is used to do some specific operations on the data, such as arithmetic operations, insertion, updating, deletion etc.

6.5.1 Creation of Queries Using Wizard

Queries can be created with the help of Query Wizard or in Design View. These options can be found in the Database pane on the main window of our database. The procedures for creating query using wizard are illustrated below (We can use the tables we have already created).

- Open the Query Wizard by clicking on "Use Wizard to Create query"

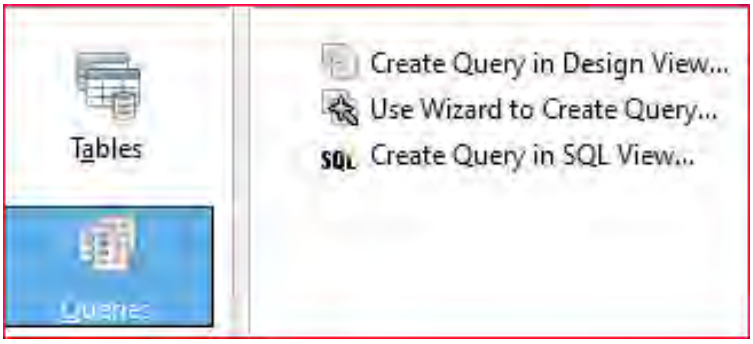


Fig 6.64 Create query options

- Select the table tblSTUDENT and add required fields.

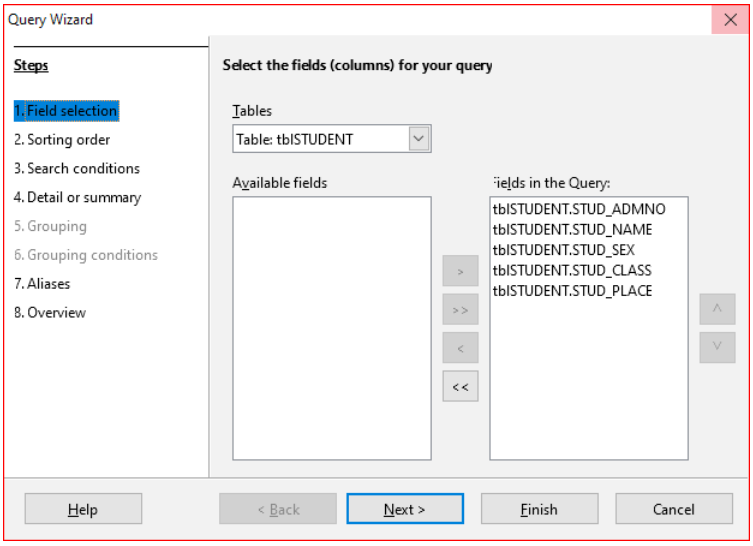


Fig 6.65 Adding Fields to Query

- Select the sorting order: Here the query sorts the data on the basis of the field priority we specify.

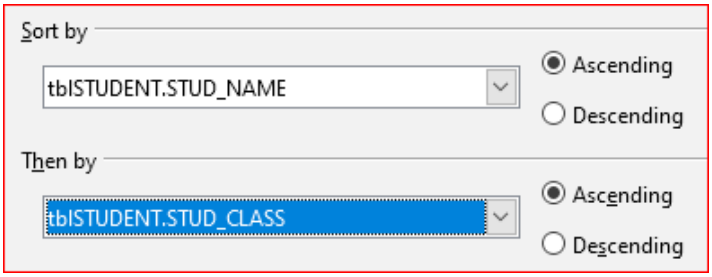


Fig 6.66 Setting Sort Priority

- Select the search conditions: This window allows you to specify a field to be searched, a search condition and a value.

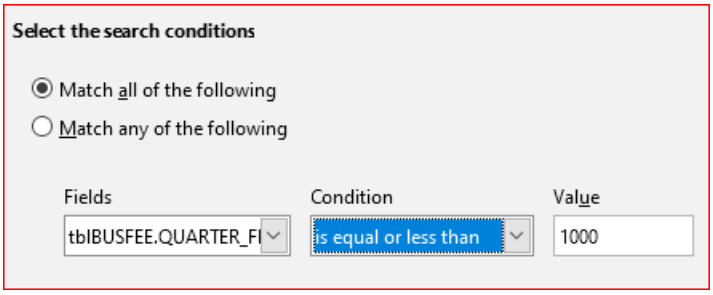


Fig 6.67 Setting Search Conditions in a Query

- Specify the type of Query.
  - Detailed Query: Show all records of the query
  - Summary Query. It will display results of aggregate functions we specify

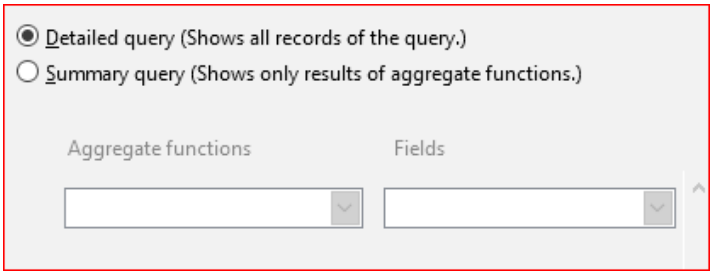


Fig 6.68 Selecting Query Type

  - If Summary Query is opted, then we will get two more options, namely, Grouping and Grouping conditions as the 5th and 6th steps.
- Alias: If desired, alias name for each field may be given here.
- Over view: This window contains the following:
  - Name of the Query: Give a name to save the query.
  - It also provides an overview of steps done at this point.
  - It also provides options to Display Query or Modify Query

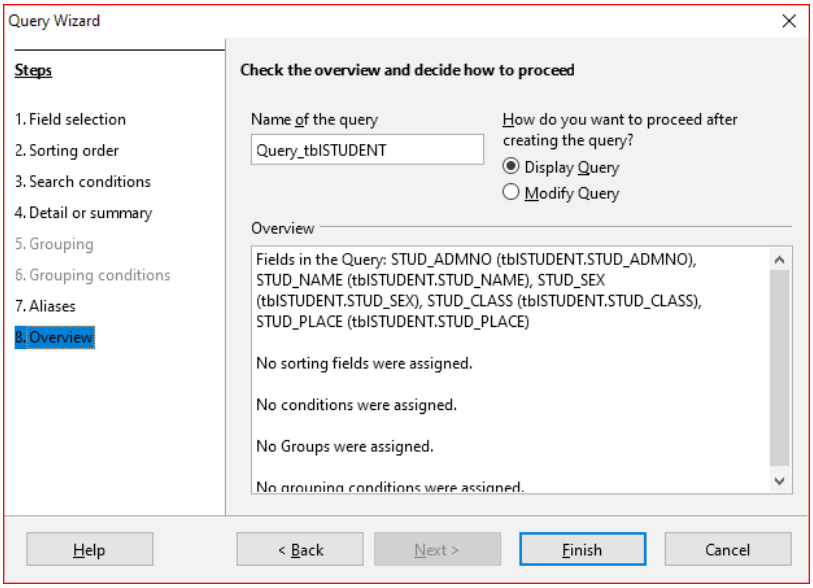


Fig 6.69 Overview of steps followed to build Query

Running Queries

A query is run from the Edit menu by clicking run query option or by selecting 'Run Query' button from the tool bar or by pressing the F5 key.

If we opt Display query, the query will run and display the following result. (Figure 6.70).

STUD_ADMNO	STUD_NAME	STUD_SEX	STUD_CLASS	STUD_PLACE
2030	JAFFER	MALE	C2	NOORANI
2035	JAYA	FEMALE	S2	PALAKKAD TOWN
2050	KATHU	FEMALE	C2	KANJIKODE
2056	SUNIL	MALE	H2	MALAMPUZHA
2070	LAKSHMI	FEMALE	S2	TOWN STAND
3001	NISHA	FEMALE	H2	TOWN STAND
3002	ARYA	FEMALE	C2	TOWN STAND
3031	ANEESH	MALE	C1	PALAKKAD
3040	SIMON	MALE	S1	KANJIKODE
3045	MALU	FEMALE	C1	MALAMPUZHA
3051	SHERIN	FEMALE	C1	NOORANI
4001	SREEKALA	FEMALE	H2	GURUVAYOOR
4002	ADITHYAN	MALE	C1	MALAMPUZHA
4003	AVINASH	MALE	S1	PALAKKAD
4010	ARDRA	FEMALE	K1	VENMONY
4011	ANUPRIYA	FEMALE	K1	VENMONY

Fig 6.70 Display of Query Result

6.5.2 Creation of Query in Design View

We have already seen creation of query using wizard using a single table. Now let us see how fields of more than one table are used to build queries.

We can invoke the option "Create Queries in Design view" form the Database pane on the main window of our database. It will give you the following interface. It also contain an "Add Table or Queries box". (Figure 6.71)

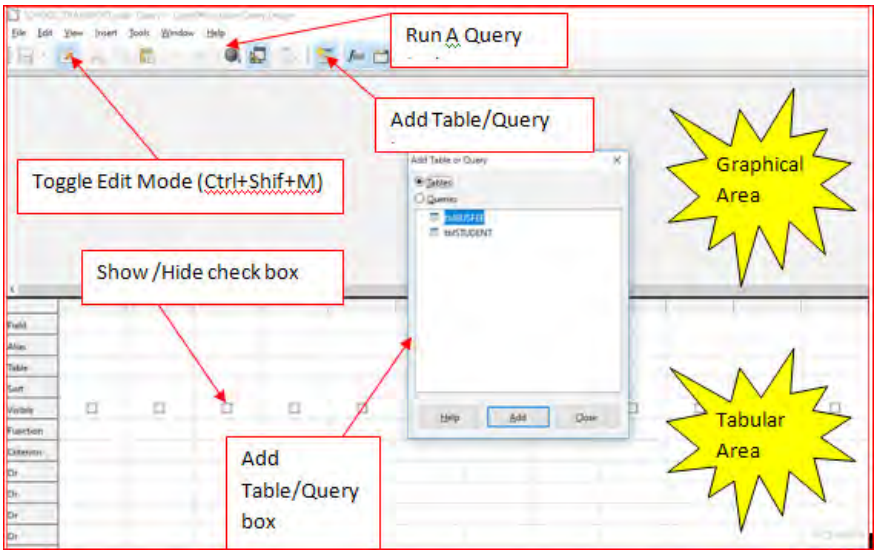


Fig 6.71 Query in Design View

- To select a table, click its name and then click the 'Add' button. Alternatively,

  Double-click the table's name. In both the cases the table is added to the graphical area of the Query. (Figure 6.72).

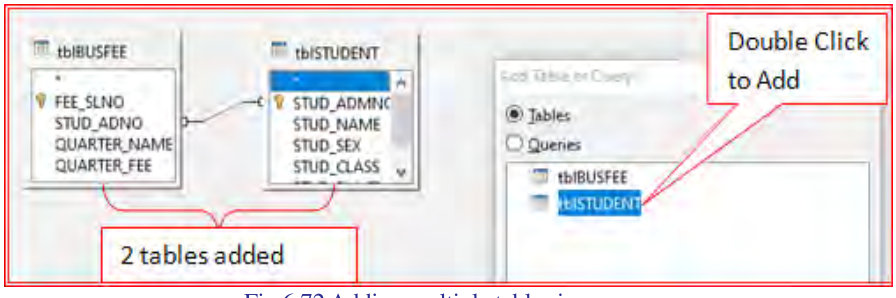


Fig 6.72 Adding multiple tables in a query

- All operations are done in the Tabular area. Hence an understanding about the important elements of tabular area is necessary. (Figure 6.73).

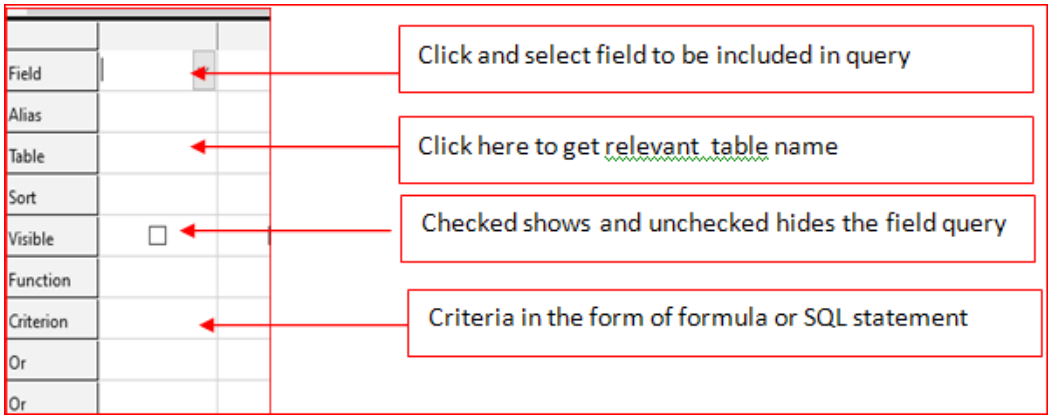
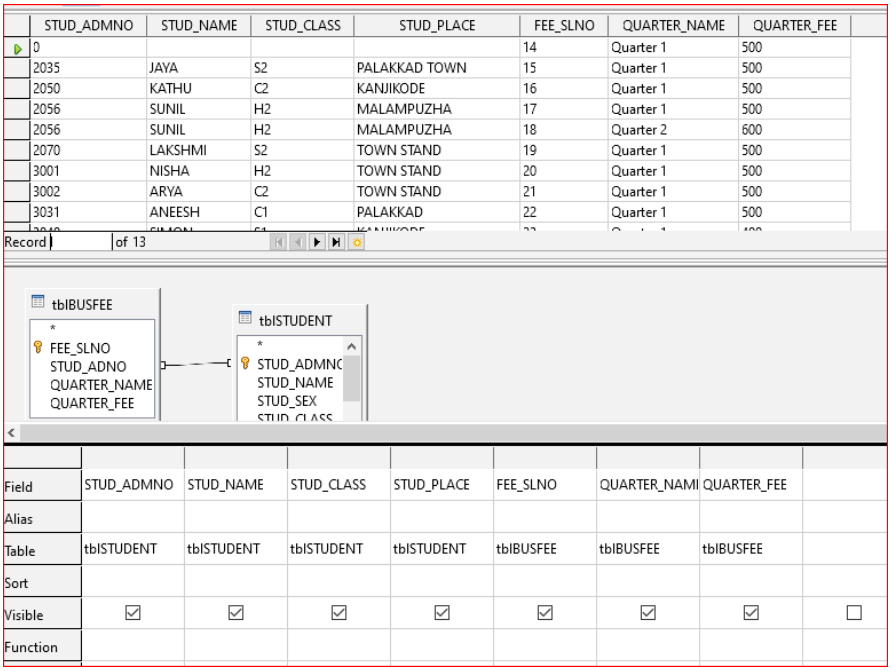


Fig 6.73 Elements of a Query

- To add a field, follow the procedures given below
  - Assume that we want to specify fields of table tblSTUDENT
  - Field: Click inside field box, which is populated with all fields of the above two tables. Select the first field you want to show in query.
  - Alias: Give alias name, if necessary (optional)
  - Table: To select table, the mouse on Table box and a mere strike of the mouse will automatically load the name of the corresponding table.
  - Sort: If you want to sort the field, give criteria.
  - Visible. There will be check boxes for each field, and which is used to show or hide (on or off)field values.(Box checked shows field value, while unchecked hides field values)
  - Function: Few built in functions are available here. If necessary, select a function, say "SUM", to calculate total of the field.
  - Criterion: In this box we may insert formula or SQL statement to do some specific operations. E.g.: "MALE" - to display all records of male students
- Save the Query giving a suitable name. Default query name is "Query 1"
- Run the Query: We may run the query from the Edit menu by clicking the Run query option, or by pressing the F5 key, or with a click on the Run Query button.

Now the query will produce the results (figure 6.74). By default, all records are listed.



STUD_ADMNO	STUD_NAME	STUD_CLASS	STUD_PLACE	FEE_SLNO	QUARTER_NAME	QUARTER_FEE
0				14	Quarter 1	500
2035	JAYA	S2	PALAKKAD TOWN	15	Quarter 1	500
2050	KATHU	C2	KANJIKODE	16	Quarter 1	500
2056	SUNIL	H2	MALAMPUZHA	17	Quarter 1	500
2056	SUNIL	H2	MALAMPUZHA	18	Quarter 2	600
2070	LAKSHMI	S2	TOWN STAND	19	Quarter 1	500
3001	NISHA	H2	TOWN STAND	20	Quarter 1	500
3002	ARYA	C2	TOWN STAND	21	Quarter 1	500
3031	ANEESH	C1	PALAKKAD	22	Quarter 1	500

Record | of 13

Field	STUD_ADMNO	STUD_NAME	STUD_CLASS	STUD_PLACE	FEE_SLNO	QUARTER_NAMI	QUARTER_FEE	
Alias								
Table	tblSTUDENT	tblSTUDENT	tblSTUDENT	tblSTUDENT	tblBUSFEE	tblBUSFEE	tblBUSFEE	
Sort								
Visible	☑	☑	☑	☑	☑	☑	☑	☐
Function								

Fig 6.74 Result of Query Executed / Run

- Adding Criteria
  - Modifications to query can be done in Design Mode only. To open the query in design mode, right click on file name and click on "Edit".
  - To display records of all of students from a particular place
- Focus on the field "STUD_PLACE" and click inside the Criteria column corresponding to it. Now the cursor will prompt for entering criteria. Type "PALAKKAD" and hit Enter Key and run the query (Figure 6.75).

Field	STUD_ADMNO	STUD_NAME	STUD_CLASS	STUD_PLACE	FEE_SLNO
Alias					
Table	tblSTUDENT	tblSTUDENT	tblSTUDENT	tblSTUDENT	tblBUSFEE
Sort					
Visible	☑	☑	☑	☑	☑
Function					
Criterion				'PALAKKAD'	
Or					

Fig 6.75 Adding criteria in a Query

Result will be displayed as follows (Figure 6.76).

STUD_ADMNO	STUD_NAME	STUD_CLASS	STUD_PLACE	FEE_SLNO	QUARTER_NAME	QUARTER_
3031	ANEESH	C1	PALAKKAD	35	Quarter 1	500
4003	AVINASH	S1	PALAKKAD	43	Quarter 1	500
4003	AVINASH	S1	PALAKKAD	44	Quarter 1	500
				<AutoField>		

Record | of 3

Field	STUD_ADMNO	STUD_NAME	STUD_CLASS	STUD_PLACE	FEE_SLNO	QUARTER_NAMI	QUARTER_FEE
Alias							
Table	tblSTUDENT	tblSTUDENT	tblSTUDENT	tblSTUDENT	tblBUSFEE	tblBUSFEE	tblBUSFEE
Sort							
Visible	☑	☑	☑	☑	☑	☑	☑
Function							
Criterion				PALAKKAD			

Fig 6.76 Result of Query with Criteria Changed

o Using NOT operator in criteria.

- If we want to list all records of students except those coming the place, say PALAKKAD, then type exactly as 'NOT PALAKKAD' in the criteria box (Figure 6.77).

Field	STUD_ADMNO	STUD_NAME	STUD_CLASS	STUD_PLACE	FEE_SLNO	QUARTER_NAMI	QUARTER_FEE	
Alias								
Table	tblSTUDENT	tblSTUDENT	tblSTUDENT	tblSTUDENT	tblBUSFEE	tblBUSFEE	tblBUSFEE	
Sort								
Visible	☑	☑	☑	☑	☑	☑	☑	☐
Function								
Criterion				NOT PALAKKAD				

Fig 6.77 Query Using 'NOT' Operator

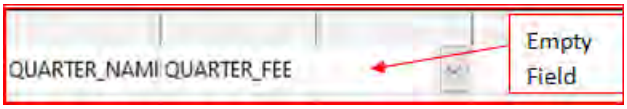
6.5.3 Adding Computational Field

o Suppose that the Quarter 1 bus fees is ₹ 750. Students have remitted only ₹ 500 each. To compute the dues, a computational field may be inserted. Here everyone must remember two important aspects:

- Remember the table name (tblBUSFEE)

- Remember the field name (QUARTER_FEE)
- Every field is referred in SQL statement in association with table name. Thus the field name should be typed as tblBUSFEE.QUARTER_FEE. If quarter fee is ₹ 750, to find dues write statement as: 750 - tblBUSFEE.QUARTER_FEE.

  Now let us see how it is written in Query.
- Field :Click in an empty field box



- Type : 750 - tblBUSFEE.QUARTER_FEE and hit Enter Key
- Alias: In Alias column type a column heading "Outstanding Fees" and hit enter key
- Table: Leave the table column blank. Do not make any entry here.
- Now Run the query. We can see that the balance amount is calculated as shown in a new field as "Outstanding fee"

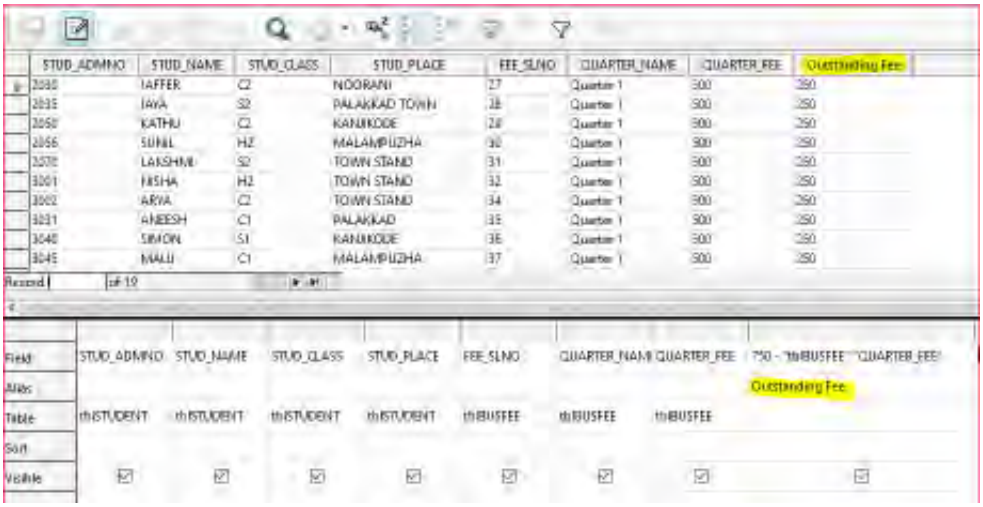


Fig 6.78 Result of Computational Field

To add amount fields, you may use the following syntax

Table1.feild1+table1.field2+table1.field3

To compute 10% of a field :

Table1.field*10/100

Try yourself

Collect details of Books and periodicals in your school library and create necessary table to record their stock. Create form to monitor receipts and issue of books and periodicals. Necessary queries may be created to get subject-wise list of books, class-wise issue of books, list of pending books unreturned issues, etc.

6.6 Creating reports in LibreOffice Base

The ultimate objective of Data Base Management System is to provide right information at the right time. This purpose is fulfilled at the end through reports. Reports are generated from the database tables or queries. LibreOffice provides lot of tools that help you to quickly build attractive, easy-to-read reports that present the data in a way that best suits the needs of its users.

Reports can be static or dynamic.

6.6.1 Static Reports

Static reports are meant to present information that is not likely to change over time. The system retrieves data from database at the time the report was created, and there after the information in a static report does not get updated.

6.6.2 Dynamic Reports

Dynamic Reports are meant to present information that changes over time. Dynamic reports always get updated to show the latest changes in data. Dynamic reports show the latest data and the system updates the data in a dynamic report when the report is displayed, usually in a Web browser.

It is to be understood that reports can be created using both tables and queries. You may include all fields or just selected fields according to your needs. If the data is spread over across different tables, then it is advisable to create queries based on selected fields of different tables. Later we can use that query for creating reports. From this we can say that a lot of preliminary work is involved to create a report in its designing phase. The designing of reports may go through the following stages.

6.6.3 Steps in designing a Report

i) Assess the requirements expected in the reports.

ii) Decide overall layout.

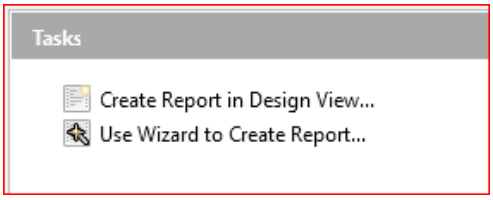
iii) Determine needed tables and columns to be included.

iv) Compose or build query.

v) Build the report.

6.6.4 Creating Reports

To create reports, click on the 'Reports icon' in the Database pane.It will show two sub options (See figure given below) . Here the report creation is confined to creating report using wizard only.



Use Wizard to create Report: In this a wizard will direct you to start and finish report creation in self explanatory and user friendly manner.

When we click on 'Use Wizard to Create Reports', a screen similar to the following will appear (Figure 6.79).

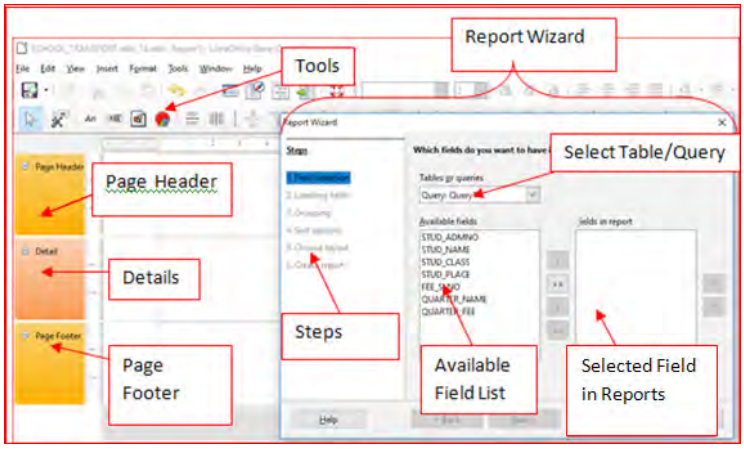


Fig 6.79 Report Wizard Screen

Every report will have its Page Header, Details or Report Body and Page Footer.

- Page Header: It appears at the top of the first page of the report. It may contain report title, logo and current date.
- Header: It is seen just below Page header: Its main object is to provide field heading or content heading.
- Details: It is the place where actual data or field contents are shown.
- Page Footer: It is seen at bottom of each page of the report, where current date, page number, etc, are given.

Report Wizard: It provides on screen direction to build reports in a professional manner.

Report wizard lets you walk through six steps starting with field selection. These are explained below:

1) Field Selection

In field selection, the report wizard provides a list of tables or queries to select from the list with its associated fields. Using add button, we can add all fields or just selected fields which we wish to show in reports (See figure 6.80).

Fig 6.80 Adding Fields to Reports

2) Labelling Fields

In this screen we can decide as to how we want to label the fields (Figure 6.81). Wizard automatically takes all field names from database and assigns them as column headings, which may not be in a quite understandable form. So we may change field labels to make it more meaningful and attractive.

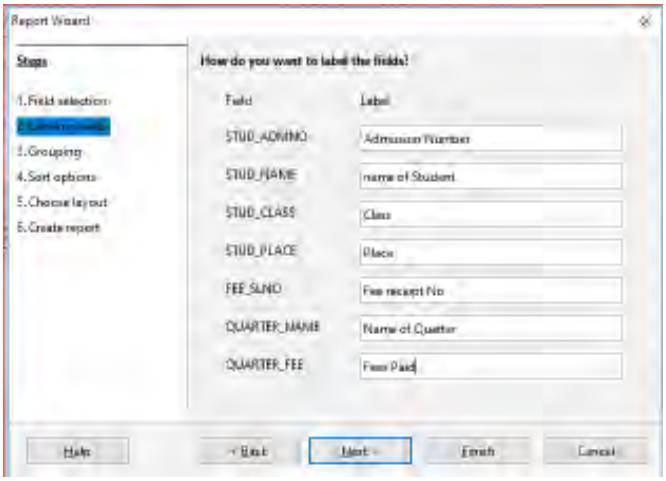


Fig 6.81 Labelling Fields

It is to be noted that the labels we add above will appear as column or field headings in a report. So care must be taken to give very short labels.

3) Grouping

In this step, the wizard asks us to select and assign a field or fields for grouping, if any required. If we select a field, then the entire information in the report will be grouped on the basis of field name we have provided. For example, if we select "QUARTER_FEE " for grouping , then the report will be built on the basis of Fees, say "list of those who paid 500", " list of those who paid 750" "list of those who paid 900" and so and so forth. If we select "STUD_CLASS" , then information will be grouped on the basis of students class. Assume that we select "STUD_CLASS" as the field for grouping in our example as shown in figure 6.82. See also figure 6.84.

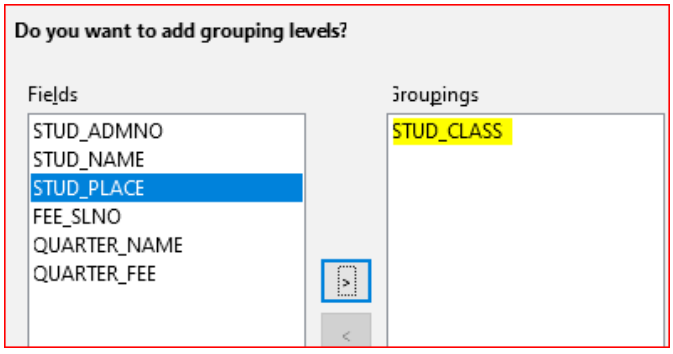


Fig 6.82 Grouping on the basis of selected Fields

4) Sorting Options

In this step, the wizard lets us to assign field or fields on the basis of which we wish to sort the data in reports. For example, if we select "STUD_NAME", then the records will be listed in the alphabetical order of students. See figure 6.84.

5) Choosing Layout

Choosing layout, determines how we want our reports to look like. The available templates include the following:

- columnar.
- columnar-single column.
- columnar-two column.
- columnar-three column.
- in blocks-labels above.
- in blocks labels -right.

At this stage we can also select orientation Landscape or Portrait.

6) Create Report

It is the last stage in building a report. Here the considerations are;

a. Title of the Report: You have to give a suitable name for the report, say "List of Bus Fees Collected"

b. Type of Report : You may select Static or Dynamic type for the report. If you choose Static, you won't be able to modify the report. If you select Dynamic option, then Modify or Create report option is available. See figure 6.83.

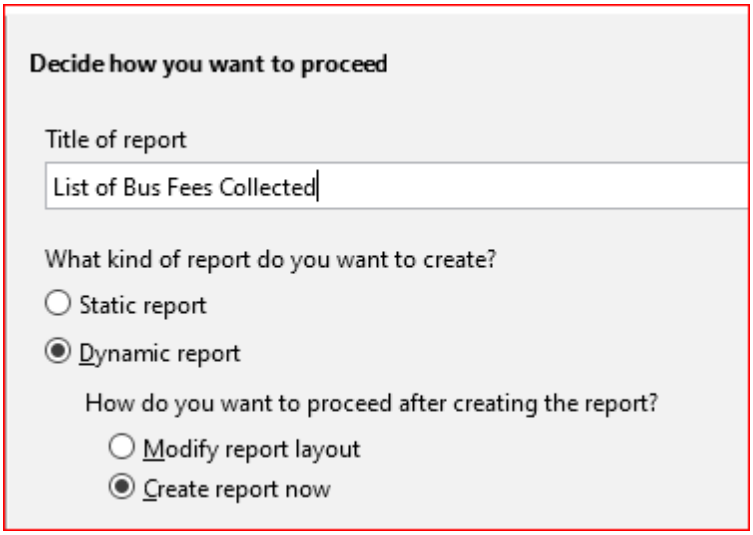


Fig 6.83 Type of Report

Upon finishing, the report will be generated and saved (Figure 6.84).

Class C1

Admission Number	name of Student	Place	Fee receipt No	Name of Quarter	Fees Paid
4002	ADITHYAN	MALAMPUZHA	42	Quarter 1	500
4002	ADITHYAN	MALAMPUZHA	41	Quarter 1	500
3031	ANEESH	PALAKKAD	35	Quarter 1	500
3045	MALU	MALAMPUZHA	37	Quarter 1	500
3051	SHERIN	NOORANI	39	Quarter 1	500
3051	SHERIN	NOORANI	38	Quarter 1	500

Class C2

Admission Number	name of Student	Place	Fee receipt No	Name of Quarter	Fees Paid
3002	ARYA	TOWN STAND	34	Quarter 1	500
2030	JAFFER	NOORANI	27	Quarter 1	500
2050	KATHU	KANJIKODE	29	Quarter 1	500

Class H2

Admission Number	name of Student	Place	Fee receipt No	Name of Quarter	Fees Paid
3001	NISHA	TOWN STAND	32	Quarter 1	500
4001	SREEKALA	GURUVAYOOR	40	Quarter 1	500

Fig 6.84 Generated Report

Try yourself

Create a LibreOffice Base Project to automate School Admission Register. It should contain the following.

- *Table/Tables to store data*
- *Data Entry Form*
- *Necessary Queries to interact with the database*
- *Useful reports*

The automation of School Bus management system has been discussed so far. What if someone asks us about the net effect of running the school bus?

- How can we ascertain the surplus or deficit of running the school bus?

We all know that since this is a service activity, we need to prepare a Receipts and Payments account for ascertaining the surplus or deficit. Let us now discuss how receipts and payments can be prepared using this DBMS tool.

Receipts and Payments Account shows all cash receipts and payments of a Not for Profit making Institution. The debit side shows all receipts and credit side shows all payments. For catering the above, the following tables needs to be created.

i) A table for storing details of transactions relating to receipts and another for payments. It may have the following structure (Figure 6.85).

	Field Name	Field Type
🔑	TRANSNO	Integer [INTEGER]
	TRANS_DATE	Date [DATE]
	DR_ACC_NAME	Text [VARCHAR]
	DR_ACC_AMT	Decimal [DECIMAL]
	CR_ACC_NAME	Text [VARCHAR]
	CR_ACC_AMT	Decimal [DECIMAL]
	VCHR_TYPE	Text [VARCHAR]

Fig 6.85 Table 1 with Data Type

This table may be saved with the name "tblTransactionMaster"

ii) Another table containing name of various debit and credit ledger accounts is also designed (Figure 6.86).

	Field Name	Field Type
▶	ACCNT_CODE	Integer [INTEGER]
	ACCNTCAT	Text [VARCHAR]
🔑	ACCNT_NAMES	Text [VARCHAR]
	ACCNT_TYPE	Text [VARCHAR]

Fig 6.86 Table 2 with Data Type

This table may be saved with the name "TBLADD_ACCOUNTS"

iii) After creation of the above mentioned tables, a form to suit the requirements may be designed as shown in figure 6.87.

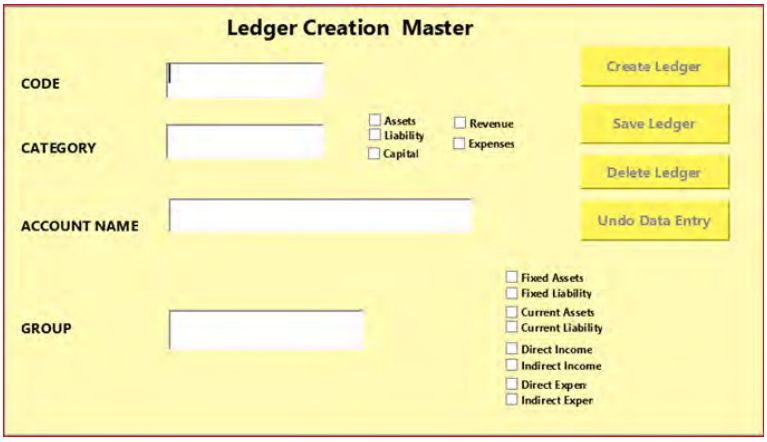


Fig 6.87 Ledger Creation Screen

The various controls in the Accounts Master Form may be set as seen below:

Controls	Label	Data Field(Controls)
LABEL	Ledger Creation Master	
LABEL1	CODE	
TEXT BOX1		ACCNT_CODE
LABEL2	CATEGORY	
TEXTBOX2		ACCNTCAT
Check Box	Assets	ACCNTCAT
Check Box1	Liability	ACCNTCAT
Check Box2	Capital	ACCNTCAT
Check Box3	Revenue	ACCNTCAT
Check Box4	Expenses	ACCNTCAT
LABEL3	ACCOUNT NAME	
TEXTBOX 3		ACCNT_NAMES
LABEL4	GROUP	
Check Box5	Fixed Assets	ACCNT_TYPE
Check Box6	Fixed Liability	ACCNT_TYPE
Check Box7	Current Assets	ACCNT_TYPE
Check Box8	Current Liability	ACCNT_TYPE
Check Box9	Direct Income	ACCNT_TYPE
Check Box10	Indirect Income	ACCNT_TYPE
Check Box	Direct Expenses	ACCNT_TYPE
Check Box	Indirect Expenses	ACCNT_TYPE
Push Button1	Create Ledger	Action-New Record
Push Button2	Save Ledger	Action-Save Record
Push Button3	Delete Ledger	Action-Delete Record
Push Button4	Undo Data Entry	Action-Undo Data Entry

The form may be saved with the name "frmCreateLedger". When we run the form for ledger creation, the following screen will appear (Figure 6.88).

Fig 6.88 Running Ledger Creation Form

Create as many records as you want. The ledgers created will be added to the table "TBLADD_ACCOUNTS" (Figure 6.89).

ACCNT_CODE	ACCNTCAT	ACCNT_NAMES	ACCNT_TYPE
103	Assets	Bank a/c	Current Assets
402	Revenue	Bus fees a/c	Indirect Income
201	Capital	Capital a/c	Fixed Liability
401	Assets	Cash a/c	Current Assets
400	Expenses	Purchase a/c	Direct Expense
502	Expenses	Rent a/c	Indirect Expense
501	Expenses	Salary a/c	Indirect Expense
401	Revenue	Sales a/c	Direct Income
502	Expenses	Wages a/c	Direct Expense

Fig 6.89 Display Record in Table

iv) Create a Voucher Entry Form for entering transactions (Figure 6.90).

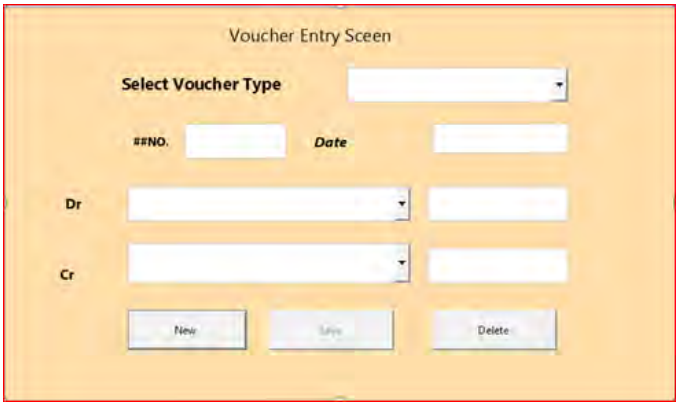


Fig 6.90 Voucher entry screen

The various controls relating to the above form may be set as follows:

Controls	Label	Data Field(Controls)
LABEL	Voucher Entry Screen	
LABEL1	Select Voucher Type	
COMBO BOX1		VCHR_TYPE
LABEL2	##NO	TRANSNO
LABEL3	Date	TRANS_DATE
LABEL4	Dr	
LEBEL5	Cr	
COMBO BOX2 TEXTBOX1		DR_ACC_NAME DR_ACC_AMT
COMBOBOX3		CR_ACC_NAME
TEXTBOX2		CR_ACC_AMT
TEXTBOX 3		ACCNT_NAMES
Push Button1	New	Action-New Record
Push Button2	Save	Action-Save Record
Push Button3	Delete	Action -Delete Record

This form may be saved with the name "frmTransactionMaster". When we open the form, it will look like as follows (Figure 6.91).

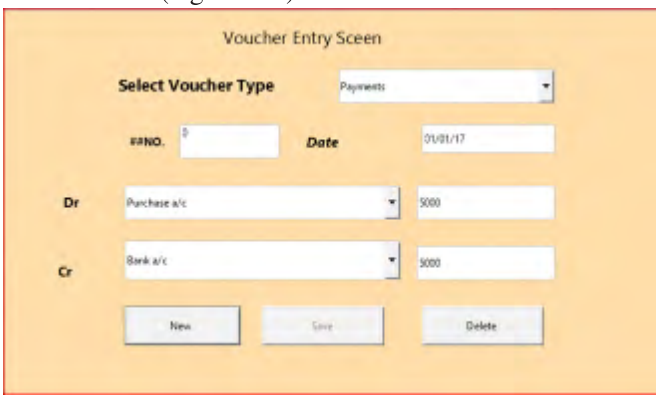


Fig 6.91 Running Voucher Entry Form

Now transactions may be entered through this voucher. After entering few transactions, the table may contain the details of following transitions (Figure 6.92).

	TRANSNO	TRANS_DATE	DR_ACC_NAME	DR_ACC_AMT	CR_ACC_NAME	CR_ACC_AMT	VCHR_TYPE
▶	7	01/01/17	Cash a/c	50000	Capital a/c	50000	Receipts
	8	01/01/17	Wages a/c	3000	Cash a/c	3000	Payments
	9	02/01/17	Bank a/c	20000	Cash a/c	20000	Contra
	10	03/01/17	Purchase a/c	10000	Cash a/c	10000	Payments
	11	05/01/17	Cash a/c	25000	Sales a/c	25000	Receipts
	12	06/01/17	Salary a/c	5500	Cash a/c	5500	Payments
*	<AutoField>						

Fig 6.92 Table Showing Debit Credit Transaction

From this table we can create a query to get a list of total cash payments and cash receipts.

1) Payments Query (Figure 6.93).

Create Query→Add Table→tblTransactionMaster.

Field	TRANSNO	TRANS_DATE	DR_ACC_NAME	DR_ACC_AMT	VCHR_TYPE	
Alias						
Table	tblTransactionM	tblTransactionM	tblTransactionM	tblTransactionM	tblTransactionM	
Sort						
Visible	☑	☑	☑	☑	☐	☐
Function						
Criterion					'Payments'	
Or						

Fig 6.93 Payment query

Give the Voucher type criteria as "Payments"

The output will be shown as follows (Figure 6.94).

	TRANSNO	TRANS_DATE	DR_ACC_NAME	DR_ACC_AMT
▶	8	01/01/17	Wages a/c	3000
	10	03/01/17	Purchase a/c	10000
	12	06/01/17	Salary a/c	5500
✱	<AutoField>			

Fig 6.94 Payment query output

The report based on this query will be shown as follows (Figure 6.95).

Trans.No	Date	Payments	Amount
8	01/01/17	Wages a/c	3000
10	03/01/17	Purchase a/c	10000
12	06/01/17	Salary a/c	5500
		Total	**18500**

Fig 6.95 Report based on payment query

To get Total Receipts, create Receipt Query. See figure 6.96.

Create Query→Add Table→tblTransactionMaster.

Field	TRANSNO	TRANS_DATE	CR_ACC_NAME	CR_ACC_AMT	VCHR_TYPE
Alias					
Table	tblTransactionM	tblTransactionM	tblTransactionM	tblTransactionM	tblTransactionM
Sort					
Visible	☑	☑	☑	☑	☐
Function					
Criterion					'Receipts'

Fig 6.96 Receipt Query

The output of the query will be shown as follows (Figure 6.97).

	TRANSNO	TRANS_DATE	CR_ACC_NAME	CR_ACC_AMT
▶	7	01/01/17	Capital a/c	50000
	11	05/01/17	Sales a/c	25000
	18	31/01/17	Bus Fees a/c	6300
*	<AutoField>			

Fig 6.97 Output of Receipt Query

The Report may look like as follows (Figure 6.98).

Fig 6.98 Report Based on Receipt Query

Similarly the payment report can also be made.

Let's assess

1. ..... *is an enquiry sent to a database to manipulate data*
2. *Queries can be ..... query and ..... query.*
3. *A query is run from the ..... Menu.*
4. ..... *Reports are meant to present information that is not likely to change.*
5. ..... *reports are meant to present information that change over time.*

Summary

- Database: A database is an organised collection of data. Data is always organised in data table consisting of rows and columns in relational model. It is indexed in such a way that the relevant information can be quickly and easily accessed, managed and updated.
- DBMS : DBMS is a software application that facilitates interaction with end users, other applications, and to the database itself to capture and analyze data. LibreOffice Base, SQL Server, Oracle, MS Access, etc. are some of the popular DBMS softwares.
- Objects of LibreOffice Base: The objects of base consist of tables, forms, queries and reports.
- In LIbreOffice Base, data is organised in tables. A table is a data structure that organises information in rows (for records) and columns (fields or attributes). They are used to store and display information in a structured format. Tables can be created using Wizard option or by using design view.
- Steps in table creation: Select design view, enter the field name, select data type, give description if necessary and define field properties. Enter table name to save by assigning primary key.
- Relationship allows database to split and store data in different tables and provides linkage to different data items.
- Normalisation is the process of removing data redundancy
- Primary Key: The field that uniquely identifies each record is called a 'Primary Key'.
- Foriegn Key: Foriegn keys are the columns of a table that points to the primary key of another table. They act as a cross reference between tables.
- Forms are used to input data in to tables. A Form is a front end for data entry and editing. Forms can be simple forms as well as complex forms. Forms can be created using Wizard or in design view.
- Steps in form creation: Select create form using wizard, various sequence of steps like Field selection, arrange controls, set data entry, apply styles and defining name for form must be followed in a sequential order.
- Create Form in Design View: Under this method, we have to add labels and fields by ourselves. Similarly connection between form, tables, fields, etc. are to be set carefully using Controls.
- Sub forms: A sub form is a form used to show data in another table or query while standing in a primary form or main form.

- Push buttons: push button is a visual representation of a button that executes a task when clicked or pressed. There will be some instructions attached to these buttons.
- Check Box: A check box is a small square box that can be placed on a form which allows user to show a choice and input that choice to a data field. It is alternatively called a selection box or a tick box.
- Option Buttons/ Radio Buttons: Option buttons offer the user a set of mutually exclusive options. It means that the selection of one option automatically rejects all others.
- A Query is a question asked or enquiry sent to a data base to extract data based on certain criteria. They can bring together data from different tables, calculate results, and quickly filter any mass of data.
- Queries can be created with the help of Query Wizard or in Design View. Open the Query Wizard by clicking on "Use Wizard to Create query.
- Creation of Query in Design View: The option "Create Queries in Design view "can be invoked form the Database pane on the main window of database It provides "Add Table or Queries box", using which we can add required fields to the query.
- Creating reports in LibreOffice Base : Reports can be static or dynamic. Static reports are meant to present information that is not likely to change over time. Dynamic Reports are meant to present information that changes over time.
- Steps in designing a report:
  i) Assess the requirements expected in the reports.
  ii) Decide overall layout.
  iii) Determine needed tables and columns to be included.
  iv) Compose or build query.
  v) Build the report.

I can

- define the requirements that are expected from database applications
- explain how to identify data to be stored in tables and develop a suitable frame work
- state different ways to structure database as per the requirement
- design and create Libre Office Base components such as tables, forms, queries, and reports
- make use of LibreOffice Base for developing simple data base applications for capturing, storing and retrieving data

TE QUESTIONS

1) What do you mean by a database? Give two examples.
2) How will you assess the database requirements?
3) Explain the considerations to be given while assessing database requirements.
4) What is the need for logical structuring of a database?
5) What do you mean by Key Fields?
6) State the importance of Key Field with the help of an example.
7) Briefly explain the procedure for creating a database?
8) List out the commonly available components in LibreOffice Base database panel?
9) What are the objects available in database panel of LibreOffice?
10) Write short notes on:

a) Tables b) Forms c) Queries c)Reports

11) Briefly explain how a table is created?
12) What do you use for inputting data in to a data table in LibreOffice Base?
13) Data stored in tables are not directly accessible, but through certain objects it is possible. Explain the underlying concept described here.
14) State briefly the various modes available for report generation in LibreOffice Base.
15) What is an identifier? Give an example.
16) What is a foreign key? Give an example.
17) Describe the steps for setting a primary key?
18) What is the use of relationships in LibreOffice Base?
19) Describe briefly the steps for creating and deleting relationships?
20) Explain the steps for creating a student table for storing name, class, sex and marks in 6 subjects.
21) What do you mean by data types? Give examples.
22) Write any five data types and state its suitability.
23) Explain how font and font size of a label can be changed.
24) Explain the procedures for adding a List Box to a form.
25) Explain the procedures for adding a Combo Box to a form.
26) Explain the procedures for adding a Push Buttons to a form.
27) Explain the procedures for adding a Radio Button/ option button

to a form.

28) What is the use of option buttons in a form?

29) Explain the steps for adding a Heading to a form.

30) What are sub forms in LibreOffice Base?

31) Distinguish between "select query " and " action query" in LibreOffice Base.

32) Distinguish between static report and dynamic reports in LibreOffice Base.

33) List out the steps in designing a report.

34) Explain the steps for creating a report using Wizard in LibreOffice Base.

35) Write notes on :

a. Page Header

b. Details or Report Body

c. Page Footer

PE QUESTIONS

1) Create a table with the following details

- Name
- Sex
- Date of Birth
- Class
- Mark 1
- Mark 2
- Mark 3
- Mark 4

a) Set primary Key

b) Enter two imaginary records and display records.

2) Create two tables

Table I	Table 2
Admission Number	Admission Number
Name	Mark1
Age	Mark2
Sex	Mark3
Address1	Mark4
Address 2	Mark5

b) Create Relationships

3) i) Create a table with the following fields

a. Account Code
b. Account Name
c. Account Group
(Save table with the name TBLACCOUNTS)

ii) Create a form to add the following records to table TBLACCOUNTS

001 - Salary a/c-----Indirect Expenses

002-Rent paid----Indirect expenses

003---Building a/c---Fixed Assets

004---Wages---------Direct Expenses

005---Avinash's a/c----Sundry Debtors

Create a query to display all accounts under the Group "Indirect Expenses".

4) Create a table with the following

Admno	studname	studsex	studclass	studage	studplace	studmark
7011	Avinash	M	S2	15	Idukki	67
7012	Lakshmi	F	C1	15	Palakkad	60
7013	Arya	F	C2	16	Palakkad	70
7014	Adithya	M	C2	16	Idukki	45
7015	Nisha	F	S2	15	Palakkad	69
7016	Sreekala	F	C2	16	Idukki	50

a. Create a query to display

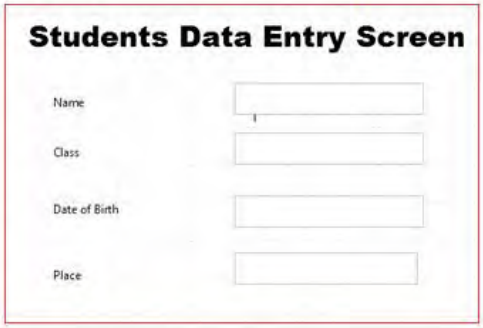
i. Number of students coming from "Palakkad"

ii. Number of students who scored marks greater than 65

iii. List of pupils whose name starts with "A"

iv. List of pupils whose class=C2 and sex=F

5) Create a simple form with necessary controls to display the following screen.



(Hint: No need to create table)

6) Prepare Pay Roll of the following employees

EmpID	EmpName	Basic Pay	PF Loan
1001	Albin	39500	2500
1002	Aleena	41500	3000
1003	Devika	40000	0
1004	Athul	48000	4000
1005	Don	36000	1650
1006	Sreelakshmi	32000	1000
1006	Bobby	0	1800
1007	Sulfia	49000	1700
1008	Georgian	25000	0

Additional Information

a) DA is to be provided @93% of Basic Pay
b) HRA 1750
c) PF Subscription 20% of Basic Pay
d) TDS is to be deducted @10 of Gross Pay

Display Payroll statement

7) Create a table "TBLSALES" with the following fields

AccountCode, AccountName, AccountCat, AccountType, TrasAmount

a) Create a simple form and add the following controls

i. Add a list box to Select Account name " Purchases and Sales"
ii. Add second list box to select Account category " Income and Expenses"
iii. Add a check box to select the options " Dr or Cr"
iv. Insert the following records

AccountCode	AccountName	AccountCat	AccountType	TrasAmount
4001	Sales a/c	Income	Cr	40000
5001	Purchases	Expenses	Dr	35000
5002	Purchases	Expenses	Dr	55000
4002	Sales	Income	Cr	

b) Open the table and display the records.

8) Create a Form in design view and add the following controls

(No need to create or connect to a table. Only layout is expected)

APPENDIX

Lab Work 1

Enter the following in a LibreOffice Base Table with file name "TBL_EMPLOYEES

EMP_ ID	EMP_ NAME	EMP_SEX	EMP_BASIC
7010	SINTHARA	FEMALE	58000
7011	SARVY	MALE	62000
7012	LIGY	FEMALE	55000
7013	SIBI	MALE	70000
7014	PAULRAJ	MALE	65000
7015	RINCY	FEMALE	49000

a) Display the name of employees drawing Basic pay greater than or equal to 60000

b) Name of employees beginning with "S"

Process:

Step 1 : Create Table: Table → Create Table in Design View

Step 2 : Enter field names and select suitable data types

	Field Name	Field Type	
	EMP_ID	Integer [INTEGER]	Used for Employee Number
	EMP_NAME	Text [VARCHAR]	Used for Employee Name
	EMP_SEX	Text [VARCHAR]	Used for Employee Sex
	EMP_BASIC	Decimal [DECIMAL]	Used for Employee Basic Pay

Fig. Lab1.1

Step3 : Set primary key

- Click in the empty box on the right of EMP_ID field and right click.
- Click on the "Primary Key". Now EMP_ID has been set as Primary field

Step4 : Save the table with the file name "TBL_EMPLOYEES"

Step5 : Create a Form Using Wizard.

- Create Form: Use Wizard to create form
- Select table "TBL_EMPLOYEES" and add its fields to the form

- Save the form with a suitable name
- Open the form and input data in to tables for six employees

Step6 : Create Query

- Create Query: Use Wizard to create Query
- Select table "TBL_EMPLOYEES" and add its fields to the query
- Save the query and give a query name
- Modify the query (Edit) and set criteria

Step7 : Criteria (a): employees drawing Basic pay greater than or equal to 60000

i. Click in the criteria column against the field "EMP_BASIC".

ii. Type the criteria: " >=60000"

Field	EMP_ID	EMP_NAME	EMP_SEX	EMP_BASIC
Alias	EMP_ID	EMP_NAME	EMP_SEX	EMP_BASIC
Table	tblemployees	tblemployees	tblemployees	tblemployees
Sort				
Visible	☑	☑	☑	☑
Function				
Criterion				>=60000

Fig. Lab1.2

iii. Run the query

The output is:

	EMP_ID	EMP_NAME	EMP_SEX	EMP_BASIC
▶	7011	SARVY	MALE	62000
	7013	SIBI	MALE	70000
	7014	PAULRAJ	MALE	65000
*				

Fig. Lab1.3

Step 8 : Criteria (b) Name of employees beginning with "S"

- Modify the Query (Right Click on query name and Edit)

- Click in the criteria column against the field "EMP_NAME"
- Type criteria " Like S*" and run the query
- The output is:

	EMP_ID	EMP_NAME	EMP_SEX	EMP_BASIC
▶	7010	SINTHARA	FEMALE	58000
	7011	SARVY	MALE	62000
	7013	SIBI	MALE	70000
*				

Fig. Lab1.4

Lab Work 2

Prepare a Payroll of Employees with the following details:

EMP_ ID	EMP_NAME	EMP_BP	EMP_DA (20% of BP)	HRA	EMP_GROSS
201	ARYA	40000		250	
201	AMMU	41500		250	
203	ADITHYA	48000		250	
204	AVINASH	54000		250	

a) Create a Query to compute Gross Salary

Process:

Step1 : Create Table: Create Table in Design View

- Enter field names and select suitable data types
- Set primary Key and save table with the name "TBL_SALARY"

	Field Name	Field Type
🔑	EMP_ID	Integer [INTEGER]
	EMP_NAME	Text [VARCHAR]
	EMP_BP	Decimal [DECIMAL]
	EMP_HRA	Integer [INTEGER]

Fig. Lab 2.1

Step2 : Create Form: Use Wizard to create form

- Open Form and input data

	EMP_ID	EMP_NAME	EMP_BP	EMP_HRA
	201	ARYA	40000	250
	202	AMMU	41500	250
	203	ADITHYA	48000	250
	204	AVINASH	54000	250
▶				

Fig. Lab 2.2

Step 3 : Create Query: Use Wizard to create Query

- Select table "SALARY" and add its fields to the query
- Save the query and give a query name
- Right Click on query name àEdit to open the query

Step 4 : Add computational field

- Click in the top cell of the first blank field and select "TBL_SALARY.EMP_BP"
- Alter the field name to change it as a formula: "TBL_SALARY.EMP_BP*20/100"
- In the Alias box , type "DA"
- Click in the top cell of the next blank field and type a field parameter as:

  "TBL_SALARY.EMP_BP+(TBL_SALARY.EMP_BP *20/100)+ TBL_SALARY.EMP_HRA" and type " GROSS" in the Alias column.

Field	EMP_ID	EMP_NAME	EMP_BP	EMP_HRA	"EMP_BP" * 20 /	"TBL_SALARY"."I
Alias					DA	GROSS
Table	TBL_SALARY	TBL_SALARY	TBL_SALARY	TBL_SALARY		
Sort						
Visible	☑	☑	☑	☑	☑	☑

Fig. Lab 2.3

Running this query will produce the following output.

	EMP_ID	EMP_NAME	EMP_BP	EMP_HRA	DA	GROSS
▶	201	ARYA	40000	250	8000	48250
	202	AMMU	41500	250	8300	50050
	203	ADITHYA	48000	250	9600	57850
	204	AVINASH	54000	250	10800	65050
*						

Fig. Lab 2.4

Lab Work 3

Create Tables Named "TBL_PERSONNEL" and "TBLPAY" from the following details

Table-1

tblEmployee	
EMP ID	EMPNAME
2001	JUBI
2002	NURA
2003	IVISH

Table- 2

tblPay		
EMP ID	BP	HRA
2001	10000	1500
2002	20000	1500
2003	30000	1500

Process:

Step 1 : Create two tables, select field types, set primary key and Save file

Table Name	Field name	Data Type	Primary Key	Save File Name
tblEmployee	EMPID	TEXT	YES	tblEmployee
tblEmployee	EMPNAME	TEXT		
tblPay	EMPNO	TEXT	YES	tblPay
tblPay	BP	DECIMAL		
tblPay	HRA	DECIMAL		

Step 2 : Create relationship

- Tools → Relationships → Add Tables
- Join EMPID of tblEmployee and EMPNO of tblPay

Step 3 : Create a form

- FormsàUse Wizard to create form
  - → Select table tblEmployee and add its field
  - → Add Sub Form: Status - Checked (put tick mark)
  - → Sub form based on existing relation : Status -selected
  - → Select tblPAY
  - → Add necessary fields
  - → Select data sheet view for both man and sub form.
  - → Select Data Entry Mode :The form is used for entering new data only → click to select this option.

→ Apply any styles

→ Give a file name "frmEMPLOYEE"

→ Modify the form to align, change labels etc

→ Make data entry.

Step 4 : Create a Query and add necessary fields

Step 5 : Run the Query to display all records

Output

	EMPID	EMPNAME	BP	HRA
▶	2001	JUBI	10000	1500
	2002	NURA	20000	1500
	2003	IVISH	30000	1500

Record | of 3

Fig. Lab 3.1

Lab Work 4

Prepare a Payroll statement from the following details

EMPID	EMPNAME	BP	DA(10% OF BP)	TOTAL PAY
200	KALA	40000		
201	NISHA	20000		
202	AMMU	30000		

Process:

Step 1

Create tables, select field types, set primary key and Save file

Field name	Data Type	Primary Key	Save File Name
EMPID	TEXT	YES	tblPAYROLL
EMPNAME	TEXT		
BP	DECIMAL		

Step 2 : Create a form

o Forms → Use Wizard to create form

→ Select table tblEmployee and add its field

→ Save the form with the name "FRMPAYROLL"

→ Make data entry

Step 3 : Create a Query and add necessary fields

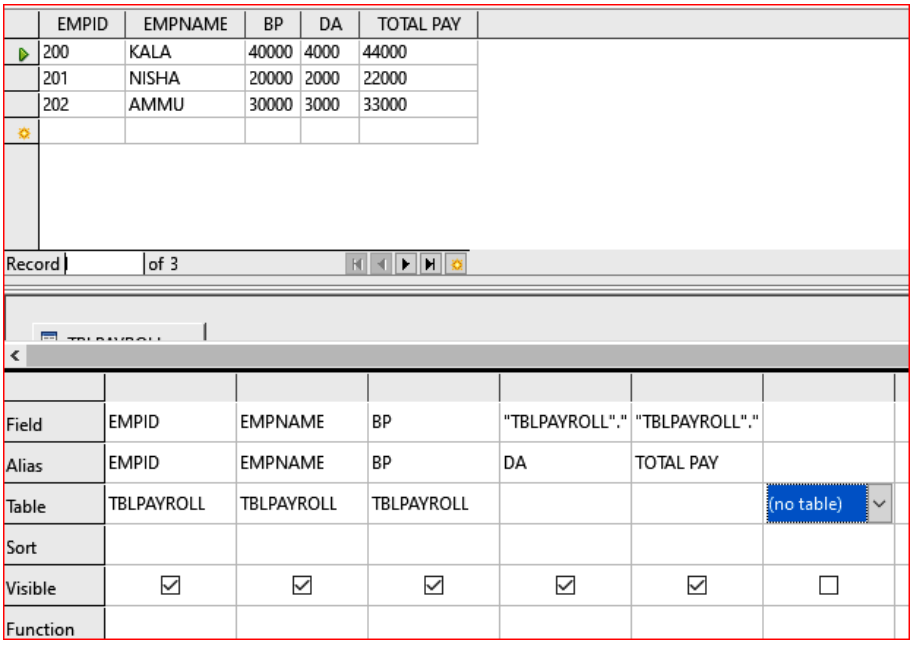
Step 4 : Open the Query in Design mode

Step 5 : Click in the top cell of the first blank field and type "tblPAYROLL.BP*10/100" and also type the a new column heading "DA" in the Alias column

Step 6 : Click in the top cell of the next blank field and type "tblPAYROLL.BP+tblPAYROLL.BP*10/100". Type the a column heading "TOTAL PAY" in the Alias column

Step 7 : Run the Query.

Output



EMPID	EMPNAME	BP	DA	TOTAL PAY
200	KALA	40000	4000	44000
201	NISHA	20000	2000	22000
202	AMMU	30000	3000	33000

Record | of 3

Field	EMPID	EMPNAME	BP	"TBLPAYROLL"."	"TBLPAYROLL"."	
Alias	EMPID	EMPNAME	BP	DA	TOTAL PAY	
Table	TBLPAYROLL	TBLPAYROLL	TBLPAYROLL			(no table)
Sort						
Visible	☑	☑	☑	☑	☑	☐
Function						

Fig. Lab 4.1

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