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Part III
COMPUTERISED ACCOUNTING

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Chapter-1
Overview of Computerised Accounting System (CAS)
(Focused Area Only)

Computers are widely used in all business today. They normally used in business houses to record business transactions, prepare wage sheet, inventory control, prepare final accounts etc. Computerised accounting is the process of recording business transactions and generating financial statements and reports with the help of computers and various accounting softwares. In simple words, accounting with the help of computers is called computerised accounting.

Features of computerized accounting system

1. Simplicity: Computerized Accounting System (CAS) is an easy way to process the accounting transactions. In CAS, the job of an accountant is only to enter accounting transactions through appropriate vouchers. Let the computer do all other works itself.

2.Comprehensive nature: Most of the accounting packages are complete and comprehensive. They can handle various types of vouchers, day books, different registers, final accounts etc.

3. Accuracy: The reports that are generated by computerized accounting system are free from mistakes. This is because computers can carry out even complex calculations at high rate of accuracy.

4. Speed: Computers can process data millions of times faster than human beings.

5. No difficulty in alterations: Alterations and additions in transactions can be affected easily in computerized accounting. This helps to provide changed results instantly.

6. Storage and retrieval of data is very easy: Under computerized accounting, a large volume of data can be stored in a very small space;   further quick retrieval of data from the system is easily possible.

7. Preparation of bank reconciliation statement: Preparation of bank reconciliation statement is possible in CAS. Hence an organization can reconcile its cash book balance with bank balance.

8. Voucher and cheque printing: CAS helps in printing cheques, debit note, credit note, invoices etc.

Components of computerized accounting system (Five Pillars ofComputerised accounting system)

The computerized accounting system have **five components**, namely procedure, data, people, hardware and software. They are regarded as five   pillars   of computerized accounting system.

1. **Procedure:** A logical sequence of actions to perform a task.

   Example for Procedure in Accounting: *(Identifying business transaction-----collect its source documents-------journalizing-----posting-----trial balance-----consider adjustments------prepare final accounts)*

2. **Data:** Data refers to raw facts. Data is a collection of facts, such as numbers, words, measurements, observations or just descriptions of things. When data are processed, organized, structured or presented in a given context so as to make them useful, they are called Information

3. **People (Human ware)**: Human ware are persons who operate the computer. They include users like owners, managers, system analyst, data entry operator, etc.

4. **Hardware:** All physical components associated with a computerized accounting system are referred to as hardware. It includes CPU, monitor, mouse, printer, scanner, modem etc.

5. **Software**: Software is a set of instructions that tell a computer what to do.It comprises the entire set of programs, procedures, and routines associated with the operation of a computer system. Software includes system software like Windows, Linux etc. and application software like Tally, Dac Easy etc.

Data and Information

Data: Data are raw facts that are stored in a computer. In accounting data comprises of one or more elements relating to a transaction. It is unorganized facts so it needs to be processed.

Eg:11-09-2020 Sold goods to Bimal Rs.20,000.When we record this transaction to the computerised accounting system, we provides lot of data to the system like date, debtor details, debit item, credit item, amount etc.

Note: A transaction consists of **four data elements** such as name of accounts, date of transaction and amount.

➢ Name of the account (Debtor)

➢ Date of transaction (11-09-2020)
➢ Amount (Rs.20,000)

Information: Processed data is known as information.

Eg.In a business there are numerous transactions. When we record these transactions into the computerised accounting system, actually we provide lot of data to the system. CAS processed these data and provide information in the form of gross profit, net profit, ledger account balance etc.

	Data	**Information**
Meaning	Data is raw, un organized facts that need to be processed. Data is useless until it is organized.	When data is processed, organized, structured or presented in a given context so as to make it useful, it is called information.
Knowledge enhancement	Data can't add any knowledge to the user.	But information will enhance knowledge of the user
Position	Data act as input	Act as output
Example	Each student's test score is one piece of data	The average score of a class or school is information, that can be derived from the given data

Grouping of accounts

The process of arranging accounts of similar nature at one place is called grouping of accounts. In accounting there are different types of accounts. On the basis of its nature, we can classify accounts as assets, liabilities, income, expense and capital

The expenditure and income are further classified into direct and indirect. In addition to the basic groups, there are other accounting groups and sub groups.

Accounts of similar nature must be created under one group. Salary, rent paid, interest paid, advertisement etc. are accounts of similar nature, i.e, 'Indirect Expense'. In CAS, they must be created under the group 'Indirect expense'.Thus we can display summary of all indirect expenses of an organisation under the group 'Indirect Expense'.

In CAS grouping of accounts is based on Accounting Equation.

Accounting Equation

Assets= Liabilities + Capital
      OR

Assets = Equities

Assets: The properties owned by the business are called assets.

Equities: Total clam against the business are called equities. Equities can be sub-divided into two as owners claim i.e capital and outsiders claim i.e liability.

Assets – Liabilities = Capital

Assets – Capital = Liabilities

Assets- Capital- Liabilities = Zero

Every business transaction will affects assets, liabilities or capital. For example, a transaction, say, purchased goods from A Ltd on credit; it will increase the value of stock (Asset) and also will increase the amount of creditor (Liability).

The claims of owner's keep on changing due to profit or loss of the firm. Taking into account the above facts, the accounting equation can be re-written as follows:

Assets = Liabilities + (Capital +Income - Expenditure)

Each component of the above equation can be classified into groups of accounts as follows:

Note: In Computerised Accounting grouping of accounts is based on Accounting Equation. Grouping is the process of classifying accounts of similar nature under one head.

ASSETS

 Fixed Assets
- ❖ Land and Building
- ❖ Plant and Machinery
- ❖ Furniture and Fittings
- ❖ Vehicles
- ❖ Others

 Current Assets
- ❖ Cash
- ❖ Bank
- ❖ Debtors
- ❖ Stock
- ❖ Bills Receivables
- ❖ Loans and Advances (Assets)

LIABILITIES

 Long term Liabilities
- ❖ Debentures

❖ Loans from Financial Institutions

Short term Liabilities
  ❖ Short term Loans
  ❖ Creditors
  ❖ Bills Payable
  ❖ Provisions

CAPITAL
  ❖ Share Capital

Reserves and Surplus
  ❖ Capital reserve
  ❖ General Reserve
  ❖ Balance of Profit and Loss Account
  ❖

Income (Revenue)
  ❖ Sales
  ❖ Other Income

Expenses
  ❖ Raw materials consumed
  ❖ Manufacturing Expenses
  ❖ Wages
  ❖ Salaries
  ❖ Depreciation

Codification of Accounts

In CAS, codification is the process of allotting codes to various accounts.. In CAS code is given to groups and ledgers for the purpose of sorting. Code may be a symbol, alphabet or number allotted to a particular item for easy identification. Codification is the essence of computerized accounting system.

We can give 1st digit '1' for ASSETS,'2' for LIABILITIES,'3' for INCOME, '4' for EXPENDETURE etc.Codification is the essence of computerized accounting system. Here codes are necessary because the computer cannot understand that whether the item is an expense, income, assets or liability.

For assets we can give 2nd digit '1.1' for fixed assets and '1.2' for Current assets.

For liabilities we can give 2nd digit '2.1' for Long-term liabilities and '2.2' for Current liabilities.

Finally, 3rd digits may be used to identify various accounts under appropriate group.For example Land and Building. It is an asset; also it is an example for fixed assets. So

we can give the code '1.1.1'. Like we can give '1.1.2' to another fixed asset Plant and Machinery.

Eg.Cash-1.2.1, Debtors-1.2.2, Bills receivable-1.2.3

Eg.Creditors-2.2.1,Bills payable-2.2.2,Outstanding expense-2.2.3

Different types of codes

1.Sequential codes
In this method numbers, letters or combination of both are assigned in consecutive (uninterrupted) order. These are used primarily to source documents such as, cheques invoices, vouchers; etc.This type of codification makes easier the document search.

Eg.001, 002, 0003, 004,005 or CA001, CA002, CA003, CA004 etc.…….

2.Block codes

In a block code, a range of numbers is divided into a desired sub- range and each sub-range is allotted to a specific group. An example will make clear this method of codification.

GROUP CODE	ITEMS	
100-199	Biscuits	100-good day,101-Parle G,102-Marie Gold
200-299	Chocolates	200-Perk,201-Bar One,202-Dairy Milk
300-399	Soft drinks	301-Pepsi,302-Coca Cola,303-Mirinda
400-499	Fruits	400-Orange,401-Apple,402-Pineapple

3.Mnemonic Codes

This type of coding uses alphabets or abbreviations as symbols to represent a piece of information. For example TVM for Trivandrum, TDPA for Thodupuzha, SJ for sales journal, PJ for purchase journal etc.

Methodology to Develop Coding Structure and Coding
We use code in many fields. Many accounting softwares use code to identify accounts. Examples are register number for examination, pin code at our post office, bank IFSC code etc. There are several things to consider while designing a code. Explain the codification process with the help of an example. Let us see how the student roll number is assigned for the public exam.

The hierarchy of the roll number will be as follows:

School-------Course---------Class-----Second Language-------Class Number

Coding Structure will be as follows:

1) School code-4 digits (total number of higher secondary school is 1845,i.e.below 10000,so 4 digits) eg.**6039**

2) Course code- 2 digits (there are 48 streams) eg.**03**

3) Class – digit (1 for first year and 1 for 2nd year) eg.**1**

4) Second Language – I digit (there are 4 second languages) eg.**1**

5) Class number of students- 2 digit (max class strength 60) eg.**22**

Roll No-**6039031122**

Merits/ Advantages of Computerised Accounting System (CAS)

1. Timely generation of reports and information is possible in CAS.

2. Storage and retrieval of data is very easy in CAS.

3. Accurate and updated information is possible in CAS

4. Automated document preparation is possible in CAS.

5. Confidentiality of data can be easily maintained in CAS

6. Alterations and additions in transactions can be effected easily in computerized accounting

7. Simplicity: In CAS, the job of an accountant is only to enter accounting transactions through appropriate vouchers. All other functions will do by the computer itself.

8. Most of the accounting packages are complete and comprehensive. They can handle various types of vouchers, day books, different registers, final accounts etc.

Demerits/Disadvantages of computerized accounting system

1. Costly
Computerised accounting system software is expensive. Cost due to obsolesce of technology, training cost of employees etc. are also high.

2. Lack of reliability

Computer viruses and hackers may destroy all data stored in the computer system. So, we can't be trusted completely on computerized accounting system.

3. Human Error

Speedy recording of data in accounting software may result serious errors.

4. Lack of knowledge

Lack of experienced staff is one of the limitations of computerized accounting. Proper training to staff is compulsory. It is costlier.

5. Chances of data loss due to various reasons.

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Chapter 2

Spreadsheet

(Focused Area Only)

Chapter-2 Focused Area

1. **Features of LibreOffice Calc**
2. **Components of LibreOffice Calc**
3. **Spread Sheet Operations**
4. **Cell References**
5. **Functions (Date and Time, Statistical, Logical and Mathematical**

Spreadsheet is a large sheet comprising several Rows and Columns for data manipulation. It is used to record, calculate and compare numerical or financial data. It is an application software. The data stored can be arranged and analysed with the help of different functions and formulae. Spreadsheet provides the facility to draw various graphs like bar, pie, etc.

Example for Spread Sheets: LibreOffice Calc, MS-Excel, Lotus 123, Open Office Spread Sheet, Quattro

LibreOffice Calc

LibreOffice Calc is a spread sheet package that we can use to calculate, analyse and manage data. LibreOffice Calc is available in variety of platforms including Linux, Windows and macOS. LibreOffice is a Free and Open Source Software (FOSS)

Open LibreOffice Calc

Application-----Office----LibreOffice Calc

Features of LibreOfficeCalc/ Spread Sheet

1) **Easy Calculations**
   In LibreOffice Calc, there are lot of tools which help the user to perform even complex calculations on different data across sheets with ease.
2) **Arranging Data**
   The data stored in LibreOffice calc can be organised or reorganised according to the needs of the user.
3) **Serve as Database**
   This programme allows storing any amount of data in different sheets. Storing, retrieving, filtering etc. are easy in it.
4) **Dynamic Charts**
   Different types of charts are available in LibreOffice Calc and are enable the user to present various data in an appealing manner.

Components of spreadsheet-LibreOffice Calc

1. **Row**
2. **Column**
3. **Cell**
4. **Range**

1.Row

The horizontal grid in a in a work sheet is called row. Rows are named by numbers like 1, 2, 3 etc. In LibreOffie Calc there are **1048576** rows.

2.Column

The vertical grid in a worksheet is called column. Columns are named by alpha characters like A, B.AA,AB,..and ended with AMJ) In LibreOffice Calc there are **1024** columns.

Insert a column or row

We can add or delete Rows and columns in a spread sheet. To add a column, click at the column header and right click the mouse, here we get an option to "insert column left"   Click,   new column is to be inserted.   **OR**

Right click the mouse anywhere in the column-----------Insert-------Entire column-----Ok
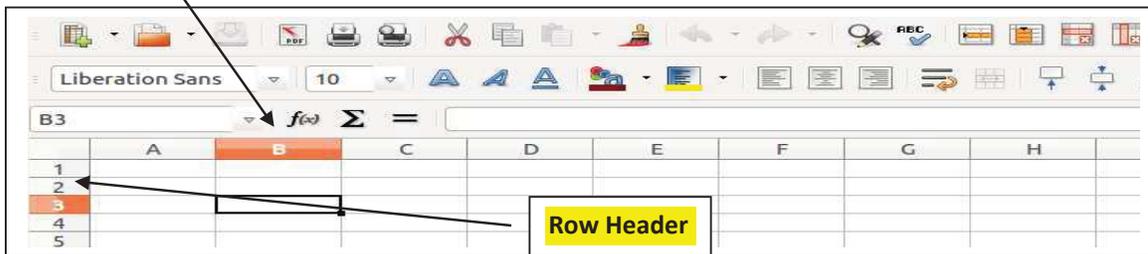
Insert a Row

To add a row, click at the Row header and right click the mouse, there we get an option to "insert Rows above" -----   Click ,new Row is to be inserted.

OR

Right click the mouse in a cell anywhere in the row to be inserted---------Insert-----   Entire Row.

Delete column

To delete a column the following steps to be followed:

. To delete a column, click at the column header and right click the mouse, here we get an option to "delete selected column"-----Click ,now the selected column deleted

OR

1. Select anywhere in the column to be deleted.
2. Right click the mouse.
3. Select delete.
4. Again select "delete entire column"
5. Click OK

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3. Cell

The intersection of a row and a column is called a cell. In a spread sheet data are recorded in cells. Data can be number, text, date & time. The data is always entered into the active cell; the active cell can be identified with the black outline.
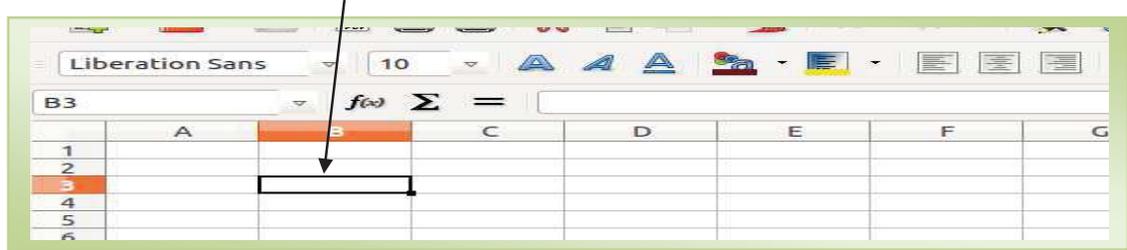
Cell address

Cell address is used to identify a cell. It consists of column name (letter) and row number. Each cell has a unique identification code known as cell address. **Example for cell address:**

First column first row (first cell in a worksheet)	A1
9th column 7th row	I7
11th row 3rd column	C11
26th column 8th row	Z8
27th column4th row	AA4
28th column 28th row	Ab28
52th column 1st row	AZ1
The cell in the last column first row	AMJ1
Last cell in the worksheet(column AMJ & Row 1048576)	AMJ1048576
Cell in the first column and last row	A1048576

Cell pointer

The active cell has a *frame around* it. That frame is called cell pointer.

4. Range

A RANGE is a group of adjacent cells in a worksheet. A range may contain just a single cell, or many cells. A range can be referenced by giving the address of the starting cell and ending cell separated by a colon (**:**) eg.The range starting from D1 to E10 is written as D1**:**E10, where colon (**:**) is the range operator.

For eg: The range D1**:**E10 (D1 colon E10) includes a block of 20 cells starting from D1 and ending E10.

Naming a Range

Naming a range means giving a reference name to a specific range. Naming range in Calc will save time for writing complex formulas.

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Steps Involved in the process of naming a range (name of the range is "Numbers")

1) Select the cells which are to be named, say(B2:F2)
2) Select "Define Range "from "Data" Menu.

This will display a dialogue box as "Define Database Range". It will provide a place to enter "Name" in which type we can type any name ,say "Numbers" which will represent cell range $B\$2:\$F\$2$ as shown in the range. Naming range in Calc will save time for writing complex formulas.
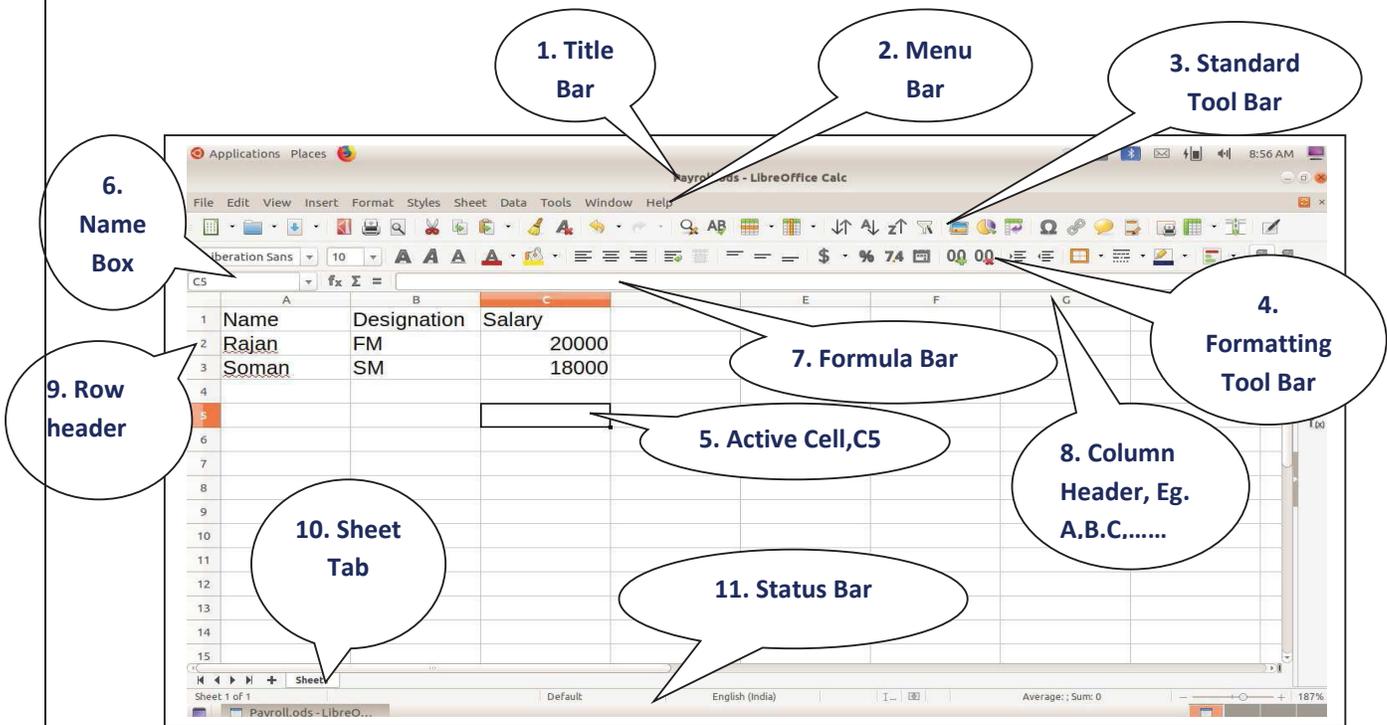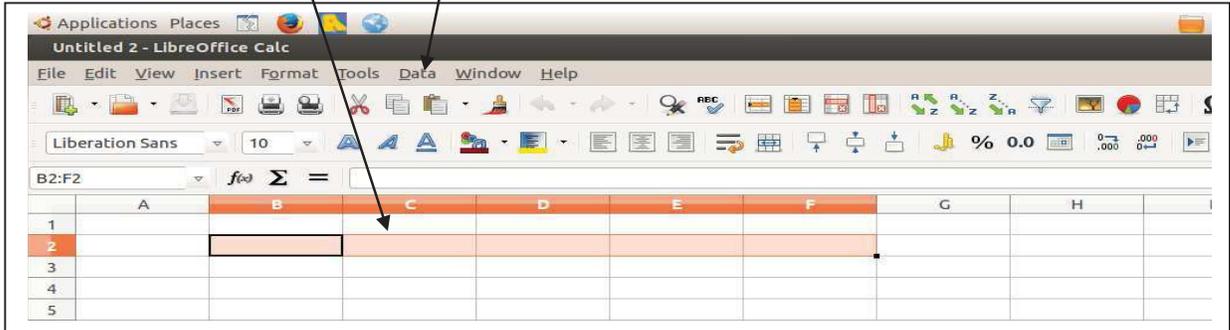
A Screen in LibreOffice Calc

1. **Title bar:** File Name displayed here.
2. **Menu Bar**: Various features of the software displayed here. This menu contains items to create a new document, save a document, to access templates and wizards.
3. **Standard Tool bar:** Here tools like sort, cut, copy, save, spelling etc are arranged. Standard Toolbar gives the user access to file operations, printing etc.

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4. **Formatting Tool Bar:** The formatting toolbar is a toolbar that gives the user the ability to change the formatting of selected text. Various tools like font size, bold, underline etc arranged here.
5. **Active Cell:** the selected, highlighted, or clicked-upon cell is called the active cell. Data entry takes place only in an active cell.
6. **Name Box:** This is the place where the active cell's address is displayed. Displays the reference for the current cell, the range of the selected cells, or the name of the area.
7. **Formula Bar:** It shows the contents of the current cell and allows you to create and view formula.
8. **Column Header:** Name of the column displayed here. Columns are named by alpha characters like A, B...AA,AB,..and ended with AMJ. In LibreOffice Calc there are **1024** columns.
9. **Row Header:** Name of the row displayed here. Rows are named by numbers like 1, 2, 3 etc. In LibreOffice Calc there are **1048576** rows.
10. **Sheet Tab:** Sheet tab shows the sheets in a work book. Here the user can rename, move, delete and copy a work sheet.
11. **Status Bar:** The Status Bar is located on the bottom of your document page.It's not a toolbar Displays the number of the current sheet, the total number of sheets in the spreadsheet, current Page Style etc.

Work book

A file in spread sheet is known as work book. A work book is a collection of number of work sheets.

Work sheet

Each page in the work book is called work sheet.

Spreadsheet Operations

1) Open Work Book

While being on the LibreOffice Calc, you can open a new workbook by choosing '**New**'------'**Spreadsheet** 'option from the **File** Menu. While being on the LibreOffice Calc, you can open a existing workbook by choosing '**open** 'option from the **File** Menu and select the required workbook.

2) Save a Work Sheet

It is necessary to save all the files in the computer when your work is completed.'Save As' option in the File Menu enables you to save a workbook with a suitable name to the computer

3) Close Work Book

After you finish works in a workbook, you can close the workbook with 'Close' option from 'File' menu.

4) Insert a new work sheet

Click the tab at the exact position (**plus** symbol) on the bottom of the present work sheet or right click on the sheet tab--------Insert sheet.

5) To delete a work sheet

Click on the **work sheet tab** which you want to delete ----- Right click----Delete Sheet----Ok

6) To rename a worksheet

Click on the name of the work sheet tab (say, **sheet 1**) you want to rename   -----Right click------
-Enter the new name---- ----Ok

7) To copy / move a work sheet

Click on the work sheet tab which you want to copy--------Right click-----select move or copy---------
select the sheet insert before ------- ok

8) Quit LibreOffice Calc

Use 'Exit LibreOffice' option from the 'file' Menu.

Types of Data

In the cell of a worksheet three types of data are entered .They are-Value, Label and Formula

1. **Value-**Value is a number that you enter in a cell. It also includes symbols like +,-, coma (,) and decimal point (.).By default values are right aligned. Calculations can be done using values only.
   Example: Age of employee, salary of employee etc.
2. **Label-** The text data is called label. It includes alphabets and symbols. By default labels are left aligned.
   Example: Name of Employee, sex, designation etc.
3. **Formula-** A formula is a mathematical expression that produces a new value from the values or numbers on which it is applied. Formulas are used for simple addition, subtraction, multiplication and division as well as for complex calculations. In LibreOffice calc formula begins with an equal (=) symbol.
   Example : =SUM (A2:F5)

	A	B	C	D	E	F	G	H	I
1	Name	Sex	Designation	Basic Pay	DA	Gross Salary			
2	Mohan	M	CEO	80000	20000	100000			
3									
4									

Deleting the cell content

The contents of a cell can be deleted by placing the mouse pointer at the concerned cell to be

deleted and press the space bar from the key board or select the cell to be deleted----------delete.

Components of a Formula

Formulas are used for simple addition, subtraction, multiplication and division as well as for complex calculations. Formulas help to speed up the calculations. A standard formula may have three components.

1) **Mathematical operators**

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2) **Cell References**
3) **Functions**
   Example (formula) B10=SUM (A1:A10)

1) **Mathematical Operators**

   In a formula, there must be some mathematical operators like +,- etc.The following table shows different types of operators:

| Operation Performed	Operators Symbol
Arithmetic Operators	
Addition	+
Subtraction	-
Multiplication	*
Division	/
Percent	%
Exponential	^
Comparison Operators	
Equal to	=
Greater than	>
Less than	<
Greater than or Equal to	>=
Less than or equal to	<=
Not equal to	<>
Reference Operators	
Range operator	:

2) ==**Cell Reference**==-

   The cell address used in a formula is called cell reference. A cell reference identifies the location of a cell or cells in the spreadsheet. There are three types of cell references:

   Types of cell references
   1) Relative references
   2) Absolute references
   3) Mixed cell references

1. Relative reference (Normal references)

   In relative cell reference, when a formula is copied to another cell, the cell references given in the formula will automatically changes to suit the new location. For eg cell **D1** contains the formula **=A1+B1+C1**, while coping the formula in **D1** to **D2** the formula will automatically changed to = **A2+B2+C2**
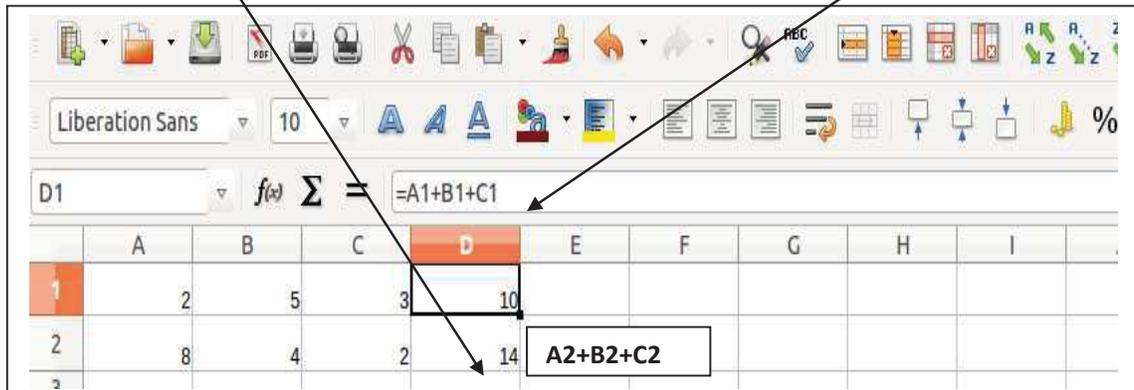
2. Absolute cell reference

Unlike relative references, absolute reference cell does not change when copied to another location. An absolute cell reference is used to **keep a cell constant** in the formula.Here column and row (a Cell) remain constant .To set an **absolute reference** a **dollar** sign **($)** is use before the column name and/ row number.

Example: 1, when the formula C7 =B7***C1** is copied from C7 toC8, the relative cell reference changes B7 to B8 but the absolute cell reference **(C1)** remains unchanged. Here both the column C and row 1 are constant.

Example 2: C1=**A1**+**B1**.Absolute cell reference will not change its references if we copy the formula to any part of the work sheet.

Example 3

Here D1=A1+B1+C1.In this formula C1 cell is set as Absolute Cell reference by giving dollar sign($).Through absolute cell reference we can **keep a particular cell as constant** in the formula.The absolute cell reference(here C1) never change when we copy the formula to another location.

3. Mixed reference

Mixed reference is used to keep a column or a row remains constant in a formula. It is partly absolute and partly relative. In mixed cell references when formula is copied and pasted to other cells ,the cell reference in the formula ,it holds either row number or column name constant.$C4 is example for column constant, C$5 is example for row constant.

For example cell reference $A1, makes the column A constant, but the row 1 changes as A1,A2,A3 etc according to the new location. In the same way the reference **A$1**, makes the row 1 constant, but the column reference changes as B1,C1,D1 etc according to the new location.

Another example: C1=**A$1+$B1**, C2=B2***A$2**

3) Functions

Functions are built in formulas or predefined formulas in spreadsheet to perform some specific calculations.Unlike formula in function users have to provide cell references and address only. There are different categories of functions available in LibreOffice Calc.

Example for function: **H2=SUM(B2:G2)**

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Difference between Formula and Function

Formula	Function
It is user designed	It is software designed or predefined
User should give cell references and arithmetical opertors in a formula.	User should give only cell references

Arguments

The data that a function receives is known as the arguments of the function.. For example,F1=Avg(D1:D10) .In this formula ,the cell range D1:D10 is the argument of the average functions.

Important functions in LibreOffice Calc

LibreOffice Calc provides many functions by default. Here classify LibreOffice Calc functions into six categories.

1. **Date and Time function.**
2. **Mathematical function.**
3. **Statistical Function**
4. **Text manipulation function**
5. **Logical function.**
6. **Lookup function.**
7. **Financial function.**

Date & Time Function	Mathematical Function	Statistical Function	Text Manipulation Function	Logical Function	Lookup Function	Financial Function
TODAY NOW DAY MONTH YEAR DATEVALUE	SUM SUMIF ROUND ROUNDUP ROUNDDOWN	AVERAGE MINIMUM MAXIMUM COUNTIF COUNT COUNTA COUNTBLANK ROWS COLUMNS	TEXT CONCATENA-TE	IF AND NOT OR	LOOKUP VLOOKUP HLOOKUP	ACCRINT CUMIPMT PV FV PMT RATE NPV

1. Date and Time Function

Accounting is much related with the dates and time. Transactions are recorded and analysed on the basis of its date and time of occurrences. This function is used to perform operations on date and time values.LibreOffice Cal takes **30/12/1899** as the base year for calculating date. Date and time functions are used to manipulate date and time. The important Date and Time functions are, TODAY ( ), NOW ( ), DAY ( ), MONTH ( ), YEAR ( ), DATEVALUE ( ).

1) Today ( )

This function shows today's date in a selected cell.LibreOffice Calc assumes this date from our computer's system date. This function helps to calculate days between current date and a given date. For example, we can find out current date (suppose current date is15-08-2018) in cell A1 by A1=Today () and type date,say,01/01/2018 in cell B1.We will get answer in cell C1. C1=A1-B1.In this case answer will be 226 days.

2) Now ( )

It is a similar function of Today (). But **Now ( )** function shows the current date with time.

3) Day (serial number)

This function shows the day of the date. For example if A1=23-9-2015, the **Day(A1)** will result in 23.Because it is the 23rd day of the month.

4) Month ()

This function returns the serial number of a given date ranging from 1 to 12.

Syntax :MONTH("date")

Example :MONTH("01/06/2019") returns 6,i,e. The 6th month.

5) Year ()

This function shows the serial number of the year from the date value given in the bracket. For example in the above case **Year(A1)** or **Year("15/08/18")**returns 2018,i.e. the 2018th year.

6) DATEVALUE ( )

This function converts the given date that is stored as text to a serial number that LibreOffice Calc recognises as a date. LibreOffice Calc considers 30/121899 as the base date with date value zero.Based upon this,DATEVALUE function converts the given date and return its corresponding date value number.

For example the formula =DATEVALUE("01/01/2016")returns the value 42370. There is 42370 days from 30/12/1899 to 01/01/2016. The **DATEVALUE("Date")** function is helpful in case where a worksheet contains dates in a text format that you want to filter, sort, or use in the date calculations.

Example-2,the Function DATEVALUE("15/08/2018") returns 43327,the serial number of the date 15/08/2018,that date value(43327) is used by spread sheet in the date calculations.
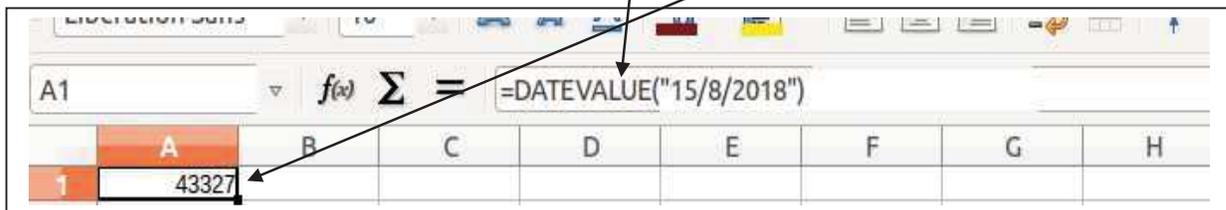
2. Mathematical Functions

These functions are used for arithmetical calculations used in business. It includes :

1. SUM( )
2. SUMIF( )

3. ROUND( )
4. ROUNDUP( )
5. ROUNDDOWN( )

1) **SUM ( )**

The SUM function is used to add the values contained in a range of cells.

For example =SUM(12,14,10).It will show the result as 36.(numbers should be separated by coma(,)

Syntax=SUM(number1,number2,number3.........)

Or

Syntax=SUM(cell 1,cell 2,..........)

Or

Syntax=SUM(Range 1,Range 2,..........)

Illustrations - SUM( ) Function

1	=SUM(13,15,153)	Adds up three numbers given in the brackets, **separated by comma**
2	=SUM(A1:A10)	Adds up values in the range A1 to A10
3	=SUM(A5:A10,D30:D40)	Adds up values in two non adjacent ranges separated by commas
4	=SUM(Basic pay,DA)	Adds up values given in two named ranges separated by comma

2) **SUMIF ( )**

The SUMIF ( ) function sum its values only when a particular criteria or condition is satisfied. In SUMIF function firstly test the values given in the first range and if this range satisfies the given criteria (conditions to be tested) then returns the sum of the corresponding values in a second supplied range.

Syntax=SUMIF(range,"criteria",sum range)

Range is the range to which the criteria are to be applied.

Criteria is the condition to be fulfilled for totalling cells. In function, it has to be surrounded by double quotes (" ").

Sum range (Optional) is the range from which values are summed. If this parameter has not been indicated, the values found in the range are summed.

Q.Following table shows the sales figures of various salesmen in the month of September in Union Trading Company.

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Sales Man	Sales
Johny	8000
Johnson	12000
Chacko	6000
Johny	30000
Chacko	38000
Johnson	18000
Johnson	7000

Calculate the (1) Total sales of Johnson? Also calculate (2) Total monthly sales by using SUM Function (use name range, give name as "Totalsales") ?

Here condition is calculate Jonson's sales only

(1) **Step-1** Open a new spread sheet in LibvreOffice Calc

Application------Office------LibreOffice Calc

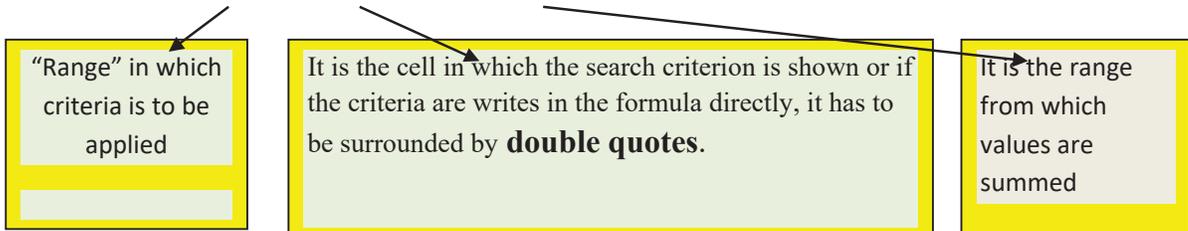**Step-2** Enter the label as

SALESMAN-A1

SALES (Rs)- B1

Then enter the details given in the question in respective cells.

Here we want to calculate only the sales of Johnson,not Total sales,i.e there is a criteria. The suitable Function here is "SUMIF()".**Syntax=SUMIF(range,"criteria",sum range)**

Step-3 Enter the Label "Total sales by Johnson" in cell-C2

Calculate Total Sales by Johnson in cell D2

Step-4, D2=**SUMIF(A2:A8,"Johnson",B2:B9)**

"Range" in which criteria is to be applied	It is the cell in which the search criterion is shown or if the criteria are writes in the formula directly, it has to be surrounded by **double quotes**.	It is the range from which values are summed

D2			$f(x)$ Σ =	=SUMIF(A2:A8,"johnson",B2:B8)	
	A	B	C		D
1	SALESMAN	SALES(Rs)			
2	johny	8000	Total sales by Johnson		37000
3	johnson	12000			
4	chacko	6000			
5	johny	30000			
6	chacko	38000			
7	johnson	18000			
8	johnson	7000			

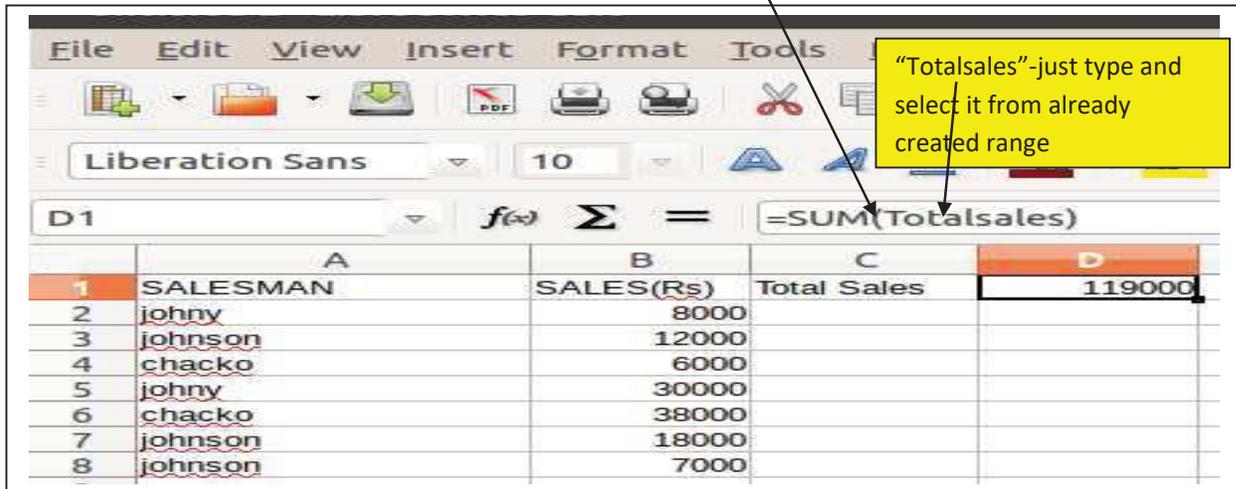**(2) Calculate Total Sales using SUM Function**

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Step-5 Naming the Range.

Select the range of the cells for which name is to be assigned (B2:B8) -----Data---Define range. Here enter the name of the range as "Totalsales"(without space)-----Ok.

Step-6 Enter the label "Total Sales" in the cell C1

Step-7 Calculate Total Sales in the cell D1

D1=SUM(Totalsales)

Total Monthly Sales=1,19,000

Q.The following table shows the values of assets and its depreciation for the year 2017.Calculate sum of depreciation of assets which valued above Rs.71, 000.

Asset Value	Depreciation
90000	9000
80000	8000
77000	7700
62000	6200
73000	7300
52000	5200
70000	7000

Syntax C2=sumif(A2:A8,">71000",B2:B8)

Procedure:

Step-1 Application---------office-----LibreOffice calc

Step-2 Type the column head as**:**

A1= Asset Value

B1= Depreciation

Step-3. Enter the Asset value 90000 in cell A2 and respective cells**.**

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Step-4. Enter depreciation amount 9000 in cell B2 and respective cells.

Step-5-Find out the sum of depreciation of assets which valued above Rs.71, 000 by apply the formula in cell D2.

D2=**SUMIF(A2:A8,">71000",B2:B8).Here we will get the result.**

D2		▽	*f(x)* Σ =	=SUMIF(A2:A8,">71000",B2:B8)	
	A		**B**	**C**	**D**
1	Asset Value		Depreciation		
2	90000		9000	Sum of depreciation of assets which valued above 71000	32000
3	80000		8000		
4	77000		7700		
5	62000		6200		
6	73000		7300		
7	52000		5200		
8	70000		7000		

3) ROUND ( )

The ROUND function rounds a supplied number to a specified decimal places.Often while calculating interest, preparing pay roll, division of numbers etc the end result may be in fraction. ROUND function helps to round-off the answer to a certain number of decimal place.

4) Roundup ( )

The Roundup function always round a number to upward, without considering the value next to the rounding digit.

 Eg.=Roundup(125.373,2)results in 125.38.Instead,if we use the formula=Round(125.373,2),the result will be 125.37,because the digit in the third decimal place is less than 5.

Syntax=Roundup(number, Count)

5) Rounddown( )

The ROUNDDOWN function always round a number to downward, without considering value next to the rounding digit.

Eg.=Round down(623.497,1)results in 623.4.Instead,if we use the formula =Round(623.497,1),the result will be 623.5,because the digit in the second decimal place is more than 5.

Syntax=Rounddown(number,Count)

3.Statistical Function

Statistical function helps in report generation. It operates on a set of data and gives summarised results.Important statistical functions are:

1. AVERAGE( )
2. MINIMUM( )
3. MAXIMUM( )

06/01/21   Binoy George

4. COUNT()
5. COUNTA()
6. COUNTBLANK()
7. COUNTIF()

1) AVEREGE ( )

Syntax=AVERAGE(Number1,number2,...)

This function is used to find out average values (Arithmetic mean) in a range of cells.

2) MINIMUM Function/ MIN( )

The minimum function in LibreOffice Calc is used to find out lowest values in a range of cells.

Syntax=MIN(Number1,Number2,...)

	A	B	C	D	E
			$f(x)$ Σ = =MIN(34,90,67)		
1	Syntax	Answer		23	56
2	MIN(34,90,67)	34	Here find out the minimum of given 3 numbers	45	45
3	MIN(D1:E6)	12	Here find out the minimum cell value of the range D1:E6	12	12
4				34	45
5				56	67
6				98	34
7				13	76
8				23	34
9				45	34
10					

3) MAXIMUM Function/ MAX( )

The maximum function in LibreOffice Calc is used to find out lowest values in a range of cells.

Syntax=MAX(Number1,Number2,...)

	A	B	C	D	E
			$f(x)$ Σ = =MAX(34,90,67)		
1	Syntax	Answer		23	56
2	MAX(34,90,67)	90	Here find out the maximum of given 3 numbers	45	45
3	MAX(D1:E6)	98	Here find out the maximum cell value of the range D1:E6	12	12
4				34	45
5				56	67
6				98	34
7				13	76
8				23	34
9				45	34
10					

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Q. Prepare a score sheet of 7 students as in the following table.

Name	Score-1	Score-2	Score-3	Score-4
Balan	79	89	70	67
Chandran	56	67	89	67
Soman	45	98	65	34
Suhail	78	89	90	56
Vijayan	50	98	97	67
Sasi	98	89	96	59
Sasikala	89	90	80	78

A)Find the **total** score of each student.

B)Find the **Average** score of each student.

C)Find the **lowest** score of each student.

D)Find the **highest** score of each student

Procedure:

Step-1 Application---------office-----LibreOffice calc

Step-2 Type the column head as:

A1= Name

B1= Score-1

C1-Score-2

D1-Score-3

E1-Score-4

F1-Total

G1-Average

H1-Lowest

I1-Highest

Step-3 Enter the details given in the question in respective cells.

Step-4: Calculate total score of Balan in cell F2 by applying the following formula

       F2=SUM(B2:E2) + Enter

Then select F2 again and drag upto F8

Step-5 Calculate average score of Balan in cell G2 by applying the following formula

   G2=AVERAGE(B2:E2) + Enter

Then select G2 again and drag upto G8

Step-6 Calculate lowest score of Balan in cell H2 by applying the following formula

   H2=MIN(B2:E2) + Enter

Then select H2 again and drag upto H8

Calculate highest score of Balan in cell I2 by applying the following formula

   I2=MAX(B2:E2) + Enter

Then select I2 again and drag upto I8.

	A	B	C	D	S	OUT PUT	G	H	I
1	Name	Score-1	Score-2	Score-3			average	lowest	highest
2	Balan	79	89	70			76.25	67	89
3	Chandran	56	67	89	67	279	69.75	56	89
4	Soman	45	98	65	34	242	60.5	34	98
5	Suhail	78	89	90	56	313	78.25	56	90
6	Vijayan	50	98	97	67	312	78	50	98
7	Sasi	98	89	96	59	342	85.5	59	98
8	sasikala	89	90	80	78	337	84.25	78	90

4) COUNT ()

The COUNT function **counts the number of cells that contains numeric values in a given range of cells or list of arguments separated by commas.**

 It counts both numbers and dates. Empty cells, logical values, text and error codes etc are ignored. Only numerical values (numerical values include number and date and time) are counted here.

Syntax=COUNT(value 1,value 2,value 3...)

              Or

Syntax= COUNT(cell 1,cell 2,..........)

     Or

Syntax=COUNT(Range 1,Range 2,..........)

Eg-1:COUNT(12,18,DF,25,23,RT,46) + Enter .Returns 5

Eg-2

J1=COUNT(A1:H1) + Enter ,Returns 7 as shown in the following figure.

J2=COUNT(A2:H2) + Enter ,Returns 6 as shown in the following figure.

Illustration:

Given below is a worksheet which occupies the range A1:E7, consisting of 35cells. It contains different types of data and also some blank cells.

Syntax=A9=count(A1:E7),the result will be 12.The reason is that out of these 35 cells only 12 cells contains number or date.

5) COUNTA ( )

The COUNTA function counts the number of cells that contain **any** type of data. It count cells contains numbers, text, date,time,logical values,etc. This function never countsempty/ blank cells.

Syntax=Counta(value 1,value 2,value 3...)

Refer the above example,A6=Counta(A1:F5).The result will be 22.The reason is that out of 25 cells 22 cells contains any type of data.

Eg;=COUNTA(45,78,HK,46,AF,23,89) + Enter, Returns 7.

6) COUNTBLANK ( )

COUNTBLANK functions **counts the number of empty cells in a given range**. A cell that contains formula is not treated as empty, even if its result is empty.

Syntax=Countblank(range)

Refer the above example,A9=Countblank(A1:F7).The result will be 9.The reason is that out of 35 cells only 9 cells remain blank.

A9		$f(x)$ Σ =		=COUNTBLANK(A1:E7)	
	A	B	C	D	E
1	MON	06/08/18 VHSE		12/07/18 JK	
2	TUE	07/08/18 DHSE			34
3	WED	08/08/18 PHSE			56
4	THU	09/08/18			89
5	FRI	10/08/18			
6	SAT	11/08/18 FGHS	TY		
7	SUN	12/08/18 VBN			80
8					
9	9				

7) COUNTIF ( )

Count if function is used to count the number of **cells in a range that meet a given condition or criteria**. The criteria can be a number (10), text string(Hindu), expression(>) etc.

Syntax=Countif(range,"criteria")

Range: Range to which criteria are to be applied.

Criteria:It can be a number,expression,cell reference or a character string. For eg.,criteria can be expressed as 7000,">50","Thodupuzha",C2 etc.

Note.If you search for literal text enclose the text in **double quotes** (" ")

Eg.The following Excel worksheet shows personal details of students in a saksharatha class.

A8		$f(x)$ Σ =		=COUNTIF(A1:G6,"KALAYANTHANI")			
	A	B	C	D	E	F	G
1	NAME	AGE	RELIGION	SEX	POST OFFICE	VILAGE	WEIGHT
2	JOSEPH	23	CHRISTIAN	M	KALAYANTHANI	ALAKOD	65
3	TOMY	19	CHRISTIAN	M	KUMARAMANGALAM	THODUPUZHA	51
4	RAZAL	23	ISLAM	M	KALAYANTHANI	ALAKOD	34
5	ANNIE	45	CHRISTIAN	F	MUTTAM	THUDANGANAD	67
6	SEETHA	46	HINDU	F	MANAKKADU	THODUPUZHA	69
7							
8	2						

A8=**Countif(A2:G6,"KALAYANTHANI")**,the result will be 2.The reason is that the text string "**KALAYANTHANI**"occurs 2 times in the above sheet.

Refer the above example

=Countif(A2:G6,"MANAKKADU")	The result will be 1, the reason is "MANAKKADU"occurs two times in the table.
=Countif(B2:B6,">=21")	The result will be 4, the reason is that there are 4 values which are greater than or equal to 21.
=Countif(A2:G6,"=45")	The result will be 1; the reason is that there is only one value which is equal to 45.
= Countif(G2:G6,"<65")	The result will be 2; the reason is that there are 2 values which are less than 65.

Example:

A1:A10 is a cell range containing the numbers 2000 to 2009. Cell B1 contains the numer 2006.In cell B2,C2 and D2 enter these formula:

=COUNTIF (A1:A10,2006) – Returns 1

=COUNTIF (A1:A10,B1) – Returns 1

=COUNTIF (A1:A10,">=2007") – Returns 8

FUNCTION	COUNT
COUNT()	It counts the number of cells in range that contains both number and date
COUNTA()	It counts the number of cells that contain any type of value.
COUNTBLANK()	It counts the number of empty cells in the given range.
COUNTIF()	It counts the number of cells within the given range that meet the given condition or criteria

4. LOGICAL FUNCTION

Logical functions help to compare more than one condition and outcome. Logical functions return only one of two values: True or False. Logical function requires the usage of **logical operators**.

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There are number of logical operators such as =,> (greater than), <(less than),>= (greater than or equal to),<=(less than or equal to),<>(not equal to) etc.

Eg:=IF(A1<20,"Yes","No")this function will return **Yes** if cell A1<20 and **0** for anything else.

Various logical functions are:

1) **IF**   Specifies a logical test to perform

2) **AND**   Returns TRUE if all of its arguments are TRUE

3) **OR**   Returns TRUE if any argument is TRUE

1) **IF**
        IF function is one of the most popular and useful functions in LibreOfficeCalc. This function is used to test a condition, whether it is **TRUE** or **FALSE**. When the condition is TRUE, then first action is taken. When it is FALSE, then the second action is taken

Syntax=IF(Test,ThenValue,OtherwiseVlue)

        =IF(A1<20,"Passed","Failed")

Logic test= Condition you want to test, it may be any value or expression that can be True or False.

Then Value (Value if true)= The value that is returned if the result of logical test is true.

Otherwise Value (Value if false)=the value that is returned if the result of logical test is false.

In   our   above   example=**IF(A1<18,"Passed","Failed")** A1<20(Test),"Passed"(ThenValue),"Failed"(OtherwiseValue)

B1		$f(x)$ Σ =	=IF(A1<18,"Failed","Passed")					
	A	B	C	D	E	F	G	H
1	34	Passed						
2	17	Failed						
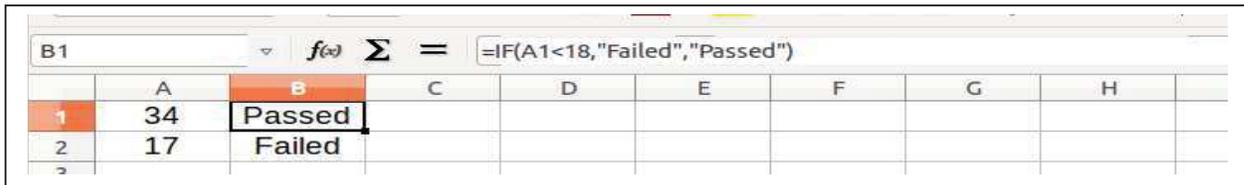
Q.Akhil Ltd declared bonus to its employees subject to the following conditions:

1) Bonus= 20% of basic pay, if basic pay is 20000 or less.

2) Bonus=15% of basic pay, if basic pay greater than 20000.

Name of the Employee	Basic Pay
Rajan	18000
George	22000
Sabu	16000
Radhakrishnan	23000

Calculate Bonus?

Step-1 Open a new work sheet in LibreOffice Calc

Step-2 Type the Labels

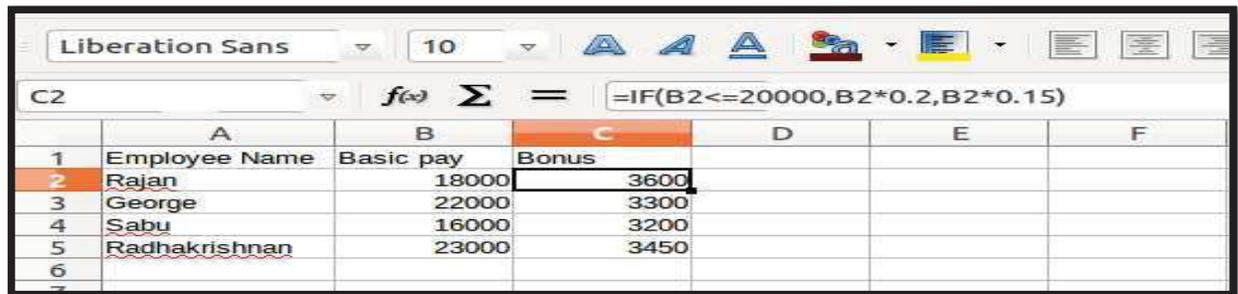Employee Name – A1

Basic Pay   -   B1

Bonus   -   C1

Step-3 Enter the details given in the question in respective cells.

Step-4 Calculate bonus in cell C2

C2=IF(B2<=20000,B2*20%,B2*15%)+ Enter. Then select the C2 again and drag C2 to C5.

Note :IF function is helpful to test a single condition, if there is multiple conditions to test NESTED IF Function is preferable.

NESTED IF

Nested If function is used to evaluate different conditions. The IF function can be nested, when you have multiple conditions to meet.

Syntax

=IF(Test 1,Then Value 1,IF(Test 2,Then Value 2,IF(..............)))

- The second IF will be started only when the first IF statement result a FALSE value.

- When values are TEXT It should always be enclosed in quotation mark (" ").
- Note the number of **closing brackets**; its number should be equal to the number of IF's in the formula.

Q- Richu obtained the following scores (out of 100) in his HSS Examination March 2016.

Subjects	Scores
ENGLISH	85
MALAYALAM	96
BUSINESS STUDIES	75
ACCOUNTANCY	67
ECONOMICS	29
COMPUTER APPLICATIOM	45

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Converts the above scores into grades for each subject using the following criteria:

Score	Grade
90-100	A+
80-89	A
70-79	B+
60-69	B
50-59	C+
40-49	C
30-39	D+
Less than 30	D

Procedure: Step-1 Open a new spread sheet in LibreOffice Calc

Step-2 Type the labels

SUBJET-A1

SCORE-B1

GRADE-C1

Step-3

Enter the details given in the question in respective cells.

Step-4 Enter the formula in cell C2

C2=**IF(B2>=90,"A+",IF(B2>=80,"A",IF(B2>=70,"B+",IF(B2>=60,"B",IF(B2>=50,"C+",IF(B2>=40,"C",IF(B2>=30,"D+","D")))))))**

Then select the cell C2 again and drag from C2 to C7.

	A	B	C	D	E	F	G	H	I	J	K
1	SUBJECT	SCORE	GRADE								
2	ENGLISH	85	A								
3	MALAYA LAM	99	A+								
4	BUSINESS STUDIES	77	B+								
5	ACCOUNTANCY	69	B								
6	ECONOMICS	41	C								
7	COMPUTER APPLIC	29	D								
8											

Formula bar: C2 = `=IF(B2>=90,"A+",IF(B2>=80,"A",IF(B2>=70,"B+",IF(B2>=60,"B",IF(B2>=50,"C+",IF(B2>=40,"C",IF(B2>=30,"D+","D"))))))`

06/01/21   Binoy George

Q.The yearly sales of 6 salesmen are given below:

employee name	sales
Alen	28000
Balan	8000
Rajan	11000
Mohan	45000
Venu	32000
Salim	52000

Calculate the commission earned by each salesman on the basis of the percentage given in table

Yearly Sales	Commission(% on sales)
<10000	0%
>=10000 to<20000	5%
>=20000 to<30000	10%
>=30000 to<50000	15%
>=50000	18%

Procedure:

Nested IF is the appropriate function to calculate the above commission

Step-1 Application---------office-----LibreOffice calc

Step-2 Type the column head as

A1- Employee Name

B1-Sales

C1-Commission

Enter the employees name in the range A2:A7

Enter the sales figures in the range B2:B7

Step-3 Calculate commission in cell C2 by applying the formula

C2=IF(B2<10000,B2*0%,IF(B2<20000,B2*5%,IF(B2<30000,B2*10%,IF(B2<50000,B2*15%, IF(B2>=50000,B2*18%)))))

Liberation Sans	14														% 0.0				

C2   f(x) Σ = =IF(B2<10000,B2*0,IF(B2<20000,B2*0.05,IF(B2<30000,B2*0.1,IF(B2<50000,B2*0.15,IF(B2>=50000,B2*0.18)))))

|	A	B	C	D	E	F	G	H	I	J
1	EMPLOYEE NAME	SALES	COMMISSION							
2	ALEN	28000	2800							
3	BALAN	8000	0							
4	RAJAN	11000	550							
5	MOHAN	45000	6750							
6	VENU	32000	4800							
7	SALIM	52000	9360							

2) AND

Returns **TRUE** if **ALL** arguments are TRUE. It checks more than one condition and if any argument is FALSE, returns FALSE.

Syntax=AND(logical Value 1,logical Value 2..........)

Syntax	Description	Result
=AND(True,True,True)	If all arguments True	TRUE
=AND(True,False,False)	If any argument False	FALSE
=AND(5<9,15>13,23>20)	If all arguments True	TRUE
=AND(5>9,15>13,23>20)	If any argument False	FALSE
=IF(AND(A1>100,A1<200,A1,"The Value is out of range") If A1=118	Displays the number in cell B1.If it is between 100 and 200.Otherewise,it displays the message"The Value is out of Range"	118

Example:

=AND(A1>100,B1>=60,C1>30	If any argument False	FALSE
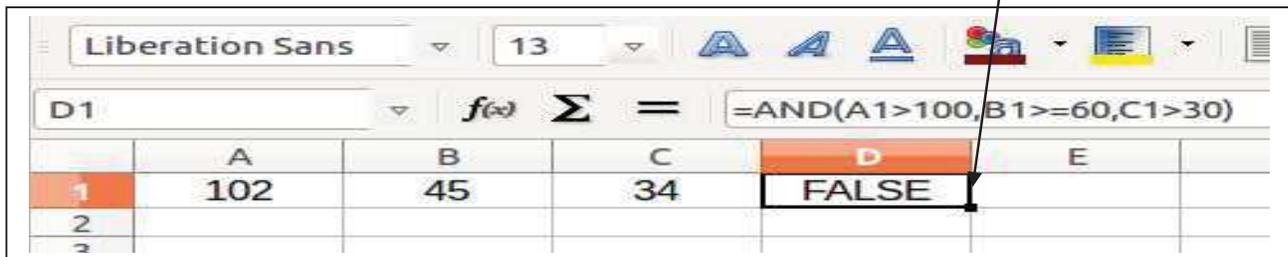
Example:A company furnishes you the following list for recruiting few applicants for the post of a driver cum salesman.

Name	Sex	Age	Weight
Aju	Male	18	65
Chithra	Female	21	55
Binu	Male	14	59
Raju	Male	24	68
Cinu	Male	26	55
Anusha	Female	33	78

Design an excel template to generate a selection list based on the following criteria:

A. **Applicant should be MALE**

    B. Age should not be less than 18

    C. Weight should be less than 66 kg.

Procedure:

Step-1 Application---------office-----LibreOffice calc

Step-2 Enter the details given in the question in respective cells

Step 3 Select the cell E2 and enter the formula

E2=IF(AND(B2="Male",C2>=18,D2<=66),"Selected","Not Selected") +Enter .Select E2 again and drag

E2		$f_{(x)}$ Σ =	=IF(AND(B2="Male",C2>=18,D2<=66),"Selected","Not Selected")		
	A	**B**	**C**	**D**	**E**	**F**	**G**
1	Name	Sex	Age	Weight			
2	Aju	Male	18	65	Selected		
3	Chithra	Female	21	55	Not Selected		
4	Binu	Male	14	59	Not Selected		
5	Raju	Male	24	68	Not Selected		
6	Cinu	Male	26	55	Selected		
7	Anusha	Female	33	78	Not Selected		

3) OR Function

OR Function tests a number of supplied conditions and returns TRUE if at least one argument is TRUE; returns FALSE if all arguments are FALSE.

The difference between OR and AND is that OR will return TRUE if atlest one argument is correct but AND will return TRUE only when all arguments must be correct.

OR (logical Value 1, logical Value 2..........)

Returns TRUE, if at least one argument is TRUE, returns FALSE if all arguments are FALSE.

Syntax=OR(logical Value 1,logical Value 2..........)

Syntax	Description	Result
=OR(5>9,15>13,23<20)	If at least one argument is True, returns True	TRUE

Prepared by, BINOY GEORGE, HSST, MKNM HSS, Kumaramangalam, Thodupuzha, Idukki Dt.

Use of Spreadsheet in Business Application

(Focus Area Only)

Spreadsheet has numerous possibilities in the field of business. Spreadsheets like LibreOffice Calc provides built in functions for various financial and statistical operations besides basic arithmetical functions. Both large and small scale business firms use spreadsheet for the preparation of Payroll, asset accounting and loan repayment schedule.

Payroll Accounting

Payroll is a statement of **pay details** of employees of an organization. It shows detailed salary calculation. It includes BP and allowances such as DA,TA,CCA,HRA and deductions such as contribution to PF,SLI,GIS,TDS,Loan Repayments etc.Gross pay is the sum total of BP and Total Allowances.Net pay is the difference between GP and Total Deductions..

Payroll components

1. Earnings

1. **Basic Pay(BP):**It is the pay in the pay scale, but does not include any other special pay. It is usually a fixed amount.
   - **Basic Pay Earned:** In some cases basic pay calculated with reference to the number of Effective days Present (NOEDP) during the month.
     BPE=BP*(NOEDP/NODM)
     Here,
     BP= Basic Pay
     NODM=No. of days in the month.
     NOEDP=No. of effective days present.
     (NOEDP=No. Days in the month - Leave Without Pay - Unauthorized Absent)

   > Eg: Basic Pay of an employee is Rs.20000.During the month of April 2015; he has not attended the work for 6 days. His Basic Pay Earned (BPE) is calculated as follows:-
   >
   > BPE=20000*(24/30)
   >
   > BPE=RS.16000

2. **Grade Pay(GP):**It should be added to the Basic Pay on the basis of designation to employees.
3. **Dearness Pay(DP):**A portion of the Dearness Allowance(DA) which has been declared and deemed to have been merged with Basic Pay is Dearness Pay.

4. **Dearness Allowance (DA):** It is based on the cost of living index released by the Government from time to time. In other words, it is a compensation to make up the purchasing power of wage earners due to price increase.(DA=BP/BPE*Applicable rate of DA)
5. **House Rent Allowance (HRA):** It is an amount paid to an employee to facilitate him in getting rented accommodation. (HRA=BP/BPE*Rate of HRA for the month.)
6. **Transport Allowance (TRA):** This is an amount paid for conveyance to the work place.(Fixed amount or Percentage)
7. **City Compensatory Allowance (CCA):** This is a special allowance paid to employees who live in cities. In cities there are more costs of living as compared to rural areas.(Fixed amount or Percentage)
8. **Any Other Allowance:** It includes education allowances, medical allowances, washing allowances etc.

2. Deductions

1. **Provident Fund:** It is statutory deduction decided by the government from time to time under Provident Fund Act. It is computed as certain percentage of Basic Pay plus DA, if applicable.(PF=BP*Rate of PF)
2. **Professional Tax (PT):** This is a deduction as per the legislation of the state government.(It is usually a fixed amount)
3. **Tax Deducted at Source (TDS):** It is statutory deduction made towards income tax liability of an employee. It can be deducted monthly or yearly. (It is usually a fixed amount)
4. **Recovery of Loan Instalment:** This is the instalment amount of any loan taken by the employee from the organisation. (It is usually a fixed amount)
5. **Any other Deduction:** This may include 'Festival Advance', 'Medical Advance' etc

Payroll Statement

Q.1

<mark>Calculate Net Pay from the following particulars of employees in Excel Traders, prepare the Payroll Statement.</mark>

Name	Basic Pay (BP)
Biju	10000
Suresh	7000
Surendran	6500
Monichan	4500
George	6500
Manju	7500
Radhakrishnan	6850
Sumi	7580
Saji	6150
Tiju	8800

Additional Information:

1. DA 50% of BP
2. HRA 10% of BP
3. Monthly subscription to PF 5% of BP
4. Group Insurance Premium Rs 150 from each employee.

Procedure:

Step 1 Open a new work sheet.

Step 2: Enter the column head as:

Name: A1

Basic Pay: B1

DA: C1

HRA: D1

Gross Pay: E1

PF: F1

GI: G1

Total Deduction: H1

Net Pay: I1

Step 3 Enter the Name of first employees 'Mohan' in A2 and his BP 8650 in B2. Similarly enter the name and BP of remaining nine employees in the respective cells

Step 4 Enter DA, HRA, Gross Pay, PF, GI, Total deduction and Net pay of the first employee as given below

Cell	A2	B2	C2	D2	E2	F2	G2	H2	I 2
Content	Biju	10000	= B2*50%	=B2*10%	=B2+C2+=D2	=B2*5%	150	=F2+G2	=E2-H2

Step 5 Fill down the calculation to remaining employees

   a. Select the range C2 to I 11
   b. Click the (Edit menu) - Fill – Down **OR** Select the range C2 to I 11+ (Ctrl+D)
   c. The calculations of remaining nine employees are then filled automatically
      Output

	A	B	C	D	E	F	G	H	I
1	Name	BP	DA	HRA	Gross Pay	PF	GI	Total Deduction	Net Pay
2	Biju	10000	5000	1000	16000	500	150	650	15350
3	Suresh	7000	3500	700	11200	350	150	500	10700
4	Surendran	6500	3250	650	10400	325	150	475	9925
5	Monichan	4500	2250	450	7200	225	150	375	6825
6	George	6500	3250	650	10400	325	150	475	9925
7	Manju	7500	3750	750	12000	375	150	525	11475
8	Radhakrishnan	6850	3425	685	10960	342.5	150	492.5	10467.5
9	Sumi	7580	3790	758	12128	379	150	529	11599
10	Saji	6150	3075	615	9840	307.5	150	457.5	9382.5
11	Tiju	8800	4400	880	14080	440	150	590	13490
12									

Q2.Prepare Payroll of the following Employees:

Name	Basic Pay	PF Loan
Sabu	28000	10000
Ajayan	42000	12800
Usha	44500	14300
Sanjo	64000	0
Binil	48000	12700
Jos	48000	11850
James	43500	12000
Arjun	68000	0
Roy	37500	12000
Anna	58000	6500

Additional information:

1. DA 38% of Basic pay.
2. HRA Rs.1250 for Employees Basic pay greater than Rs.54000, for others Rs.1000.
3. TA Rs.500 per Employee.
4. PF subscription 15% for BP.
5. TDS 18% for GP greater than Rs.60000, otherwise12%.

Procedure:

Step 1 Open a new work sheet.

Step 2: Enter the column head as:

Name: A1

Basic Pay: B1

DA: C1

HRA: D1

TA: E1

Gross Salary: F1

PF subscription: G1

TDS: H1

PF Loan: I1

Total Deduction:J1

Net Salary: K1

Step 3

Enter the Name of first employees 'Sabu' in A2 and his BP 28000 in B2. Similarly enter the name and BP of remaining nine employees in the respective cells.

Step 4, Select the cell C2 and enter the formula,**C2=B2*38%**

Step 5, Calculate HRA in cell D2 ,**D2=IF(B2>54000,1250,1000)**

Step6, Type TA Rs.500 in cell E2 and **select the rang E2:E11,EDIT-------FILL-----DOWN**.

Step 7, Calculate Gross Salary in cell F2,**F2=B2+C2+D2+E2**

Step8, Calculate PF Subscription in G2 ,**G2 =B2*15%**

Step-9, Calculate TDS in H2,**H2=IF(F2>60000,F2*18%,F2*12%)**

Step-10, Enter PF Loan amount given in the question in respective cells.

Calculate Total Deduction in Cell J2,**J2=G2+H2+I2**

Calculate Net salary in cell K2,**K2=F2-J2**

Fill down the calculation to remaining employees

   a. Select the range C2 to I 11
   b. Click the (Edit menu) - Fill – Down **OR** Select the range **C2 to K 11+ (Ctrl+D)**
   c. The calculations of remaining nine employees are then filled automatically

	A	B	C	D	E	F	G	H	I	J	K
1	Name	BP	DA	HRA	TA	Gross Salary	PF Subscription	TDS	PF Loan	Total Deduction	Net Salary
2	Sabu	28000	10640	1000	500	40140	4200	4816.8	10000	19016.8	21123.2
3	Ajayan	42000	15960	1000	500	59460	6300	7135.2	12800	26235.2	33224.8
4	Usha	44500	16910	1000	500	62910	6675	11324	14300	32298.8	30611.2
5	Sanjo	64000	24320	1250	500	90070	9600	16213	0	25812.6	64257.4
6	Binil	48000	18240	1000	500	67740	7200	12193	12700	32093.2	35646.8
7	Jos	48000	18240	1000	500	67740	7200	12193	11850	31243.2	36496.8
8	James	43500	16530	1000	500	61530	6525	11075	12000	29600.4	31929.6
9	Arjun	68000	25840	1250	500	95590	10200	17206	0	27406.2	68183.8
10	Roy	37500	14250	1000	500	53250	5625	6390	12000	24015	29235
11	Anna	58000	22040	1250	500	81790	8700	14722	6500	29922.2	51867.8

Asset Accounting

Asset Accounting covers the complete life cycle of an asset. It involves maintenance of asset register, computation of depreciation etc. The inbuilt functions of LibreOffice calc make the asset accounting easier.

Calculation of Depreciation

Depreciation means the gradual and permanent decrease in the value of fixed asset. Depreciation may arise due to wear and tear, passage of time, obsolescence through technology or market changes. It is considered as revenue expenditure. The net result of depreciation is that the asset becomes useless after some period and its value either reduces to zero or to a very nominal figure. Asset accounting means maintain assets register by considering the depreciation of the asset.

Basis of Providing Depreciation

The following factors are usually taken into consideration for calculating the amount of depreciation:

a) The original cost of the asset including installation charges.
b) The estimated working life of the asset.
c) The estimated residual or scrap value. (The value of the asset will obtain at the time when it will be replaced)

Methods of calculating Depreciation

Mainly there are two methods for calculating depreciation. They are;

1. **Straight Line Method (SLN)**
2. **Diminishing Balance (DB) method.**

1.SLN ()

In LibreOffice Calc there is a simple function called SLN() to calculate **depreciation for a year** under Straight Line Method.The syntax of SLN Function is

=SLN(Cost,Salvage,Life)

Cost= Cost of acquisition of asset

Salvage= Scrap value at the end of asset's life.

Life=Estimated life of the asset.

Q. M/S Anjaly Traders purchased a plant on 1/1/2006 for Rs 1,50,000 and an amount of Rs 6000 spent for the installation of the plant. The life time of the plant is estimated to be 10 years and the scrap value is estimated as Rs 1,000.Calculate depreciation under SLN.

Depreciation==**SLN(Cost,Salvage,Life)**

Cost= Cost of acquisition of asset ,1,56,000 (150000+6000)

Salvage= Scrap value at the end of asset's life. (1000)

Life=Estimated life of the asset.(10 years)
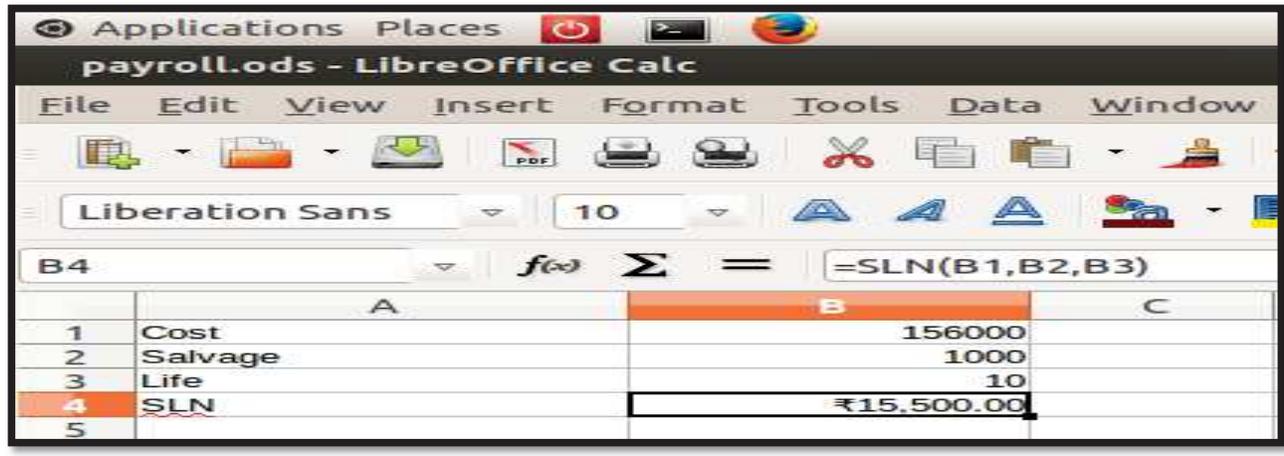
2.DB Function

DB Function is the inbuilt fuction in LibreOffice Calc to calculate depreciation under Diminishing Balancer Method.

Syntax=**DB(cost,salvage,life,period,[month])**

Cost-Cost is the acquisition cost

Salvage-Scrap value

Life-Life is the useful period for which the asset is available for use.

Period-Period is the year (1st, 2nd, 3rd....) for which depreciation is calculated.

Month-Number of months in the first year. (It is applicable only when asset is put to use during part of an year in the first year)

Q. A machinery was purchased on 1st November,2013 for RS.3,00,000 and installation charge is Rs.10,000 .Its estimated life is 10 years with salvage value of Rs.20000.Ascertain the amount of depreciation of 4th year using DB Function, assuming that the books are closed on 31st March every year.
 Procedure:

Syntax=**DB (cost, salvage, life, period,[month])**

Cost= 310000 (3,00,000 + 10,000)
Salvage = 20,000
Life = 10
Period = 4
Month = 5
Step-1
Open a new worksheet in LibreOffice Calc
 Step 2.Enter the labels and values as given below:

A1	Name	B1	Machinery
A2	Date Purchase	B2	01-11-2013
A3	Cost	B3	310000
A4	Salvage	B4	20000
A5	Life	B5	10
A6	Period	B6	4
A7	Month	B7	5
A8	Depreciation(DB)	B8	₹ 38,676.10

Step-3 Select the cell B8
 B8=**DB(B3,B4,B5,B6,B7)**

Out Put:

****

Prepared by, BINOY GEORGE, HSST, MKNM HSS, Kumaramangalam,Thodupuzha, Idukki Dt.

Chapter-4

Graphs and Charts for Business Data

(Focused area Only)

Focused Area: Chapter-4

1. Column Chart, Bar Chart, Pie Chart, Doughnut (Donut) Chart
2. Advantages of Graphs and Charts

A graph is a pictorial representation of data. It helps the users to digest the information. A good picture is worth a thousand numbers. News publishers use graphics all the time to show comparisons and explain trends for things such as weather, gas prices or who winning the election and how much. A chart is one of the best ways to present and analyses data visually. Charts makes it easy for users to understand numerical data LibreOffice Calc provides various types of charts such as Line chart, Column chart, Pie Chart, bar Charts, Scatter Charts etc.
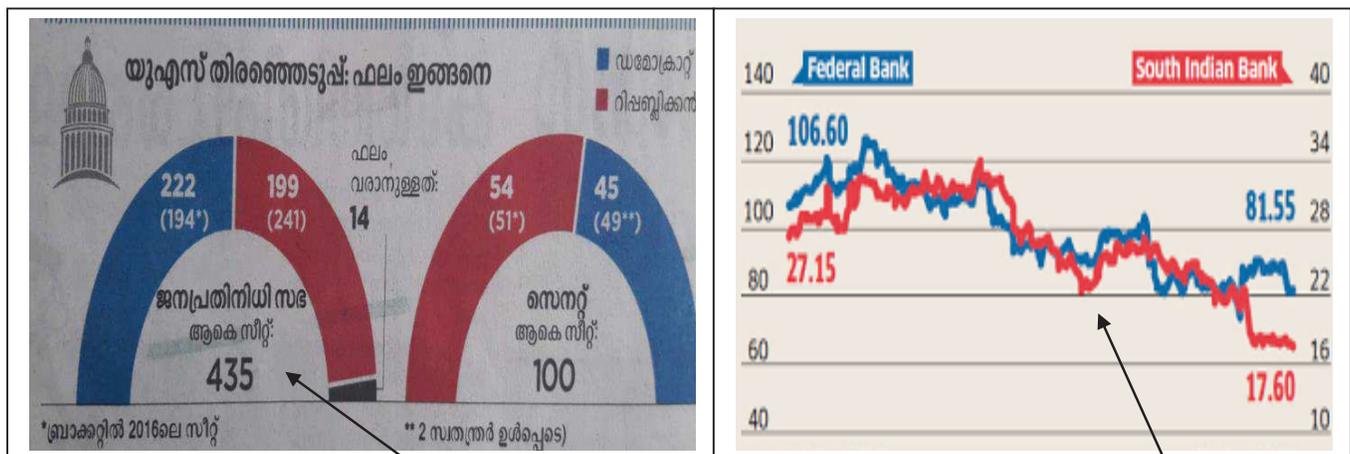
Graphs and Charts

The term **Graphs** and **Charts** are often used interchangeably. **Graphs** are mainly used to represent variations in values over a period of time, for example, to represent **movement of share prices**, sales performance of a business etc.

A **chart** is a form of graphic representation of the data. It is used to give information about the frequency of different quantities in a single picture. For example, **position of different political parties** in a legislative assembly, budget allocation to different heads etc.

Types of Charts

LibreOffice Calc provides variety of charts to express your data more meaningfully. We can create a new chart or change the existing chart from the wide range of chart types. Following are the most widely used charts in LibreOffice Calc.

1. **Column Chart:** You can take any LibreOffice Calc data arranged in columns or rows (spreadsheet) and plot it on a standard column chart. A column chart displays data as vertical

bars. In column chart horizontal axis (X-axis) presents the categories being charted, while the vertical axis (Y-axis) shows the values of each category. Categorioes are displayed horizontally and values are displayed vertically. The simple presentation and coloured columns make for easy visual comparisons.
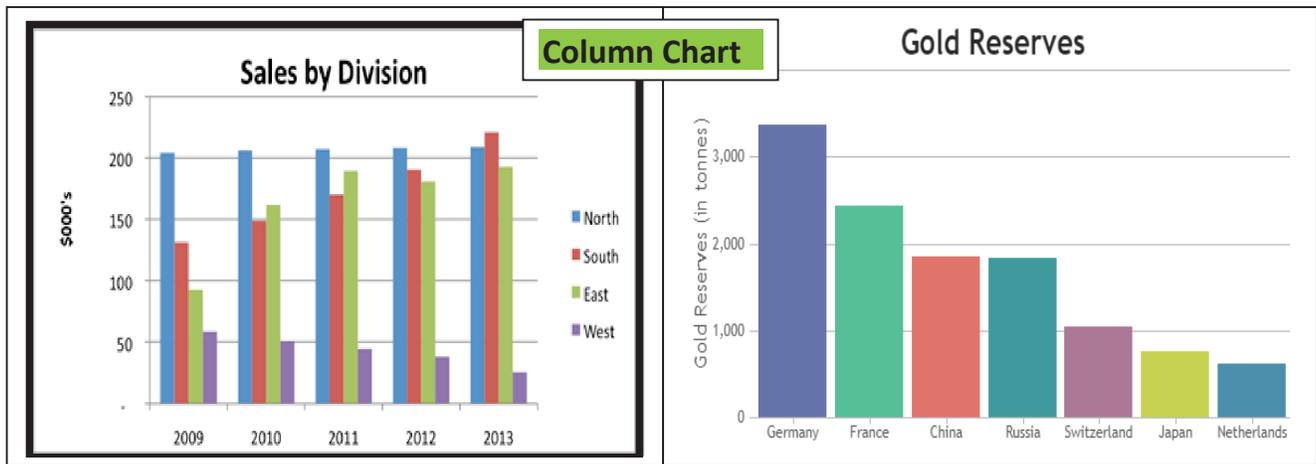
Column chart works well when you want to compare data sets between each other.

Fig.Column Chart.

2. **Bar Charts:** Bar charts are essentially horizontal column charts. A bar chart organizes the categories along the vertical axis (Y-axis) and the values along the horizontal axis (X-axis). Horizontal bars extend left to right across the chart to plot the data. Bar charts are excellent for charting multiple values over extended durations, with coloured bars representing each value.
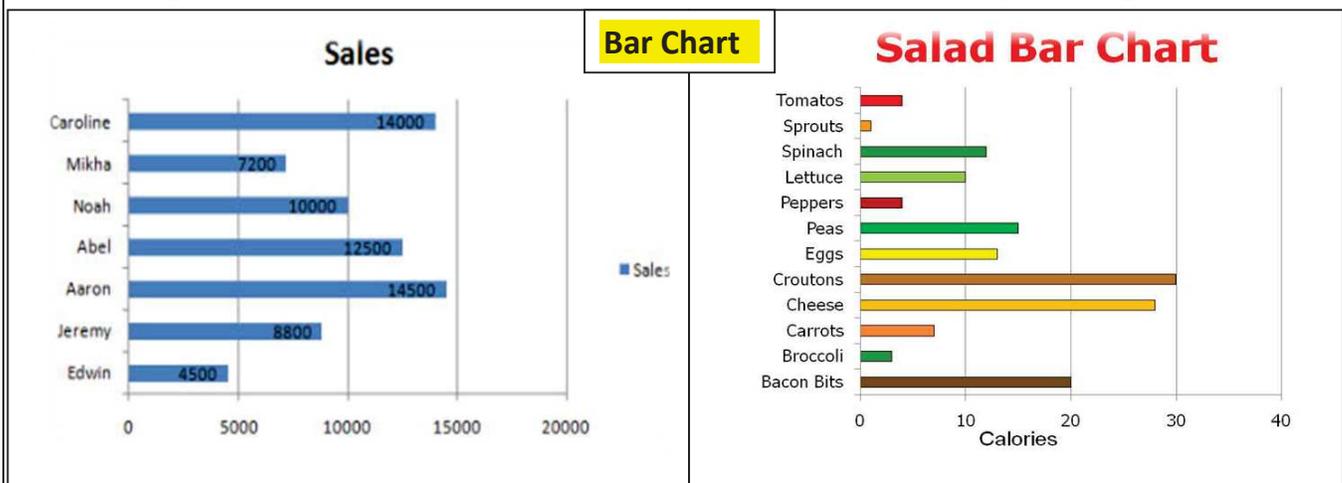
Fig.Bar Chart

3. **Pie Chart:** Pie charts are generally used to display data as a **percentage of the total**. A pie chart divides a circle into slices (pie) to represent a data series. Each pie represents a fraction or percentage of a whole. The chart depicts each pie slice in a different colour for easy recognition of how the individual slice relates to the greater whole. Pie charts work best when you're charting **only one data** series, when none of your data are negative and when your data features **no zero** values.
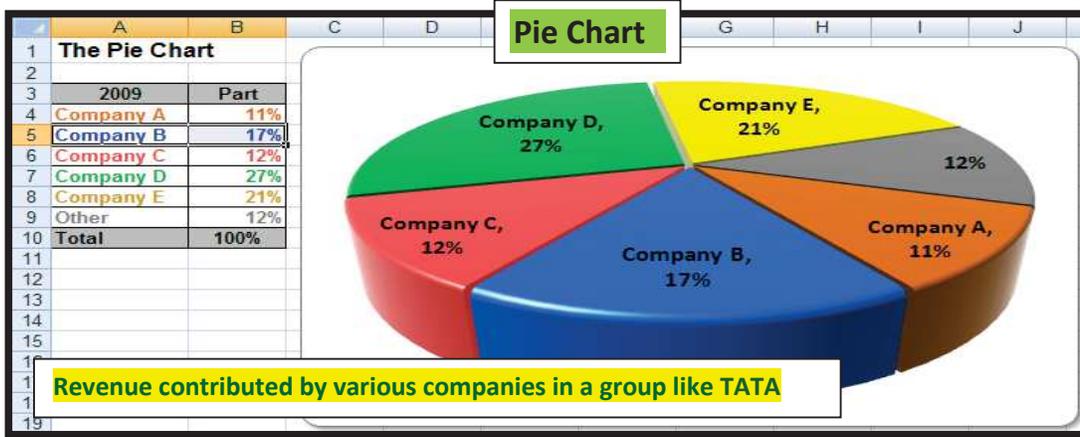
Fig. Pie Chart

Doughnut/Donut chart:

Donut Chart (also known as **Doughnut chart**) is a type of Pie Chart except it has a round hole in the center. It is look like a donut. This empty space can be used to display additional data. It can display more than one series of data.
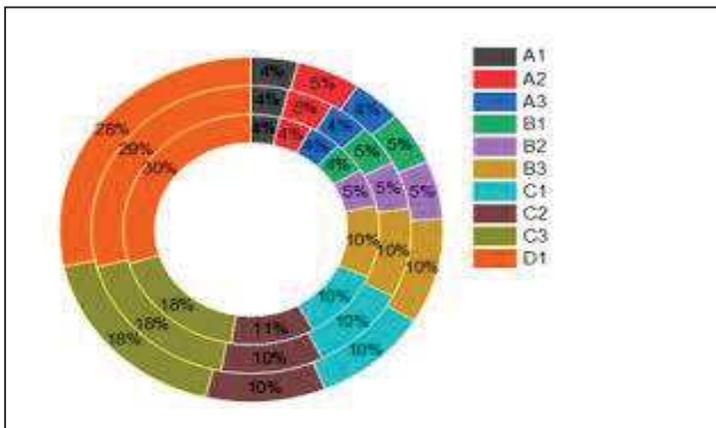
Basic steps for creating Graphs/Charts/Diagrams in LibreOffice Calc

The steps involved in chart preparation are given below:

Step-1 Open new worksheet in LibreOffice Calc and enter the details in respective cells.

Application----office----LibreOffice Calc

Step-2 Create Chart

To create chart, select the data range (range where data entered in worksheet) --------Insert-----Chart----Select the suitable chart type-------Next

Step-3 Data Range (Normally no change required) -------Next------**Data Series**-------(Normally no change required) ------Next

Step-4 Chart element Management

Here Enter the details of chart elements:

Chart Title, subtitle axis, X axis etc. Then click '**Finish**'.

Elements/ Components of a Graphs
A graph is a pictorial presentation of data. Different part of a chart is known as chart elements. These all parts make up a chart. A clear idea about these elements will give us more clarity to the data displayed in a chart. Different elements of a char are:

1. **Chart Area**
2. **Plot Area**
3. **Data Point**
4. **Data Series**
5. **Axis**
6. **Data labels**
7. **Grid Lines**
8. **Chart title**
9. **Legend**
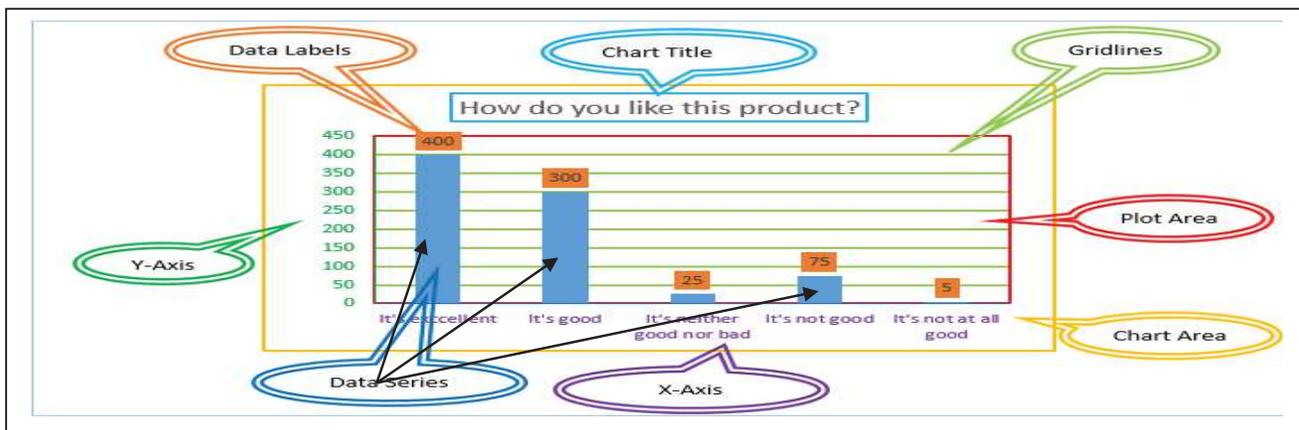
1. **Chart Area**

 The entire area of a chart is known as Chart area.

2. **Plot Area**
This is the area where your chart data is actually plotted.

3. **Data Point**
   A symbol on the chart that represents a single value in the worksheet. A data point may be a bar in a bar chart or a line in a line chart.
4. **Data Series**
   Data point of the same colour or pattern is called data series

5. Axis

A line that serves as major reference for plotting data in a chart. The X-Axis is usually the horizontal line which contains categories or independent values and Y-Axis usually the verticals which contains data (dependent values). **Pie chart has no axes**.3D charts have three axis- X-axis, Y-axis and **Z-axis**. In Case of Bar Chart reverse the scheme, i.e. plotting values on X-Axis and Categories on Y-Axis.

6. Data Labels

The values of the data series plotted are known as Data Labels This provides additional information about data point

7. Grid Lines

Grid lines are optional lines extending from the tick mark across the plot area, thus making it easier to view the data values represented by the tick marks.

8. Chart Title

There are two different chart titles we can provide in charts, One Chart Title and Two Axis Titles. *Chart title is the main title of the chart, which is generally, represents your chart and tells users what is this chart all about.* We should provide the chart Axes titles to make your users to understand the data and chart in better way.

9. Legend

Legend is an identifier of a piece of information shown in the chart. On a chart, a legend identifies different categories of data. Charts may have lines or bars or columns or pie slices etc. To distinguish them, they are given different colours and the legend then tells you what each colour is representing. Legend can be repositioned on the chart anywhere.

In the following column chart Legend helps to **identify Data Series**. And Legends will help you to understand by providing the color definitions for each category of the data.
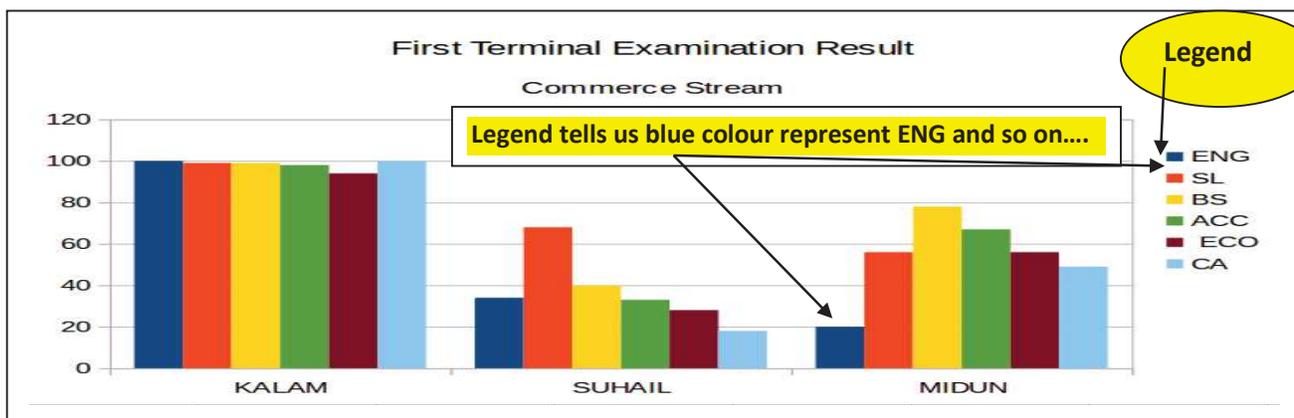
You can align the legends at any side of the Chart Area. If you have more number of category series, we generally place at right side of the chart plot area. Otherwise we can place at top or bottom of the plot area to save the place.

Advantages of graph/chart

1. **Acceptability:** Chart / graphs are more acceptable because it high lights the theme of report. It helps to avoid wastage of time.
2. **Comparability:** Using chart, comparison of information becomes easy.
3. **Economy:** Chart helps to present large volume of dat easily and within a limited space. It is more economic.
4. **Simplicity:** Chart helps to understand matters quickly. So it is helpful for even a layman.
5. Chart create visual appeal
6. Chart helps to understand trends easily.
7. Chart helps to analyses and interact the data quickly.

Q.The following table shows sales figures of salesmen Mr.Vinod and Mr.Thomas in Anju Traders for the year 2013 to 2017

YEAR	VINOD	THOMAS
2013	22000	12000
2014	14000	2800
2015	12000	18000
2016	15150	4800
2017	25000	20500

Q.1 present the data in a column chart. Q.2 Change the chart type to line chart

Procedure:
Q.1
Step-1 Data Entry
Open a new work sheet in LibreOffice Calc and enter the details in respective cells.

	A	B	C
1	YEAR	VINOD	THOMAS
2	2013	22000	12000
3	2014	14000	2800
4	2015	12000	18000
5	2016	15150	4800
6	2017	25000	20500
7			

Step-2 Chart Creation
Select the range (here it is (**A1:C6**). Then select

Insert----Chart--------Select a suitable Chart Type (here column chart) --------Next

Step-3 Data Range (Normally no change required) -------Next------**Data Series**-------(Normally no change required) ------Next

Step-4 Chart element Management

Here Enter the details of chart elements:

Here user can give suitable title, subtitle, X-axis title,Y-axis title etc for the chart

| Title	Sales Figures of Anju Traders
Subtitle	Sales Performance
X axis Title	YEAR
Y axis Title	Rs.

Click ------- **Finish**

Output:
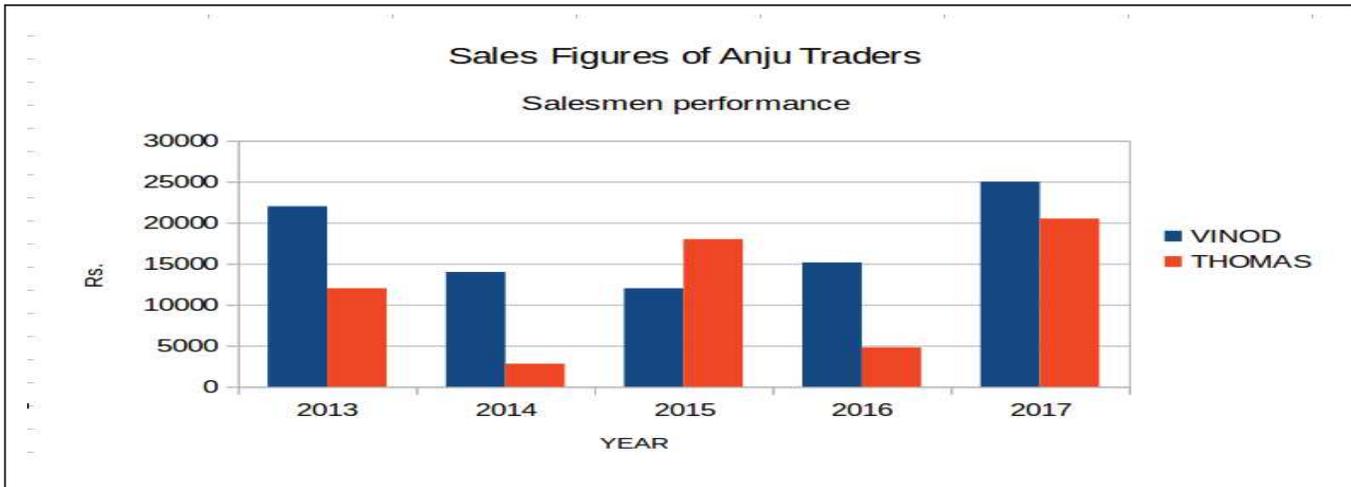
Change the chart type to line chart

Click on the already prepared column chart----Right click-----Select Chart type------Select Line Chart-----Line Only----OK
(**OR** select 'Format'------chart type----line chart)

Output (2):
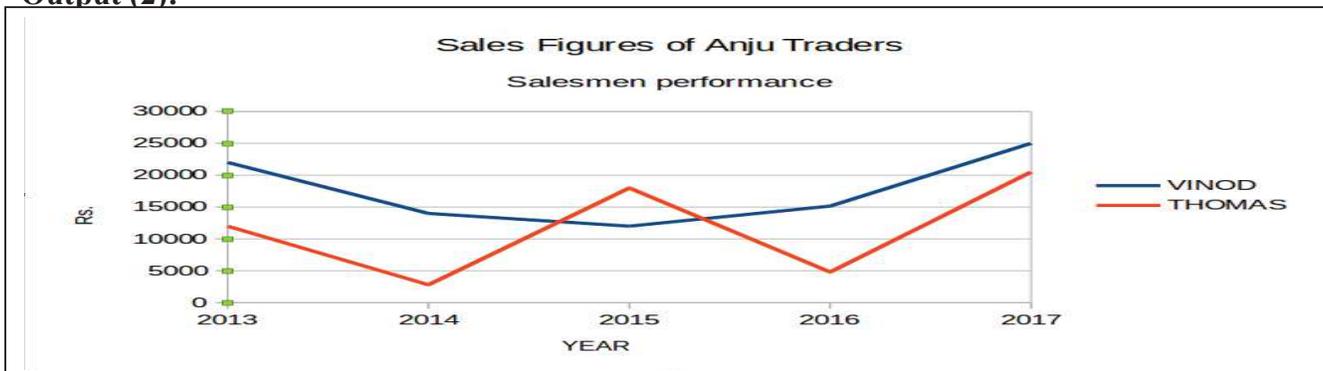
Pie Chart

Q2. Draw a pie chart for the following data on vehicles registered in the Motor Vehicles Department during 2017-18 in Kottayam city.

Vehicle Type	Bus	Trucks	Auto	Cars	Two Wheelers	Heavy Vehicles
No of Vehicles	603	403	11234	8456	25407	89

Procedures:

   Step 1. Open a new worksheet in LibreOffice calc and enter the details given in the question in respective cells.

   Step-2 Chart Creation
Select the range (here it is (**A1:G2**). Then select

 Insert----Chart--------Select a suitable Chart Type (here Pie chart) --------Next

Step-2 Data Range-----Next------Data Series-----Next------Data

Step-3 Chart Element Designing

Here Enter

Chart Title as- Vehicles **Registered during the year 2017-18**

Subtitle as- **Kottayam city**
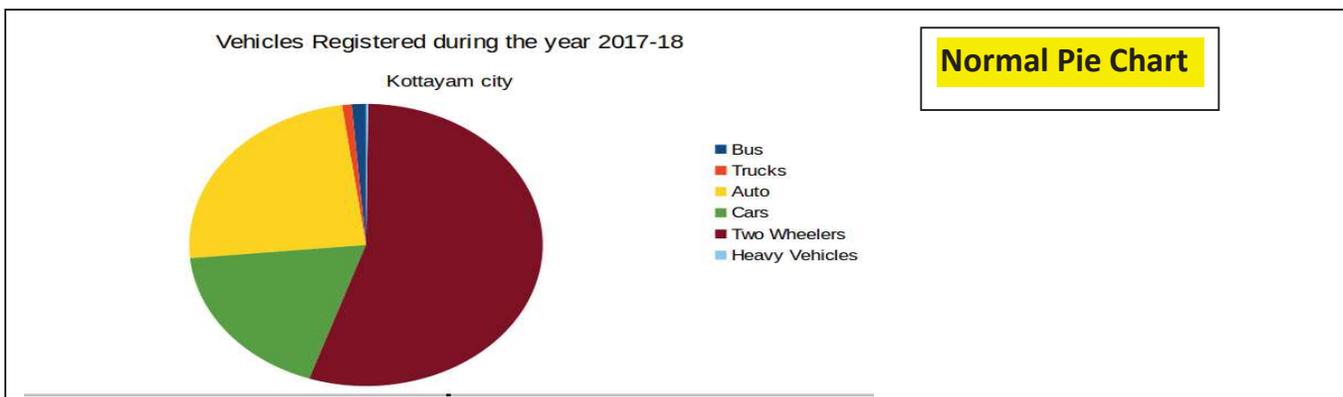
A created chart can be formatted with the help of 'Format' Menu. To format a chart, first **Double Click** the chart so that it is enclosed by gray border (indicating edit mode) -------select 'Format' menu-----then select the chart element you want to format.

To change chart area background	**Format----Chart area**
To change chart type	**Format----Chart Type**
To chart graphics background	**Format----Chart Wall**

Usage of different types of chart-An Analysis

Line Chart	This type of chart is normally used for explaining trends over periods
Area Chart	Area charts are very similar to line charts, but the former ones have solid plot lines. Area charts are ideal for displaying trends over a period for single or several categories, or the change between several data groups.
Radar Chart	Spider and radar charts are also known as web charts, star charts or polar charts. If you have a large set of different data groups, using spider and radar charts are better than column ones.
Pie Chart	Pie charts are generally used to display data as a percentage of the total
Column Chart	Column charts are a good way to show change over time because it's easy to compare column lengths.
Bar Chart	Bar charts are excellent for charting multiple values over extended durations

Chapter-5

Accounting Software Package- GNUKhata

(Focused Area Only)

Focused Area- Chapter-5
1. **Creation of Organization**
2. **Ledger Creation**
3. **Voucher Entry**

Accounting software is a computer program that assists bookkeepers and accountants in recording and reporting a firm's financial transactions. There are number of accounting software packages available in the market like GNU Khata,SAP,Tata Ex,Peachtree,Dac Easy,Fesh books, Quick books,Tally,Wave,etc.Selection of the software depends primarily on the need, use and type of business organizations.

There are two types of softwares-Proprietory software and free and open software.

1. **Proprietary Software**: - Users have to pay for proprietary software and cannot make any change in the same. **Tally** is an example for proprietary software.
2. **Free and Open Source Software (FOSS):-** They are free software. They can be legally downloaded and copied without having to pay anything to anyone. Also, we can make changes in (FOSS). GNU Khata is an example for FOSS.

GNU Khata

GNU Khata is free and open source software for accounting and inventory management.GNU Khata was developed by Digital Freedom Foundation, a public charitable trust.

Features of GNU Khata

1. It is accounting software based on double entry book keeping.
2. It is a free and open source accounting software.
3. It is complete accounting software- we can prepare ledgers, Trial Balance, P & L Account, Bank Reconciliation Statement, Balance Sheet etc.
4. Export and import data from spreadsheet is possible.
5. Password security and data audit facility is available in GNU Khata.

Starting GNU Khata

Step-1-**Open GNU Khata**

Application----Office-----GNU Khata or Click the GNU Khata icon from the desktop

Step-2 **Create Organisation**

To create organization click "Create Organisation" .While creating an organization the following details are to be given.

Organisation Name-   ALtd

Case- Upper Case (option to select Upper case, lower case, Title case or as-is)

Organization Type-Profit Making

Financial Year-   01-04-2017   To   31-03-2018

Accounts only--------Proceed

To create a new company, select 'Create Organisation'

Step-3 **Create Admin**

User Name-   Type a username here

Password-   Type a password here

Confirm Password- Repeat the password here

Security Question-   For eg. What is your name

Answer to Question-   binoy

Click- Create & Login

Step-3 **Enter organistion details** like Address,telephone numbers etc(**if given**)

Master menu--------Edit organization particulars

Here enter the address and other details of organization and click Save button

Ledger Creation

In GNU Khata there are only **four system generated ledger accounts**.They are Closing stock,Opening stock,Stock at the beginning and P & L Account.We can neither change the name or delete these accounts. We can create more ledger accounts according to our requirements. To solve a question we want to create more ledger accounts. For example "Purchased goods from Mohan Rs.4000", here it is necessary to create two new ledger accounts – "Purchase" and "Mohan". It is also noted that every ledger account should be created under a "**group**", here in our example purchase account is to be created under the group "Direct expenses" (sub group-None) and "Mohan" account is to be created under the group "Current Liabilities" (Sub group- "Sundry Creditors for purchase"). In computerized accounting the duty of an accountant is only to enter daily transactions through appropriate "vouchers". It is known as "voucher entry". Before enter voucher entry, it is essential to create required ledger accounts under suitable groups.Otherwise, voucher entry is not possible.

Groups and Sub-Groups

Group is an effective tool to arrange large number of ledger accounts into suitable places.GNU Kahta has **13** predetermined **Groups** and **16 Sub-Groups**.GNU Khata has 13 predetermined group, of which **9** relates to the **Balance Sheet** and the other **4** relates to the **P & L Account**.

If we created any account under a Balance Sheet group it will display in Balance Sheet and if we created that ledger account under P & L Account group, it will display in P & L Account. So creation of Ledger Account under suitable group is very important.

Predetermined Groups and their sub groups in GNU Khata

Total system generated Groups and Sub-groups-**29 [13 + 16]**

Total Groups -13 [9-Balance Sheet Group + 4-P & L Account Group]

Total sub-groups-16 subgroups ,all are Balance Sheet subgroups.

Balance Sheet Group (9 No's) and their Sub-groups (16 Nos)

Si No	Name of the Group	Name of the Sub-Group
1	**Capital**	None
2	**Current Asset**	Bank,cash,Loans & Advances, Inventory, Sundry Debtors
3	**Current Liability**	Provisions, Sundry Creditors for expenses, Sundry creditors for purchase
4	**Fixed Asset**	Building,furniture,land,plant and machinery
5	**Investment**	Investment in Bank Deposit, Investment in shares and debentures
6	**Loans(Asset)**	None
7	**Loans(Liability)**	Secure, Unsecure
8	**Miscellaneous Expense (Asset)**	None
9	**Reserve**	None

Concept of group and subgroup-Group helps to fix accounts in the required place where it actually need. The place may be Asset side of the Balance sheet, Liability side of the Balance Sheet, Debit side of the Trading Account, Credit side of the Trading Account, Debit side of the P & L Account or credit side of the P & L Account. Sub-group helps to arrange accounts more significantly.(If,no other way,a family can live in a hall,and use it as therir kitchen,dining room,study room and bed room.If separate room available for each purpose it is more covinient.Like wise sub-group helps to arrange accounts in a proper manner. We can add more groups, if we needed.)

P & L Account Groups(4 No's) and their Sub-groups

Si No	Name of the Group	Sub-group
1	**Direct Income**	**None**
2	**Indirect Income**	**None**
3	**Direct Expense**	**None**
4	**Indirect Expense**	**None**

Explanation about Group and Sub-groups

Group	Subgroup
1.Current Assets	The amount invested in current assets like debtors, bills receivable, stock, bank etc are included in this group. By default there are six subgroups for current assets. They are: **1. Bank**-eg,Opened a bank account with SBI,here SBI created under the group" currenet asset" ,Sub-group" Bank" . **2. Cash**-eg,Started business with cash Rs.5,00,000,here "cash Account " is created under the group "Current Asset" ,Sub-group" Cash" . **3. Inventory**-Closing stock and stock at the beginning are opened under this sub group. **4. Loans and Advance**-Prepaid expenses,accounts of temporary advances and loans given to staff members are opened under this sub-group. **5. Sundry Debtors**-Accounts of debtors, for eg,Sold goods to Biju on credit Rs.4000,here "Biju Account" is created under the group "current asset" and sub-group "Sundry Debtors" .
2.Fixed Asset	**1.Building,2. Furniture 3. Land 4.Plant & Machinery .**Accounts of all fixed assets like Land and Building, Plant and Machinery, Furniture, Machinery, Motor car etc are recorded under this group. For eg.Purchased machinery for cash Rs.10,000,here machinery account created under the group "Fixed Asset" .
3.Investment	It includes accounts of investments made by organistions.There are two predefined sub groups. They are: 1.**Investment in bank deposits** 2.**Investment in shares and Debentures**
4.Loans Assets	All long term loans issued by the organization come under this group.
5.Miscellaneous Expenses (Assets)	This includes Preliminary and pre operative expenses to the extent these are not written off.
6. Capital	Owners Capital Account, for eg,Started business with cash Rs.5,00,000,here two accounts are to be created ," Cash "and "Capital" .In this" capital account" is created under the group" capital" . **Drawings account** is also created under this group.
7.Current Liability	Liabilities for short period (Creditors, salary payable, TDS payable) are recorded under this group. By default there are three subgroups for current Liability. They are: 1.**Provisions-**Accounts of PF,ESI,TDS payable etc 2**. Sundry Creditors for Expenses**- Outstanding expenses like salary payable, commission payable etc. 3.**Sundry creditors for purchases**-Eg. Purchases goods from Mohan,here "Mohan Account" created under the group "Current Liabilities" and sub group "Sundry creditors for purchases" .
8.Loans (Liability)	This contains loans taken by the organization from banks and other financial institution. For eg: Loan taken from Federal Bank for Rs.2,00,000,here "Loan-Federal Bank" account created under the group" Loans(Liability" and Sub Group "Secured Loan" (if it is secured one). By default there are two subgroups for current assets. They are: 1. **Secured Loan**- Contains accounts of loan taken against the security of property. 2**. Unsecured Loan**- Contains accounts of loan taken without any security, say, Loan from partners, directors etc.
9.Reserves	This contains retained earnings,reserves and surplus.
10.Direct	Expenses relating to purchase or manufacture of goods are created under this

Expenses	group.Puchase,wages,carriage inwards,factory lighting and heating etc are included in the group.Purchased goods for Rs.8000,here "Purchase Account" to be created under the group "Direct Expenses" .Wages paid Rs.500,here "wages account" to be created under the group "Direct Expenses" .Bydefault in GNU Khata" Opening Stock Account" created under the group "Direct Expense" .(All Trading Account debit side items are recorded here).In GNU Khata 'sales returns' account is createded under this group.
11.Direct Income	Income from operative activities like sale of goods,professional fees in case of service organization like Chartered accountants,Advocates etc.Eg .Sold goods to Thomas,here "sales Account" is created under the group "Direct Income" .Byt default,in GNU Khata,opens "Profit and loss account" under this group.**Purchase Return** Account is created under this group
12.Indirect Expense	All office, administration,selling and distribution expenses such as salary, telephone expenses, discount allowed, commission paid,rent,depreciation,bad debts, trade expenses etc are recorded under this group. For eg, Salary paid Rs.1000,here salary account is created under "Indirect expenses" group.(All P & L Account debit side items recorded under this group)
13.indirect Income	It includes items like discount recived,rent recived,interest received,dividend received etc.For eg,Interest received Rs.4500,here "interest received account" is created under the group "indirect income" .

Step-4 Creating Ledger Accounts

Master Menu--------Create Account

Eg.Purchased building for Rs.8,00,000.In this transaction two accounts are to be created-Building Account and Cash account.Building is a fixed asset and it shoul be shown on the asset side of the Balance sheet.For this building account is to be created under a Balance sheet group.In Balance sheet group most suitable one is "Fixed Asset" group and most suitable Sub-group is "Building" .The second account "Cash" is to be created under the Group "Current asset" and sub group is "Cash" .

A ledger account is a place where all transactions relating to a particular item is recorded .For example all "goods" purchases are recorded in "Purchase Account" ,all "furniture" purchases are recorded in "Furniture Account" etc.All accounts have to be created under any(depends up on the nature of accounts) of the above said 13 groups.Depending upon the" group " under which a "ledger" is created,the balance of that ledger account will appear either in Balance Sheet or Profit and Loss Account.For example in GNU Khata "Purchase Account" is to be created under the P & L Account group "Direct Expense" .If it is so created,it will show in the debit side of the Trading profit and loss account. If it is wrongly created under the group "Fixed

Asset",it will show in the Asset side of the Balance Sheet.So ledger account creation under proper group is an important matter.

Predetermined (System Generated) ledger accounts in GNU Khata

In GNU Khata there are 4 system generated ledger accounts.We can neither change the name or delete these accounts.They are

Name of the Account	Name of the Group	Name of the sub-Group
1.Closing Stock	Current Asset	Inventory
2.Opening Stock	Direct Expense	None
3.Stock at the beginning	Current Asset	Inventory
4.P& L Account(In profit making organization) **Or** Income and Expenditure Account(In not for profit organization)	Direct Income	None

Step-4 **Voucher Entry**

Voucher------Select appropriate voucher-------Enter details

In computerized accounting transactions are recorded through vouchers. Recording transactions through vouchers are called voucher entry.Voucher entries are made on the basis of concerned source documents (bill/invoice, pay in slip etc).While recording a transaction through the vouchers ,we have to enter the voucher no,date,amount to be debited and credited,narration etc.In GNU Khata there 10 system generated voucher entries.We cannot create a new voucher type.

Voucher Type	Used to Record	Shortcut Key
Receipts	To record transactions of all cash receipts or receipts through cheque. Eg.Cash received from Soman Rs.500 Eg.Raman,a customer directly deposited into our bank account Rs.400 Eg.Cheque received from Thomas and the same deposited into bank Rs.30,000.	F4
Payments	All payments made by cash or cheque Eg.Salary paid Rs.3000 Eg.Furniture purchased and payment made by SBI cheque Rs.70,000	F5
Sale	All cash and credit sales of goods Eg.Sold goods for cash Rs.500 Eg.Sold goods to Ismail Rs.470	F6
Purchase	Cash and credit purchase of goods and raw materials Eg.Purchased goods for cash Rs.80-0 Eg.Purchased goods from Mohan Traders on credit Rs.600	F7

Contra	To record contra entries-Deposit or withdrawals of cash from bank ,transfer of funds from one bank to another,transfer of cash to petty cash account etc. Eg.Cash depositrd into Union Bank Rs.4000 Eg.Cas withdrawn from Federal Bank for office use Rs.5000 Eg.Transfer fund from Federal bank to Union Bank Rs.30,000	F8
Journal	Like journal proper-to record adjustment entries, rectification entries,purchase of fixed assets on credit etc Eg.Salary outstanding Rs.300 Eg.Purchased machinery on credit from Usha traders Rs.80,000	F9
Sales return	To record return of goods by a customer Eg.Goods returned by Ismail Rs50	Ctrl+1
Purchase Return	To record return of goods to supplier Eg.Goods returned toohan Traders Rs.40	Ctrl+2
Credit Note	It is used to record reduction in the amount due from a customer or for allowances (A credit note is a letter sent by the supplier to the customer notifying the customer that he or she has been credited a certain amount due to an error in the original invoice or other reasons.)	Ctrl+3
Debit Note	It is used to record reduction in the amount payable to a supplier or for allowances.(A **debit note** is a document **used** by a vendor to inform the buyer of current debt obligations, or a document created by a buyer when returning goods received on credit.)	Ctrl+4

 Treatment of some special items- **Opening stock** and **closing stock**

1. Treatment of 'Opening stock Account'

Unsold goods at the beginning of an accounting year is called opening stock. It is a system generated ledger account. It is created under the P & L Account group 'Direct Expenses'. So opening stock accounts balance will reflect in the debit side of the P &L Account (Trading Profit and Loss Account).

If the accounts of business are computerized for the first time, the amount of opening stock can be inserted through the following steps:-

Step-1 Edit 'Stock at the Beginning Account' --------click on Edit-------------Enter Openning balance.

Step-2 Select 'Journal' Voucher-------enter voucher No. and 'opening date' --------Debit Opening Stock and credit 'Stock at the Beginning'.

2.Treatment of '**Closing Stock Account**'

Unsold goods at the end of an accounting year is called 'Closing stock'.It is current asset.It is also a system generated account under the group 'current assets' and subgroup 'Inventory'.So it will reflect in the asset side of the Balance Sheet.Closing stock will also reflect in the credit side of the Trading Profit and Loss Account.It is possible through a separate account-

'Profit and Loss Account'.In GNU Khata there is a system generated account 'Profit and Loss Accout' under the group' Direct Income'

Enter the closing stock balance through voucher entry-Journal voucher

Step-1 Open Journal voucher-------Enter voucher number and closing date-------Debit 'Closing Stock Account' and credit 'Profit and Loss Account' .

Report Menu

From the Report Menu,we will enable to view reports such as Ledger,Trial Balance,Balance Sheet,Profit and Loss Account etc

Q.Following are the transactions extracted from the book of Kappil Agencies, Kalayanthani as on 31-12-2017

1-1-17 Commenced business with cash Rs.5,00,000

1-1-17 Opened bank account with SBI Rs.1,00,000

2-1-17 Purchased goods from Manju Traders Rs.30,000

3-1-17 Purchased Machinery Rs.20,000

5-1-17 Sold goods to Jaimon Rs.2300

6-1-17 Returned goods to Manju traders Rs.3,00

7-1-17 Returned goods by Jaimon Rs.200

8-1-17 Purchased Machinery from A Ltd Rs.10,000

9-1-17 cash sales Rs.3000

10-1-17 Cash purchase Rs.2000

11-1-17 Wages paid Rs.3000

12-1-17 Rent paid Rs.2000

13-1-17 purchased goods and paid by cheque Rs.3000

14-1-17 withdraw cash from bank for office use Rs.1000

1.Display Trial balance

2.Show the cash balance

3.Display the list of transactions by using 'Find/edit voucher'

Solution:

Step-1 Open GNU Khata

Application-----office------GNU Khata

Step-2 Crete the organistion'Kappil agencies' with necessary details

Menu Bar-------Create Organisation

Organisation Name-   Kappil agencies

Case- As-is (option to select Upper case, lower case, Title case or as-is)

Organization Type-Profit Making

Financial Year-   01-01-2017   To   31-12-2017

Accounts only--------Proceed

Step-3 Create Admin

Enter details

Step-4 Create Ledger Accounts

Analyse the transactions,list out ledger accounts to be created and assign appropriate Account Groups for them

Master-----Create account-----Select Group-----Sub Group------Enter Account Name-----Save

Date	Dr/ Cr	Account Name	Group Name	Sub Group Name	Voucher Type	Func tion Key
1-1-17	Dr Cr	Cash Capital	Current asset Capital	Cash None	Recipt	F4
1-1-17	Dr Cr	Sbi Cash	Current asset -----	Bank -----	Contra	F8
2-1-17	Dr Cr	Purchase Manju Traders	Direct Expense Current liability	None Sundry creditors for purchase	Purchase	F7
		Already created, no need to create that account again				
3-1-17	Dr Cr	Machinery Cash	Fixed asset ------	Plant and machinery ------	Payment	F5
5-1-17	Dr Cr	Jaimon Sales	Current asset Direct income	Sundry debtors None	Sales	F6
6-1-17	Dr Cr	Manju Traders Purchase return	------- Direct Income	------ None	Purchase Return	Ctrl + 2

7-1-17	Dr	Sales return	Direct expense	None	Sales	Ctrl
	Cr	Jaimon	-------	-------	Return	+ 1
8-1-17	Dr	Machinery	-----	-------	Journal	F9
	Cr	A Ltd	Current liability	**Sundry creditors for fixed asset**		
9-1-17	Dr	Cash	-------	-------	Sales	F6
	Cr	Sales	-------	-------		
10-1-17	Dr	Purchase	-------	-------	Purchase	F7
	Cr	Cash	-------	-------		
11-1-17	Dr	Wages	Direct expense	None	Payment	F5
	Cr	Cash	-------	------		
12-1-17	Dr	Rent	Indirect expense	None	Payment	F5
	Cr	Cash	------	------		
13-1-17	Dr	Purchase	------	------	Payment	F5
	Cr	Sbi	------	------		
14-1-17	Dr	Cash	-----	------	Contra	F8
	Cr	Sbi	-----	------		

In row 8-1-17, "Create new sub group" label with arrow pointing to the Current liability cell.

Step-5 Voucher Entry: Voucher--------Select Appropriate Vouchers-------Enter details(Voucher number,date,Debit item, Debit amount, credit itrem,credit amount)------Save

Output:1. **Display Trial balance**

Report------Trial Balance (From 1-1-17 To 31-12-17)

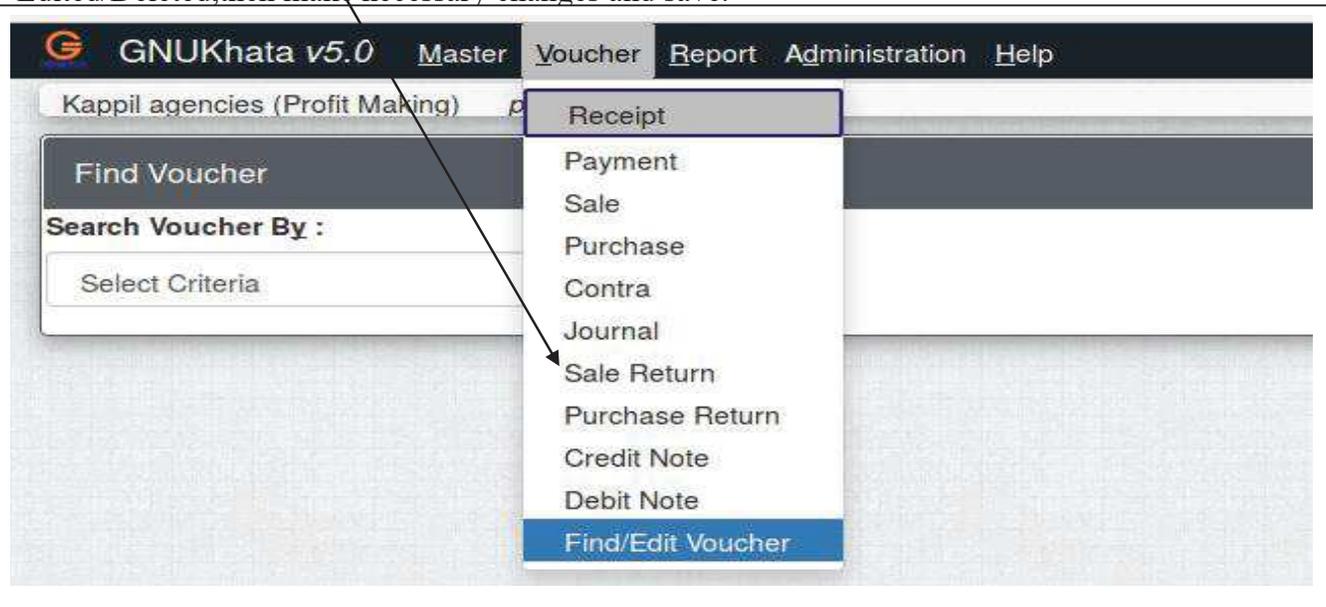| 8 | purchase | 35000.00 | | Direct Expense |
9	purchase return		300.00	Direct Income
10	sales		5300.00	Direct Income
11	sales return	200.00		Direct Expense
12	sbi	96000.00		Current Assets
13	wages	3000.00		Direct Expense
	Total	545300.00	545300.00	

2. Show the cash balance

Report------Ledger-----Select Cash Account------Remove the tick mark 'Monthly Ledger' (give the closing date as 31-01-2017)------View

View Ledger

Account Name :*
cash

☐ Monthly Ledger
From Date :
01 | 01 | 2017

To Date :
31 | 01 | 2017

☐ Narration

👁 View | ↻ Reset

Cash book balance as on 31-01-2017

Date	V. No.	Status	Type	Particulars	Debit	Credit	Balance
01-01-2017	1		Receipt	capital	500000.00		500000.00(Dr)
01-01-2017	1		Contra	sbi		100000.00	400000.00(Dr)
03-01-2017	1		Payment	machinery		20000.00	380000.00(Dr)
09-01-2017	2		Sales	sales	3000.00		383000.00(Dr)
10-01-2017	2		Purchase	purchase		2000.00	381000.00(Dr)
11-01-2017	2		Payment	wages		3000.00	378000.00(Dr)
12-01-2017	3		Payment	Rent		2000.00	376000.00(Dr)
14-01-2017	2		Contra	sbi	1000.00		377000.00(Dr)
				Total of Transactions	504000.00	127000.00	
31-01-2017				Closing Balance C/F		377000.00	
				Grand Total	504000.00	504000.00	

3. Display the list of transactions by using＇ Find/edit voucher＇

Voucher--------Find/Edit Voucher---Here we can search already created voucher on the basis of Number, Time, Type etc to edit or delete-----Search---double click on the required voucher to be Edited/Deleted,then make necessary changes and save.

GNUKhata v5.0   Master   Voucher   Report   Administration   Help

Kappil agencies (Profit Making)

Find Voucher

Search Voucher By :

Select Criteria

Receipt
Payment
Sale
Purchase
Contra
Journal
Sale Return
Purchase Return
Credit Note
Debit Note
Find/Edit Voucher

Q-Cash Book Preparation

Title: Voucher Entry, Ascertain Cash balance (by preparing cash book)

Q.The various transactions relating to Modern Pharma for the month of January 2018 is given below. Ascertain the cash balance for the month using an accounting software.

Jan-1 Started Business with cash Rs.60,000

Jan-1 Purchased office furniture Rs.4500

Jan-1 Cash purchases Rs.20,000

Jan 1 Credit sales to Anu Rs.40,000

Jan 2 Salary to staff Rs.10,000

Jan 2 Received from Anu Rs.18,000

Procedure:

Step-1 Open GNU Khata

Application-----office------GNU Khata

Step-2 Create company/ organisation

Crete the organistion' Anna Traders' with necessary details

Menu Bar-------**Create Organisation**

Organisation Name-   **Modern Pharma**

Case- **As-is**

Organization Type-**Profit Making**

Financial Year-   **01-01-2018   To   31-12-2018**

Accounts only--------Proceed

Step-3 Create Admin with necessary details

Step-4 Create Ledger Accounts(without opening balance)

Master-----Create account-----Select Group-----Sub Group------Enter Account Name-----Save

Name of the Account	Group	Sub-group
Cash	Current Asset	Cash
Capital	Capital	None
Furniture	Fixed Asset	Furniture
Purchase	Direct Expense	None
Sales	Direct Income	None
Anu	Current Asset	Sundry Debtors
Salary	Indirect expense	None

Step-5 Enter transactions to the system through voucher entry

Voucher-----Select appropriate Voucher----Enter details

Date	Dr/Cr	Account Name	Amount	Voucher Type	Function Key
1-1-18	Dr	Cash	60,000	Receipt	F4
	Cr	Capital	60,000		
1-1-18	Dr	Furniture	4,500	Payment	F5
	Cr	Cash	4,500		
1-1-18	Dr	Purchase	20,000	Purchase	F7
	Cr	Cash	20,000		
1-1-18	Dr	Anu	40,000	Sales	F6
	Cr	Sales	40,000		
2-1-18	Dr	salary	10,000	Payment	F5
	Cr	Cash	10,000		
2-1-18	Dr	Cash	18,000	Receipt	F4
	Cr	Anu	18,000		

Out Put: **Show cash account balance (2,90,000 debit balance)**

To display cash balance ----Report-----Ledger ----Cash----Uncheck monthly ledger----View

Date	V. No.	Status	Type	Particulars	Debit	Credit	Balance
MODERN PHARMA (Profit Making) a (Admin)							Financial Year : 01-01-2018 to 31-12-2018
				Ledger Account : **cash**			Period : 01-01-2018 to 31-12-2018
01-01-2018	1		Receipt	capital	60000.00		60000.00(Dr)
01-01-2018	1		Payment	Furniture		4500.00	55500.00(Dr)
01-01-2018	1		Purchase	Purchase		20000.00	35500.00(Dr)
02-01-2018	2		Payment	salary		10000.00	25500.00(Dr)
02-01-2018	2		Receipt	Anu	18000.00		43500.00(Dr)
				Total of Transactions	78000.00	34500.00	
31-12-2018	_			Closing Balance C/F		43500.00	
				Grand Total	78000.00	78000.00	

****

Chapter-6

Database management System

(Focused Area Only)

Database

A database is a systematic collection of data. It is a collection of data that is organized so that its contents can easily be accessed, managed and updated.

For example, Kerala University database might contain information about entities such as students, teachers, courses; colleges etc.Phone book, telephone book etc are also example for database.

We want to manage these data base for storing, modifying and retrieving information. For this firms use Database Management System (DBMS) to manage Database.

Database Management System (DBMS)

Database Management System (DBMS) is software that enables users to create and maintain a database. DBMS helps in collection of data, their storing, manipulation, retrieval etc. **MS Access, Oracle, LibreOffice Base, SQL Server** etc examples of DBMS software's.

Components of DBMS

Database Management system consists of Data, hardware, software and users.

1. **Data**: Data means facts. It is the raw material for information i.e processed data are called information.
2. **Hardware**: Hardware consists of input/output devices, memory, processors etc.
3. **Software**: It operates the hardware and interacts with users. With the help of hardware we store data into hard disk, update it, edit it and retrieve it.
4. **Users**: Users are the persons who seek the information from the database.

LibreOffice Base

It is one of the popularly used Database Management System (DBMS) to create, store and manage database. The default extension of LibreOffice Base files is**.odb**.

Terms in DBMS/LibreOffice Base

1. **Data**: Data means facts. It is the raw materials for information. It may be a number,name,mark etc.

2. **Table:** Tables are used to store data in a database. It is the combination of Field and Record (columns and rows). A column of the table in Access is called field. Row of a table in Access is called record. A table is a collection of data about a specific topic.Table helps in organizing data in a structured manner on the basis of data types.

Field Names

Students Table

Contents in each column, small piece of information

SI No	Admission No	Name	Sex	DOB	Place	Class	Ph .No
1	5678	Lalu	M	14-11-2004	Kalayanthani	9	5678905623
2	5679	Chris	M	08-01-2004	Karikkodu	9	3467892343
3	5680	Maria	F	02-01-2004	Thodupuzha	9	5678543423
4	5681	Anna	F	12-11-2004	Pala	9	4453564523

← **Field**

← **Record**

Contents in each row, all information about a particular item.

Field: A **column** (its value) in LibreOffice Base Table is called **Field**. Individual data with similar features is put in a single field (Admission numbers of students, names of students etc). It is a small piece of information. Each column represents data having same characteristics. E.g. In an employee table, there may be different fields like Employee ID,EmployeeName, Designation etc

3. **Record/Tuple:** A **row** (its value) in LibreOffice Base is called **Record.** A record contains all information about one person or item. Eg.(In the above Student Table) Full information about a student-Si No-1,admission no-5678,Lalu,M,14-11-2004,Kalayanthani,9,5678905623 etc
(For example-description about a customer like George,70 years,05-01-1947,male,9567856894)

4. **Entity**: Anything in the real world with independent existence is called an entity. Entity may be a thing like **car**, **person (**in our example **Student)**,a concept like **account**, **place**, **unit**, **object** or any item about which the data should be captured and stored in the form of properties like tables. Entity is the key element in all relational databases.

5. **Weak Entity**: A weak entity is one that can only exist when owned by another one. For example: The scope for a **Room** exists only if there is a **Building**. On the other hand, a TYRE might be considered as a strong entity because it also can exist without being attached to a CAR. Another example is bank account of a particular bank has no existence if the bank doesn't exist anymore.

6. **Attributes:-**These are additional characteristics that further describe an enity.Eg. Height,Weight,Date of birth etc of a person. Another example emp id,emp name,emp sex etc.The columns or fields of a relation(Table) are called attributes.

Tuple means row (one row) whereas attribute means column.
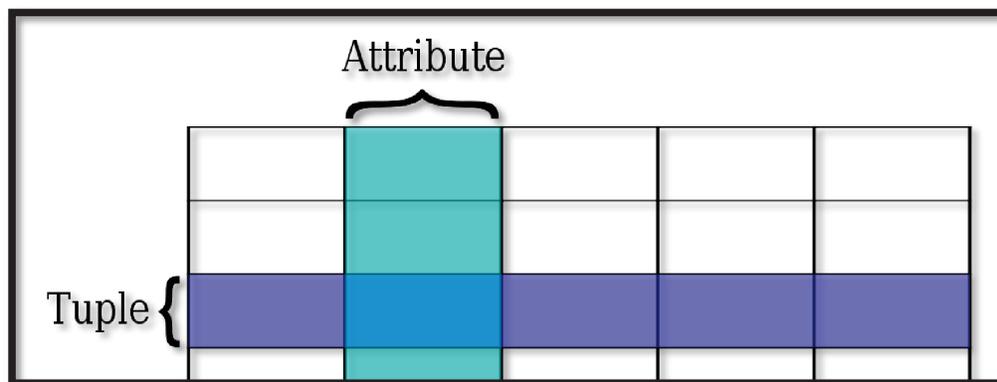
Symbols to represent different types of entities, attributes etc

The following symbols are used to represent different types of entities, attributes, identifiers and relationships.

A person may have various skills like-Scholar,singer,dancer,cicket player etc
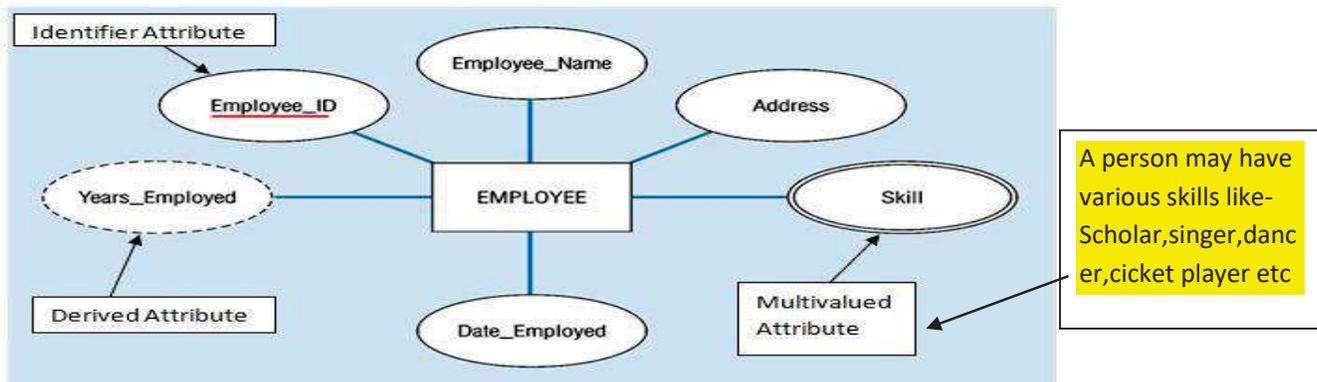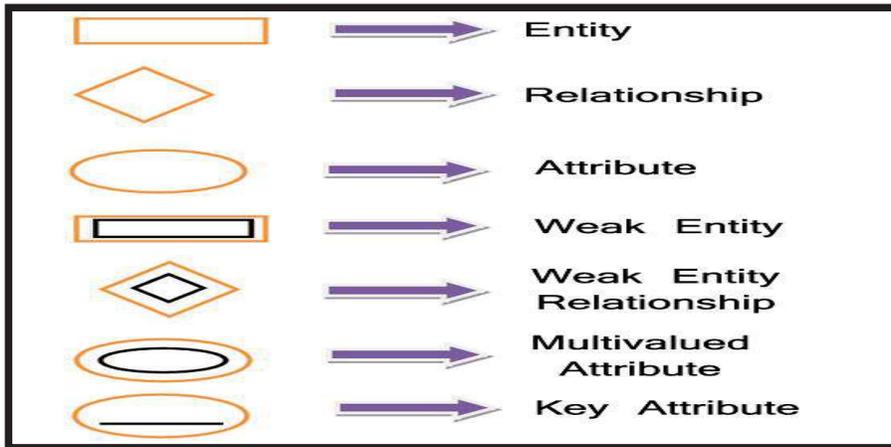
7. **Primary key:** A primary key is a special column of a table designated to uniquely identify all table records (Items in the row).
   Main features of Primary Key are:
   a) It must contain a unique value for each row of data.
   b) It cannot contain null values.
   c) If we assign a column as primary key, items in it cannot be repeated.
       In order to manage the data, we distribute the data in many tables.The main table is known as master (Parent) table and the lower level table in which related data is stored is the transaction (Child) table.The master table and child table is related and must be linked based on a field which is common.This common key field in the master table is known as Primary key and the linked field in the child table is known as foreign key.
   <u>Steps to set primary key</u>
   To select a particular field(For eg EMP ID)as primary key right click on the row sector of that field(EMP ID)and select the "Primary Key" from the drop down menu. A key symbol will appear next to selected field.

8. **Foreign key:**
   In relational databases, a foreign key is a field in one table that uniquely identifies a row of other table .In simpler words, the foreign key is defined in a second table, but it refers to the primary key or a unique key in the first table. It defining the relationship between two tables.
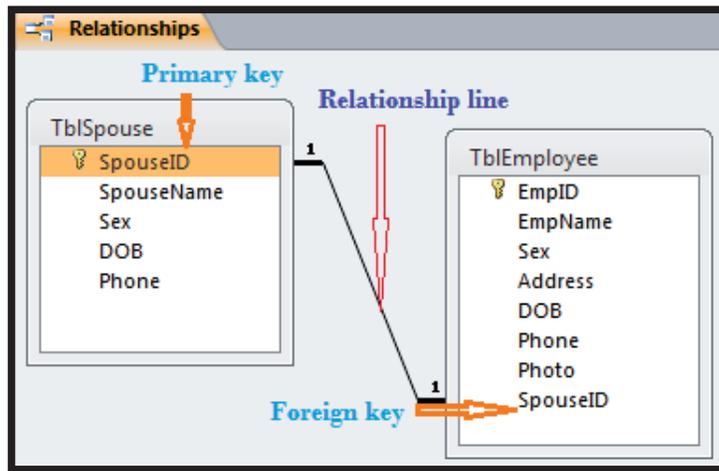
9. Query

A Query is an enquiry sent to a database to get some data, to calculate result or to bring together data from different Tables. Queries help to **retrieve** data on the basis of certain criteria. It is used to manipulate database content. There are three methods for creating queries in LibreOffice:

Data Types: Data type define the particular characteristic of data that we intend to store in table.LibreOffice Base supports different data types, Some useful data types are :

1. **Text [VARCHAR]:** It is used to store words or numbers that are not to be used in any arithmetic calculations.

There are different text data types such as

2. **Memo [**LONGVARCHAR**]:** A Memo field can be used for storing large amounts alphanumeric information. Some typical uses for this data type would be a note, comments, description, or address field.

Number : It is meant to store numbers.

Date : Used to store date into Database table.

Time : It is used to store time only.

Date/Time : It is used to store combination of both.

Currency : It is used for storing numbers in terms of Dollars, Rupees or other Currencies.

Yes/No : It is to declare a logical field which may have only one of the two opposite values alternatively given as: Yes or No, On or Off, True or False.

Example for field type	
FIELD NAME	**FIELD/DATA TYPE**
EMP ID	Text[VARCHAR]
EMP NAME	Text[VARCHAR]
EMP DESIGNATION	Text[VARCHAR]
EMP DESIG ID	Text[VARCHAR]
EMP EDUCATION	Text[VARCHAR]
EMP SEX	Text[VARCHAR]
EMP DOB	Date[DATE]

EMP SALARY	Number[NUMERIC]
EMP BP	Number[NUMERIC]
EMP DA	Number[NUMERIC]
EMP HRA	Number[NUMERIC]
EMP Ph No	Text[VARCHAR]

Forms: In order to use databases, the user must be provided with an interface that allows to input, view and edit data based on certain criteria. Form is a front end interface for data entry and edting.Through a Form user can add new data to the table, delete or edit an existing data. It helps to minimizing errors in data entry.

Report

A Report is used to present a selected set of contents from the database in a format that is easily readable. Reports are useful to present and summarize data from the tables or queries. Normally they are created to be printed out, but they can be seen on screen or exported to other programs.

Steps in the process of design a database

1. Determine the purpose of your database.
2. Find and organize the information required. Gather all types of information you might want to record in the database.
3. Divide the information into tables:-Divide your information into major entities/subjects. Each subject then becomes a table.
4. Divide information's in a table into columns:- Each item in a table becomes a field ,and is displayed as a column in the table.
5. Specify the primary key:- Primary key is a column that is used to uniquely(distinctively) identify each row.
6. Set up the table relationship:-Look at each table and decide how the data in one table is related to the data in other tables.

**Q1**.Enter the following in a LibreOffice Base Table with the file name Emp_details

EMP ID	EMP NAME	EMP SEX	EMP BASIC PAY
1001	Akash	M	40000
1002	Anvar	M	80000
1003	Anish	M	90000
1004	NIjo	M	30000
1005	Tomy	M	10000
1006	Neeraj	M	68000

a) Display the name of employees drawing Basic Pay greater than or equal to 75,000
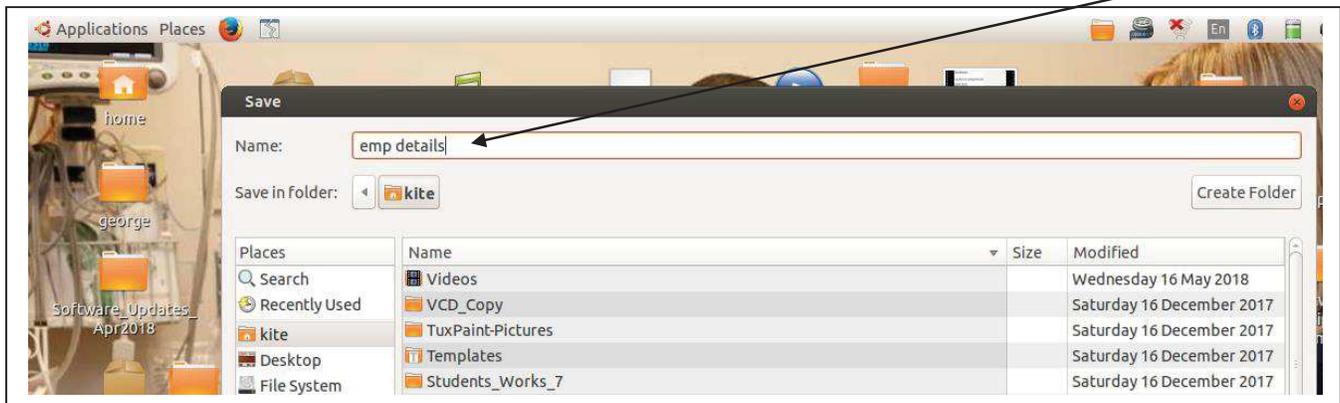b) Name of employees beginning with "A"

Procedure:

Step-1(Create and name the database)

Application---Office----LibreOffice Base------Create a new Database-----Next--------Finish
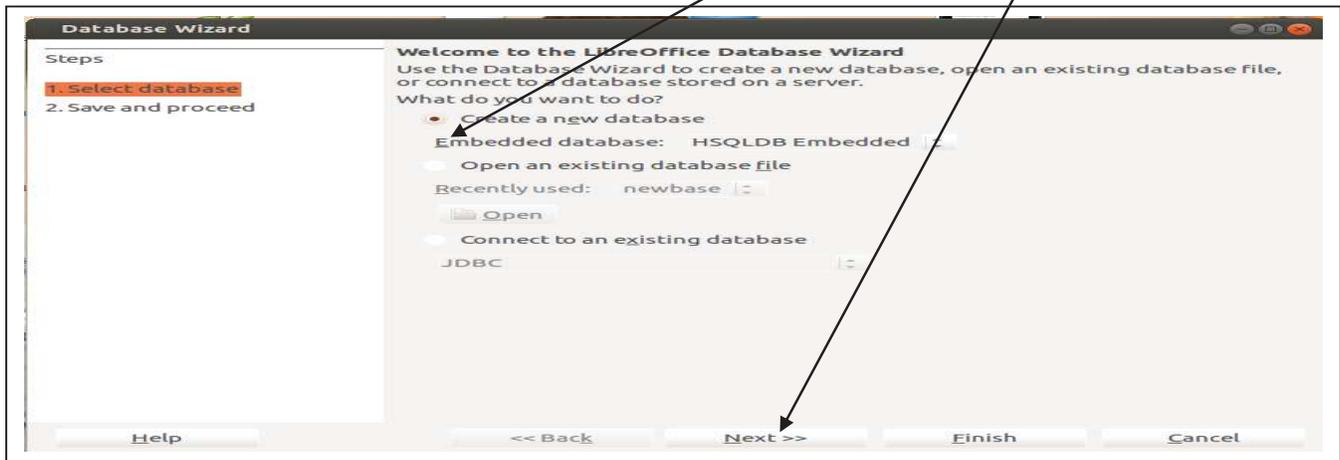
Save the Database with a suitable name (Here we can save the database with the name Emp details)


Step-2(Create and name the Table)

Select "**Create table in design view**"------Enter the field name and appropriate Field Type

Field Name	Field Type
EMP ID	TEXT(VARCHAR)
EMP NAME	TEXT(VARCHAR)
EMP SEX	TEXT(VARCHAR)
EMP BASIC PAY	Number(Numeric)

Step-3(Set Primary Key)

To set EMP ID as Primary Key right click on the row sector of the EMP ID and select the "Primary Key" from the drop down menu.
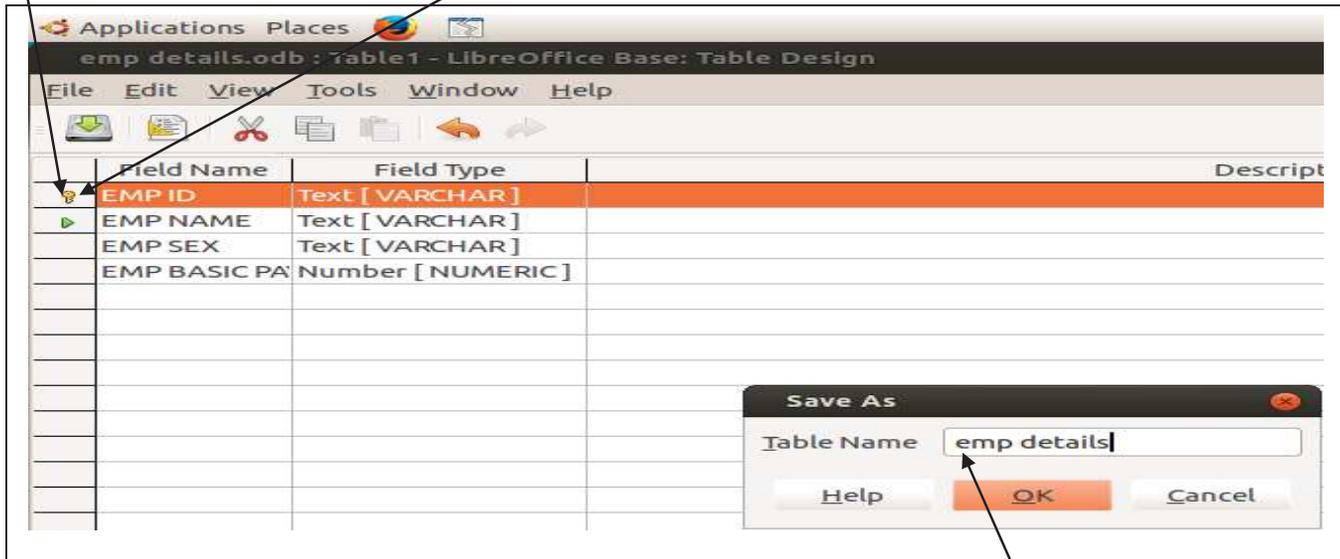
Step-4(Save the table by giving suitable name)

Click on the save Button to save the Tale.In Save as dialog box enter Table emp details as Table name and click OK button.Then Close the screen by click (X)

### Step-5 (Enter data in the newly created Table)

Double click on the newly created table"Table Emp Details"to open and enter data.Then enter the details of all students in the table as given in the question.Then close the window(X).Click 'Yes' to the question "Do you want to save the changes?"

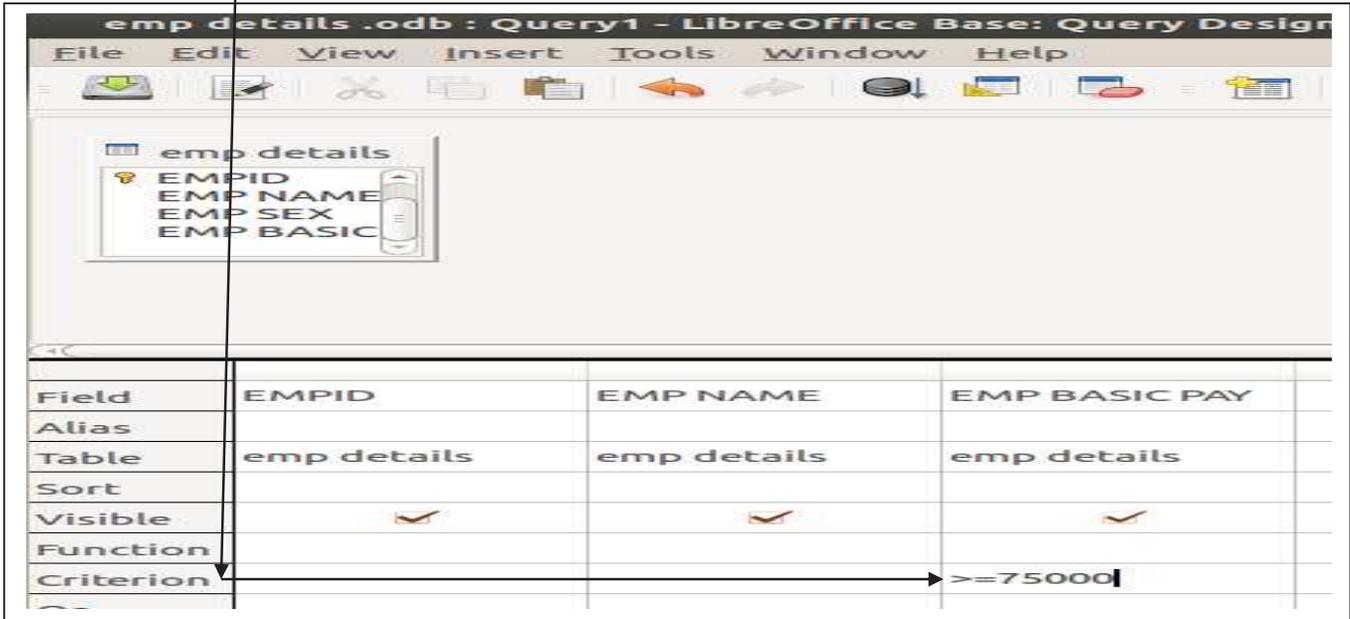## Step-6(Design query to get the name of employees whose basic pay >=75000)

Select the icon queries and select "create query in design view"-----select "Table emp details"----add---close----double click in the required field(emp id,emp name,emp bp)
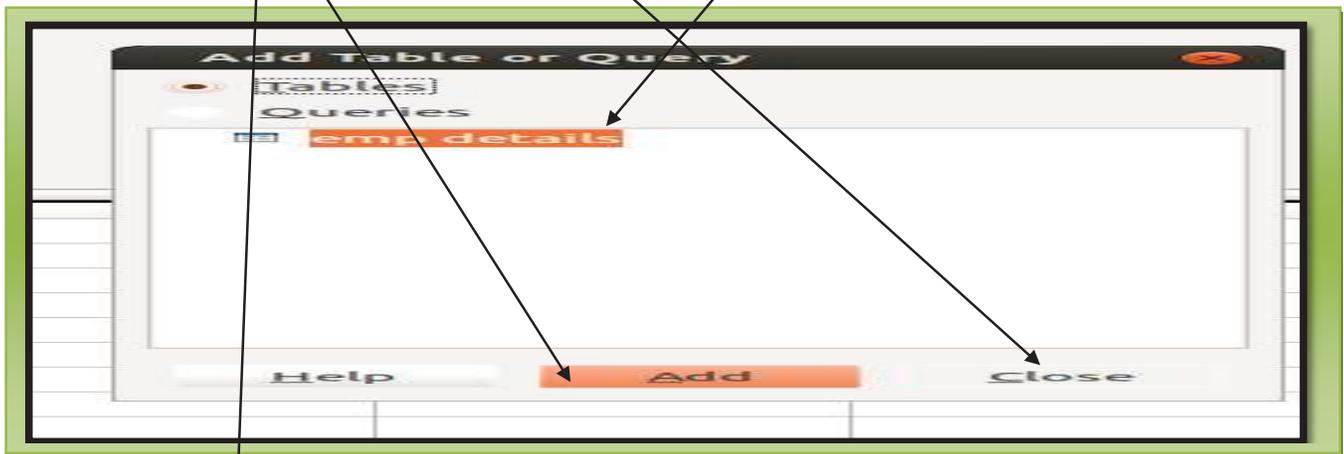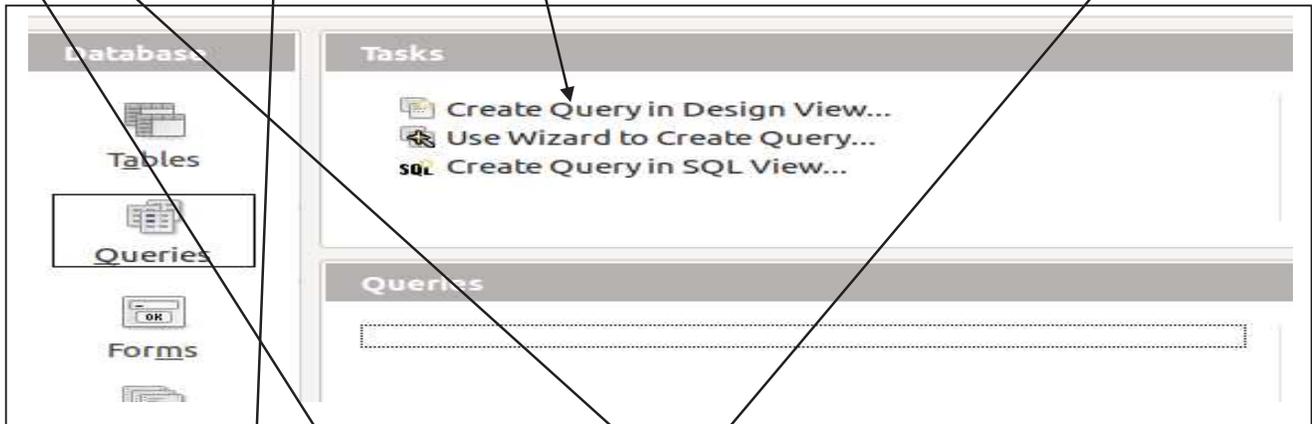
Field	EMPID	EMP NAME	EMP BASIC PAY	
Alias				
Table	emp details	emp details	emp details	
Sort				
Visible	✔	✔	✔	
Function				
Criterion				
Or				

Step-7

Against the **criterion** in the bp column,enter the criteria >=75000.Then press **F5** or **run query button** to display the results.

Output: (a)

Step-8(Design Query to get the list of name of employees beginning with "A")

Select icon Queries and select"Create Query in Design View"----select "Table Emp Details"----Add----Close-------double click on the required fields

Step-9

Against the **criterion** in the EMP NAME column,enter the criteria **like'A*'**.Then press **F5or RUN Querry** button to display the result.

Output : (b)

EMPID	EMP NAME
1001	Akash
1002	Anvar
1003	Anish

Record   1   of 3

Field	EMPID	EMP NAME	
Alias			
Table	emp details	emp details	
Sort			
Visible	✔	✔	
Function			
Criterion		like'A*'	

****

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