

• **Data Form**

We can also enter data into cells using 'Data Input Form'. It helps in data validation by reducing the chances of errors in data entry. Using a data form, we can make data entry more easy and accurate, especially when we have more columns for data entry, which cannot be viewed on a screen at a time. For getting the data form, enter the column headings and select cells. Then select 'Form...' option from Data menu. In the displayed 'Data form' window we can fill all the details. Click on 'New' button to get the blank form and the filled data is placed to the respective columns in the table. Click 'Close' button on completing the data entry. Use the tab key for moving to the next field in the data form. Figure 2.54 shows how to prepare the list of students participating in a school level competition with the help of the 'Data Form'.

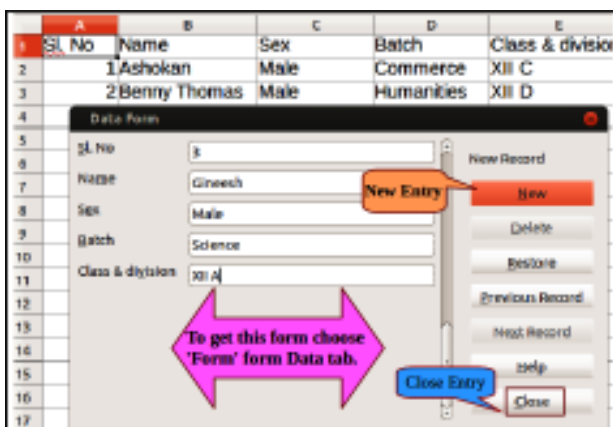


Fig. 2.54 Data entry through form

**Try Yourself**

Collect the details of all teachers in your school like Name, Sex, Designation, Subject, Age, Conveyance used, Place of residence etc. Perform the data entry in a worksheet with the help of a Data Form. From the created table find out:-

- Number of teachers retiring within 5 years.
- Number of teachers using public conveyance.
- Number of teachers residing within 8 Kilometres from the school.
- Number of Male teachers in the school.

**Let's assess**

1. In spreadsheets, Fill Handle is a small.....  
(a) Black square (b) Arrow mark (c) Cross mark (d) Plus symbol
2. 'Fill Series' option is available in ..... menu of Calc spread sheet.
3. In 'Fill Series' window ..... Series Type is selected to get next value as multiplied by the previous value with the given increment.
4. The full form of 'CSV' used in file extension is.....
5. The data 'Validity' option is available in ..... menu of spreadsheet.
6. In data validity window, Error Alert Action can be set to-  
(a) Warning (b) Information (c) Stop (d) Any of these
8. In spread sheet, data input 'Form' is available in -  
(a) Edit Menu (b) Data Menu (c) Insert Menu (d) Tools Menu

## 2.7.3 Data Formatting

What do formatting does to a spreadsheet?

It makes a worksheet more attractive, easier to read, and emphasises key data. Different formatting attributes like colour, font styles, font size can be applied to cell contents, you can adjust the size of cells, spacing etc.

Formatting means the arrangement of data for computer input or output, in terms of number and size of fields in a record or the spacing and punctuation of information in a report. By using formatting options we can present the worksheet data in an effective manner. We can present some data in bold or rotated form or in different colours to indicate its priority and importance. The worksheet data formatting may be in the following form.

- (a) Number Formatting
- (b) Text formatting
- (c) Conditional formatting
- (d) Table formatting

### ● Number formatting

Numbers are formatted to change their appearance. Number formatting includes adding percent symbol (%), comma (,), decimal places, and currency sign (₹), date, time, scientific values etc. to a spreadsheet. The number format applied will not affect the actual cell value.

Number formatting takes the following steps:

- Select the cell or range to be formatted.
- Go to 'Format' menu and choose 'Number Format' to set values as number, percent, currency, date, time etc.

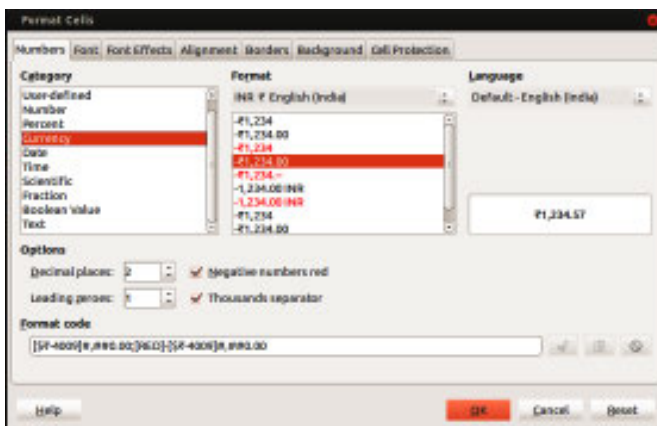


Fig. 2.55 Format cells window

- For advanced formatting, choose 'Cells' from Format menu instead of Number Format. The window pops up allows setting different categories of data with varied features. (The 'Format Cells' option is also possible with the right click of your mouse on the respective cell)
- Set the details like Decimal places, Leading zeros, Thousand separator etc. and confirm the window.

The Format Cells window appears as in figure 2.55.

● **Text Formatting**

The text formatting is mostly required for presentation of final output. It can be used to display the text in different fonts, align the cells, change colour of fonts, merge cells etc.

Text data has default settings in respect of font type, size, colour etc. We can change these features using the options from the formatting toolbar. These tools allow us to add decorative and explanatory material to worksheet and chart. Text formatting can also be done through the 'Format Cells' window. The major option available in Formatting Toolbar are shown in figure 2.56.

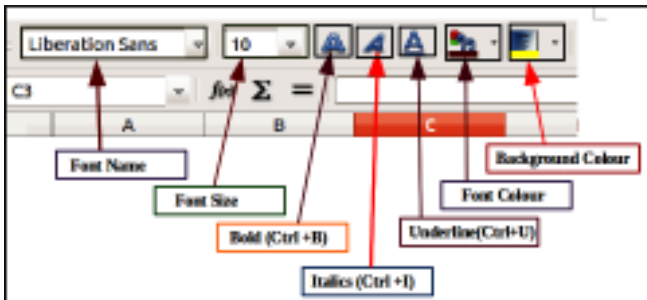


Fig: 2.56 Formatting tools in toolbar

● **Conditional formatting**

The conditional formatting changes the appearance of a cell range based on a condition or criteria. If the specified condition is true, the cell range is formatted automatically. This formatting helps to highlight relevant cells, emphasise unusual values, and visualise data using Colour Scale, Data Bar and Icon Set. Conditional formatting option is available in the 'Conditional Formatting' option in the 'Format' menu.

Using the menu command **Format → Conditional formatting**, the dialogue allows you to define conditions in a cell, which must be met in order for the selected cells to have a particular format. (To apply conditional formatting, 'Auto Calculate' must be enabled. For this, choose **Tools → Cell Contents → Auto Calculate**. You see a check mark next to the command when Auto Calculate is enabled). Conditional formatting has also recalculation facility. If the values in any cell changes, the formatting respond correspondingly, without selecting the format styles again manually.

Consider the example given below to understand the steps in Conditional Formatting.

There are '8' salesman in your business. You have to identify the salesmen who attained the quarterly sales target of ₹ 20,000 from the quarterly sales data. It is easily possible through using special colours to highlight the amounts above the target sales. The sales data of 2017 is shown in figure 2.57.

	A	B	C	D	E
1	<b>Sales Data-2017</b>				
2	<b>Salesman</b>	<b>Quarter-1</b>	<b>Quarter-2</b>	<b>Quarter-3</b>	<b>Quarter-4</b>
3	Anu	12800	17800	23400	17600
4	Baby	13400	16500	17700	19600
5	Beena	19300	15300	21800	23500
6	Jayesh	21400	16800	15700	15800
7	Joseph	18600	18600	12700	15700
8	Prakash	24200	26800	16700	23400
9	Rajesh	16500	17300	21500	15700
10	Valsamma	15700	17500	15600	22500

Fig. 2.57 Sales Data

Follow the given steps:

- Select the cells to which you want to apply a conditional style.
- Choose **Format** → **Conditional Formatting** → **Condition ....**
- Enter the condition(s) into the appeared windows, as shown Fig 2.58.

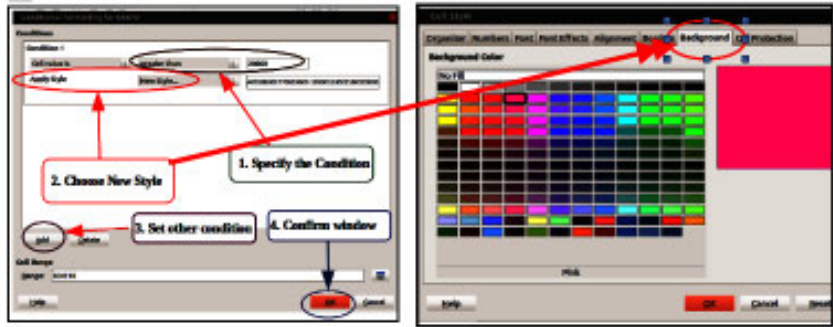


Fig. 2.58 Setting conditions in formatting

Then, the outcome of the above is shown in figure 2.59.

	A	B	C	D	E
1	<b>Sales Data-2017</b>				
2	<b>Salesman</b>	<b>Quarter-1</b>	<b>Quarter-2</b>	<b>Quarter-3</b>	<b>Quarter-4</b>
3	Anu	12800	17800	23400	17600
4	Baby	13400	16500	17700	19600
5	Beena	19300	15300	21800	23500
6	Jayesh	21400	16800	15700	15800
7	Joseph	18600	18600	12700	15700
8	Prakash	24200	26800	16700	23400
9	Rajesh	16500	17300	21500	15700
10	Valsamma	15700	17500	15600	22500

Fig. 2.59 Formatted sales data

### • Table formatting

Spreadsheet has predefined style options to format a table quickly.

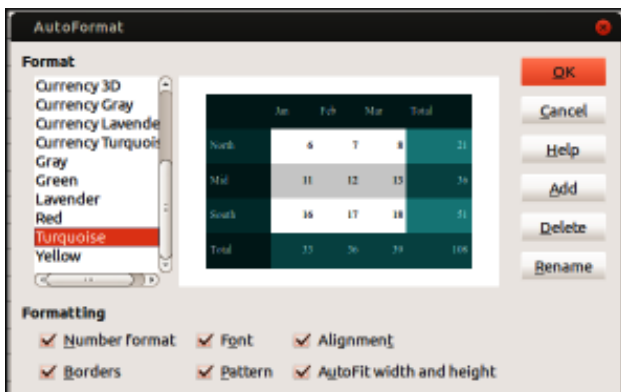


Fig. 2.60 Auto format window

This option formats a range of cells and converts it into a table by choosing a predefined table style. The table formatting steps are as follows:

- Select the range of cells that is to be formatted.
- Select 'Format' menu followed by 'Auto format' in the drop down menu.
- Select predefined Table format, from the appeared 'Auto Format' window.



Compare the two tables given in figure 2.61 to find the amazing aspect of formatting:

	A	B	C	D	E
1	<b>SCHOOL LIBRARY BOOKS 2017</b>				
2	Language				
3	Category	Mal	Eng	Hin	TOTAL
4	Novels	898	456	65	1419
5	Poems	212	120	43	375
6	Stories	712	236	128	1076
7	Drama	179	132	78	389
8	Travelogue	125	65	42	232
9	Comics	86	32	16	134
10	Others	12	18	11	41
11	TOTAL	2224	1059	383	3666

	A	B	C	D	E
1	<b>SCHOOL LIBRARY BOOKS 2017</b>				
2	Language				
3	Category	Mal	Eng	Hin	TOTAL
4	Novels	898	456	65	1419
5	Poems	212	120	43	375
6	Stories	712	236	128	1076
7	Drama	179	132	78	389
8	Travelogue	125	65	42	232
9	Comics	86	32	16	134
10	Others	12	18	11	41
11	TOTAL	2224	1059	383	3666

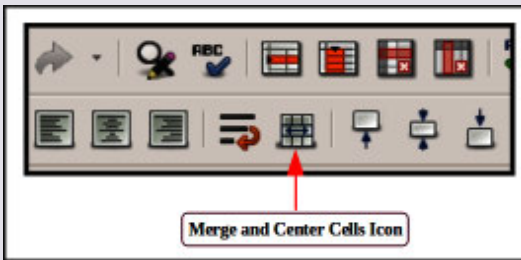
Fig. 2.61 Comparison of raw table and formatted table

**Let's know more ...**

**Merging Cells**

Merging cells is often used when a title is to be centred over a particular range of cells in a spreadsheet. For this you have to combine the adjacent cells at the top row of the table. Combining of two or more selected cells to form a single cell is called 'Merging Cells'. The cell reference for a merged cell is the upper-left cell in the original selected range. When two or more adjacent horizontal or vertical cells are merged, the cells become one large cell and they are displayed across multiple columns or rows. Then, the cell contents appear in the centre of the merged cell.

To merge a group of cells:



- (a) Select two or more adjacent cells that we want to merge.
- (b) Click 'Merge and Centre' icon. This icon will be activated only when two or more cells are selected.

**2.8 OUTPUT REPORTS**

Unless you communicate effectively, the knowledge you mastered and the skills you have shown in spreadsheet application is of little use to others. Report is a document that conveys specific information to others. So it should be attractive, legible and systematically presented for which formatting has a lot to do.

Aligning the margin, adding headers and footers etc., before taking printout will give more readability to the report. The page style can be defined by choosing the 'Page' option of 'Format' menu. Then the default 'Page Style' window appears as in figure 2.62.

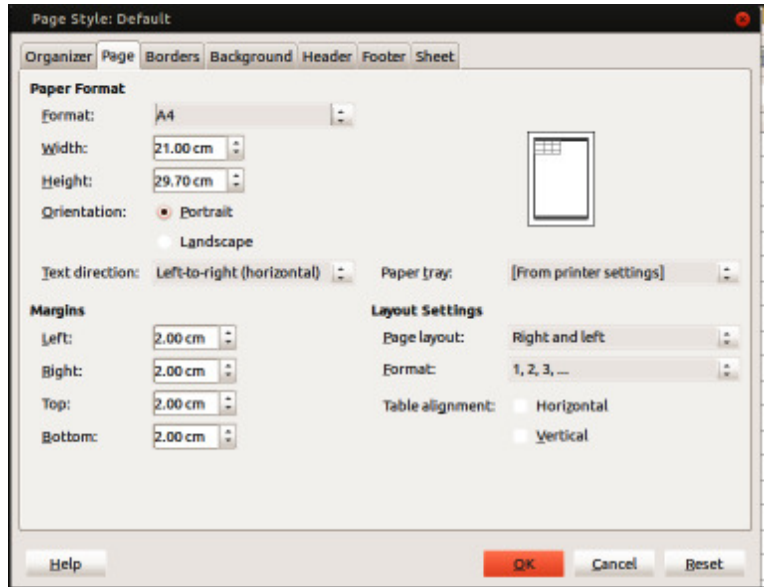


Fig. 2.62 Default page style window

In the window you may set the following-

- The type of paper from the 'Format' option - A4, A3, Legal, Letter etc.
- Set the Width and Height of the print out.
- Set the orientation as Portrait or Landscape. (See figure 2.63).
- Set left, right, top and bottom margins.
- Text direction Left to Right or Right to Left.

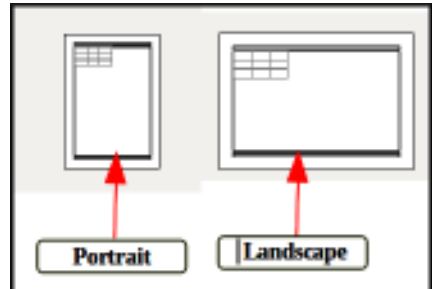


Fig. 2.63 Page orientation

These optional settings allow us to adjust the final appearance of the printed page to suit our needs.

We can print entire or partial worksheets and workbooks. LibreOffice Calc provides the following print options:-

- (a) Print a partial or entire worksheet or workbook.
- (b) Print several worksheets at once.
- (c) Print several workbooks at once.
- (d) Print a LibreOffice Calc table.

- (e) Print a workbook to a file.
- (f) Print a graphic Charts and Pivot Tables.

The print option is available in the 'File' Menu.

The options Print Preview and Printer Settings are also available in the File Menu as shown in figure 2.64. Before printing we have to verify print preview which gives an idea about how the printout may come. The required modifications can be carried out before taking the print out.

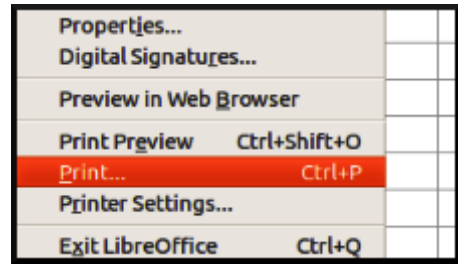


Fig. 2.64 Print File options

### 2.8.1 Defining the Print Area

By default, LibreOffice Calc prints all data on the current worksheet. But we can define print area for specific and formatted print. This print option is available in the 'File' Menu. Follow the steps for defining the Print Area using Print window

- (a) Select the range of cells to print.
- (b) In the File Menu click on 'Print' option or click on the Print icon from toolbar.
- (c) The Print window appears in the screen, as shown in Fig 2.65.

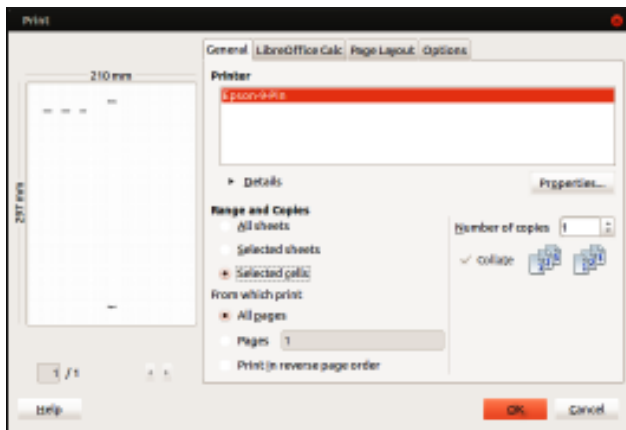


Fig. 2.65 Print window

- (d) Select the printer for printing.
- (e) In 'Range and Copies' field choose the option 'Selected Cells'.
- (f) Enter the number of copies required, then press OK.

### 2.8.2 Print non-contiguous ranges

You can also print non-contiguous cells (cells which do not touch each other) in a single sheet. For this the following steps are to be followed:

- (a) Select the first range to be printed.
- (b) Press down the control key and then select the other ranges to be printed simultaneously.

- (c) From the File Menu click on 'Print' option or click the Print icon on the tool bar.
- (d) In the 'Print' window appeared, select the option 'Selected Cells'.
- (e) Click 'Ok'

### 2.8.3 Preparation of Reports using Data Tables

A data table is a range of cells that shows the results by substituting different values in one or more formulae. They allow you to see the results of many possible inputs at the same time.

The '**Data → Multiple Operations**' command provides a planning tool for "what if" questions. In your spreadsheet, enter a formula to calculate a result from values that are stored in other cells. Then, set up a cell range where you enter some fixed values, and the Multiple Operations command will calculate the results depending on the formula.

There are two types of data tables:

1. One -variable data table and
2. Two-variable data table.

#### ● One-variable Data Table

A one - variable data table is simply a table that shows multiple results, based on different source data. Suppose you have taken a loan of ₹ 2,00,000 and wanted to know the amount of interest payable, if rate of interest is flexible say, 8%, 9% and 10% for a period of 5 years. How can we do this?

The One-Variable Data Table allows you to do this, by changing one variable and will show its effect on the other variable. The Multiple Operations command is used to calculate One-Variable Data Table.

Consider the following example to illustrate the construction of a one-variable table:

The selling cost of a toy is ₹ 100 each. The material cost (Direct cost) of each toy is ₹ 20 and in addition to which you have fixed costs of ₹ 1,00,000 per year. How much profit will you make in a year if you sell a particular number of toys?

You can easily calculate the amount of profit earned from different sales units by preparing a one -variable table. In this case, the quantity sold is the variable, but the selling price is constant. Its steps are given below:-

- (a) To calculate the profit, first enter the selling quantity of toys, for example, 2000. The profit can be calculated using the formula:  

$$\text{Profit} = \text{Quantity} \times (\text{Selling price} - \text{Direct costs}) - \text{Fixed costs.}$$
 Use this formula to calculate the amount of profit in B6.
- (b) In column 'C' enter given annual sales, one below the other; for example, 500 to 5000, in steps of 500.
- (c) Select the range C3:D12, and thus the values in column C and the empty cells alongside in column D.

- (d) Choose **Data → Multiple operations**.
- (e) With the cursor in the Formulas field, click cell B6.
- (f) Set the cursor in the Column input cell field and click cell B2. This means that B2, the quantity, is the variable in the formula, which is replaced by the selected column values.
- (g) Close the dialogue box with OK. You see the profits for the different quantities in column D, as shown in Fig 2.66

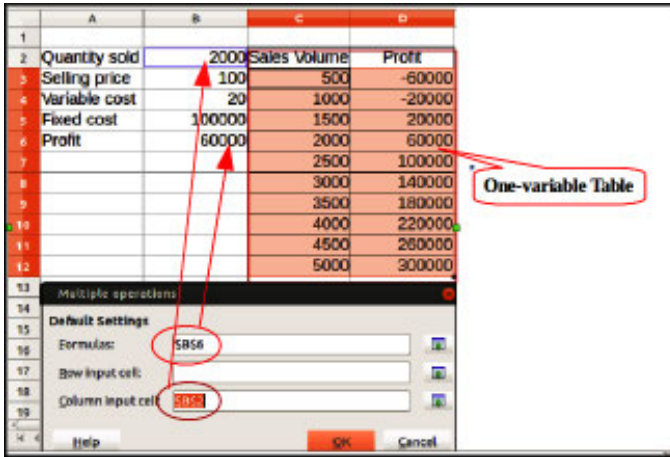


Fig. 2.66 Construction of One-variable Table (Negative amount denotes loss)

*One variable data table may be:-*

1. **Column-oriented:** If your variable values are in column, type the cell reference for the input cell in the Column input cell box. The input cell is B2 in the above illustration
2. **Row-oriented:** If your variable values are in row, type the cell reference for the input cell in the Row input cell box.



### Try Yourself

Your friend is planning to take a loan from a bank for a period of 10 years to construct a new house. The current rate of interest of housing loan is 9.5% per annum. Help him to construct a data table showing the monthly instalment amount, if the loan amount vary from ₹15,00,000 to ₹20,00,000 in multiples of 50,000.

(Hint: Here loan amount is the variable. Use the *PMT* function to calculate the loan EMI).

#### ● Two-variable Data Table

Let us recall the example cited in the one variable table where we analysed the effect on the amount of profit at different sales volume. But two variable tables are used to analyse

the effect on the amount of profit when two variables are changed i.e., quantity sold as well as selling price per unit.

Two-Variable Data Table works similar to the One-Variable Data Table. A two-variable data table is a data table with two input values (Two Variables) and a single result.

LibreOffice Calc allows you to carry out joint multiple operations for columns and rows in so-called cross-tables. The formula cell has to refer to both the data range - row and column. Select the range defined by both data ranges and use the multiple operations option. Enter the reference to the formula in the Formulas field. The Row input cell and the Column input cell fields are used to enter the reference to the corresponding cells of the formula.

Taking the illustration of toys in the one variable table, let us see what changes can be effected when it is converted into two variable table.

Here, both the quantity and the selling price vary. Let us see what impact this will have in the profit of the toys. This two variable table helps to estimate the amount of profit at different sales quantities under various selling prices. (Assume that the selling prices under consideration are 80 to 180 in multiples of 20). Its steps are given below:-

- Follow the first two steps, as explained in the one variable table. Calculate the amount of profit in B5 at selling price of ₹100 and quantity sold as 2000 units. Also enter in column 'C' the annual sales volume from 500 to 5000, in steps of 500.
- In D2 : I2 enter the numbers from 80 to 180, in multiples of 20.
- Select the range C2 : I12.
- Choose **Data → Multiple Operations**.
- With the cursor in the Formulas field, click cell B5.
- Set the cursor in the Row input cell field and click cell B2. This means that B2, the selling price, is the horizontally entered variable (with the values 80 to 180).
- Set the cursor in the Column input cell field and click in B1. This means that B1, the quantity, is the vertically entered variable.
- Close the Multiple Operations window by pressing OK. You see the profits for the different selling prices in the range C2:I12 as shown in figure 2.67.

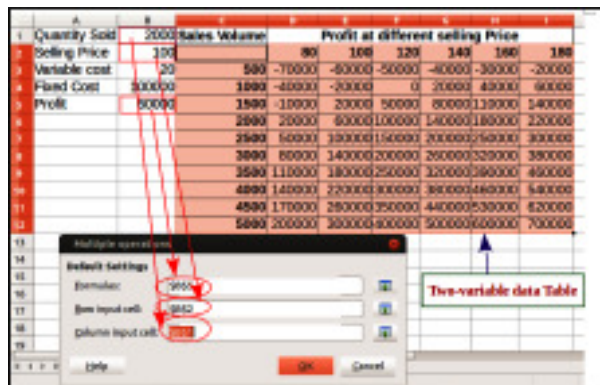


Fig. 2.67 Construction of Two - variable data Table



 **Try Yourself**

A firm proposes to purchase a machinery costing ₹1,00,000 having scrap value of ₹5,000, with an economic life of 10 years. Construct a two-variable table showing the amounts of annual depreciation based on the following information.

- Cost of machinery ranging from ₹50,000 to ₹5,00,000 in multiples of ₹50,000
- Useful life ranges from 5 to 10 years.
- Provide depreciation under Straight Line Method.

*(Hint : use multiple operations; the two variables are cost of asses and life of asset)*

**2.8.4 Preparation of Reports using Pivot Table**

Have you ever viewed an object through a kaleidoscope in your primary classes?

When you look at an object through a kaleidoscope, you can see the object in different ways. You can turn the instrument to move the details of the object around.

Think of a Pivot table as a kaleidoscope that is pointed to your dataset. When you look your data through a Pivot table it provides an opportunity to see your data in different perspective.

Pivot Table is a tool for combining, comparing, and analysing large amounts of data easily. It is a table that summarizes source data in another table, displays the details of areas of interest and creates reports. A Pivot table allows you to create an interactive view to your dataset.

A pivot table report provides enhanced layout, attractive and formatted report with improved readability. It enables us to arrange and summarise complicated data easily and drill down on details. This help to analyse numerical data in depth and to answer unanticipated questions about the collected data.

The construction of a pivot table can be illustrated with the help of an example.

You are given ledger account balances under different groups of a business firm in a spreadsheet (See figure 2.68). Can you show group wise summary?

	A	B	C
1	Ledger Accounts	Groups	Amount
2	Salary	Indirect Expenses	2500
3	Commission	Indirect Expenses	3500
4	Building	Fixed Assets	25000
5	Cash	Current Assets	15000
6	Rent	Indirect Expenses	4500
7	Insurance	Indirect Expenses	5500
8	Machinery	Fixed Assets	30000
9	Bank	Current Assets	50000
10	Furniture	Fixed Assets	35000

Fig. 2.68 Spread Sheet Data

The procedure for pivot table creation is given below:-

1. Enter the data in to spread sheet and select the data range. (A1: C10)
2. On Data Menu Click Pivot Table and then Click on Create to get Pivot table layout.

**Data → Pivot Table → Create.**

The Table Lay out dialog box is shown in figure 2.69.

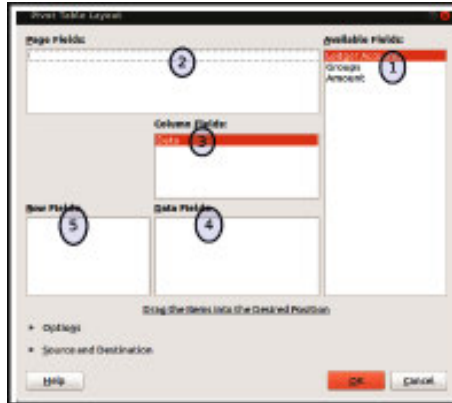


Fig. 2.69 Pivot table layout

The fields which are included in the 'Pivot Table Layout' window are explained below:-

- **Available Data Fields:** Column heads of the Table such as 'Ledger Accounts', 'Groups', and Amount' are displayed in this area.
- **Page Fields:** This area is used to create a button and a list box on top of the generated pivot table.
- **Column Fields:** It indicates the field on the basis of which the result will be sorted in various columns (eg: Groups)
- **Data Fields:** It must contain at least one field. Only the numerical data which are to be added together is given in this field.
- **Row Fields :** It indicates the field on the basis of which the result will be sorted in various rows (eg: Ledger Accounts).

3. Drag and drop the field buttons into the white areas of Pivot Table Dialogue Box, i.e. 'Ledger Accounts' to Row fields, 'Groups' to Column fields, 'Amount' to Data Field, as shown in figure 2.70.

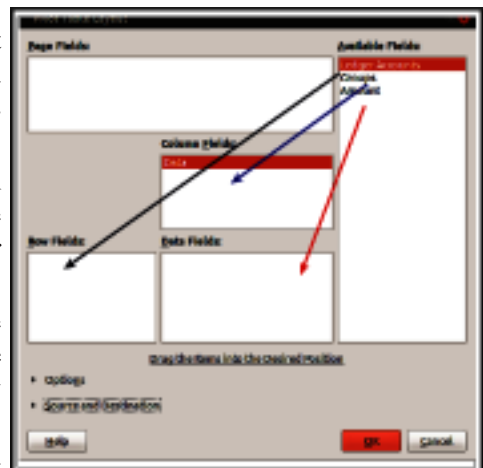


Fig. 2.70 Drag the fields to Pivot Table layout

4. Click on OK button to get Pivot Table Report as shown in figure 2.71.

Ledger Accounts	Groups	Amount	Sum - Amount	Data	Current Assets	Fixed Assets	Indirect Expenses
Salary	Indirect Expenses	2500	Ledger Accounts		50000		
Commission	Indirect Expenses	3500	Bank				
Building	Fixed Assets	25000	Building			25000	
Cash	Current Assets	15000	Cash		15000		
Rent	Indirect Expenses	4500	Commission				3500
Insurance	Indirect Expenses	5500	Furniture			35000	
Machinery	Fixed Assets	30000	Insurance				5500
Bank	Current Assets	50000	Machinery			30000	
Furniture	Fixed Assets	35000	Rent				4500
			Salary				2500
			<b>Total Result</b>		<b>65000</b>	<b>90000</b>	<b>16000</b>

Fig. 2.71 Pivot table Report

● **Uses of Pivot Table**

A pivot table report is designed for:

- (a) Sub totalling and aggregating numeric data, summarising data by categories and Sub categories, and creating custom calculations and formulae.
- (b) Summarising the data according to the areas of interest from the given dataset.
- (c) Moving rows to columns or columns to rows to show different summaries of the source data.
- (d) Filtering, sorting, grouping, and conditionally formatting the most useful and the interesting subset of data to enable us to focus on the information that we want.
- (e) Presenting concise, attractive, and annotated online or printed reports.



**Try Yourself**

Take your household expenses for the last three months, and make a Pivot table showing the month wise house hold expenses.

**Let's assess**

- 1 ..... command is used to construct a One-Variable/Two variable Data Table.
2. The key used to select non-contiguous cells is-  
(a) Alt (b) Ctrl (c) Shift (d) Tab
3. 'Multiple Operations' option is available in .....tab.  
(a) File (b) Insert (c) Table (d) Data
4. The spreadsheet feature that allows creating a cross tabulation summary of data is .....
5. Pivot Table option is available in .....tab of LibreOffice Calc.
6. In a pivot table, the data which require aggregation are drag and drop to:  
(a) Page fields (b) Column fields (c) Row fields (d) Data fields

## 2.9 COMMON ERROR CODES (MESSAGES) IN LIBREOFFICE CALC

Consider the case given below:

Take a worksheet and type the name and score as shown in the table given below. Also try to enter the formula as it is shown in C2 to C5.

	A	B	C
1	Name	Economics	Formula/Functions
2	Abdulla	45	=B2+B3+B4+B5
3	Alex	Ab	=SU(B2:B5)
4	Basil	0	=B2/B4
5	Devan	45	=7899^7E+123

- Have you encountered any problem while entering the formula?
- What is the result obtained?
- Is there any mistakes in the given formula or function?

At the time of entering the above formula you might have received some error messages. For rectifying the mistakes occurred in a formula, it is essential to understand the common error messages very well.

Observe the error messages in cell C2:C5 shown in figure 2.72.

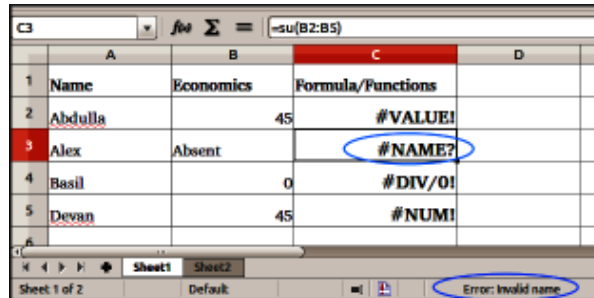


Figure 2.72 Error message

LibreOffice Calc provides some messages for errors of miscalculations, incorrect use of functions, invalid cell references and values and other mistakes committed by users.

### 2.9.1 ### Error

This error occurs when a numerical value entered in a column is not enough to display the contents. This is not really an error value, so there is no corresponding numerical error code. It happens when the columns are too narrow for holding the data.

Solution to this problem is -

- 1) Increase the width of the column.
- 2) Select the column, then go to **Format** → **Cells** → **Alignment** and click Shrink to fit cell size.

- 3) Select the Column , then go to **Format →Column →Optimal width** and Click Ok button

### 2.9.2 #DIV/0! Error ( Error code - 532)

#DIV/0! error is displayed, when a number is divided by zero (0). It happens when you enter a simple formula like =5/0, or when a formula refers to a cell that has zero value or the cell is blank.

#### Solution to this problem is:

- a) Change the cell reference to another cell.
- b) Enter a value other than zero in the cell used as a divisor
- c) Prevent the error message by using the logical function IF..

For Example =IF(B1=0,"",A1/B1) . Here cell B1 equals 0, an empty string (" ") is displayed. If not, the result of the formula A1/B1 is displayed as shown in figure 2.73.

An error message for a formula is usually a three-digit number from 501 to 527, or some-times an unhelpful piece of text such as #NAME?, #REF, or #VALUE. The error message /code appears in the cell and a brief explanation of that error on the right side of the status bar.

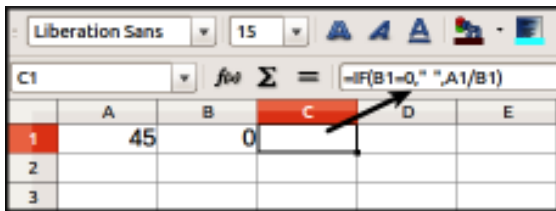


Fig. 2.73 Prevent #DIV! Error using the logical function IF

### 2.9.3 #NAME Error ( Error code - 525)

This error occurs when LibreOffice Calc does not recognise the Text in formula. This may occur with misspelled formula or named range. The error also occurs if we forget to close a text in double quotes or omit the range operator in formula as shown in figure 2.74. So enter proper formula name, named range, range operator to avoid these types of errors.

	A	B	C	D
1				
2				
3				
4				
5				
6				

	A	B	C	D
1				
2				
3				
4				
5				
6				

Fig 2.74 Examples of #NAME! error

### 2.9.4 #REF! Error (Error code - 524)

The #REF! Error shows up when a formula referred to a cell that is not valid. This happens most often when cells that were referred by formulas get deleted. For example, enter the formula

=A1+B1+C1 in Cell D1, then delete the Column C1, immediately the formula return #REF!

To fix the errors, you can either delete `+#REF!`, in the formula or you can undo your action by pressing `Ctrl+Z`.

### 2.9.5 #VALUE! Error

This error occurs when a wrong argument is given in a formula. For example, if cell A1 contains a number 25 and cell A2 contain the text 'commerce'. The formula `=A1+A2` return an error message `#VALUE!` This type of error is generated when one of the variables in the formula is of the wrong type (e.g.:- cell referred by the formula contains text instead of a number).

### 2.9.6 #NUM! Error (Error code - 503 )

The `#NUM!` Error occurs when a calculation resulted in an overflow of the defined value range. For example, while filling data by using Fill series option [ Edit --> Fill --> Series ], the selected range to display the content is more than the required cell , the `#NUM!` Error will be displayed after the end value in the selected range as shown in figure 2.75.

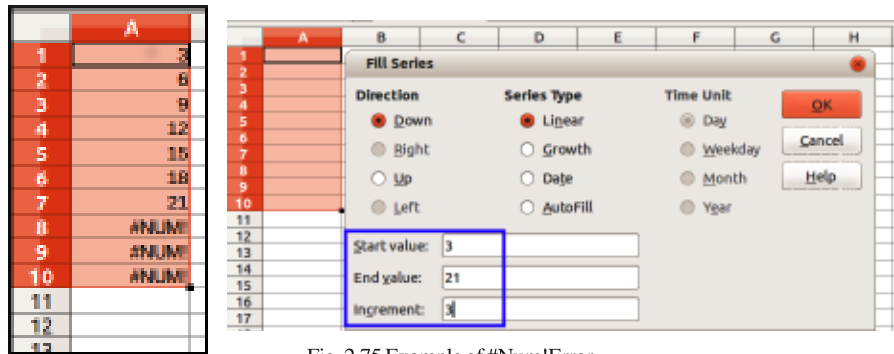


Fig. 2.75 Example of #Num!Error.

It also appears when a function argument is inappropriate or formula produces a number too larger/small to be represented. Example, if we enter the formula `=78999^7E+123` in a cell, the result will be a '`#NUM!` Error'.

### Summary of Common errors in LibreOffice Calc

Error Message	Error Code	Explanation of the error
###	N/A	When a numerical value entered in a column is not enough to display the contents
#DIV/0!	532	When a number is divided by zero (0)
#NAME	525	When a Calc does not recognise the Text in formula
#REF!	524	When a formula refers to a cell that is not valid
#VALUE!	519	When a wrong argument is given in a formula
#NUM!	503	When a calculation resulted in an overflow of the defined value range





## Summary

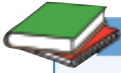
- Electronic spreadsheet : It is a worksheet consisting of several rows and columns used to store and manipulate large volume of data through computers.
- LibreOffice Calc: It is a spreadsheet application that you can use to calculate, analyse, and manage data.
- Features of LibreOffice Calc: Easy calculations, What-if calculations, Database functions, Arranging data, Dynamic charts, Opening and saving Microsoft files.
- Components LibreOffice Calc: Rows and Columns, Cell and Ranges.
- Naming Ranges: Use special name to refer the range in a formula.
- Spreadsheet Operations: Open Work sheet, Save Worksheet, Close work sheet, Quit LibreOffice Calc, Add worksheet, Delete worksheet and Rename worksheet.
- Spreadsheet Navigation: Using Mouse , Using a cell reference and Using the Navigator.
- Worksheet Data: Spreadsheets usually have three types of data to be entered in a cell such as Value , Label and Formula.
- Cell References: It identifies the location of a cell or group of cells in the spreadsheet. A cell reference may be relative, absolute and mixed.
- Mathematical operators: A spreadsheet usually uses three types of operators or symbols: Arithmetic, Comparison and Reference.
- Functions: They are the pre-defined formulae in spreadsheets.
- Date & time functions: TODAY, NOW, YEAR, MONTH, DAY, DATEVALUE and DATE
- Statistical Functions: COUNT, COUNTA, COUNTBLANK and COUNTIF.
- Mathematical functions:SUM,SUMIF, ROUND,ROUNDUP and ROUNDDOWN.
- Text functions:TEXT and CONCATENATE.
- Logical functions: IF, NESTED IF, AND and OR.
- Spreadsheet Functions: LOOKUP (Vector form), LOOKUP (Array form), VLOOKUP and HLOOKUP, ROWS and COLUMNS.
- Financial functions : ACCRINT, RATE, CUMIPMT, PV, PMT, FV and NPV

- Data entry: The three options for attaining input are Direct data entry, Data fill options and Import data from other sources.
- Data fill options: You can automatically fill cells with data with the Auto Fill command or the Series command.
- Data validation: We can prevent the wrong data to be entered in a cell by validation process. During data entry accuracy and validity of data can be ensured in two ways: Using validation option and Using Data form.
- Data formatting: It means the arrangement of data for computer input or output, such as the number and size of fields in a record or the spacing and punctuation of information in a report. The worksheet data formatting involves the following aspects-Number formatting, Text formatting, Conditional formatting, and Table formatting.
- Output reports: Before printing the final report, we should adjust it for better readability. We can change the margin of sheets, add headers and footers etc, before taking the printout.
- One-variable Data Table: This Data Table allows you to get multiple results by changing anyone of the given variables. The Multiple Operations command is used to calculate One-Variable Data Table.
- Two-variable Data Table: A two-variable data table is a data table with two input values (Two variables) and a single result.
- Pivot Table: It is a tool for combining, comparing, and analysing a large amount of data easily. It is a table that summarizes source data in another table, displays the details of areas of interest and creates reports.
- Common error messages in LibreOffice Calc: ### Error, #DIV/0! Error, #NAME Error, #REF! Error, #VALUE! Error, and #NUM! Error.



### I can

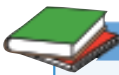
- outline the concept of spreadsheet and its basic features
- state how to use a spread sheet for various purposes
- explain the use of various output reports and equip them to prepare reports using spread sheet
- check various errors while working with formulae and functions and apply the knowledge in error handling



## TE QUESTIONS

1. A spreadsheet file that contains one or more worksheets is called a .....  
(a) Database (b) Workbook (c) Range (d) Cell reference
2. Which of the following component displays the contents of active cell?  
a. Name box b. Formula bar c. Menu bar d. Status bar
3. Identify the function which helps to convert a date in the form of text to a number.  
(a) DATE (b) DAY (c) DATEVALUE (d) NOW
4. Which function is used to count the number of empty cell in the given range?
5. Write the formula for displaying the number 89.5796 as 89.57.
6. Explain the features of LibreOffice Calc.
7. Describe different ways of cell referencing in Calc.
8. Explain different statistical functions available in LibreOffice Calc.
9. What are the different types of data that can be entered into cells?
10. Differentiate function and formula in spreadsheet with a suitable example.
11. Explain the merits of naming ranges in a spreadsheet.
12. Explain different logical functions of LibreOffice Calc.
13. Explain the various data fill option available in Calc.
14. Name the function and give its syntax for calculating the present value of an investment resulting from a series of regular payments.
15. Identify the relevant functions used for the following purposes.  
(a) To count all types of data in a range of cells.  
(b) To join several text strings in different cells into one string.  
(c) To calculate the constant interest rate per period of an annuity.
16. On 01/01/2017 Aswathy took a Car Loan of ₹7,00,000 from Canara Bank at 12% interest per annum. The period of Loan is 10 years and payment is to be made at the end of every month.  
(a) Identify the function to calculate the EMI of Car Loan in LibreOffice Calc.  
(b) Give its syntax and explain its parameters.

17. What is Pivot Table ? List out its advantages.
18. Mr. Babulal faced the following error while work in spreadsheet. State the reason for each error.  
(a) ### (b) #DIV/0! (c) #NAME (d) #VALUE!
19. Name the functions used to display the following results in LibreOffice Calc.  
(a) Current System Date (b) Current date with time
20. Explain the purpose of the following functions.  
(a) COUNTIF (b) SUMIF
21. Write two text manipulation functions in Libreoffice Calc.
22. Write down the syntax of the following functions.  
(a) VLOOKUP (b.) HLOOKUP



### PE QUESTIONS

1. Given below is a table showing the Name, Designation and Net Salary paid to the 10 employees in Goodluck Traders for January 2018

Emp. No.	Name	Designation	Net Pay (₹)
1.	Anumol	Manager	40000
2.	Shinoj	Accountant	35000
3.	Prakashan	Supervisor	22000
4.	Rajesh	Salesman	14000
5.	Subhramaniyan	Salesman	12000
6.	Jobish	Salesman	11500
7.	Jayesh	Salesman	10000
8.	Valsamma	Clerk	8000
9.	Shaju	Clerk	7000
10.	Joseph	Peon	6500

Find out the following using appropriate spreadsheet operations:-

- (a) The Total Salary payable in the month of January 2018 by Naming the concerned range as 'TOTAL\_PAY'.
- (b) The total monthly salary paid to the Salesmen in the firm.

(c) Display Name of employee with Net Pay of ₹ 10,000 by using 'LOOKUP' Function.

2. Following are the scores obtained by Sumisha, the top scorer in Humanities class, for the Higher Secondary Examinations-March 2017.(Maximum score for TE is 80 and CE is 20)

SUBJECT	TE	CE
English	42	16
Malayalam	78	20
History	59	18
Sociology	65	20
Economics	51	17
Political Science	67	18

Find out her total score in each subject and the corresponding grades assigned, on the basis of the given criteria:

(Hint: Use Nested IF Function to assign the Grades)

Scores	Grades
90 - 100	A+
80 - 89	A
70 - 79	B+
60 - 69	B
50 - 59	C+
40 - 49	C
30 - 39	D+
20 - 29	D
Below 20	E

3. Create the given table in a spreadsheet:-

100000	34000	Cash	23000	12000	55000	20000
Assets	16000	Stock	43000	56000	Liability	
50000	12000	45000	21000	Creditors	19000	32000
Debtors	22000	76000	26000	31000	Capital	64000

Find the answers to the following questions using appropriate spreadsheet functions:

- How many cells contain amounts only?
- Count the Number of cells containing any value.
- How many empty cells are there in the given table?
- Count the Number of cells containing values exceeding 50000.

4. Following table shows the details of students admitted in Plus One classes:

Ad. No.	Name of Student	Course Code	Second Language	Sex	Date Of Birth	Date of Admission
13041	Arunkumar C. P	11	Malayalam	Male	05/02/2002	12/06/2017
13042	Suresh Babu K.	5	Hindi	Male	12/09/2001	12/06/2017
13043	Anwar Ali C. K.	38	Hindi	Male	07/03/2002	18/06/2017
13044	Maheswari. S	1	Malayalam	Female	12/1/2013	19/06/2017

Enter the details into a Text Editor software and import the same to a spreadsheet.

5. The following table shows the amounts of Net Sales, Cost of Goods Sold and Indirect Expenses of last 5 years of Arun Traders:-

Items	2013	2014	2015	2016	2017
Net Sales	200000	240000	320000	340000	520000
Cost of Goods Sold	124000	165000	224000	259000	442000
Indirect Expenses	32000	34000	41000	38000	39000

- (a) Calculate the Gross Profit and Net Profit of all the 5 years using the appropriate formula.
- (b) Display the 'Net Profit' of 2017 using VLOOKUP Function.
6. Following table comprises of the salary details of 8 employees in Kumar Associates for the year 2016-'17.

Name of Employee	Gross Salary (₹)	Eligible Deductions (₹)
Amal	438000	65400
Balu	567000	63200
Chandran	645000	49500
Devasia	760000	98500
Filsy	743000	65800
George	787000	112000
Haridas	812000	97600
Ismayil	817000	67900

- (a) Calculate the Taxable Income of each employee, by deducting Eligible Deduction from the Gross salary.
- (b) Compute the income tax liability of each employee based on the following criteria, by using appropriate function in spreadsheet, if taxable income is:
- below 250,000, No tax.
  - ₹ 250,000 to ₹ 500,000 Tax rate is 10%
  - Above ₹500,000 Tax rate is 20%



7. The loan information provided by a bank are shown below:-  
 Loan amount - ₹ 200,000  
 No. of Payments - 60 months  
 Annual Rate of interest - 12%
- (a) Calculate the yearly instalments of loan repayment using the PMT Function.
- (b) Prepare a one variable table to show the yearly instalments of the above loan, if the number of payment varies from 1 to 6 years.
8. Mr. Biju Lucka took a loan of ₹ 400,000 from Union Bank of India, Kannur and repayable in 72 monthly instalments. Calculate the rate assuming payment is ₹ 6500 per month using appropriate Spreadsheet Function.
9. As a Financial Manager, you are considering the investment proposal to purchase a Plant and Machinery costing ₹ 25,00,000. The expected future cash inflows during the next 5 years were ₹8,00,000, ₹ 7,60,000, ₹ 7,40,000, ₹ 7,00,000 and ₹ 6,60,000. The cost of capital of the industry is 12% p. a. Calculate NPV and evaluate the investment proposal.
10. The scores of 10 students in a class test for Accountancy are given:

Name of Students	Scores(out of 20)
James	9
Jexin	12
Selastin	8
Melvin	19
Tomy	13
Beena	18
Seena	7
Agnes	20
Daphy	14
Anila	17

- (a) Assign Grade to the students based on the following criteria, using Nested IF Function:-  
 Scores above 15 to be graded as 'A'.  
 Scores between 10 to 15 to be graded as 'B'.  
 Scores below 10 to be graded as 'C'.
- (b) Highlight the scores below '10' in 'red' background, using Conditional Formatting.

## APPENDIX

### Lab Work 1 (Naming the ranges)

The cash receipts and cash payments of a trader during the month of January 2017 are given below:

2017 January

1. Cash in hand ₹12,000.
2. Cash sales ₹6700.
4. Paid rent ₹4300.
9. Cash purchases ₹8,300.
12. Cash withdrawn for personal purpose ₹4500.
15. Paid wages ₹600.
22. Cash Sales ₹15,000.
30. Paid to Creditor, Sunil ₹3000.

Prepare a Cash Book using the spreadsheet. Find the closing balance by naming respective ranges as 'Cash\_Debits', and 'Cash\_Credits'

#### Process:

- Step-1: Enter the title as 'Cash Book' in the first row.
- Step-2: Enter column headings as Date ,Receipts, Amount, Date, Payments, Amount in second row.
- Step-3: Enter the items of cash receipts-Date in column A, Name of account in column B and its respective amounts in Column C. Similarly, enter the items of cash payments-Date in column D, Name of account in column E and its respective amounts in Column F.
- Step-4: Select the Receipts Side amounts and name the range as 'Cash\_Debits'. Similarly,Select the Payments Side amounts and name the range as 'Cash\_Credits'. (Insert → Names → Define...)
- Step-5: In C9, give the formula '=SUM(Cash\_Debits)' to find the debit total. Choose the 'Cash\_Debits' from the 'Paste Name' window.(Insert → Names → Insert....)
- Step-6: In F9 give the formula '=C9' to enter the same total on payments side.
- Step-7: In D8, enter the date as '31/01/17'.In E8, enter 'Balance c/d'. In F8, enter the formula as '=C9 - SUM(Cash\_Credits)' to calculate the amount of closing balance.

Output

	A	B	C	D	E	F
1	<b>CASH BOOK</b>					
2	DATE	RECEIPTS	AMOUNT	DATE	PAYMENTS	AMOUNT
3	01/01/17	Balance b/d	12000	04/01/17	Rent a/c	4300
4	02/01/17	Sales a/c	6700	09/01/17	Purchases a/c	8300
5	22/01/17	Sales a/c	15000	12/01/17	Drawings a/c	4500
6				15/01/17	Wages a/c	600
7				30/01/17	Surf's a/c	3000
8				31/01/17	Balance c/d	13000
9			33700			33700

=SUM(Cash\_Debits)      =C9 - SUM(Cash\_Credits)      =C9

Lab Work 2 (Datevalue & Round functions)

For applying for the post of an accountant, the minimum and maximum age is fixed at 18 years and 38 years respectively. The following list gives the date of birth of few candidates. The cut-off date for calculating age is 01/01/2018. Calculate the age of the candidates as on cut-off date.

Applicati on No.	Candidate Name	Date of Birth
1	Harikrishnan	12-08-2001
2	Devaraj	01-01-2000
3	Ruksana	24-06-1977
4	Malavika	31-12-1988
5	Ajeesh	03-04-1999

Process:

The following steps are required for finding out the result

- Step 1. Enter the data given above in a worksheet in the same format as seen above.
- Step 2. Enter the cut-off date from cells D2:D6
- Step 3. Select Cell E2 and enter the formula, =D2-C2 and press Enter Key (Now 'Age in days' will be displayed in cell E2)
- Step 4. Copy the formula in Cell E2, by clicking on and dragging the fill handle downwards to the required cells (E3:E6). (Now 'Age in days' will be displayed in cell E3:E6)
- Step 5. Select Cell F2 and enter the formula, =ROUND(E3/365.25,0) and press Enter Key (Now Age rounded-off to year will be displayed in cell F2. If not round-off it will be displayed as 16.3887748118, hence we round-off)
- Step 6. Copy the formula in Cell F2, by clicking on and dragging the fill handle downwards to the required cells (F3:F6). (Now 'Age rounded-off to year will be displayed in cell F3:F6)

Output

	A	B	C	D	E	F
1	Applicati on No.	Candidate Name	Date of Birth	Cut-off date	Age in days	Age rounded off
2	1	Harikrishnan	12/08/2001	01/01/2018	5986	16
3	2	Devaraj	01/01/2000	01/01/2018	6575	18
4	3	Ruksana	24/06/1977	01/01/2018	14801	41
5	4	Malavika	31/12/1988	01/01/2018	10593	29
6	5	Ajeesh	03/04/1999	01/01/2018	6848	19

### Lab Work 3 (SUM and SUMIF Functions)

The list of various Assets in Modern Traders is given below. By using SUMIF function compute:

- Total value of Current Assets
- Total Value of Fixed Assets
- Also calculate the Value of Total Assets by using SUM Function

#### Process :

The following steps are required.

- Enter the data given above in a worksheet in the same format as seen above.
- Select Cell E2 and enter the formula, =SUMIF(B2:B8,"CA",C2:C8) and press Enter Key  
(Now Total value of Current Assets will be displayed in E2)
- Select Cell E4 and enter the formula, =SUMIF(B2:B8,"FA",C2:C8) and press Enter Key  
(Now Total value of Fixed Assets will be displayed in E4)
- Select Cell E6 and enter the formula, =SUM(C2:C8) and press Enter Key  
(Alternatively select C2:C8 and use Sum ( $\Sigma$ ) key)  
(Now Value of Total Assets will be displayed in cell E6)

#### Output

	A	B	C	D	E	F
1	Name of Asset	Fixed / Current Asset	Amount		RESULT	Function used
2	Land and Buildings	FA	75000	Total Current Assets	54500	=SUMIF(B2:B8,"CA",C2:C8)
3	Cash in Hand	CA	6000			
4	Plant and Machinery	FA	60000	Total Fixed Assets	160000	=SUMIF(B2:B8,"FA",C2:C8)
5	Sundry Debtors	CA	12500			
6	Furniture	FA	25000		214500	=SUM(C2:C8)
7	Stock of goods	CA	15000			
8	Cash at Bank	CA	21000			

### Lab Work 4 (COUNT, COUNTA, COUNTBLANK and COUNTIF Functions)

From the given table find out :

- Number of cells containing numbers only.
- Number of cells containing any value.
- Number of cells having no values

(d) Count the number of cells have value more than 2000

1	1220		12/08/17	1856	2365	125R	Cash
2	Buildings	4565	1317	Land	"13/10/2017"		R145

**Process:**

- Step 1 Open LibreOffice Calc.
- Step 2 Enter the data in cells from A1 to G2 as in the question
- Step 3 To get the Number of cells contains Numbers only , Set the formula in E3  
=COUNT(A1:G2)
- Step 4 To get Number of cells that contains any value, Set the formula in E4  
=COUNTA(A1:G2)
- Step 5 To get Number of cells that contains no values (or blank cells), set the formula in E5  
=COUNTBLANK(A1:G2)
- Step 6 To get the Number of cells having values exceeding 2000, Set the formula in E5  
=COUNTIF(A1:G2,">2000")

**Output**

	A	B	C	D	E	F	G
1	1220		12-08-17	1856	2365	125R	Cash
2	Buildings	4565	1317	Land	"13/10/2017"		R145
3	(a) Number of cells containing numbers only				<b>6</b>	Date with out inverted comma is considered as number and within inverted comma is considered as Text)	
4	(b) Number of cells containing any value.				<b>12</b>		
5	(c) Number of cells having no values				<b>2</b>		
6	(d) Number of cells have value more than 2000				<b>3</b>		

**Lab Work 5 (COLUMNS and ROWS Functions)**

From the following array find the number of columns and number of rows by using COLUMNS and ROWS function.

**Process:**

- Step 1 Open LibreOffice Calc.
- Step 2 Select the cell where number of columns are required (Here BJ74) and set the formula =COLUMNS(BF68:BP73) which will return number of columns in the array
- Step 3 Select the cell where number of rows are required (Here BJ75) and set the formula =ROWS(BF68:BP73) which will return number of columns in the array.

	BF	BG	BH	BI	BJ	BK
68						
69						
70						
71						
72						
73						

**Output**

	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP
68		1	2	3	4	5	6	7	8	9	10	11
69		2										
70		3										
71		4										
72		5										
73		6										
74		=COLUMNS(BF68:BP73)				11						
75	Formula used	=ROWS(BF68:BP73)				6						

**Lab Work 6 (IF, NESTED IF, AND and OR Functions)**

The following list shows the details of candidates for the selection of Accountants in Star Ltd.

Application No.	Name	Sex	Age	Score Written test (out of 80)	Score Interview (Out of 20)
101	Manoj	Male	25	65	18
102	Dejesh	Male	27	61	16
103	Manju	Female	21	70	17
104	Krishna	Female	26	59	15
105	Kannan	Male	31	69	14
106	Asha	Female	29	63	16
107	Anjana	Female	25	76	17
108	Unni	Male	26	73	18
109	Lechu	Female	30	61	17
110	Deepa	Female	22	66	18

By using suitable function in Calc,

- Find the total Score of candidates.
- Find the candidates who are below 25 years old and whose total score is more than 80.
- Find the candidates who are below 30 years old and whose, total score is more than 80 and written test score is more than 70. Those who satisfy these conditions should be displayed as "Selected" and others as "Rejected".
- Find the candidates who are below 25 years old or total score is more than 90 or written test score is more than 75. Those who satisfy any of these conditions should be displayed as "Eligible" and others as Not Eligible".
- Grade the candidates on the following basis their total score :
  - More than 90 - Outstanding
  - 85 to 89 - Excellent
  - 80 to 84 - Good
  - Less than 80 - Average



**Process:**

- Step 1 Open LibreOffice Calc.
- Step 2 Enter the data in cells from A1 to F11 as in the question.
- Step 3 Select Cell G2 and enter the formula =SUM(E2,F2) to get the total of Written test and interview. Use drag and fill handle to fill the cells G3 to G11
- Step 4 Select Cell H2 and enter the formula =AND(D2<25,G2>80). Use drag and fill handle to fill the cells H3 to H11
- Step 5 Select Cell I2 and enter the formula =IF(AND(D2<30, G2>80, E2>70),"Selected","Rejected"). Use drag and fill handle to fill the cells I3 to I11
- Step 6 Select Cell J2 and enter the formula =IF(OR(D2<25,G2>90,F2>75),"Eligible","Not Eligible"). Use drag and fill handle to fill the cells J3 to J11
- Step 6 Select Cell K2 and enter the formula =IF(G2>90,"Outstanding",IF(G2>85,"Excellent",IF(G2>80,"Good","Average"))). Use drag and fill handle to fill the cells K3 to K11

**Output**

	A	B	C	D	E	F	G	H	I	J	K
1	Application No.	Name	Sex	Age	Score Written test (out of 80)	Score Interview (Out of 20)	Total Score (a)	(b)	(c)	(d)	(e)
2	101	Manoj	Male	25	65	18	83	FALSE	Rejected	Not Eligible	Good
3	102	Dejesh	Male	27	61	16	77	FALSE	Rejected	Not Eligible	Average
4	103	Manju	Female	21	70	17	87	TRUE	Rejected	Eligible	Excellent
5	104	Krishna	Female	26	59	15	74	FALSE	Rejected	Not Eligible	Average
6	105	Kannan	Male	31	69	14	83	FALSE	Rejected	Not Eligible	Good
7	106	Asha	Female	29	63	16	79	FALSE	Rejected	Not Eligible	Average
8	107	Anjana	Female	25	76	17	93	FALSE	Selected	Eligible	Outstanding
9	108	Unni	Male	26	73	18	91	FALSE	Selected	Eligible	Outstanding
10	109	Lechu	Female	30	61	17	78	FALSE	Rejected	Not Eligible	Average
11	110	Deepa	Female	22	66	18	84	TRUE	Rejected	Eligible	Good

**Lab Work 7 (VLOOKUP)**

The following table shows stock of various fabric items dealt by Minnu's Textiles.

Product No	Brand Name	Product item	Stock (Nos.)	Price Per Unit (₹)
1100	Queen	Sarees	125	1500
1101	Lotus	Sarees	200	1800
1201	Rajas	Pants	200	2500
1202	Handsome	Pants	150	1700
1301	King	Shirt	300	2200
1302	Topper	Shirt	200	1200
1303	Jasmine	Churidar	150	1000

Find out the following using VLOOKUP Function

- a) Brand name of product No. 1101
- b) Product item of product No. 1302
- c) Stock of product No. 1201
- d) Price of product No. 1303

**Process:**

Step-1 : Open a blank worksheet in Libre Office Calc

Step-2 : Enter the table headings in different cells as follows

Cell	Cell Headings
A1	Product No
B1	Brand Name
C1	Product item
D1	Stock (Nos.)
E1	Price Per Unit (₹)

Step-3 : Enter the product details in the table from Cells A2 to E8

Step-4 : Enter the following labels in various cells

B9	Brand name of product No. 1101
B10	Product item of product No. 1302
B11	Stock of product No. 1201
B12	Price of product No. 1303

Enter the following formulae in various cells against the labels

Cell

Formula

E9	=VLOOKUP(1101,A2:E8,2,0)
E10	=VLOOKUP(1302,A2:E8,3,0)
E11	=VLOOKUP(1201,A2:E8,4,0)
E12	=VLOOKUP(1303,A2:E8,5,0)

**Output**

	A	B	C	D	E
1	<b>Product No.</b>	<b>Brand Name</b>	<b>Product Item</b>	<b>Stock (Nos.)</b>	<b>Price Per Unit (₹)</b>
2	1100	Queen	Sarees	125	1500
3	1101	Lotus	Sarees	200	1800
4	1201	Rajas	Pants	200	2500
5	1202	Handsome	Pants	150	1700
6	1301	King	Shirt	300	2200
7	1302	Topper	Shirt	200	1200
8	1303	Jasmine	Churidar	150	1000
9		<b>Brand Name of product No. 1101</b>			<b>Lotus</b>
10		<b>Product item of Product No. 1302</b>			<b>Shirt</b>
11		<b>Stock of Product No. 1201</b>			<b>200</b>
12		<b>Price of Product No. 1303</b>			<b>1000</b>

### Lab Work 8 (CUMIPMT Function)

Minnu Pharmaceuticals took a loan of ₹3,00,000 from Syndicate Bank on 1st Jan 2011 for a period of 5 years at 6% interest per annum. As per agreement, the payment is given at the end of each month. Compute the cumulative interest payable at the end of each year and also the total interest of the entire loan period by using CUMIPMT Function.

Here,

Rate = (6% per annum, hence monthly rate)	= .005 (6%/12)
NPer (length of the loan in months)	= 60 (5x 12)
PV (present value of loan)	= 3,00,000
S is the first period.	= 1 (For 1st Year)
E is the last period.	= 12 (For 1st Year)
Type (payment at the end of a period)	= 0

#### Process :

The steps to calculate cumulative interest using CUMIPMT function is as follows:

Select the cell B8 and enter the formula =CUMIPMT(B2,B3,B4,B5,B6,B7) to calculate the cumulative interest of 1st year. Apply the the same function in respective cells to find the remaining years cumulative interest.

#### Output

	A	B	C	D	E	F	F
1		Year 1	Year 2	Year 3	Year 4	Year 5	For 5 Years
2	<b>Rate</b>	.005	.005	.005	.005	.005	.005
3	<b>Nper</b>	60	60	60	60	60	60
4	<b>PV</b>	300000	300000	300000	300000	300000	300000
5	<b>S</b>	1	13	25	37	49	1
6	<b>E</b>	12	24	36	48	60	60
7	<b>Type</b>	0	0	0	0	0	0
8	<b>Interest payable</b>	-₹16,557.14	-₹13,285.69	-₹9,812.46	-₹6,125.01	-₹2,210.13	-₹47,990.43

### Lab Work 9 (PMT Function)

Mrs. Meera is planning to take a housing loan of ₹10,00,000 from Indian overseas bank. Annual interest rate is 7% and repayment period is 15 years. She wishes to know the amount required for payment of monthly instalment. Help her to calculate the monthly instalment using PMT function in LibreOffice Calc.

#### Process :

Steps for the calculation of monthly instalment are shown below:

The parameters are

Rate = 7% (the monthly rate is 7%/12)  
 Nper = 180 (15 x 12)  
 PV = 10,00,000 FV = 0

Enter the values Rate,Nper,PV,FV and Type into respective cells

Then select the cells to which the result is required and enter the syntax of PMT Function as shows below.

=PMT(7%/12,180,1000000,0,0) or =PMT(B2,B3,B4,B5)

should be entered in the cell B7, which will return monthly instalment of -₹8,988.28

**Output**

	A	B
1	Annual Rate	7.00%
2	Rate (Annual rate /12)	.006
3	Nper	180
4	PV	1000000
5	FV	0
6	Type	0
7	Monthly instalment	-₹8,988.28

(Negative figure is shown because it is payment.)

**Lab Work 10 (Data Series)**

Construct data series using appropriate Edit menu options in the following cases-

- (a) 10 to 120 with increment of 10 in A1:A12, using the Linear series option
- (b) Number series 2,4,8 .....from B1 to B12, using the Growth series option
- (c) First day of every month in an year from C1 to C12, using the Date series option.

**Process:**

**(a) Making Linear data series**

- Step-1: Enter the value 10 in cell A1.
- Step-2: Select the range A1:A12.
- Step-3: Click 'Edit' tab and choose 'Series' from 'Fill' option.
- Step-4: In the 'Fill Series' window on display select Series Type as 'Linear'.
- Step-5: Give the start value as 10, Increment as 10 and click 'OK'.

**(b) Making Growth data series**

- Step-1: Enter the value 2 in cell B1.
- Step-2: Select the range B1:B12.
- Step-3: Click 'Edit' tab and choose 'Series' from 'Fill' option.

Step-4: In the 'Fill Series' window on display select Series Type as 'Growth'.

Step-5: Give the start value as 2, Increment as 2 and click 'OK'.

**(c) Making Linear data series**

Step-1: Enter the date 1/01/2017 in cell C1.

Step-2: Select the range C1:C12.

Step-3: Click 'Edit' tab and choose 'Series' from 'Fill' option.

Step-4: In the 'Fill Series' window on display select Series Type as 'Date'. Also select 'Month' in the 'Time Unit' section of the window.

Step-5: Give the start value as 1/01/2017, Increment as 1 and click 'OK'.

**Output**

The final out put is shown below:

	(a) Linear Series	(b) Growth Series	(c) Date Series
1	10	2	01/01/17
2	20	4	01/02/17
3	30	8	01/03/17
4	40	16	01/04/17
5	50	32	01/05/17
6	60	64	01/06/17
7	70	128	01/07/17
8	80	256	01/08/17
9	90	512	01/09/17
10	100	1024	01/10/17
11	110	2048	01/11/17
12	120	4096	01/12/17

**Lab Work 11 (Importing data to Calc)**

Create a data file using Text Editor by entering the following 'Asset\_Details'. Also import the details by opening a worksheet in LibreOffice Calc.

Asset Name	Purchase Date	Cost price	Brokerage	Transportation	Installation charges	Scrap value	Life (years)
Machinery	01/01/2013	1200000	15000	0	2500	20000	8
Plant	31/03/2013	2500000	200000	12000	40000	500000	12
Motor car	01/08/2013	140000	0	0	0	200000	7
Furniture	31/10/2013	85 000	0	3000	0	5000	10

**Process :**

Step-1: Open a new Text Editor file From Accessories in Applications.

Step-2: In the first line give the titles of the columns such as Name of Asset, Date of Purchase, Purchase price, Brokerage, Transportation, Installation charges,

Scrap value and life in years, in the same sequence by separating each heading using comma.

- Step-3: In the next four lines, enter the details of each asset, separated by comma in the same order of the column headings.
- Step-4: Save the text file in 'Documents' or 'Desktop' by giving the name 'Asset\_Details'.
- Step-5: Open a new LibreOffice Calc worksheet.
- Step-6: Click on 'Sheet from File' option from Insert menu. Select the text file named 'Asset\_Details' with the help of dialogue box appeared and press 'Open' button.
- Step-7: Click 'OK' in the Text Import -(Asset\_Details)' window. Also click 'OK' on the 'Insert Sheet' window appeared in the screen.
- Step-8: The details of assets are than placed from A1:H5 in the worksheet. Then,save the worksheet by giving the name 'Details of Students'.

**Output**

	A	B	C	D	E	F	G	H
1	Name of asset	Date of purchase	Purchase price	Brokerage	Transportation	Installation charges	Scrap value	life in years
2	Machinery	01/01/2013	1200000	15000	0	2500	20000	8
3	Plant	31/03/2013	2500000	200000	12000	40000	500000	12
4	Motor car	01/08/2013	1400000	0	0	0	200000	7
5	Furniture	31/10/2013	85000	0	3000	0	5000	10
6								

**Lab Work 12 (Data Validation)**

Construct a spreadsheet table showing the following details of 10 students participating in an inter-class debate competition.

- (a) Serial Number
- (b) Name(assume the names of 10 students)
- (c) Sex
- (d) Batch(Science, Commerce, Humanities)

Use data validation option for filling the 'sex' from the list and 'Batch', from the cell range. Also set appropriate 'Input help' and 'Error alert' to be displayed at the time of data entry.

**Process:**

- Step-1: Open a new LibreOffice Calc worksheet and give the title 'List of students for debate' in A1.
- Step-2: Give the column headings as 'Sl. No.' in A2, 'Name' in B2, 'Sex' in C2, 'Batch' in D2.
- Step-3 : Enter the Serial Number 1 to 10 in A3:A12 using the fill handle.

- Step-4: Enter the names of 10 students as per your choice(Both male and Female) from B3 to B12.
- Step-5: To enter the sex of students, select the area C3:C12., Then go to 'Data' manu and choose 'Validity' option. In the appeared 'Validity' window, in 'Allow' field select 'List' , and in 'Entries' field give the values 'Male', 'Female' and 'Transgender' one after another in separate line and click 'OK'. (You may set the 'Input Help' in the validity window, by giving title as 'Sex' and 'Input help' message as 'Give sex of students'. You may also set Error Alert in the validity window. The Action may be selected to 'Warning', give the Title as 'Sex' and the Error Message as 'wrong data' and click 'OK'.) Click on the arrow shown right to the validated cell for selecting the sex of each student.
- Step-6: To enter batch of students, prepare a list of batches (Science, Commerce, Humanities) anywhere in the spreadsheets (for eg, in sheet 1, B13:B15), select the area D3:D12, go to 'Data'tab and choose 'Validity' option. In the appeared 'Validity' window, in 'Allow' field select 'Cell range' , and in 'Source' field insert the specific sheet and range address in which required values are available.(Eg, \$Sheet 1.\$B\$13:\$B\$15) (You may also set the 'Input Help' in the validity window, by giving title as 'Batch' and Input help message as 'Give group of 'study'. You may also set Error Alert in the validity window. The Action may be selected to 'Warning', give the Title as 'Batch' and the Error Message as 'wrong entry, Correct it' and click 'OK'.) Click on the arrow shown right to the validated cell for selecting the batch of each student.
- Step-7: Save the workbook by giving appropriate name.

**Output**

	A	B	C	D
1	<b>List Students for Debate</b>			
2	<b>Sl. No.</b>	<b>Name</b>	<b>Sex</b>	<b>Batch</b>
3	1	Ashokan	Male	Commerce
4	2	Benny Thomas	Male	Humanities
5	3	Gineesh	Male	Science
6	4	Sundas	Female	Commerce
7	5	Sareesh	Male	Humanities
8	6	Bindsree	Female	Science
9	7	Roy Joseph	Male	Humanities
10	8	Shija Baby	Female	Humanities
11	9	Rajesh Babu	Male	Commerce
12	10	Ramees	Male	Science
13		Science		
14		Commerce		
15		Humanities		

### Lab Work 13 (Conditional Formatting)

The stock of some medicines in a Medical Shop are listed below:-

#### STOCK OF MEDICINES – KRISHNA MEDICALS

SL. NO.	NAME OF MEDICINE	NAME OF COMPANY	QUANTITY
1	Gluciphage Tab 250	Franco India	230
2	Gluciphage Tab500	Franco India	45
3	Ecosprin Tab 75	USV	110
4	Ecosprin Tab 150	USV	240
5	Calpol Tab 500	Welcome	20
6	Calpol Tab 650	Welcome	40
7	Mox Cap 250	Rexel	160
8	Mox Cap 500	Rexel	25
9	Amlodac Tab 10	Cadila	320
10	Amlodac Tab 20	Cadila	46
11	Roscillin Cap 250	Ranbaxy	170
12	Roscillin Cap 500	Ranbaxy	165
13	Topcid Tab 20	Torrent	24
14	Topcid Tab 40	Torrent	48

This firm has the practice of placing new orders for medicines, when the stock quantity falls below 50 units. Identify the medicines which are in the re-order level and highlight them using red colour.

(Hint: Use conditional formatting option available in LibreOffice Calc.)

#### Process :

Step-1, Open a LibreOffice Calc worksheet and enter the given data in A1:D16

Step-2, Select the cells to which you want to apply a conditional style(ie. D3:D16)

Step-3, Choose, **Format → Conditional Formatting → Condition**

Step-4, Enter the condition into the appeared windows. In the option 'Cell Value is' select 'Less than' and in 'Apply Style' select 'New style'.

Step-5, In the appeared window, Cell Style', click on the menu item 'Back ground' and select the background colour as red. Confirm both the screens by click 'OK'.



**Output**

The formatted table will be shown as follows:-

	A	B	C	D
1	<b>STOCK OF MEDICINES – KRISHNA MEDICALS</b>			
2	<b>SL. NO.</b>	<b>NAME OF MEDICINE</b>	<b>NAME OF COMPANY</b>	<b>QUANTITY</b>
3	1	Gluciphage Tab 250	Franco India	230
4	2	Gluciphage Tab500	Franco India	45
5	3	Ecosprin Tab 75	USV	110
6	4	Ecosprin Tab 150	USV	240
7	5	Calpol Tab 500	Welcome	20
8	6	Calpol Tab 650	Welcome	40
9	7	Mox Cap 250	Rexel	160
10	8	Mox Cap 500	Rexel	25
11	9	Amlodac Tab 10	Cadila	320
12	10	Amlodac Tab 20	Cadila	46
13	11	Roscillin Cap 250	Ranbaxy	170
14	12	Roscillin Cap 500	Ranbaxy	165
15	13	Topcid Tab 20	Torrent	24
16	14	Topcid Tab 40	Torrent	48

**Lab Work 14 (One-variable Data Table)**

Mr. Sukumar, a Medical representative working in a pharmaceutical company, is drawing a fixed monthly salary of ₹10,000. He is also entitled to 12% commission on sales achieved during the month. He attained the sales volume of ₹20,000 during the previous month. Make a One Variable Table showing his salary if monthly sales varies from ₹10,000 to ₹50,000 in multiples of ₹5000 .

**Process:**

Step-1: Enter the following details in a worksheet.

Commission(in A1)- 12%(in B1)

Monthly Sales(in A2)- 20000(in B2)

Salary Amount(in A3)- =10000 +B2 x B1

Step-2: In column 'C' enter given monthly sales from 10,000 to 50,000, in steps of 5000.

Step-3: Select the range C2:D10.

Step-4: Choose Data - Multiple operations. In the Formulas field give B3.In Column input cell give B2, because Monthly sales is the variable here.

Step-5: Close the dialogue box with OK.

## Output

The One-variable data table appears as follows:-

	A	B	C	D
1	Commission	12.00%	Sales(Rs.)	Salary(Rs.)
2	Monthly Sales	20000	10000	11200
3	Salary(Rs.)	12400	15000	11800
4			20000	12400
5			25000	13000
6			30000	13600
7			35000	14200
8			40000	14800
9			45000	15400
10			50000	16000

### Lab Work 15 (Two-variable Data Table)

An insurance company introduced a new insurance policy to the public sector employees in the age group of 20 to 30 years. The premium should be paid up to the age of 50 years. On the date of retirement or death of the insured, the insurance company will pay double the amount of sum assured. The minimum sum assured is ₹. 50,000, policies can be taken in multiples of ₹. 10,000 and the maximum ceiling is ₹. 2,00,000. An employee with the age of 25 years taking a policy of ₹. 1,00,00 should pay yearly premium of ₹.4,000. (The premium calculation formula being 'Sum assured/50-Age of Employee'.) Construct a two-variable table showing the yearly premium to be paid by employees of different age groups for varying policy amounts.

#### Process:

Step-1 : Enter the following details in a worksheet.

	A	B
1	Insured Sum	100000
2	Age of employee	25
3	Yearly Premium	=B1/(50-B2)

Step-2: In column 'C' enter sum assured from 50,000 to 2,00,000, in steps of 10,000.

Step-3: From D2:N2, enter the age of employees from 20 to 30.

Step-4: select the area C2:N18.

Step-5: Choose Data - Multiple operations. In the Formulae field give B3. In the Row input cell give B2. In Column input cell give B1, Here, both the sum assured and age of employees are variables.

Step-6: Close the dialog box with OK, then the two-variable data table will be formed.

Step-7: Round off the amounts to '0' decimal places by number formatting.

**Output**

The Two-variable data table appears as follows:

C	D	E	F	G	H	I	J	K	L	M	N
<b>Sum insured</b>	<b>Age of employees</b>										
	20	21	22	23	24	25	26	27	28	29	30
50000	1667	1724	1786	1852	1923	2000	2083	2174	2273	2381	2500
60000	2000	2069	2143	2222	2308	2400	2500	2609	2727	2857	3000
70000	2333	2414	2500	2593	2692	2800	2917	3043	3182	3333	3500
80000	2667	2759	2857	2963	3077	3200	3333	3478	3636	3810	4000
90000	3000	3103	3214	3333	3462	3600	3750	3913	4091	4286	4500
100000	3333	3448	3571	3704	3846	4000	4167	4348	4545	4762	5000
110000	3667	3793	3929	4074	4231	4400	4583	4783	5000	5238	5500
120000	4000	4138	4286	4444	4615	4800	5000	5217	5455	5714	6000
130000	4333	4483	4643	4815	5000	5200	5417	5652	5909	6190	6500
140000	4667	4828	5000	5185	5385	5600	5833	6087	6364	6667	7000
150000	5000	5172	5357	5556	5769	6000	6250	6522	6818	7143	7500
160000	5333	5517	5714	5926	6154	6400	6667	6957	7273	7619	8000
170000	5667	5862	6071	6296	6538	6800	7083	7391	7727	8095	8500
180000	6000	6207	6429	6667	6923	7200	7500	7826	8182	8571	9000
190000	6333	6552	6786	7037	7308	7600	7917	8261	8636	9048	9500
200000	6667	6897	7143	7407	7692	8000	8333	8696	9091	9524	10000

**Lab Work 16 (Pivot Table)**

You are given the sales details of a supermarket dealing with different types of consumer products. Make a Pivot table showing category wise sales amount.

	A	B	C	D
1	Bill No	Name of product	Category	Sales (₹)
2	A1	Rose	Soap	1300
3	A2	Lilly	Soap	2500
4	A3	Shine teeth	Tooth paste	3500
5	A4	Smile	Tooth paste	4500
6	A5	Flowers	Soap	7500
7	A6	Lotus	Soap	4000
8	A7	Mazvila	Tooth paste	5500
9	A8	Magic	Soap	3500
10	A9	Beauty	Talcum powder	2500
11	A10	Fresh	Tooth paste	3000

**Process:**

Step-1: Enter the data into spread sheet and select the data range. (A1: D11)

Step -2: Data → Pivot Table → Create

Step:3: Drag and drop the field buttons into the white areas of Pivot Table Dialogue Box as given below :

Column Fields - Category

Row Fields - Bill No. & Name of Product

Data fields - Sales (Rs.)

Step-4: Specify the range of cells in the current worksheet to set the destination of the pivot table.

(Say, E1:J13) and confirm the pivot table layout window.

### Output

The pivot table appears as follows:-

	A	B	C	D	E	F
1	Sum - Sales (₹)		Data			
2	Bill No	Name of product	Soap	Talcum powder	Tooth paste	Total Result
3	A1	Rose	1300			1300
4	A10	Fresh			3000	3000
5	A2	Lilly	2500			2500
6	A3	Shine teeth			3500	3500
7	A4	Smile			4500	4500
8	A5	Flowers	7500			7500
9	A6	Lotus	4000			4000
10	A7	Maavila			5500	5500
11	A8	Magic	3500			3500
12	A9	Beauty		2500		2500
13	Total Result		18800	2500	16500	37800