ACES INFOTECH
An ISO 9001:2015,14001:2015 Certified Company

Computer Training for The Employees of WBSEDCL , Govt. Of West Bengal Enterprise

Conducted by
ACES INFOTECH PVT LIMITED

WBSEDCL

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Microsoft Excel 2016

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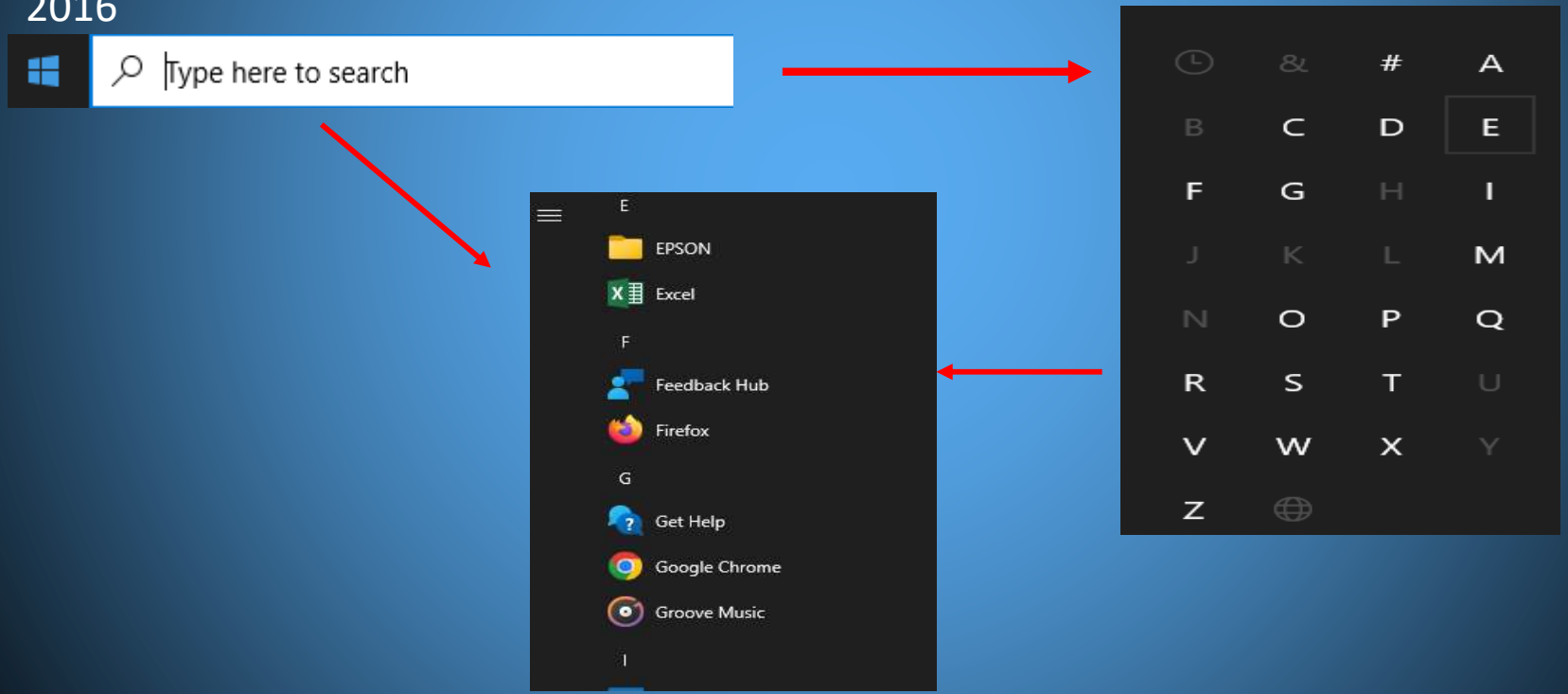
Microsoft Excel is an electronic spreadsheet program that runs on a personal computer. As with a paper spreadsheet, you can use Excel to organize your data into rows and columns and to perform mathematical calculations.

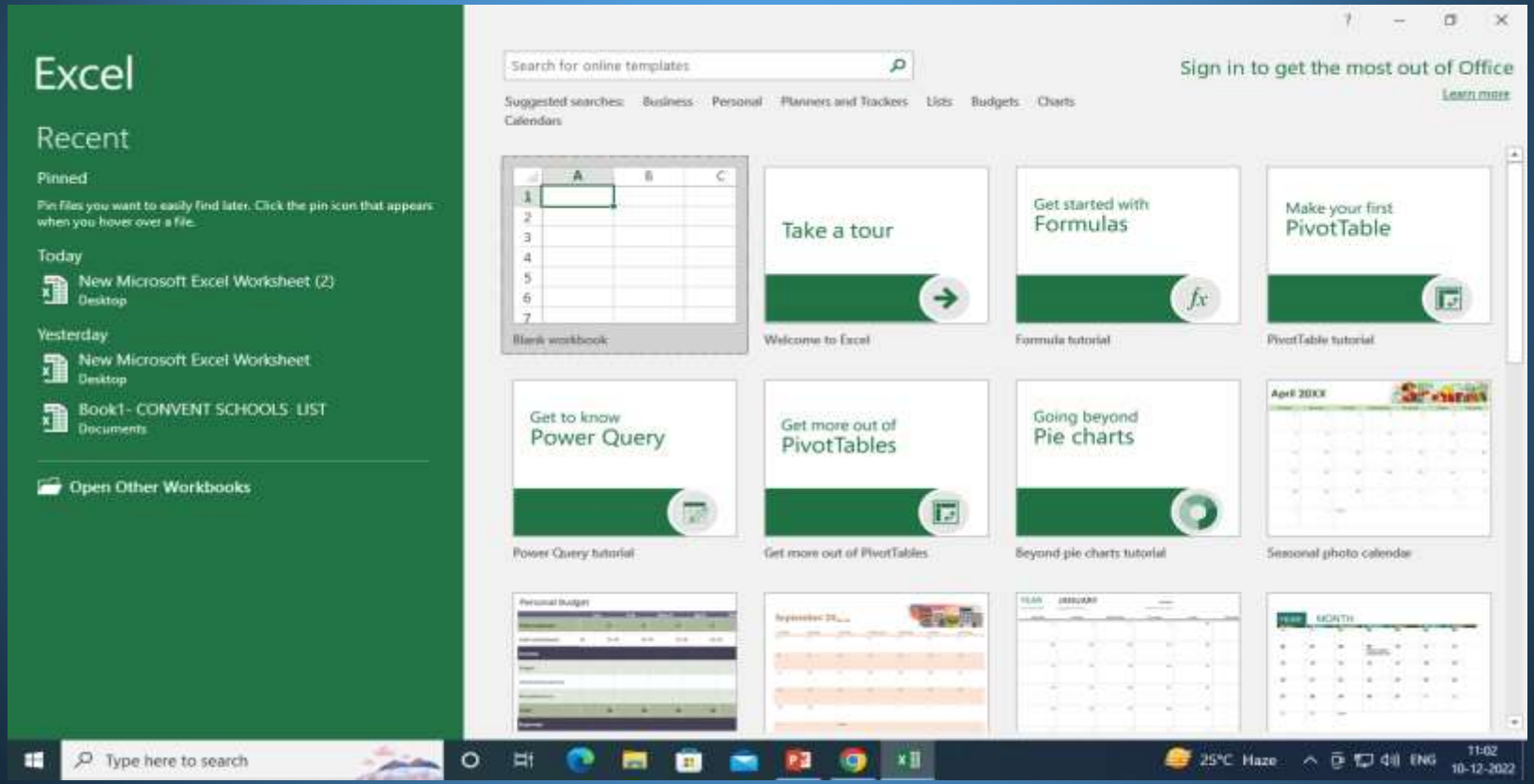
How to start MS Excel 2016

Open Excel by using the **Start** menu or by **double-clicking** the Desktop icon for Excel 2016



To open a blank workbook

Click on the Blank Workbook.



Parts of Ms Excel 2016

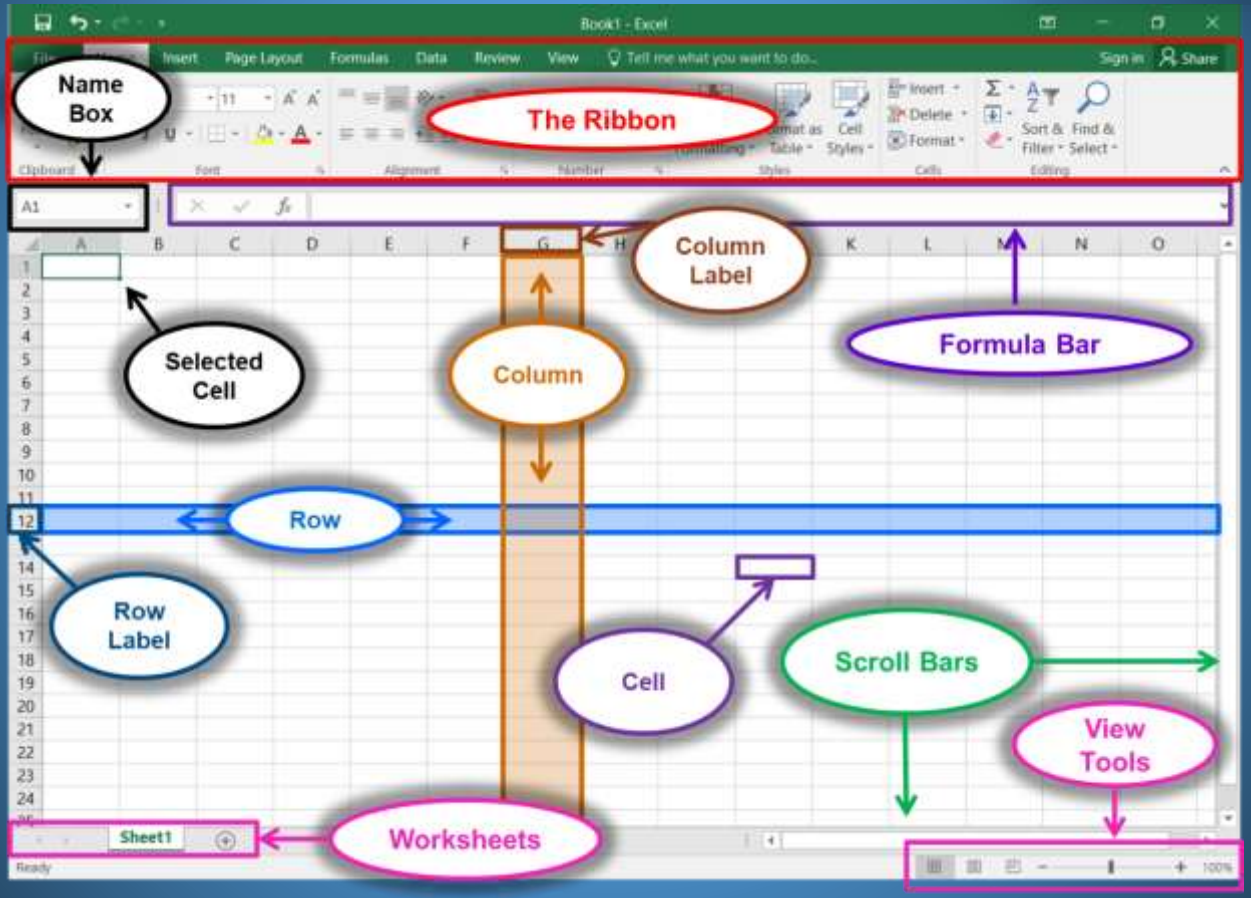
Worksheet: Each page of the workbook is called Worksheet. Default Worksheets is sheet1. Each worksheet contains 16,384 columns and 10,48,576 rows.

Workbook: It is a collection of many Worksheets. In a single workbook, you can store information in an organized manner. By default, a workbook opens with three worksheets and it can contain a maximum of 255 worksheets.

Spreadsheet: It is defined as a large sheet, which contains data and information. It is a software tool. But sometimes, worksheet is also called Spreadsheet. Ms Excel basically provides an electronic spread sheet ,where all calculations can done automatically through built in program.

Workspace

Open Excel and locate the different parts of the Excel window.



Chartsheet: It is a separate sheet in a workbook that contains only graphs and chart. It is useful when you want to see a chart or tabular data separated from other type of data.

Name Box: Displays the currently selected sell.

Formula Bar: Displays the number, text, or formula that is in the currently selected cell, and allows you to edit it. It behaves just like a **text box**.

Selected Cell: The selected cell has a dark border around it.

Column: Columns run vertically (top to bottom).

Column Label: Identifies each column with a letter. Clicking on a column label selects the entire column.

Row: Rows run horizontally (left to right).

Row Label: Identifies each row with a number. Clicking on a row label selects the entire row.

Cell: The intersection of a row and column.

Scroll Bars: Used to view other parts of a worksheet when the entire worksheet cannot fit on the screen.

View Tools: See Status Bar next

Status Bar

The status bar is located below the document window area.

Current Information

The **left end** gives current information about the spreadsheet. Excel doesn't have much information here.

Views

At the **right end** are shortcuts to the different **views** that are available. Each view displays the spreadsheet in a different way, allowing you to carry out various tasks more efficiently.

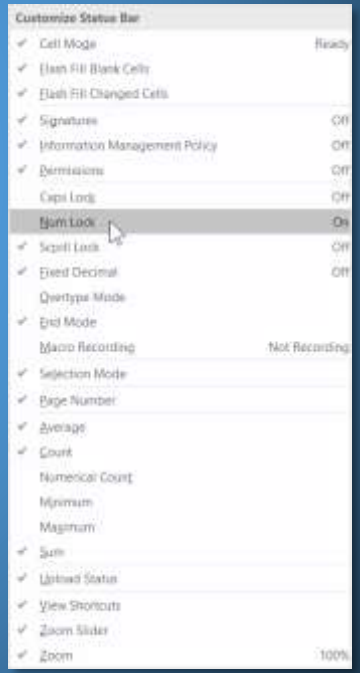
Normal	**This is the view we will be working in throughout this course. It simply displays the grid of cells that make up your spreadsheet.**
Page Layout	**Shows what your spreadsheet will look like when printed on paper.**
Page Break Preview	**Allows you to add page breaks to your spreadsheet so you can better control what parts of the spreadsheet are printed on each page.**

Zoom Slider

Also at the right end of the Status Bar is the Zoom Slider. This allows you to adjust how large the spreadsheet is displayed on the screen. It does not adjust the actual size of the text—just how big or small they are rendered on the screen (like moving a newspaper away from or closer to your eyes).

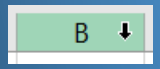
Customization

•**Right-click** the **Status Bar** to display the **Customize Status Bar** menu.



Excel Cursors:

You will encounter many different cursor shapes while using Excel.

Standard	Default cursor shape. Appears when you are pointing at buttons on the Ribbon.
I-Beam	Appears when you are pointing to editable text or to a text box that you cantype into.
Move	Clicking and dragging will move whatever object you are pointing to.
Box Cross	Appears when you point to a cell on your spreadsheet. Clicking and dragging will select cells.
Fill Handle	Appears when you point to the black square in the bottom-right corner of a selected cell. Clicking and dragging will auto-fill adjacent cells (we will talk more about auto-fill later).
 Select Column	Appears when you point to a column header. Clicking will select an entirecolumn.
 Select Row	Appears when you point to a row header. Clicking will select an entire row.
 Resize Column	Appears when you point to the divider line between two column headers.Allows you to resize columns.
 Resize Row	Appears when you point to the divider line between two row headers. Allowsyou to resize rows.

Creating an Excel Document and Saving It

Creating an Excel file

When Excel opens, it will display a blank worksheet ready for you to enter data. The data that you enter and the formatting that you use become your document.

In cell **A1**, **type** “My first spreadsheet.”
Each spreadsheet you create is temporary unless you save it as a **file** with a unique name and location.

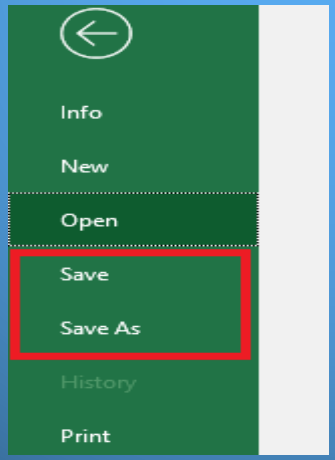
Preparing a Save to Location – a USB Device

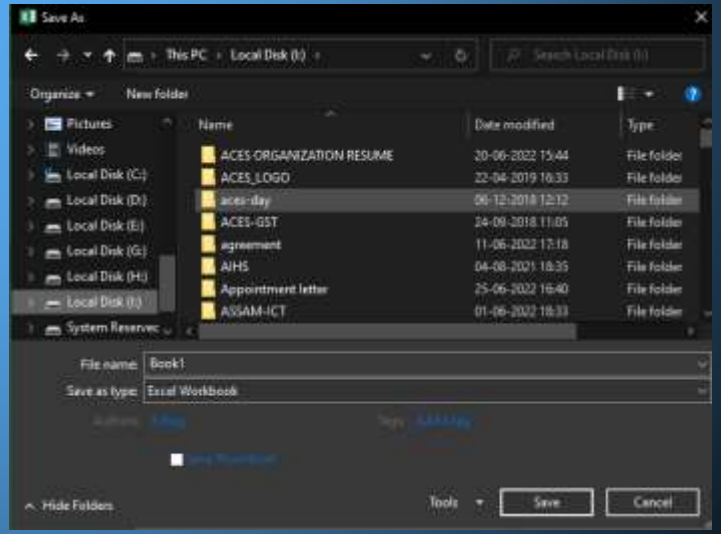
When we save an Excel document, all the data in that document is collected and saved as a **file**. Normally, files are saved on a computer’s hard drive, but due to security restrictions on computer lab machines, files must be saved on removable storage devices.

Saving the File

•**Click** the **File** tab.
•**Click** the **Save As** button. (We use *Save As* instead of *Save* the **first** time we save a file or whenever we want to save an existing file under a different name or change where we save the file.)
•**Click Browse**.
•**Notice** that a smaller window appears in front of our work. This small window is called a **dialog box**. Because the computer needs to know more than just "OK, save," the dialog box is where we tell it *how* we want to save our work.

•Select the drive and give the File name and press save





How to Insert Text , Numbers and Formula :

Inserting Text / numbers :

Follow these steps to enter text and /or numbers in a MS Excel 2016 worksheet

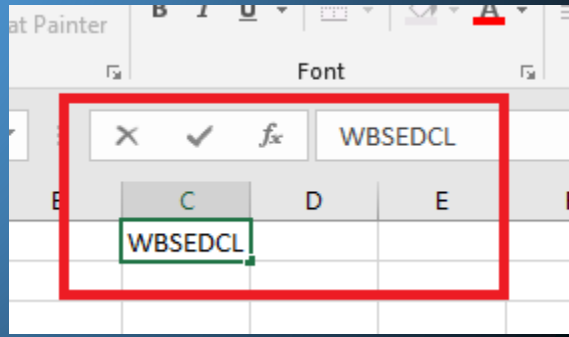
The cell where data has to be entered should be made active.

Type the value and press enter.

On clicking the formula bar ,two small buttons appear on its left.

A cancel button with a symbol of a cross ✕ .This is used to cancel the data.

An enter button with a symbol of tick mark ✓ This is used to enter data.



Inserting Formula :

It begins with an equal sign “=“ . Any kind of formula can be created in MS Excel . Once the formula is entered , The calculation is executed immediately and the formula itself is visible in the Formula Bar.
The formula may consist of :

Only values , for example , =5+7

Combination of a number and cell address , for example , = A1 + 3.

Only cell address , for example , = D2 + E2.

Cell Reference and cell Range

Cell Reference :

Cell reference is the column letter and row number that identifies a single cell. For example A1 , C12 etc.

Cell Range :

Cell range is a collection of continuous cells selected. Every cell range has a name .
A cell range name consists of cell address of the first cell , a colon and last cell address.
For example- A1 : A6 , B1 : D8.

Cell Reference

Relative reference
Absolute reference

Relative reference:

By default, all cell references are **relative references**. When copied across multiple cells, they change based on the relative position of rows and columns. For example, if you copy the formula **=A1+B1** from row 1 to row 2, the formula will become **=A2+B2**. Relative references are especially convenient whenever you need to repeat the same calculation across multiple rows or columns.

Example of relative reference

we want to create a formula that will multiply each item's **price** by the **quantity**. Instead of creating a new formula for each row, we can create a single formula in cell **D4** and then copy it to the other rows. We'll use relative references so the formula calculates the total for each item correctly.

Select the cell that will contain the formula. In our example, we'll select cell E4.

	A	B	C	D	E	F
1						
2						
3	Sr. No.	Item	Unit Price	quantity	Total	
4	1	Rice	42	5		
5	2	White oil	180	2		
6	3	Potato	30	4		
7	4	Onion	28	3		
8	5	Dal	120	2		
9						
10						
11						

Enter the **formula** to calculate the desired value. In our example, we'll type **=D4*C4**.

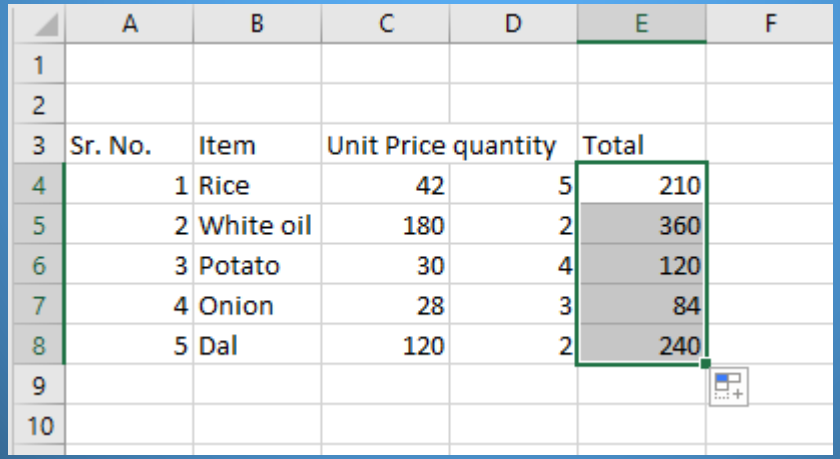
	A	B	C	D	E	F
1						
2						
3	Sr. No.	Item	Unit Price	quantity	Total	
4	1	Rice	42	5	=D4*C4	
5	2	White oil	180	2		
6	3	Potato	30	4		
7	4	Onion	28	3		
8	5	Dal	120	2		
9						
10						
11						

Press **Enter** on your keyboard. The formula will be calculated, and the result will be displayed in the cell.

Select the cell you want to copy. In our example, we'll select cell **E4**. The **fill handle** will appear in the bottom-right corner of the cell.

Click and drag the **fill handle** over the cells you want to fill. In our example, we'll select cells **E5:E8**

Release the mouse. The formula will be **copied** to the selected cells with **relative references**, displaying the result in each cell.



	A	B	C	D	E	F
1						
2						
3	Sr. No.	Item	Unit Price	quantity	Total	
4	1	Rice	42	5	210	
5	2	White oil	180	2	360	
6	3	Potato	30	4	120	
7	4	Onion	28	3	84	
8	5	Dal	120	2	240	
9						
10						

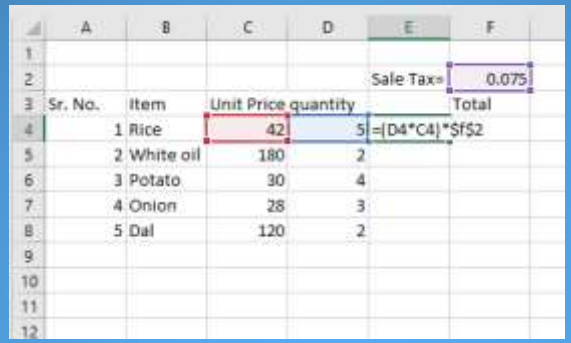
Absolute references

There may be times when you do not want a cell reference to change when copying or filling cells. You can use an **absolute reference** to keep a row and/or column constant in the formula.
An absolute reference is designated in the formula by the addition of a **dollar sign ($)**. It can precede the column reference, the row reference, or both.

In the example below, we're going to use cell **F2** (which contains the tax rate at 7.5%) to calculate the sales tax for each item in **column E**. To make sure the reference to the tax rate stays constant—even when the formula is copied and filled to other cells—we'll need to make cell **$F$2** an absolute reference.

Select the **cell** that will contain the formula. In our example, we'll select cell **E4**.

Enter the **formula** to calculate the desired value. In our example, we'll type =**(D4*C4)*$F$2**, making **$E$2** an absolute

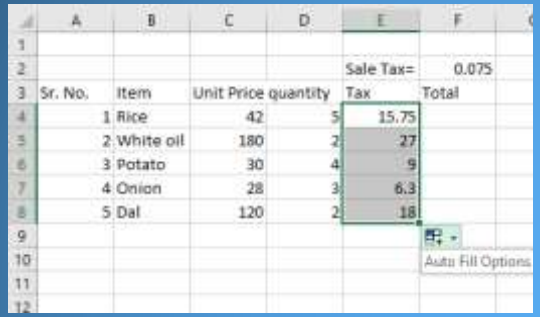


	A	B	C	D	E	F
1						
2					Sale Tax=	0.075
3	Sr. No.	Item	Unit Price	quantity		Total
4	1	Rice	42	5	=(D4*C4)*$F$2	
5	2	White oil	180	2		
6	3	Potato	30	4		
7	4	Onion	28	3		
8	5	Dal	120	2		
9						
10						
11						
12						

Press **Enter** on your keyboard. The formula will calculate, and the result will display in the cell.
Select the cell you want to copy. In our example, we'll select cell **E4**. The **fill handle** will appear in the bottom-right corner of the cell.

Click and drag the **fill handle** over the cells you want to fill (cells **E5:E8** in our example).

Release the mouse. The formula will be **copied** to the selected cells with an **absolute reference**, and the values will be calculated in each cell.



	A	B	C	D	E	F
1						
2					Sale Tax=	0.075
3	Sr. No.	Item	Unit Price	quantity	Tax	Total
4	1	Rice	42	5	15.75	
5	2	White oil	180	2	27	
6	3	Potato	30	4	9	
7	4	Onion	28	3	6.3	
8	5	Dal	120	2	18	
9						
10						
11						
12						

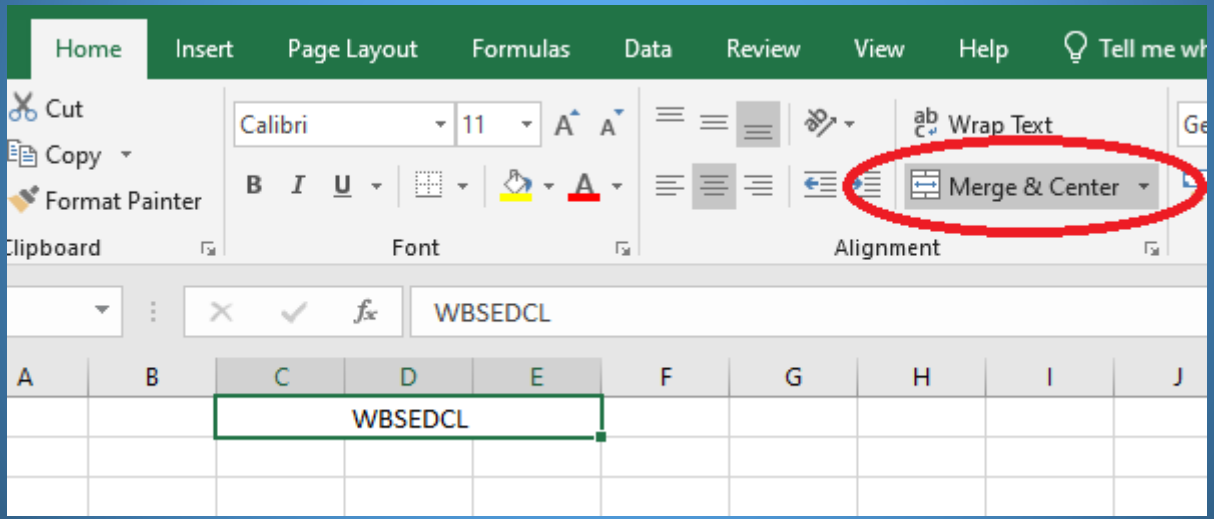
Auto Fill Options

Now to get the Total amount type the formula=(D4*C4)+E4 at F4 and copy it F5 to F8

	A	B	C	D	E	F	G
1							
2					Sale Tax=	0.075	
3	Sr. No.	Item	Unit Price	quantity	Tax	Total	
4	1	Rice	42	5	15.75	225.75	
5	2	White oil	180	2	27	387	
6	3	Potato	30	4	9	129	
7	4	Onion	28	3	6.3	90.3	
8	5	Dal	120	2	18	258	
9							
10							

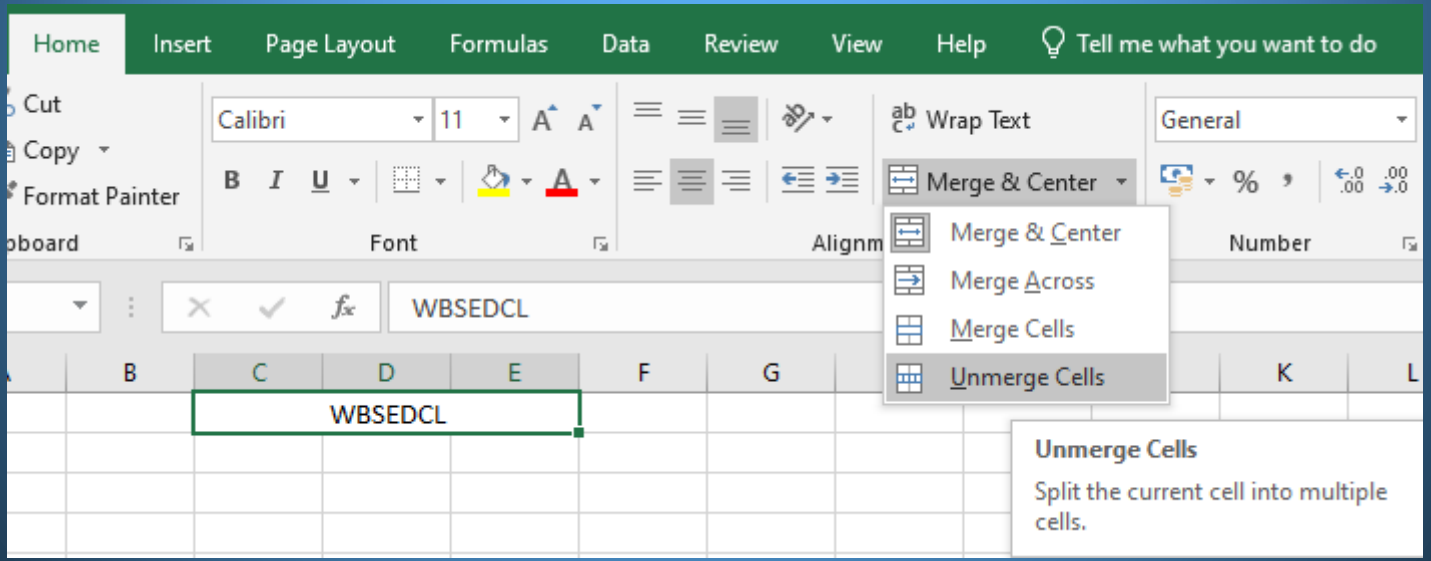
Merge and Center

Select cells A1 to C1 by **clicking** inside the first cell, **making sure** your mouse pointer is a white box cross (the selection tool) and **holding** the left mouse button down and **dragging** across to the last cell of the selection area.
On the **Home** tab, in the **Alignment** group, **click** the **Merge & Center** button.



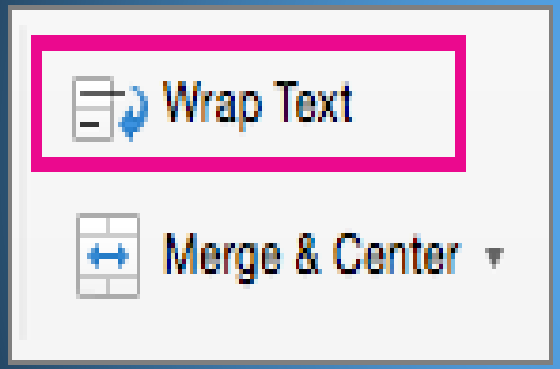
Unmarge Cell

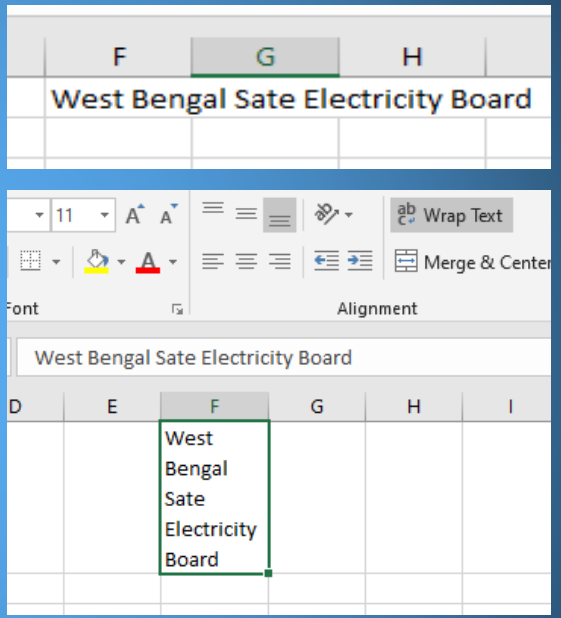
1. Select the merge cell.
2. Click on the drop down arrow of **merge & center** option
3. Now click **Unmarge** Cell option.



Wrap text in a cell or group of cells

1. Select the cells that you want to format.
2. On the **Home** tab, click **Wrap Text**.





Text inside the cell wraps to fit the column width. When you change the column width, text wrapping adjusts automatically.

Enter Data and Navigate Between Cells

We will be typing content into cells and using two methods to move to adjacent cells.
Click in cell **A2**. **Type Item**, and **tap** the Tab key to move to cell **B2**.

In cell **B2**, **type Amount** and **tap** the Tab key to move to cell C2

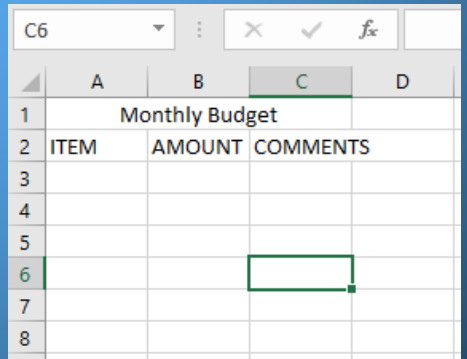
In cell **C2**, **type Comments**.

Move to a different cell to **commit** the content in C2

Format Cells

Formatting can be applied to several cells at one time and can make the cells stand out from the rest of the cells in the worksheet.

Select the A2 through C2 cell range



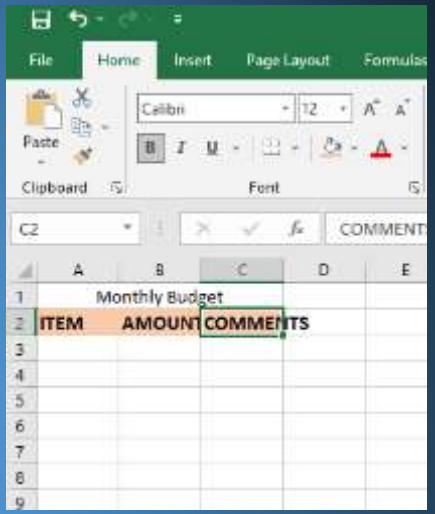
On the **Home** tab in the **Font** group**, click** the **Bold** button.

Change the **font size** to 12.

Find the **Fill Color** button in the **Font** group and **click** the list arrow.

Select a light color from the color choices.

Click in a clear cell to **view** the changes to this range of cells.

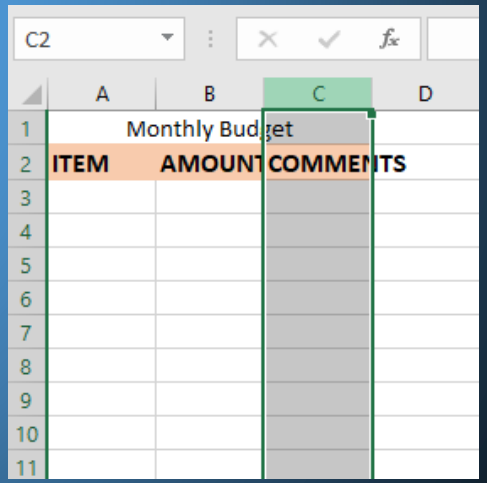


Resize Column

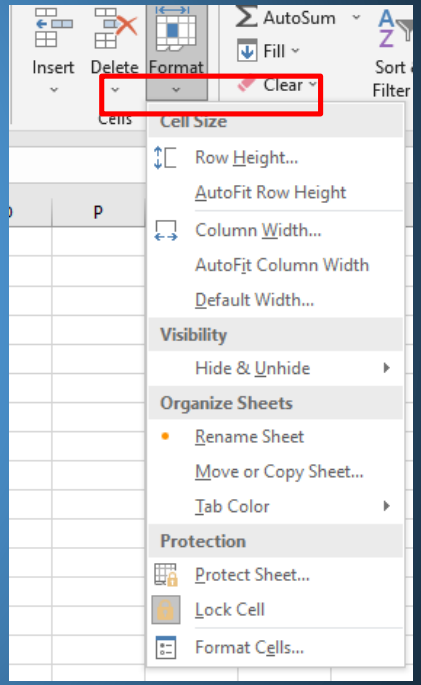
Note how the word Comments doesn't seem to "fit" in the cell. To fix that, we need to widen the column

Using the ribbon

Click on the **C** at the top of the column to **select** the column. This is called the **column label**.



On the **Home** tab in the **Cells** group**, click** the **Format** button. Under **Cell Size**, **choose AutoFit Column Width.**



- **Click** in a **clear cell** to deselect the column.
- **Notice** the word **Comments** now "fits" in the C Column.

	A	B	C	D
1	Monthly Budget			
2	**Item**	**Amount**	**Comments**	

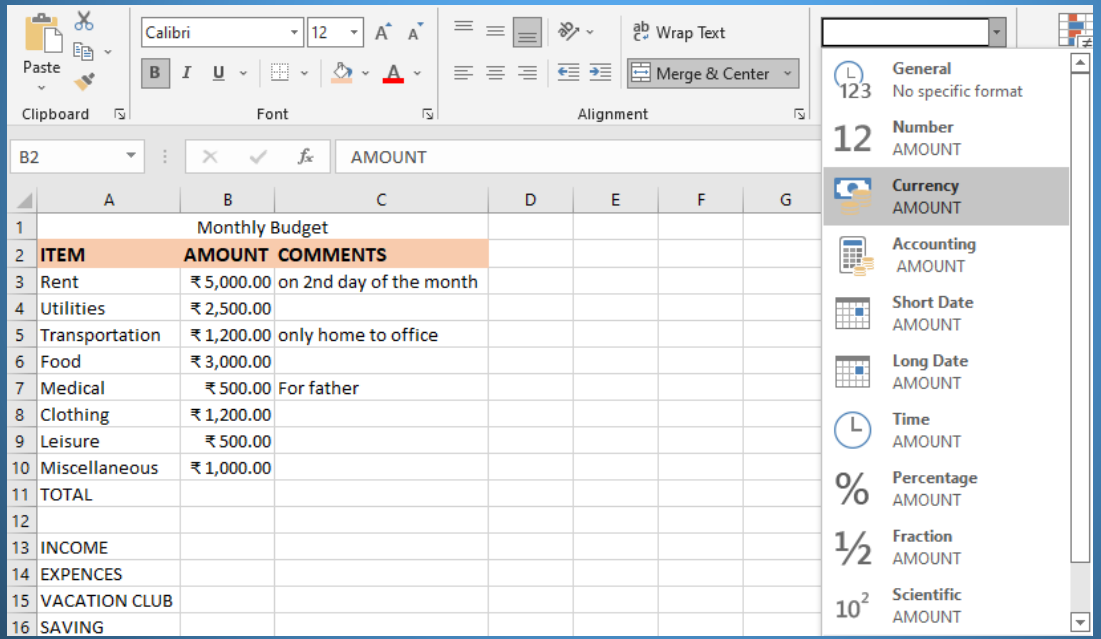
* Show practically double –click method

Apply Currency Style Formatting

Since we are doing a budget, it would be nice to have the numbers in column B display in currency style rather than just plain numbers. To do this:

Select column **B** by **clicking** on the letter **B** at the top of the column.

On the **Home** tab in the **Number** group**, click** the **Accounting Number Format** button and select currency



	A	B	C	D	E	F	G
1		Monthly Budget					
2	**ITEM**	**AMOUNT**	**COMMENTS**				
3	Rent	₹ 5,000.00	on 2nd day of the month				
4	Utilities	₹ 2,500.00					
5	Transportation	₹ 1,200.00	only home to office				
6	Food	₹ 3,000.00					
7	Medical	₹ 500.00	For father				
8	Clothing	₹ 1,200.00					
9	Leisure	₹ 500.00					
10	Miscellaneous	₹ 1,000.00					
11	TOTAL						
12							
13	INCOME						
14	EXPENCES						
15	VACATION CLUB						
16	SAVING						

Enter a Simple Formula :

Next, we are going to examine several different ways to add the values in cells B3 TO B10

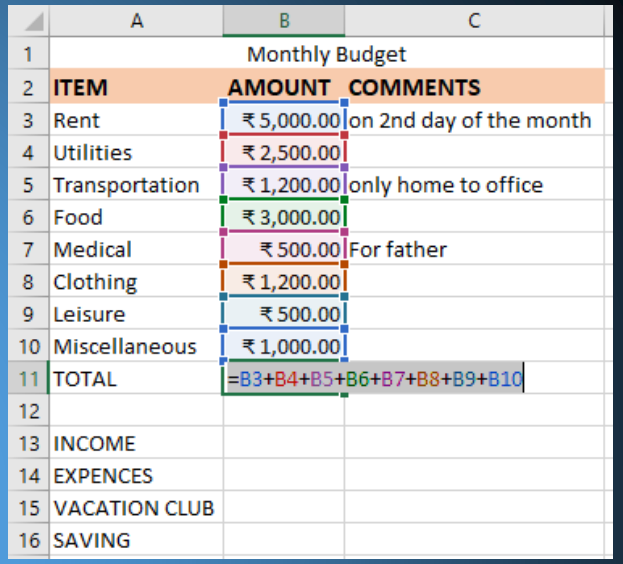
Click on B11(where you want the result) and type '=' sign

Now, **click** into cell **B3**. **Notice** how the cell name (**B3**) appears in a color border is now around cell **B3**.

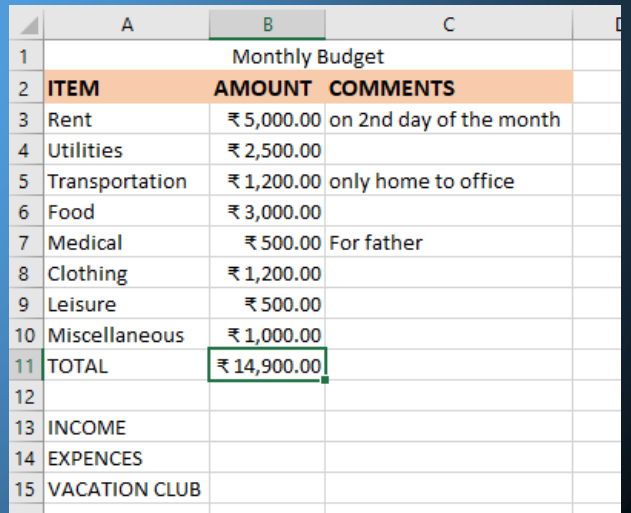
Next, **type** a **+** (plus) sign and then **click** in cell **B4**. Continue to **type** the **+** signs and **click** into the cells, *which will add the value that is in that cell*, until you **click** into the last cell, **B10**. Do not type the **+** sign after clicking in **B10**.

The formula should be: =B3+B4+B5+B6+B7+B8+B10

Click the **check mark** on the formula bar to **see** the **result**,



	A	B	C
1	Monthly Budget		
2	ITEM	AMOUNT	COMMENTS
3	Rent	₹ 5,000.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	
5	Transportation	₹ 1,200.00	only home to office
6	Food	₹ 3,000.00	
7	Medical	₹ 500.00	For father
8	Clothing	₹ 1,200.00	
9	Leisure	₹ 500.00	
10	Miscellaneous	₹ 1,000.00	
11	TOTAL	=B3+B4+B5+B6+B7+B8+B9+B10	
12			
13	INCOME		
14	EXPENCES		
15	VACATION CLUB		
16	SAVING		



	A	B	C
1	Monthly Budget		
2	ITEM	AMOUNT	COMMENTS
3	Rent	₹ 5,000.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	
5	Transportation	₹ 1,200.00	only home to office
6	Food	₹ 3,000.00	
7	Medical	₹ 500.00	For father
8	Clothing	₹ 1,200.00	
9	Leisure	₹ 500.00	
10	Miscellaneous	₹ 1,000.00	
11	TOTAL	₹ 14,900.00	
12			
13	INCOME		
14	EXPENCES		
15	VACATION CLUB		

Add Data to a Formatted Column

Now that we know our expenses add up to 14900.00, **type** the **numbers only** into cell **B14** and 20000 into cell B13 **Do not type the Rs. sign or the decimal places.**

•**Click** the check mark on the formula bar to commit the content.

•**Note** that the number we typed adopted the same currency formatting as the rest of the column.

	A	B	C
1		Monthly Budget	
2	**ITEM**	**AMOUNT**	**COMMENTS**
3	Rent	₹ 5,000.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	
5	Transportation	₹ 1,200.00	only home to office
6	Food	₹ 3,000.00	
7	Medical	₹ 500.00	For father
8	Clothing	₹ 1,200.00	
9	Leisure	₹ 500.00	
10	Miscellaneous	₹ 1,000.00	
11	TOTAL	₹ 14,900.00	
12			
13	INCOME	₹ 20,000.00	
14	EXPENCES	₹ 14,900.00	
15	VACATION CLUB		
16	SAVING		
17			

Adding Columns

As we think about our spreadsheet design, it is easy to see how we could make the spreadsheet work a little harder for us. In the first place, the Amount column could represent what we anticipate will be our expenses during any given month. Some expenses will not change but others such as utilities and food could vary from month to month. Second, if we add a column where we record our actual expenses as the bills come in during the month, we could see how those amounts compare to what we budgeted for them.

Change the label in cell B2 from “Amount” to “Budget”.

Add a column between **column B** (Budget) and **column C** (Comments)

Select the column to the **right** of where you want the new column to insert by **pointing** to the column label (A, B, C, e.g.) and **clicking** on it. In this case, **click** on C.

On the **Home** tab in the **Cells** group, **click** on the **Insert** button (not on the list arrow).

Type Actual into cell **C2**.

Add another column called **Difference** between column C (Actual) and column D (Comments).**Adjust** the column width so the word “Difference” fits inside of the column.

	A	B	C	D
1			Monthly Budget	
2	**ITEM**	**BUDGET**		**COMMENTS**
3	Rent	₹ 5,000.00		on 2nd day of the month
4	Utilities	₹ 2,500.00		
5	Transportation	₹ 1,200.00		only home to office
6	Food	₹ 3,000.00		
7	Medical	₹ 700.00		For father
8	Clothing	₹ 1,200.00		
9	Leisure	₹ 500.00		
10	Miscellaneous	₹ 1,000.00		
11	TOTAL	₹ 15,100.00		
12				
13	INCOME	₹ 20,000.00		
14	EXPENCES	₹ 15,100.00		
15	VACATION CLUB			
16	SAVING			

	A	B	C	D	E
1				Monthly Budget	
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00			on 2nd day of the month
4	Utilities	₹ 2,500.00			
5	Transportation	₹ 1,200.00			only home to office
6	Food	₹ 3,000.00			
7	Medical	₹ 700.00			For father
8	Clothing	₹ 1,200.00			
9	Leisure	₹ 500.00			
10	Miscellaneous	₹ 1,000.00			
11	TOTAL	₹ 15,100.00			
12					
13	INCOME	₹ 20,000.00			
14	EXPENCES	₹ 15,100.00			
15	VACATION CLUB				
16	SAVING				

Now type the actual expenditure from C3 TO C10

Copy a Formula from One Cell to Another

We have a formula in cell B11 that adds the numbers in the cells directly above it. We can **copy** that formula to the C column (cell C11) rather than create the formula from scratch. This is accomplished using the **Fill Handle** tool.

	A	B	C	D	E
1		Monthly Budget			
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00	₹ 5,000.00		on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00		
5	Transportation	₹ 1,200.00	₹ 1,300.00		only home to office
6	Food	₹ 3,000.00	₹ 2,800.00		
7	Medical	₹ 700.00	₹ 800.00		For father
8	Clothing	₹ 1,200.00	₹ 1,200.00		
9	Leisure	₹ 500.00	₹ 500.00		
10	Miscellaneous	₹ 1,000.00	₹ 900.00		
11	TOTAL	₹ 15,100.00			
12					
13	INCOME	₹ 20,000.00			
14	EXPENCES	₹ 15,100.00			
15	VACATION CLUB				
16	SAVING				

C11 =SUM(C3:C10)

	A	B	C	D	E
1		Monthly Budget			
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00	₹ 5,000.00		on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00		
5	Transportation	₹ 1,200.00	₹ 1,300.00		only home to office
6	Food	₹ 3,000.00	₹ 2,800.00		
7	Medical	₹ 700.00	₹ 800.00		For father
8	Clothing	₹ 1,200.00	₹ 1,200.00		
9	Leisure	₹ 500.00	₹ 500.00		
10	Miscellaneous	₹ 1,000.00	₹ 900.00		
11	TOTAL	₹ 15,100.00	₹ 15,000.00		
12					
13	INCOME	₹ 20,000.00			
14	EXPENCES	₹ 15,100.00			
15	VACATION CLUB				
16	SAVING				

Enter a New Formula and Copy to Other Cells

Using cell referencing, we are going to enter a formula in D3 to show the difference between what was budgeted for Rent and what our actual expense was. After that, we will “fill” the formula down to Row 10.

	A	B	C	D	E
1	Monthly Budget				
2	ITEM	BUDGET	ACTUAL	DIFFERENCE	COMMENTS
3	Rent	₹ 5,000.00	₹ 5,000.00	=B3-C3	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00		
5	Transportation	₹ 1,200.00	₹ 1,300.00		only home to office
6	Food	₹ 3,000.00	₹ 2,800.00		
7	Medical	₹ 700.00	₹ 800.00		For father
8	Clothing	₹ 1,200.00	₹ 1,200.00		
9	Leisure	₹ 500.00	₹ 500.00		
10	Miscellaneous	₹ 1,000.00	₹ 900.00		
11	TOTAL	₹ 15,100.00	₹ 15,000.00		
12					
13	INCOME	₹ 20,000.00			
14	EXPENCES	₹ 15,100.00			
15	VACATION CLUB				
16	SAVING				

	A	B	C	D	E
1	Monthly Budget				
2	ITEM	BUDGET	ACTUAL	DIFFERENCE	COMMENTS
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
11	TOTAL	₹ 15,100.00	₹ 15,000.00		
12					
13	INCOME	₹ 20,000.00			
14	EXPENCES	₹ 15,100.00			
15	VACATION CLUB				
16	SAVING				
17					

Formulas View

When designing a spreadsheet it is important to double-check yourself to make sure all your formulas make sense. In the view of the spreadsheet we have been using (normal view), it is impossible to tell which cells have formulas in them, unless each cell is clicked. The solution to that is the handy formulas view.

To get the formula view, hold down the Ctrl key and tap the ~(tilde) key. The tilde key is just below the Esc key

	A	B	C	D	
1			Monthly Budget		
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	5000	5000	=B3-C3	on 2nd day of the month
4	Utilities	2500	2500	=B4-C4	
5	Transportation	1200	1300	=B5-C5	only home to office
6	Food	3000	2800	=B6-C6	
7	Medical	700	800	=B7-C7	For father
8	Clothing	1200	1200	=B8-C8	
9	Leisure	500	500	=B9-C9	
10	Miscellaneous	1000	900	=B10-C10	
11	TOTAL	=SUM(B3:B10)	=SUM(C3:C10)	=SUM(D3:D10)	
12					
13	INCOME	20000			
14	EXPENCES	=B11			
15	VACATION CLUB				

Adding Rows

We are going to add a couple of more categories of expenses, so we need more rows. To **insert** a row, you must first **select** the row which is positioned **beneath** where you want the new row to go.

Let's insert row above row 11(Total row).
In cell A11 type 'Insurance' and B11 type '1000'

	A	B	C	D	E	F
1	Monthly Budget					
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**	
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month	
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00		
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office	
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00		
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father	
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00		
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00		
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00		
11						
12	TAL	₹ 15,100.00	₹ 15,000.00	₹ 100.00		
13						
14	INCOME	₹ 20,000.00				
15	EXPENCES	₹ 15,100.00				
16	VACATION CLUB					

	A	B	C	D	E
1	Monthly Budget				
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
11	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
12	TOTAL	₹ 16,100.00	₹ 16,000.00	₹ 100.00	
13					
14	INCOME	₹ 20,000.00			
15	EXPENCES	₹ 16,100.00			

Insert another row above row 12
In A12 type ‘Loans’ and B12 TYPE ‘1500’.Commit the content with check mark
Note that formulas in row 13 automatically updated

	A	B	C	D	E
1	Monthly Budget				
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
11	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
12					
13	TAL	₹ 16,100.00	₹ 16,000.00	₹ 100.00	
14					
15	INCOME	₹ 20,000.00			

	A	B	C	D	E
1	Monthly Budget				
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
11	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
12	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	
14					
15	INCOME	₹ 20,000.00			
16	EXPENCES	₹ 17,600.00			

Moving Rows and Columns

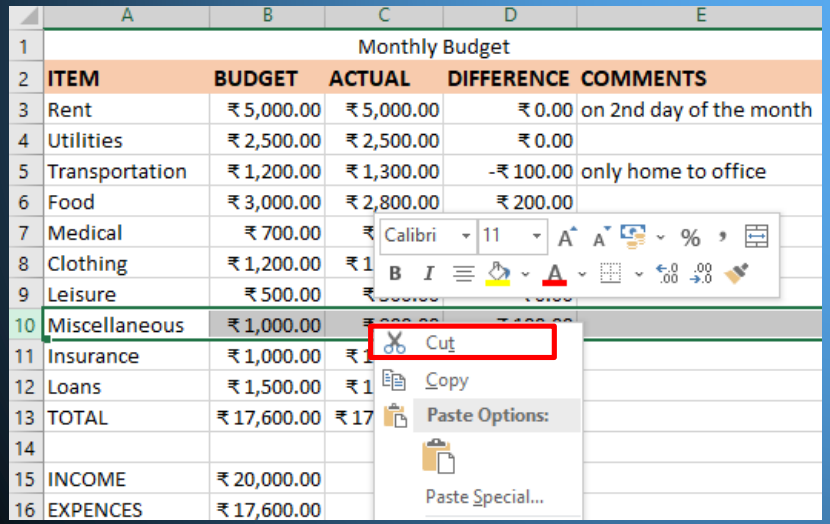
Inserting the two new rows resulted in the Miscellaneous row ending up towards the middle of the list of expenses. Typically a miscellaneous category appears at the end of a list. We are going to move the Miscellaneous row so it is above the TOTAL row.

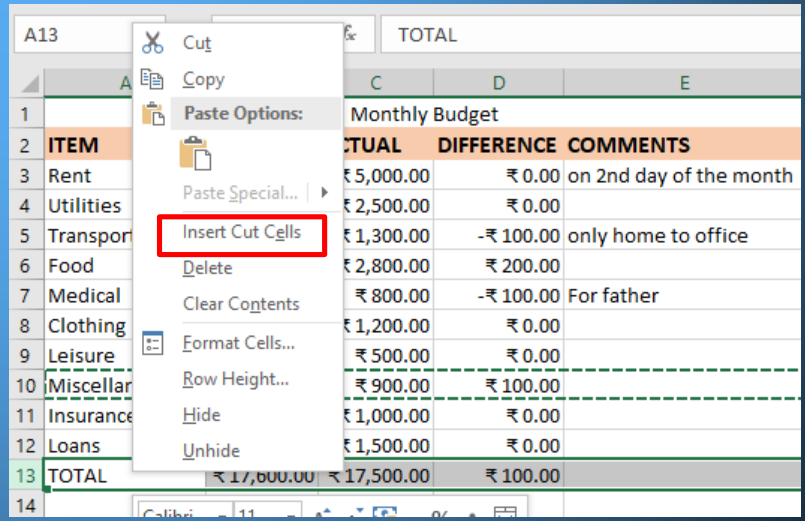
Click on **row 10** to select it (remember to click on the row **label**).

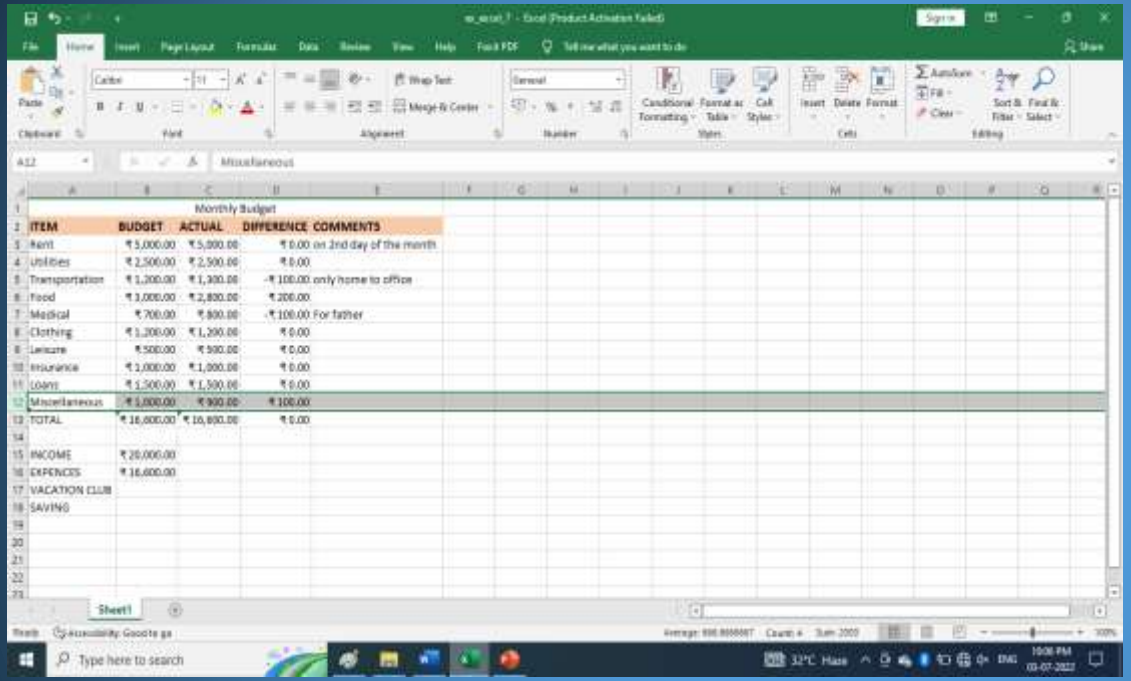
Leaving your **cursor** positioned on the **10**, **right click** and **select** "Cut" from the menu.

Select row 13 (TOTAL).

Right click and **select** "Insert Cut Cells".







Monthly Budget

ITEM	BUDGET	ACTUAL	DIFFERENCE	COMMENTS
Rent	₹5,000.00	₹5,000.00	₹0.00	on 2nd day of the month
Utilities	₹2,500.00	₹2,500.00	₹0.00	
Transportation	₹1,200.00	₹1,300.00	-₹100.00	only home to office
Food	₹3,000.00	₹2,800.00	₹200.00	
Medical	₹700.00	₹800.00	-₹100.00	For father
Clothing	₹1,200.00	₹1,200.00	₹0.00	
Leisure	₹500.00	₹500.00	₹0.00	
Insurance	₹1,000.00	₹1,000.00	₹0.00	
Loans	₹1,500.00	₹1,500.00	₹0.00	
Miscellaneous	₹1,000.00	₹900.00	₹100.00	
TOTAL	₹16,600.00	₹16,800.00	₹0.00	
INCOME	₹20,000.00			
EXPENCES	₹16,600.00			
VACATION CLUB				
SAVING				

Trace Errors

We have encountered **Trace Errors** after moving our Miscellaneous row above the Total row. Trace errors are called out by **green triangles** in the cells containing errors. It is important to investigate anytrace errors that appear.

Notice the **green triangles** in cells B13 and **C13**. These triangles alert us to an error in the formula.

10	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00
11	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00
12	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00
13	TOTAL	₹ 16,600.00	₹ 16,600.00	₹ 0.00

Click in one of these cells. **Notice** how a **Trace Error** button appears.

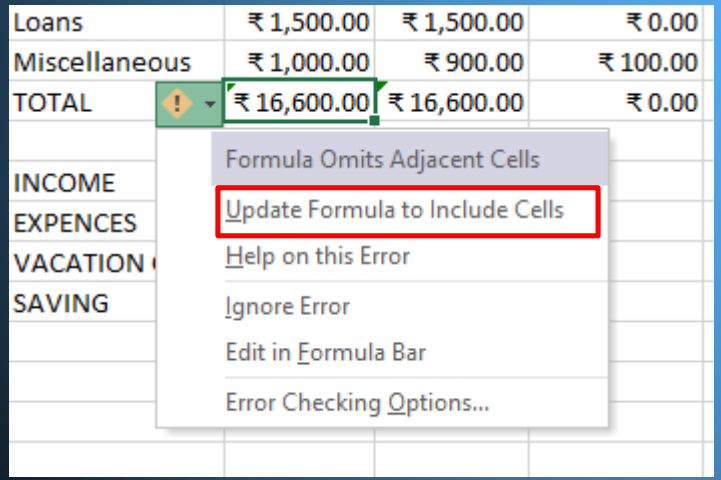
Click in B13 and **look** in the formula bar. **Note** how the formula does not include all 12 rows it previously included. Apparently, Excel does not automatically assume we want the row we **moved** to be included in the formula any longer, so we have to tell Excel to do so.

To correct an error in a cell, **click** in the cell and, to get options, **click** the **Trace Error** button.

The options list is telling us the **Formula Omits Adjacent Cells**. To make the formula include the moved row,

we have to **select Update Formula to Include Cells**.

Correct the error in C13 also



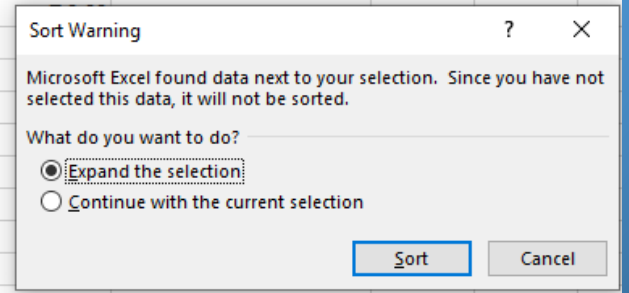
	A	B	C	D	E
1			Monthly Budget		
2	ITEM	BUDGET	ACTUAL	DIFFERENCE	COMMENTS
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
11	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
12	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	

Sorting Data

We'd like to organize our spreadsheet so that our **Items** appear in alphabetical order, with the exception of Miscellaneous, which should appear last. To do this we can employ the **Sort** functionality.

Select cells A3 through **A11**.
On the **Home** tab **look** in the **Editing** group and **click Sort & Filter**. **Choose** the **A to Z** sort option.
A **Sort Warning** dialogue box appears.

	A	B	C	D	E	F	G
1	Monthly Budget						
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**		
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month		
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00			
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office		
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00			
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father		
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00			
9	Leisure	₹ 500.00	₹ 500.00				
10	Insurance	₹ 1,000.00	₹ 1,000.00				
11	Loans	₹ 1,500.00	₹ 1,500.00				
12	Miscellaneous	₹ 1,000.00	₹ 900.00				
13	TOTAL	₹ 17,600.00	₹ 17,500.00				
14							
15	INCOME	₹ 20,000.00					
16	EXPENCES	₹ 17,600.00					
17	VACATION CLUB						
18	SAVING						
19							
20							



Microsoft Excel is smart enough to realize that data exists in adjacent cells and is asking if you want it included in your sort.

In this instance, neither option in the sort warning box will give us the results we seek. Let’s try each of them.

Choose Continue with the current selection and **click** the **Sort** button. **Note** this results in only the item names being sorted leaving the rest of the data in place. The results show our clothing budget to be 1200 and our rent only 5000. This won’t do. **Click Undo**.

	A	B	C	D	E
1	Monthly Budget				
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Clothing	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Food	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Insurance	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
6	Leisure	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Loans	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Medical	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Rent	₹ 500.00	₹ 500.00	₹ 0.00	
10	Transportation	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
11	Utilities	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
12	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	
14					

Click Sort & Filter again and **select** Sort A-Z. **Choose Expand the selection**. **Note** that Excel correctly identified that columns B (Budget) through E (Comments) should be included (the amounts are correctly aligned with the items). However, it also extended the sort **vertically**, including row 12 (Miscellaneous) and row 13 (Total) in the sort. This is not what we wanted either. **Click Undo**.

	A	B	C	D	E
1	Monthly Budget				
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
4	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
5	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
6	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
7	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
8	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
9	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
10	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
11	TOTAL	₹ 13,900.00	₹ 13,700.00	₹ 200.00	
12	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
13	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
14					
15	INCOME	₹ 20,000.00			
16	EXPENCES	₹ 2,500.00			

•The lesson learned from this is that when you perform a sort, it is best to **select the specific cells you want included in the sort**.

Select cells A3 through **E11**.

Click Sort and Filter and then **Sort A to Z** (no dialog box appears because we are being morespecific about what we want to sort).

	A	B	C	D	E
1	Monthly Budget				
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
11	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
12	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	

	A	B	C	D	E
1	Monthly Budget				
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
4	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
5	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
6	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
7	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
8	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
9	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
10	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
11	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
12	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	
14					

Conditional Formatting

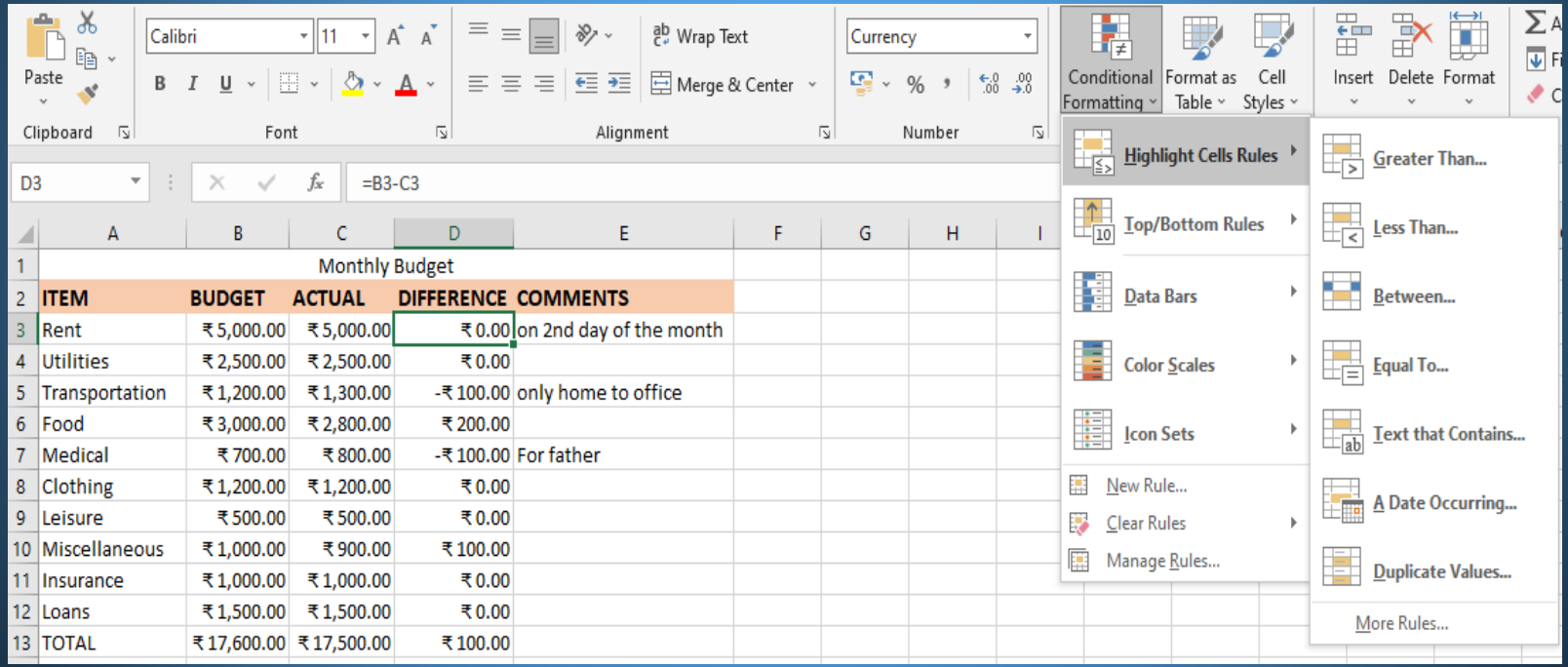
Formatting can be applied to specific cells you would like to draw attention to. Through the use of **conditional formatting**, the formatting can be configured to **change** when the **values** in the cells change.

In our spreadsheet we'd like to draw attention, through the use of color formatting, to any item in the **Difference** column that represents overspending and also to items where we have underspent. We will use conditional formatting to highlight cells in **red** when our spending **exceeds** our budget and highlight cells in **green** when our spending is **less** than our budget. To do this we will be applying **two** conditional formatting **rules** to cell **D3,** which we will then be able to copy to the other cells.

The first rule will apply to the value in D3 when it represents spending which is less than our budget

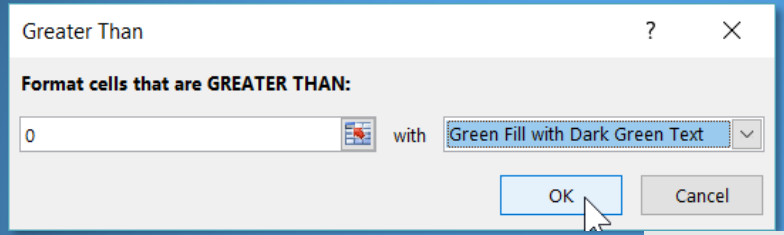
Click in the cell D3

On the Home tab, in the **Styles** group, **click Conditional Formatting.** From the sub menus that appear, **point** to **Highlight Cells Rules** and then **click Greater Than.**



	A	B	C	D	E
1			Monthly Budget		
2	ITEM	BUDGET	ACTUAL	DIFFERENCE	COMMENTS
3	Rent	₹5,000.00	₹5,000.00	₹0.00	on 2nd day of the month
4	Utilities	₹2,500.00	₹2,500.00	₹0.00	
5	Transportation	₹1,200.00	₹1,300.00	-₹100.00	only home to office
6	Food	₹3,000.00	₹2,800.00	₹200.00	
7	Medical	₹700.00	₹800.00	-₹100.00	For father
8	Clothing	₹1,200.00	₹1,200.00	₹0.00	
9	Leisure	₹500.00	₹500.00	₹0.00	
10	Miscellaneous	₹1,000.00	₹900.00	₹100.00	
11	Insurance	₹1,000.00	₹1,000.00	₹0.00	
12	Loans	₹1,500.00	₹1,500.00	₹0.00	
13	TOTAL	₹17,600.00	₹17,500.00	₹100.00	

1.In the **Greater Than** dialogue box, **enter** a **0** into the text box on the left.
2.Select "**Green Fill with Dark Green Text**" in the dropdown list on the right.
3.Click OK in the **Greater Than** dialogue box.



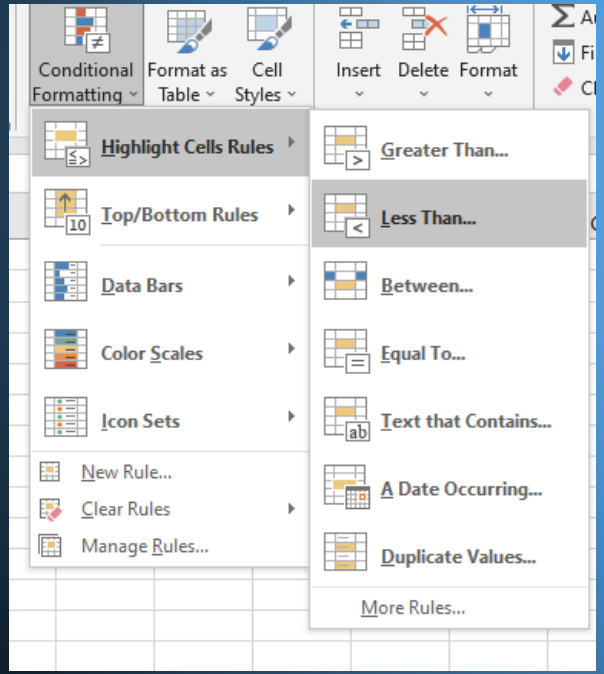
Copy the conditional formatting upto D13

Note that the cells fill with green colour where we spent less than budget

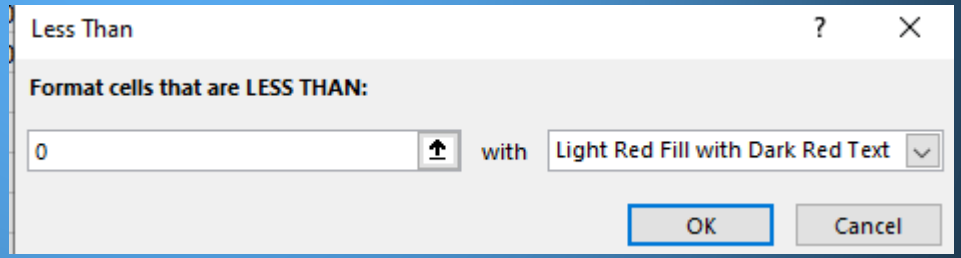
	A	B	C	D	E
1	Monthly Budget				
2	ITEM	BUDGET	ACTUAL	DIFFERENCE	COMMENTS
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
11	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
12	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	
14					

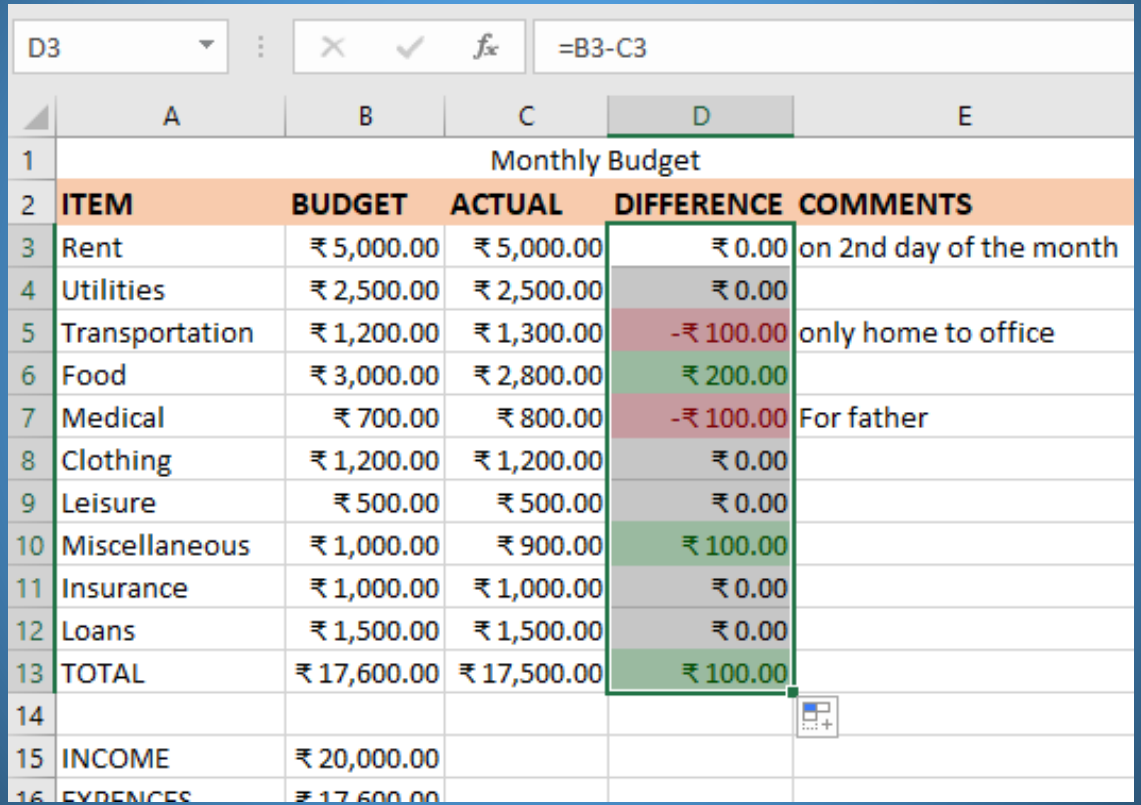
The second rule will apply to the value in D3 when it represents spending that **exceeds** our budget.

Make sure cell D3 is still **selected**.
On the Home tab, in the **Styles** group, **click Conditional Formatting** again. Then, **click** on**Highlight Cell Rules** and then **Less Than**.
In the **Less Than** dialogue box **enter** a **0** in the text box on the left.
Select "**Light Red Fill with Dark Red Text**" in the dropdown list on the right (it should already be selected).**Click OK** in the **Less Than** dialogue box.



To apply the rule to the rest of the cells in the Difference column **use** the **Fill Handle** to copy this formula through cell **D13.**





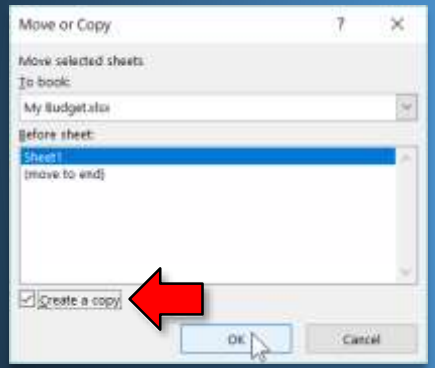
D3 | =B3-C3

	A	B	C	D	E
1	Monthly Budget				
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home to office
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
11	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
12	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	
14					
15	INCOME	₹ 20,000.00			
16	EXPENCES	₹ 17,600.00			

Copying a worksheet

Follow the steps to make a copy of Sheet 1.

- In your **ex_example10.xlsx** workbook, **right click** the **Sheet 1** tab to bring up a menu.
- **Select** "Move or Copy" from the menu.
- **Click** in the checkbox next to "Create a Copy" and **click** OK.
- **Note** there is now a new worksheet that is exactly the same as Sheet 1. The new worksheet's name is **Sheet 1 (2).**



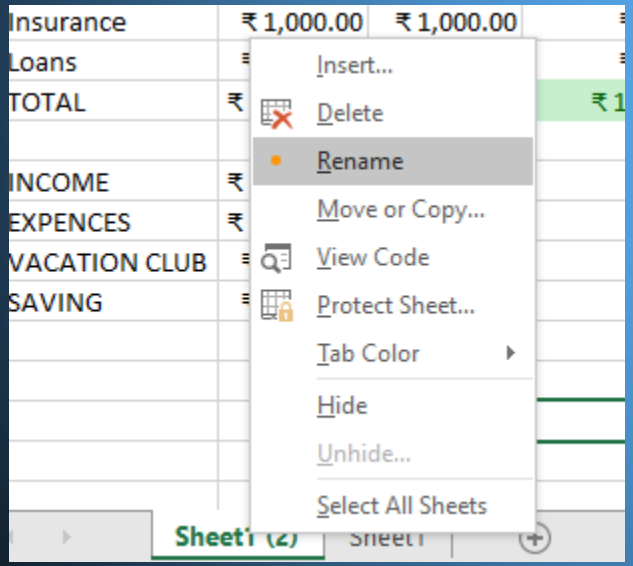
1			Monthly Budget		
2	ITEM	BUDGET	ACTUAL	DIFFERENCE	COMMEN
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd da
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
11	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
12	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	
14					
15	INCOME	₹ 20,000.00			
16	EXPENCES	₹ 17,600.00			
17	VACATION CLUB	₹ 1,000.00			
18	SAVING	₹ 1,400.00			
19					
20					
21					
22					
23					

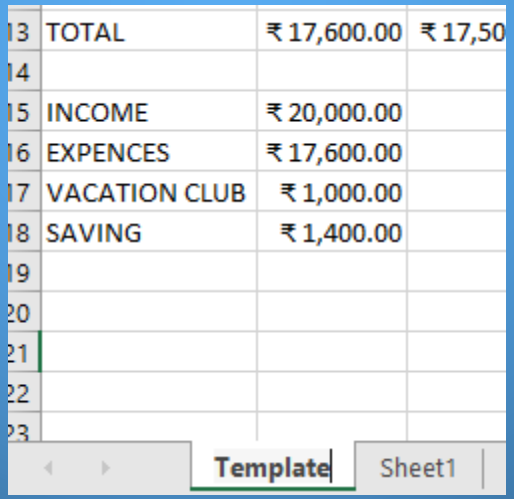
Sheet1 (2) Sheet1

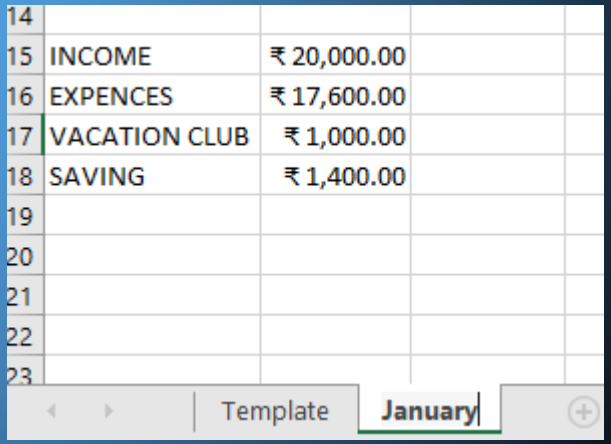
Renaming a work sheet

Let’s rename “Sheet 1 (2)”:
Right click the **Sheet 1 (2)** tab and **click Rename** on the menu**.**
The sheet tab is now in **edit mode** and you can **type Template.**

When you are done typing, **tap Enter** or **click** in a clear cell to get out of edit mode.
Rename Sheet1 to January







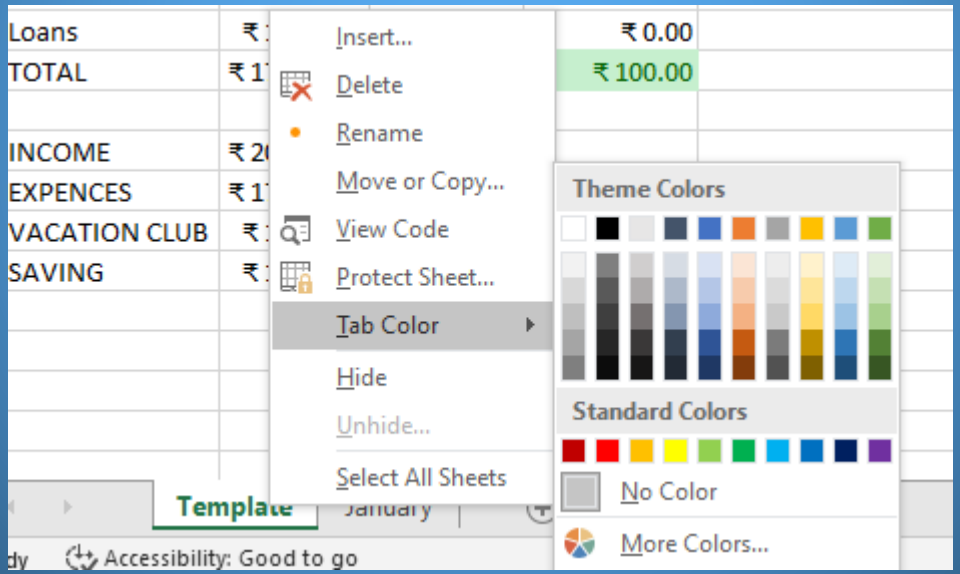
Tab Color

Excel allows you to assign colors to the worksheet tabs. Tab colors are useful when you have many worksheets and need certain ones to stand out. Let's give our Template worksheet a color.

Right click the **Template** tab.

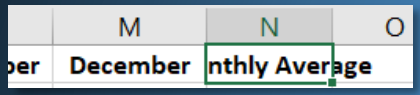
Select Tab Color from the context menu.

Select a color of your choice.



Line Break within a cell

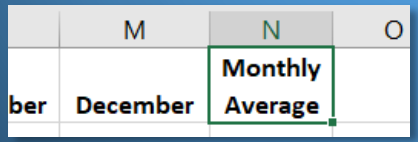
•**Type** the word **Monthly Average** into cell N1 and commit the content with check mark adjust. Do not adjust the size of the column



•Instead of making column N wider in order to fit the heading, we can make the word “Average” go on a separate line by inserting a **line break**.

With cell N1 selected **click** in the formula bar just after the letter **y**, so that the cursor is at the end of the word **Monthly**.

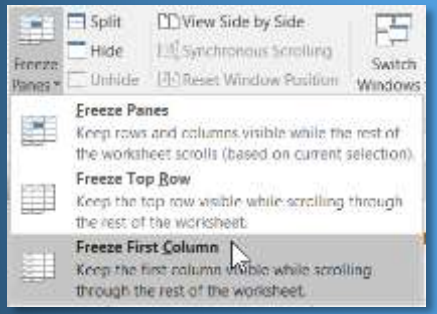
Press Alt +Enter on the keyboard and **commit** with the check mark. **Notice** how “Average” is now on a second line.



Freeze Panes

Note how, when we scroll horizontally to the right, we are no longer able to see our expense category names. There is a way to make the first column visible no matter how far to the right you scroll. It is called **freezing** a column.

- **Scroll** all the way to the **left** so that the **Column A** is visible.
- **Click** the **View** tab on the ribbon and in the **Window** group, **click** on **Freeze Panes**.
- **Select Freeze First Column**.



Note the slightly-darker-than-normal line to the right of **Column A**

Scroll horizontally to the **right** and **note Column A** remains **visible**.

To **unfreeze** a column:

Click the **View** tab on the ribbon and in the **Window** group, **click** on **Freeze Panes**.**Select Unfreeze Panes**.

Creating a Chart

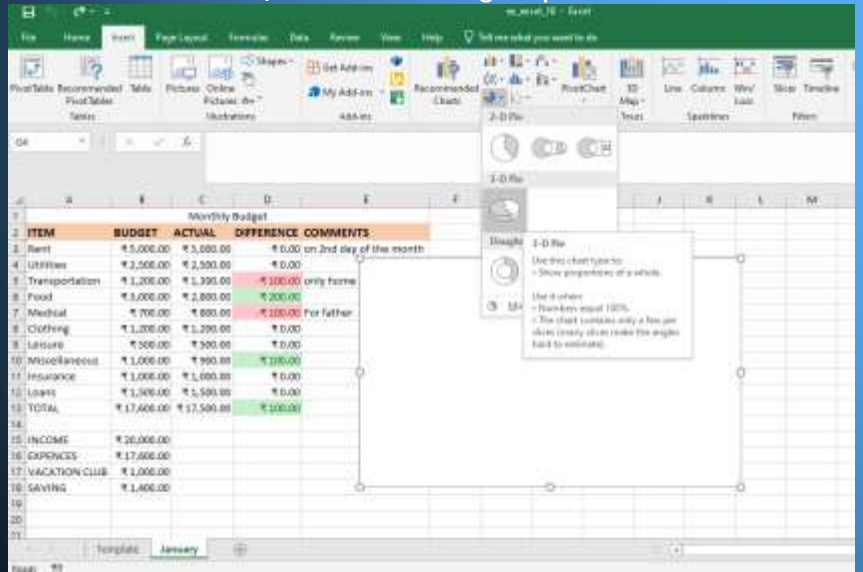
Often a visual element can display data in a more meaningful and understandable way. We are going to insert a chart to illustrate the Expenses and Savings section of our January worksheet. We will be selecting data for the chart and formatting sections of the chart to make it more understandable

Insert a chart

Click on the tab for the January worksheet.

Click in an **empty cell** in column G4 works well.

On the **Insert** tab**,** in the **Charts** group, **click** the **Insert Pie** or **Doughnut Chart** button



Click the **3-D Pie** style

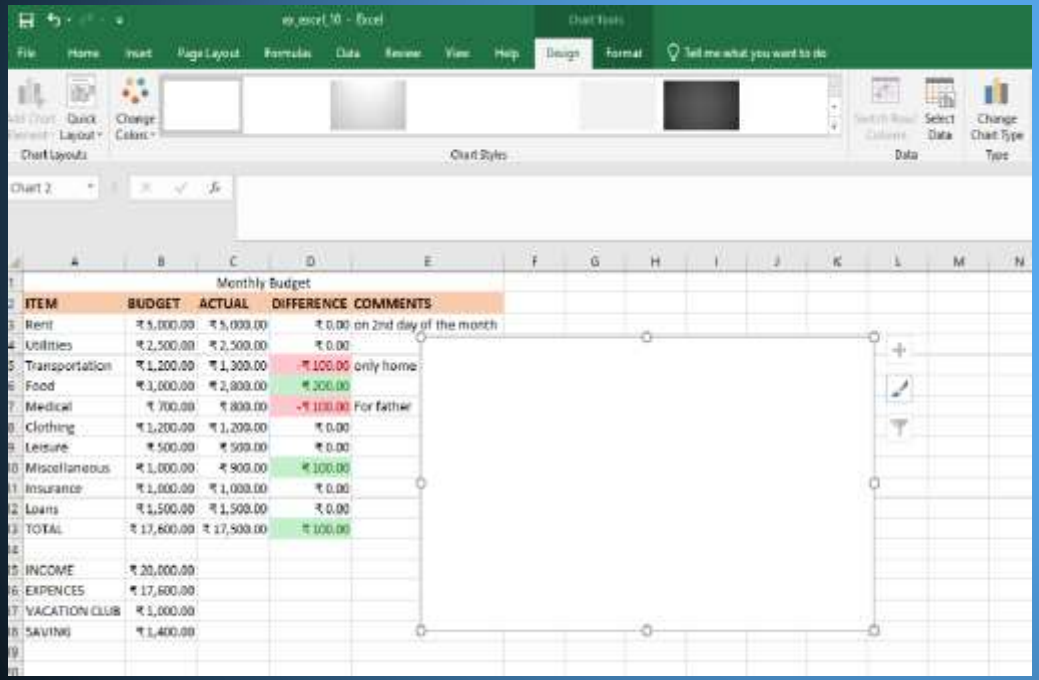
Notice the **Chart Tools ribbon** that opens up. It contains **two contextual tabs**: Design and Format

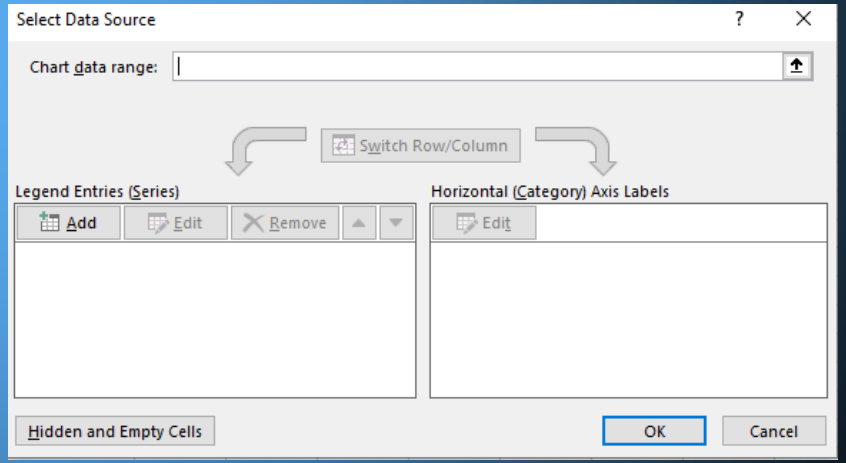
Click in a clear cell and **note** the Chart Tools contextual ribbon disappears.

Click the chart to select it and the Chart Tools contextual ribbon comes back.

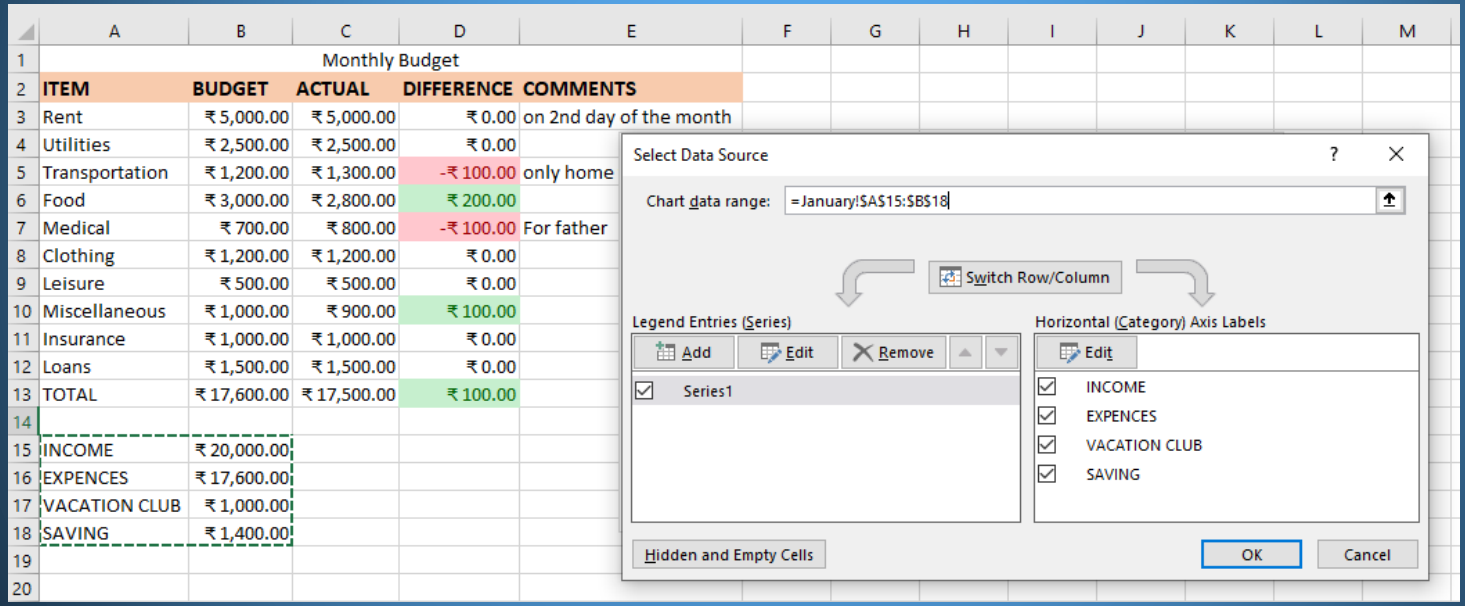
Select data for chart

Our chart looks blank because the data it refers to is in cell **G4**, and that cell had no data. On the **Design** tab on the **Chart Tools ribbon**, **locate** the **Data** group**,** and **click Select Data**.

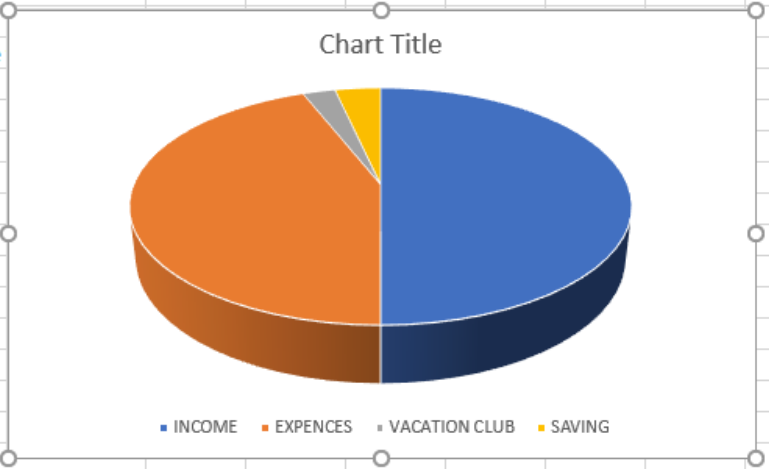




•When the **Select Data Source** dialogue box prompts for a data range, on the **worksheet**, **select** cells A15 TO B18(unlike most dialogue boxes, this dialogue box lets us interact with our spreadsheet **while the dialogue box is open**). **Click** OK

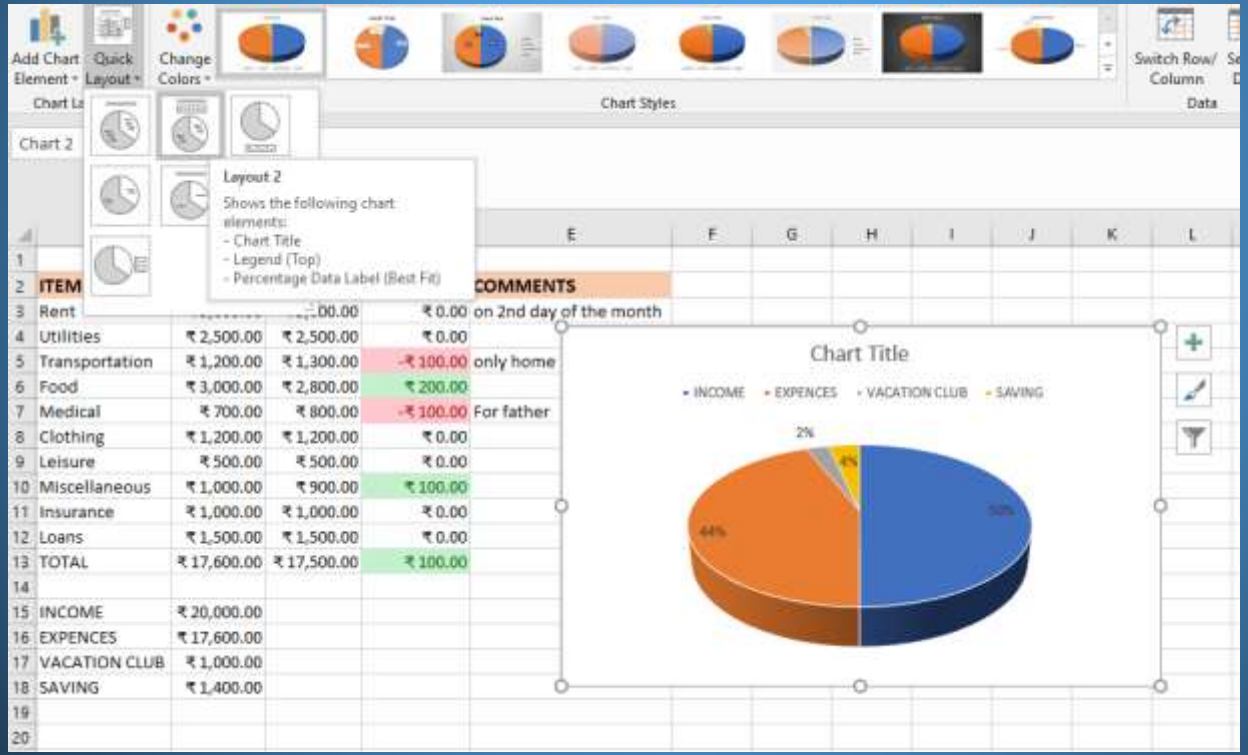


	A	B	C	D	E
1			Monthly Budget		
2	**ITEM**	**BUDGET**	**ACTUAL**	**DIFFERENCE**	**COMMENTS**
3	Rent	₹ 5,000.00	₹ 5,000.00	₹ 0.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
5	Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home
6	Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
7	Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
8	Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
9	Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
10	Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
11	Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
12	Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
13	TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	
14					
15	INCOME	₹ 20,000.00			
16	EXPENCES	₹ 17,600.00			
17	VACATION CLUB	₹ 1,000.00			
18	SAVING	₹ 1,400.00			
19					
20					
21					



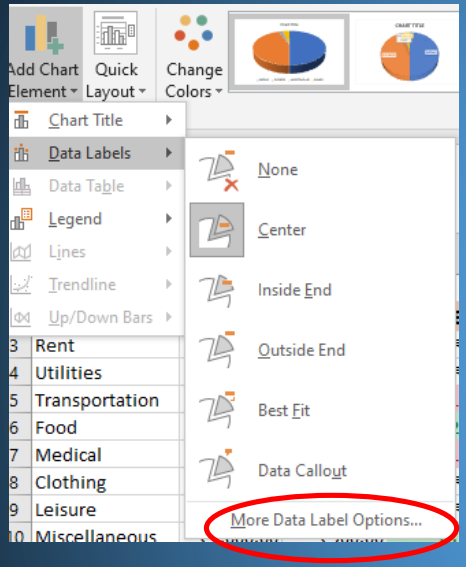
On the **Chart Tools Design** tab, in the **Chart Layouts** group, **click** the **Quick Layout** button. **Find Layout 2** and **click** on it.

- **Replace** the text in the **chart title** text box**.**
  1. **Click** where it says "**Chart Title**".
  2. **Type** "**Expenses vs Savings**". As you type, the letters will appear in the **formula bar**.
  3. **Click** the **check mark** to **commit** your changes.

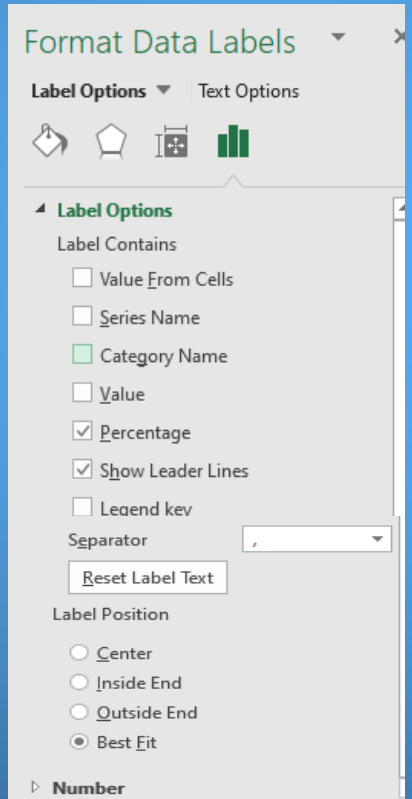


ITEM				COMMENTS
Rent		.00.00	₹ 0.00	on 2nd day of the month
Utilities	₹ 2,500.00	₹ 2,500.00	₹ 0.00	
Transportation	₹ 1,200.00	₹ 1,300.00	-₹ 100.00	only home
Food	₹ 3,000.00	₹ 2,800.00	₹ 200.00	
Medical	₹ 700.00	₹ 800.00	-₹ 100.00	For father
Clothing	₹ 1,200.00	₹ 1,200.00	₹ 0.00	
Leisure	₹ 500.00	₹ 500.00	₹ 0.00	
Miscellaneous	₹ 1,000.00	₹ 900.00	₹ 100.00	
Insurance	₹ 1,000.00	₹ 1,000.00	₹ 0.00	
Loans	₹ 1,500.00	₹ 1,500.00	₹ 0.00	
TOTAL	₹ 17,600.00	₹ 17,500.00	₹ 100.00	
INCOME	₹ 20,000.00			
EXPENCES	₹ 17,600.00			
VACATION CLUB	₹ 1,000.00			
SAVING	₹ 1,400.00			

On the **Chart Tools Design** tab, in the **Chart Layouts** group, **click** the **Add Chart Element** button. **Point to Data Labels** from the list, and then **select More Data Label Options**



A **Format Data Labels** pane opens on the right. This allows us to customize the labels that appear on our chart. **Note** that the chart will immediately update as we make our customizations.



WHAT IS AN EXCEL FUNCTION

A predefined formula is called function. Some of them as below

SUM()
AVERAGE()
MIN()
MAX()
COUNT()
IF()
SUMIF()
VLOOKUP()
HLOOKUP()
And many more

	A	B	C	D	E
1	Name	JAN	FEB	MAR	TOTAL SELL
2	Anik	45	38	61	=SUM(B2,C2,D2)
3	Bilu	62	36	54	=SUM(B3,C3,D3)
4	Dinesh	57	59	35	=SUM(B4,C4,D4)

SUM

Description

The SUM function add all the numbers that you specify as arguments. Each arguments can be number or cell reference.

	A	B	C	D	E
1	Name	JAN	FEB	MAR	TOTAL SELL
2	Anik	45	38	61	=SUM(B2:D2)
3	Bilu	62	36	54	=SUM(B3:D3)
4	Dinesh	57	59	35	=SUM(B4:D4)

Syntax

=SUM(Number1,Number2,Number3,…..)

AutoSum

AutoSum is a two-part button in the Editing group on the Home tab. It looks like the Greek letter Sigma. It is a shortcut to the **SUM** function and does not require entering an **=** sign in the cell first.

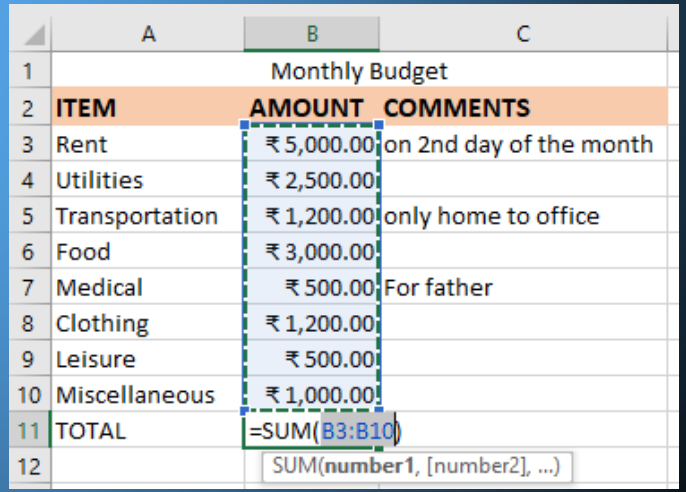
The button has a list arrow with other functions and can be used to perform calculations quickly on a contiguous set of numbers. The AutoSum button will give you all the components of a sum formula except for the range of cells.

•**Click** in B11 and **tap** the Delete key. Pressing this key **clears the contents** of the selected cell.

On the **Home** tab in the **Editing** group, **click** the **AutoSum** button (not the list arrow).

Note the selection of cells denoted by the “marching ants” and the formula that has been entered into **B11**.

•If the formula is correct, **click** the check mark on the formula bar.



	A	B	C
1		Monthly Budget	
2	ITEM	AMOUNT	COMMENTS
3	Rent	₹ 5,000.00	on 2nd day of the month
4	Utilities	₹ 2,500.00	
5	Transportation	₹ 1,200.00	only home to office
6	Food	₹ 3,000.00	
7	Medical	₹ 500.00	For father
8	Clothing	₹ 1,200.00	
9	Leisure	₹ 500.00	
10	Miscellaneous	₹ 1,000.00	
11	TOTAL	=SUM(B3:B10)	
12		SUM(**number1**, [number2], ...)	

AVERAGE

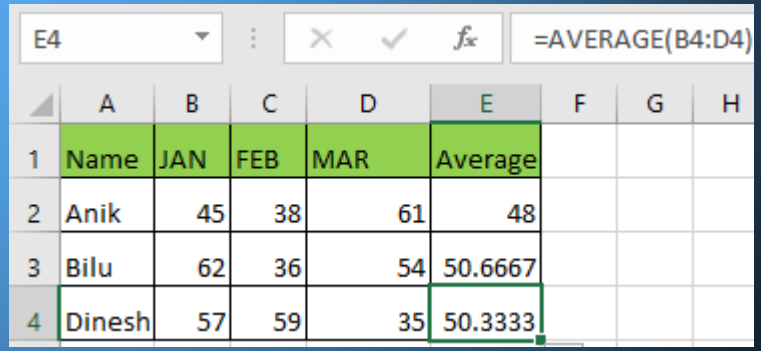
Description

Returns the average of the arguments. For example, if the range A1: A20 contains numbers, the formula = AVARAGE(A1:A20) returns the average of those numbers.

.

Syntax

=AVERAGE(number1, [number2],…)



	A	B	C	D	E	F	G	H
1	Name	JAN	FEB	MAR	Average			
2	Anik	45	38	61	48			
3	Bilu	62	36	54	50.6667			
4	Dinesh	57	59	35	50.3333			

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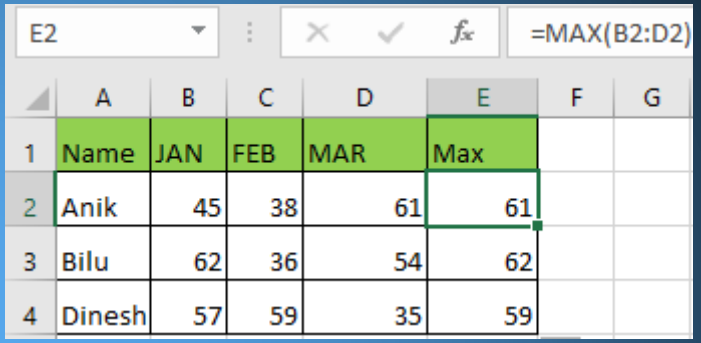
MAX and MIN



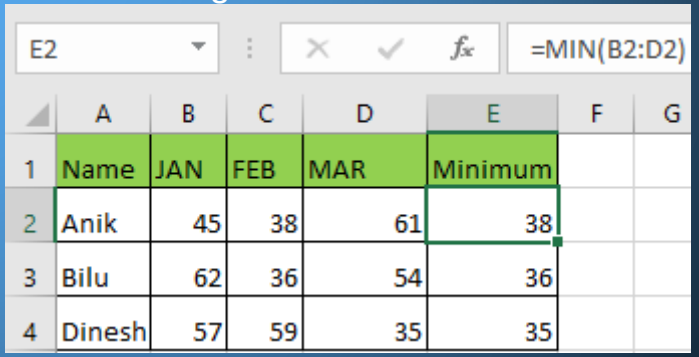
	A	B	C	D	E	F	G
1	Name	JAN	FEB	MAR	Max		
2	Anik	45	38	61	61		
3	Bilu	62	36	54	62		
4	Dinesh	57	59	35	59		

Description

MAX function to find the maximum number in a selected range.
MIN function to find the minimum number in a selected range.

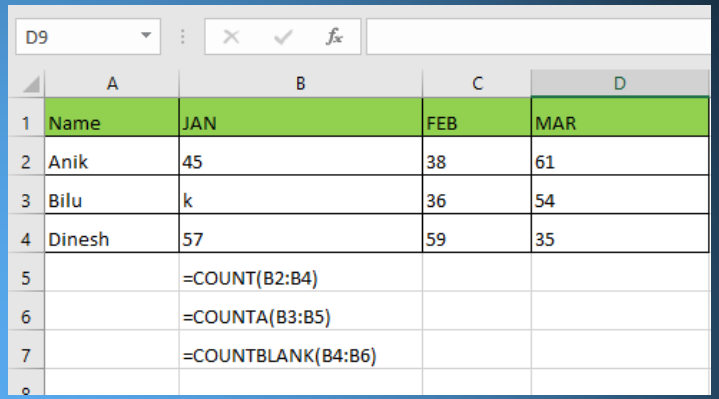
Syntax

=MIN(Number1,Number2,…..)
=MAX(Number1,Number2,…..)



	A	B	C	D	E	F	G
1	Name	JAN	FEB	MAR	Minimum		
2	Anik	45	38	61	38		
3	Bilu	62	36	54	36		
4	Dinesh	57	59	35	35		

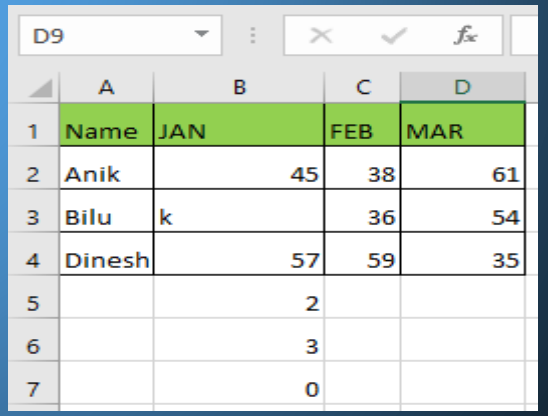
COUNT



	A	B	C	D
1	Name	JAN	FEB	MAR
2	Anik	45	38	61
3	Bilu	k	36	54
4	Dinesh	57	59	35
5		=COUNT(B2:B4)		
6		=COUNTA(B3:B5)		
7		=COUNTBLANK(B4:B6)		

Description

The COUNT function counts the number of cells that contain numbers within a range.



	A	B	C	D
1	Name	JAN	FEB	MAR
2	Anik	45	38	61
3	Bilu	k	36	54
4	Dinesh	57	59	35
5		2		
6		3		
7		0		

Syntax

=COUNT([value1], [value2],….)

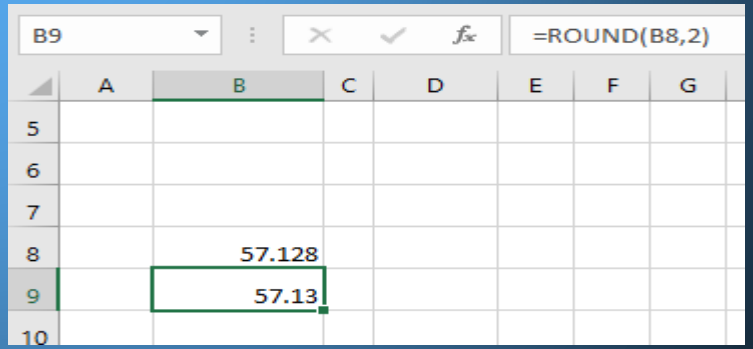
ROUND

Description

The ROUND function rounds the value of a cell for you.

Syntax

=ROUND(number, num_digits)



IF

Description

It allows you to make logical comparisons between a value and what you expect.

Syntax

=IF(logical test,[value if true], [value if false])

Price	Quantity	Total	Expense	Profit	Remarks
58	5	=B3*C3	200	=D3-E3	=IF(F3>70,"good","Not good")
63	9	=B4*C4	510	=D4-E4	=IF(F4>70,"good","Not good")
37	12	=B5*C5	300	=D5-E5	=IF(F5>70,"good","Not good")
51	7	=B6*C6	336	=D6-E6	=IF(F6>70,"good","Not good")

Price	Quantity	Total	Expense	Profit	Remarks
58	5	290	200	90	good
63	9	567	510	57	Not good
37	12	444	300	144	good
51	7	357	336	21	Not good

Nested IF

=IF(F6>70,"good",IF(F6>50,"Average","Poor"))

Price	Quantity	Total	Expense	Profit	Remarks
58	5	290	200	90	good
63	9	567	510	57	Average
37	12	444	300	144	good
51	7	357	336	21	Poor

VLOOKUP

Vlookup looks for a value in the leftmost column of a table

Then returns a value in the same row

From the column you specify

In other Words

Vlookup function is used search a value in a table

If found, returning the corresponding row value from that table

For the specified column

SYNTAX

```
=VLOOKUP(LOOKUP_VALUE,TABLE_ARRAY,COL_INDEX_NUM,RANGE_LOOKUP)
```

LOOKUP_VALUE	Value you want to lookup
TABLE_ARRAY	The range where the lookup value located
COL_INDEX_NUM	Column number in the range that contains the return value
RANGE_LOOKUP	Optionally, you can specify ‘TRUE’ for approximately match and ‘FALSE’ for exact match

TYPES

Approximate lookup

Used when you want to search for ranges, it will look for nearest minimum value from the leftmost column in the table.

If table consists of 40, 50, 60, 70 and you search for 55 then it will destined to 50 as it is the nearest minimum value of 55.

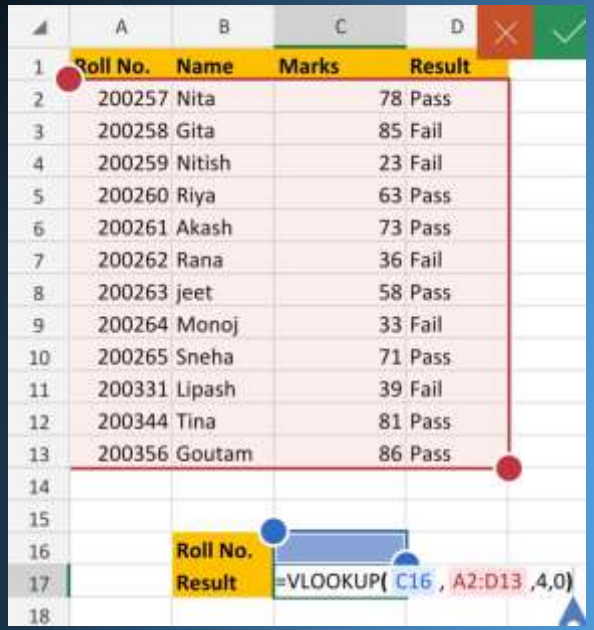
It is an appropriate match, indicate as true or 1

Exact lookup

Used when you search for exact value

If table consists 40, 50, 60, 70 and you find 55, then it returns nothing that is NA.

It is an exact match, indicated as false or 0



	A	B	C	D
1	Roll No.	Name	Marks	Result
2	200257	Nita	78	Pass
3	200258	Gita	85	Fail
4	200259	Nitish	23	Fail
5	200260	Riya	63	Pass
6	200261	Akash	73	Pass
7	200262	Rana	36	Fail
8	200263	jeet	58	Pass
9	200264	Monoj	33	Fail
10	200265	Sneha	71	Pass
11	200331	Lipash	39	Fail
12	200344	Tina	81	Pass
13	200356	Goutam	86	Pass
14				
15				
16		Roll No.		
17		Result	=VLOOKUP(C16 , A2:D13 ,4,0)	
18				

- A1:D13 is a data table of 12 students.
- Now suppose we need to find whether a particular student is Passed or not.
- We use a vlookup function to find a particular Student‘s roll no. at C16 in the table A2:D13, for the column no. 4 is passed or not at C17 cell

Example
Exact Range

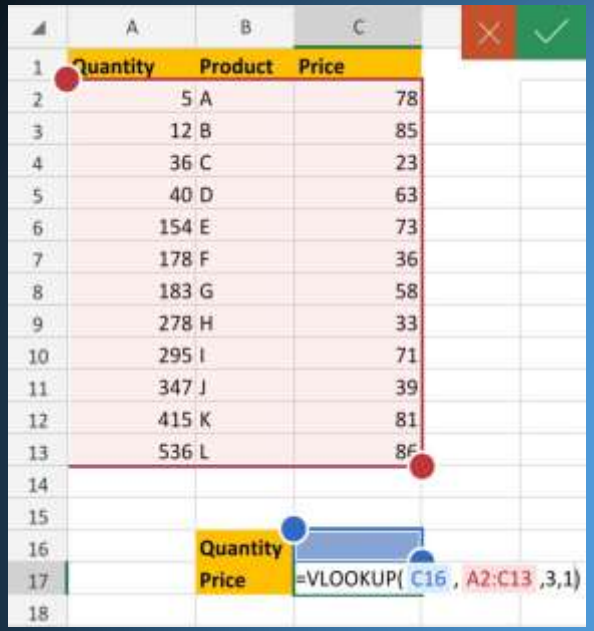
C16 – Lookup_Value
A2:D13 – Table_Array (select without heading
4 – CoColum_Number
False (0)- For exact match

Vlookup search for Roll No. **200262** in the table, and show the result in the same row for column 4 i,e. **Fail**

Roll No.	200262
Result	Fail

Vlookup search for Roll No. **200265** in the table, and show the result in the same row for column 4 i,e. **Pass**

Roll No.	200265
Result	Pass



- A1:C13 is a data table of 12 students.
- Now suppose we need to find the price of a product for a given quantity.
- We use a vlookup function and search a quantity at C16 in the table A2:C13, for the column no. 3, for the price at C17 cell

Example Approximate Range

C16 – Lookup_Value
A2:C13 – Table_Array (select without heading
3 - CoColum_Number
True (1)- For approximate match

Vlookup search for nearest minimum quantity of 45 in the table, and show the result in the same row for column 3 i,e. **63**

Quantity	45
Price	63

Vlookup search for nearest minimum quantity of 350 in the table, and show the result in the same row for column 3 i,e. 39

Quantity	350
Price	39

HLOOKUP

Hlookup looks for a value in the top row of a table

Then returns a value in the same column

From the row you specify

In other words

Hlookup function is used to search a value in a table

If found, returning the corresponding column value from that table

For the specified row

=HLOOKUP(LOOKUP_VALUE,TABLE_ARRAY,ROW_INDEX_NUM,RANGE_LOOKUP)

SYNTAX

LOOKUP_VALUE	Value you want to lookup
TABLE_ARRAY	The range where the lookup value located
ROW_INDEX_NUM	Row number in the range that contains the return value
RANGE_LOOKUP	Optionally, you can specify ‘TRUE’ for approximately match and ‘FALSE’ for exact match

TYPES

Approximate lookup

Used when you want to search for ranges, it will look for nearest minimum value from the top row in the table.

If table consists of 40, 50, 60, 70 and you search for 55 then it will destined to 50 as it is the nearest minimum value of 55.

It is an appropriate match, indicate as true or 1

Exact lookup

Used when you search for exact value

If table consists 40, 50, 60, 70 and you find 55, then it returns nothing that is NA.

It is an exact match, indicated as false or 0

	A	B	C	D	E	F	G	H
1	Roll No.	123	178	205	289	294	315	367
2	Name	Nitish	Rina	Tina	pampa	Dinesh	Raja	Lina
3	Marks	65	44	38	39	41	49	29
4	Result	PASS	PASS	FAIL	FAIL	PASS	PASS	FAIL
5								
6	Roll No.	289						
7	Result	=HLOOKUP(B6,B1:H4,4,0)						

B6 – Lookup_Value
B1:H4– Table_Array (select without 1st column)
4 –Row_Number
False (0)- For exact match

Example Exact Range

- A1:H4 is a data table of 7 students.
- Now suppose we need to find whether a particular student is Passed or not.
- We use a Hlookup function to find a particular Student‘s roll no. at B6 in the table B1:H4, for the Row no. 4 is passed or not at B7 cell

Hlookup search for Roll No. **289** in the table, and show the result in the same column for row 4 i,e. **Fail**

5		
6	Roll No.	289
7	Result	FAIL
8		

	A	B	C	D	E	F	G	H
1	Roll No.	123	178	205	289	294	315	367
2	Name	Nitish	Rina	Tina	pampa	Dinesh	Raja	Lina
3	Marks	65	44	38	39	41	49	29
4	Result	PASS	PASS	FAIL	FAIL	PASS	PASS	FAIL
5								
6	Roll No.	314						
7	Result	=HLOOKUP(B6,B1:H4,4,1)						
8		HLOOKUP(lookup_value, table_array, row_index_num, [range_lookup])						

B6 – Lookup_Value
B1:H4– Table_Array (select without 1st column)
4 –Row_Number
True (1)- For approximate match

Example Approximate Range

- A1:H4 is a data table of 7 students.
- Now suppose we need to find whether a particular student is Passed or not.
- We use a Hlookup function to find a particular Student‘s roll no. at B6 in the table B1:H4, for the Row no. 4 is passed or not at B7 cell

Hlookup search the nearest minimum roll no. of **314** in the table, and show the result in the same column for row 4 i,e. **PASS .**

5		
6	Roll No.	314
7	Result	PASS
8		

SUMIF

Description

You use the **SUMIF** function to sum the values in a range that meet criteria that you specify.

Syntax

SUMIF(range, criteria, [sum_range])

For example suppose we want to add the salary of those employee, whose date of joining before 31/12/1990.

E2 =SUMIF(C2:C8,"<31/12/1990",D2:D8)

	A	B	C	D	E	F
1		Name	D.O.J	Salary	Sum salary DOJ before31/12/1990	
2		Rakesh	12-04-2000	22500	93071	
3		Dipti	19-05-1987	27300		
4		Arpita	05-11-1991	21265		
5		Nil	23-09-1978	19736		
6		Swapan	14-12-1996	18475		
7		Radha	31-12-1989	20687		
8		Binod	28-02-1990	25348		

SUMIFS

Description

The SUMIFS function, adds all of its arguments that meet multiple criteria.

Syntax

SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...)

For example, we want to add the salary of those employee, whose date of joining before 31/12/1990 and also address is Delhi

F2 =SUMIFS(E2:E8,D2:D8,"<31/12/1990",C2:C8,"=Delhi")

	A	B	C	D	E	F	G	H
1		Name	Address	D.O.J	Salary	Sum salary DOJ before31/12/1990 & Address Delhi		
2		Rakesh	Kolkata	12-04-2000	22500	52648		
3		Dipti	Delhi	19-05-1987	27300			
4		Arpita	Mumbai	05-11-1991	21265			
5		Nil	Delhi	23-09-1995	19736			
6		Swapan	Cochin	14-12-1996	18475			
7		Radha	Kolkata	31-12-1989	20687			
8		Binod	Delhi	28-02-1990	25348			
9								

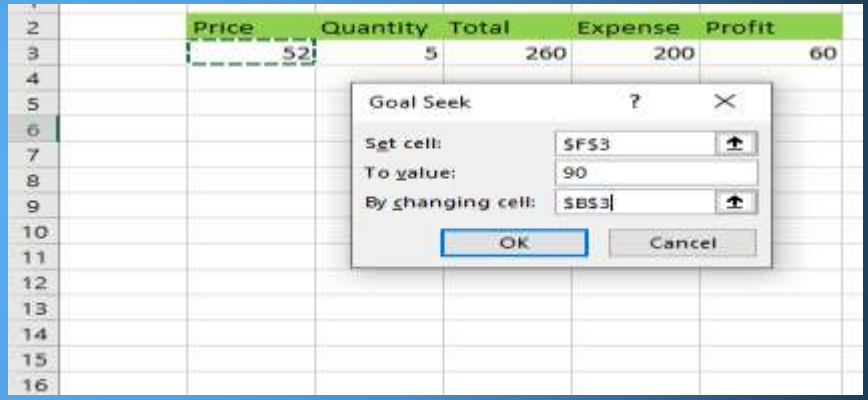
GOAL SEEK

Goal seeking is the process of finding the correct input value when only the output is known.

1. Go to **DATA** tab, then in **Forecast** group click on **What-If-Analysis**, then from drop down menu click on **Goal Seek**.

For Example:

B	C	D	E	F
Price	Quantity	Total	Expense	Profit
52	5	260	200	60



B	C	D	E	F
Price	Quantity	Total	Expense	Profit
58	5	290	200	90

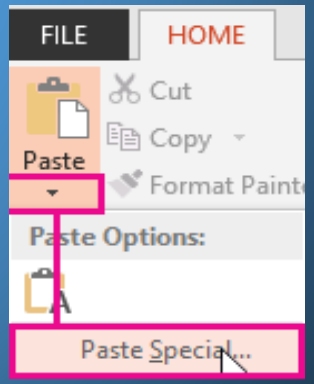
PASTE SPECIAL

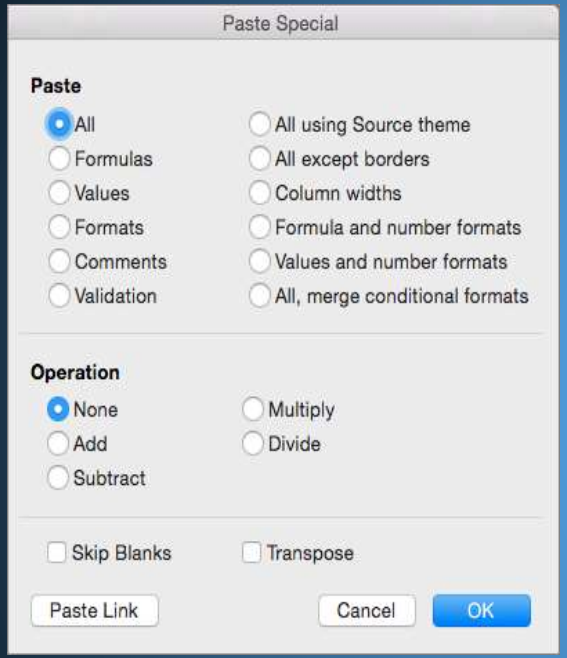
When you copy text that has different formatting into an Office program, the program, such as PowerPoint or Word, automatically reformats that text to match the text of the destination. However, you can use Paste Special to maintain the original formatting or paste it as a link or a picture, for example.

1. Cut or copy the slide, picture, text, or object that you want to paste.

2. Click in your Office file at the place you wish to insert that item.

3. On the **Home** tab, in the **Clipboard** group, click the arrow under **Paste**, click **Paste Special**, and then choose one of the options shown in the next slide.



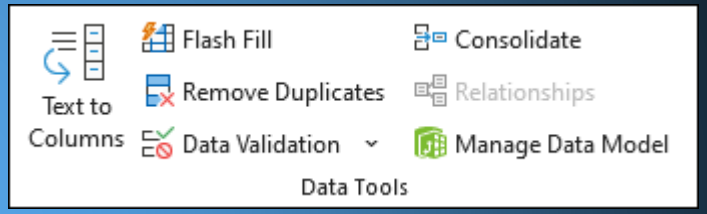


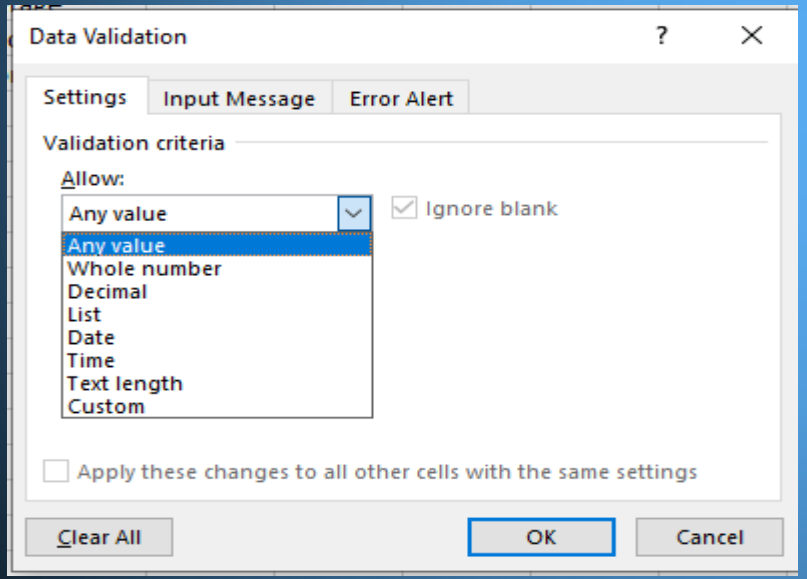
All	All cell contents and formatting, including linked data.
Formulas	Only the formulas.
Values	Only the values as displayed in the cells.
Formats	Cell contents and formatting.
Comments	Only comments attached to the cell.
Validation	Only data validation rules.
All using Source theme	All cell contents and formatting using the theme that was applied to the source data.

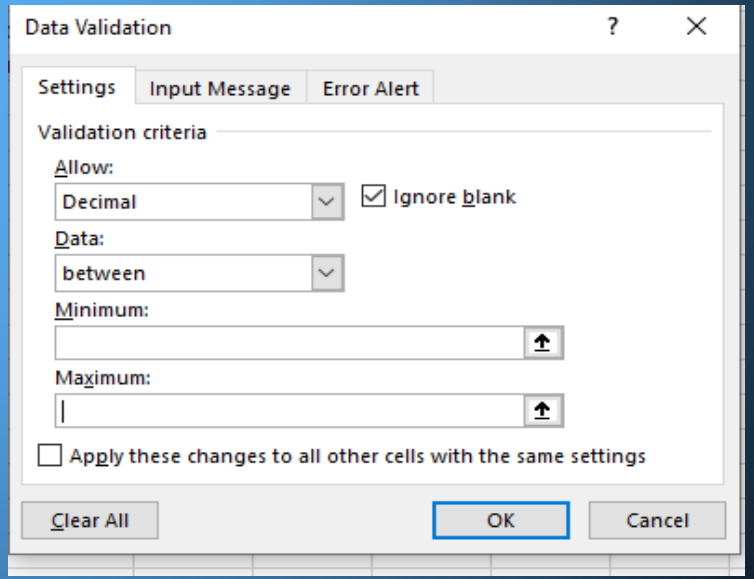
DATA VALIDATION

Data validation to restrict the type of data or the values that users enter into a cell.

1. Select the cell(s) you want to create a rule for.
2. Select **Data >Data Validation**.
3. On the **Settings** tab, under **Allow**, select an option:

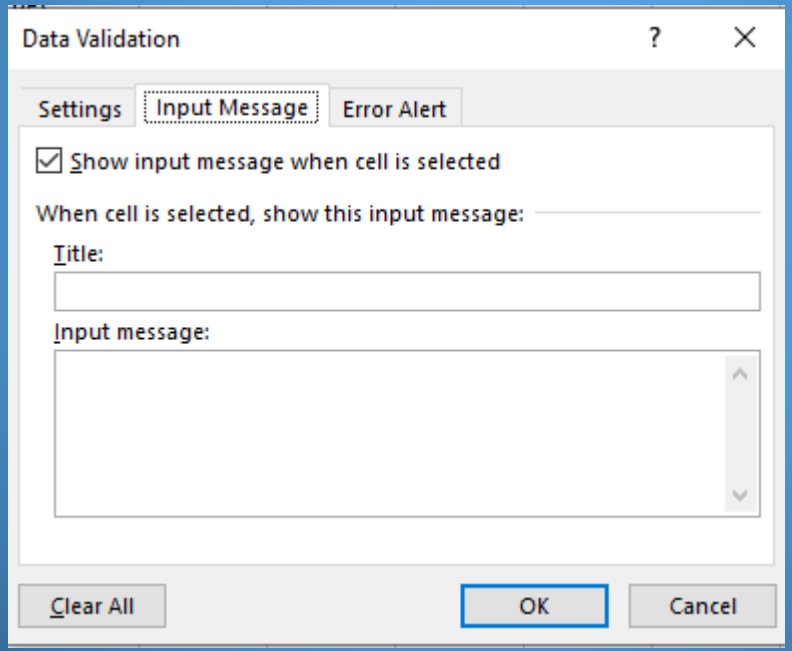




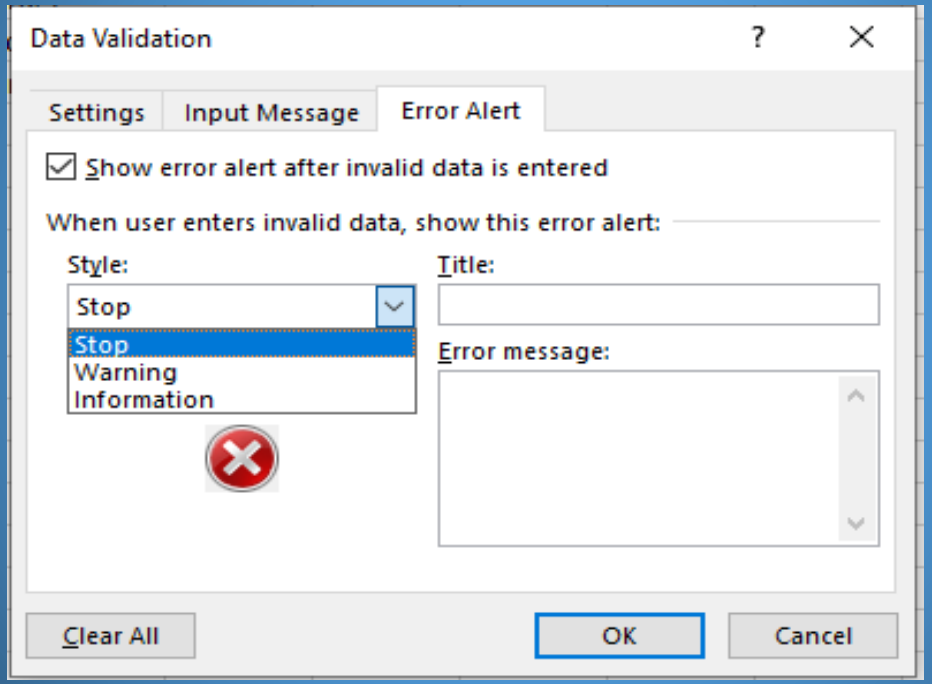


4. Select the **Input Message** tab and customize a message users will see when entering data.

5. Select the **Show input message** **when cell is selected,** checkbox to display the message when the user selects or move over the selected cell(s).



6. Select the **Error Alert** tab to customize the error message and to choose a **Style**.
7. Select **OK**.



Pivot Table

A pivot table is a tool that allows you to quickly summarize and analyze data in your spreadsheet.

You can use a pivot table when:

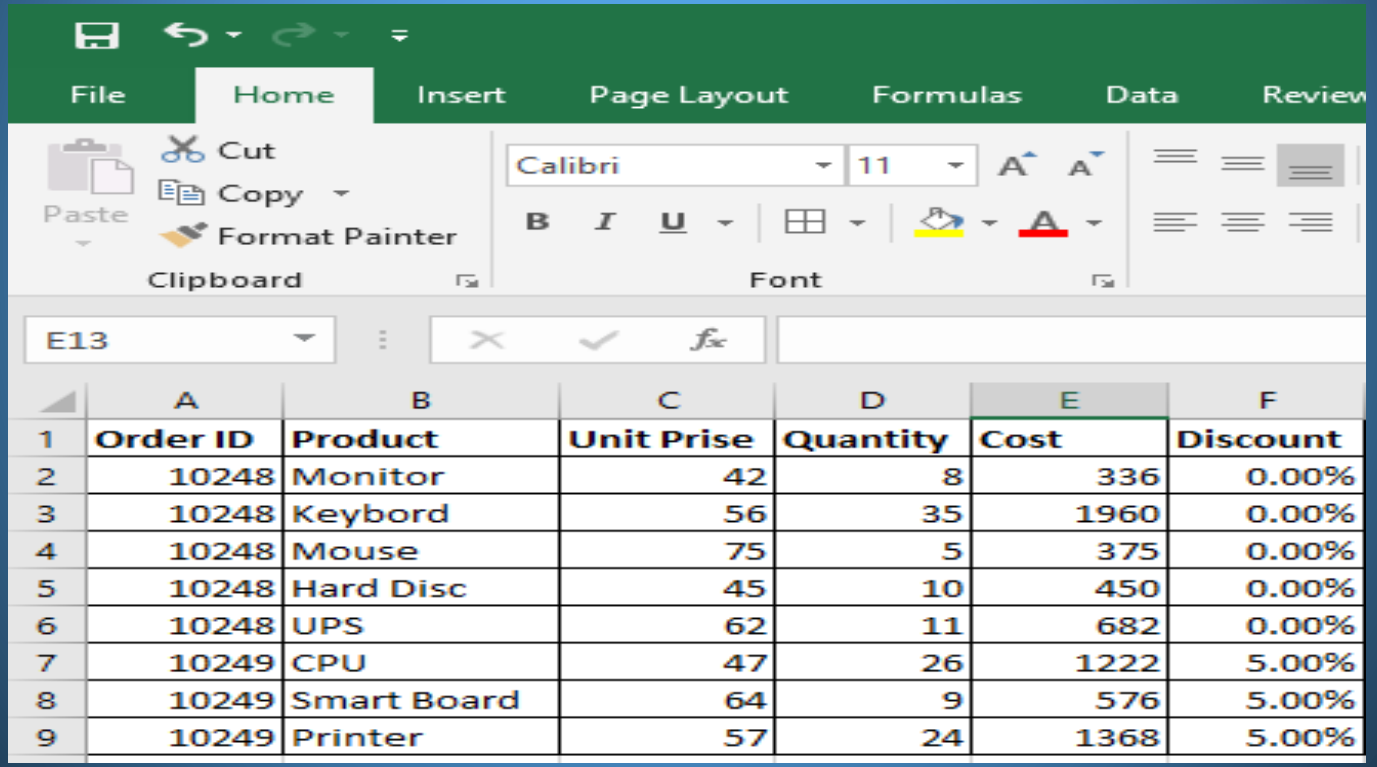
- You want to arrange and summarize your data.
- The data in your spreadsheet is too large and complex to analyze in its original format.

	A	B	C
1	Order ID	Sum of Quantity	
2	10248	69	
3	10249	59	
4	10250	60	
5	10251	81	
6	Grand Total	269	
7			

Steps to Create a Pivot Table:

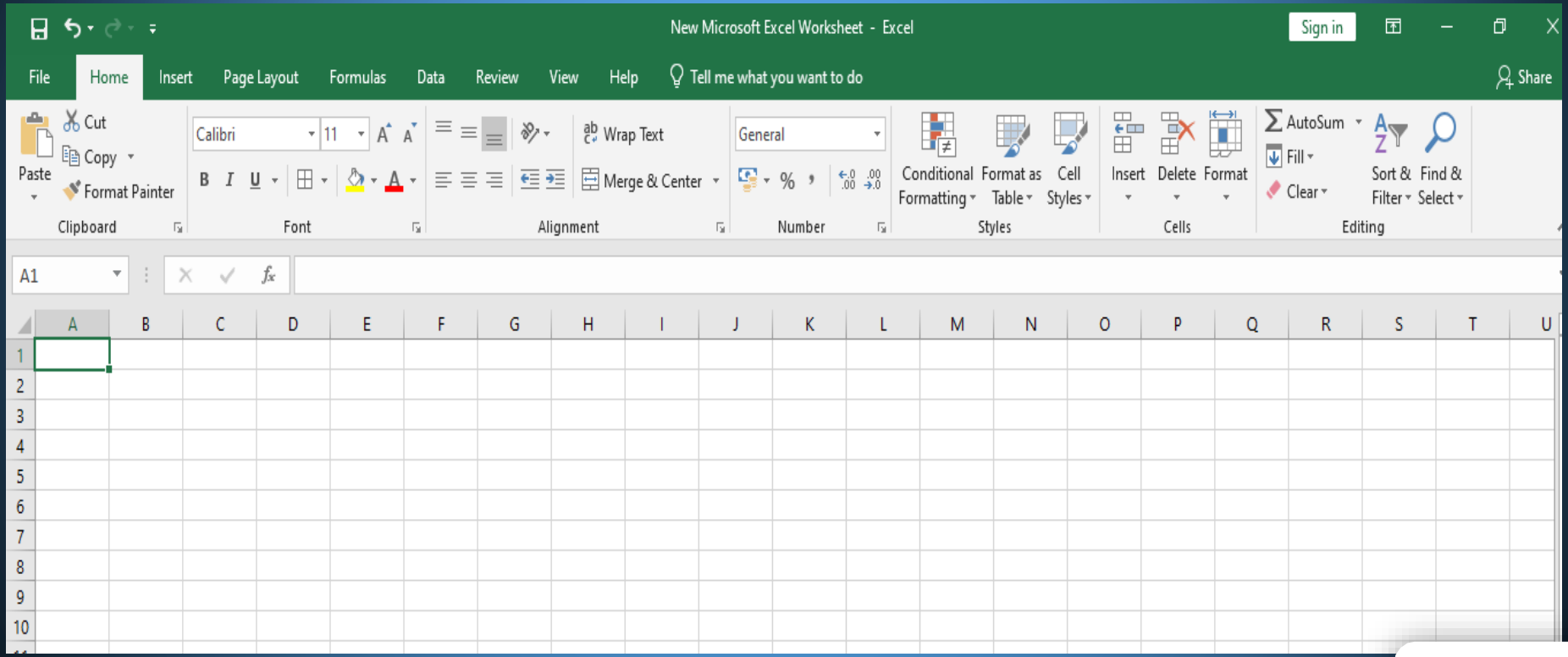
To create a pivot table in Excel 2016, you will need to do the following steps:

1. Before we get started, we first want to show you the data for the pivot table. In this example, the data is found on **Sheet1**.

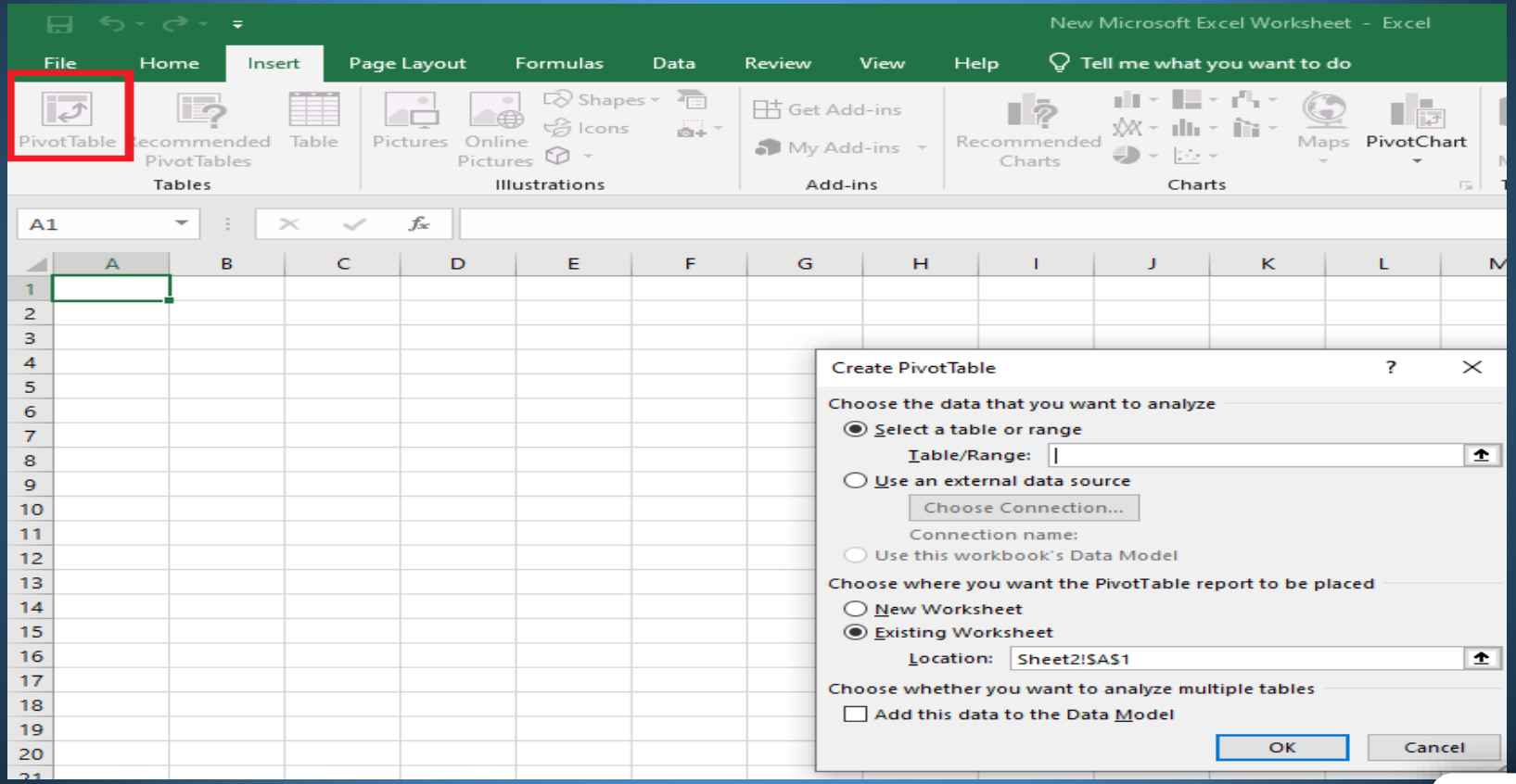


	A	B	C	D	E	F
1	Order ID	Product	Unit Prise	Quantity	Cost	Discount
2	10248	Monitor	42	8	336	0.00%
3	10248	Keybord	56	35	1960	0.00%
4	10248	Mouse	75	5	375	0.00%
5	10248	Hard Disc	45	10	450	0.00%
6	10248	UPS	62	11	682	0.00%
7	10249	CPU	47	26	1222	5.00%
8	10249	Smart Board	64	9	576	5.00%
9	10249	Printer	57	24	1368	5.00%

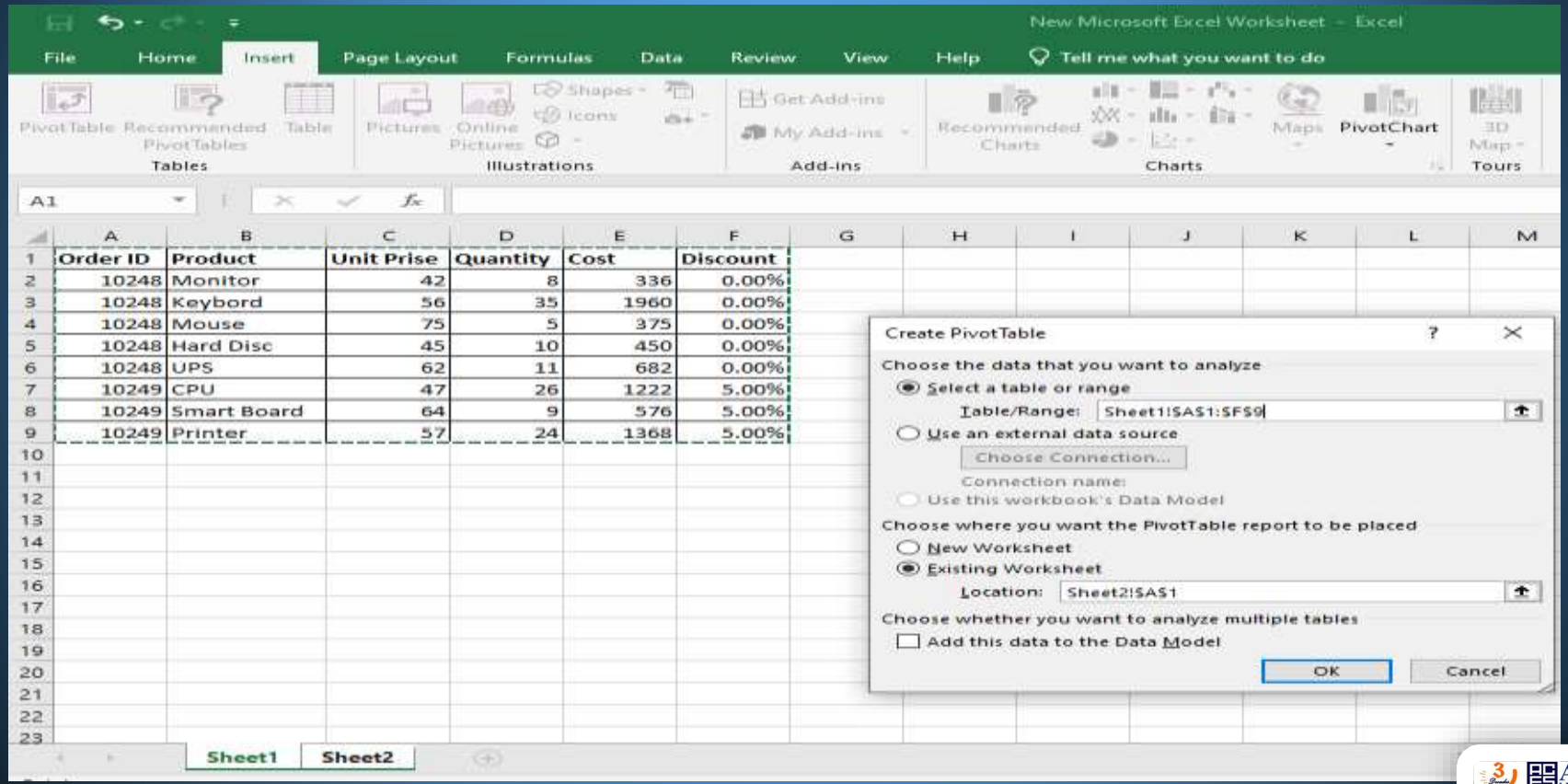
2. Highlight the cell where you'd like to create the pivot table. In this example, we've selected cell **A1** on **Sheet2**.



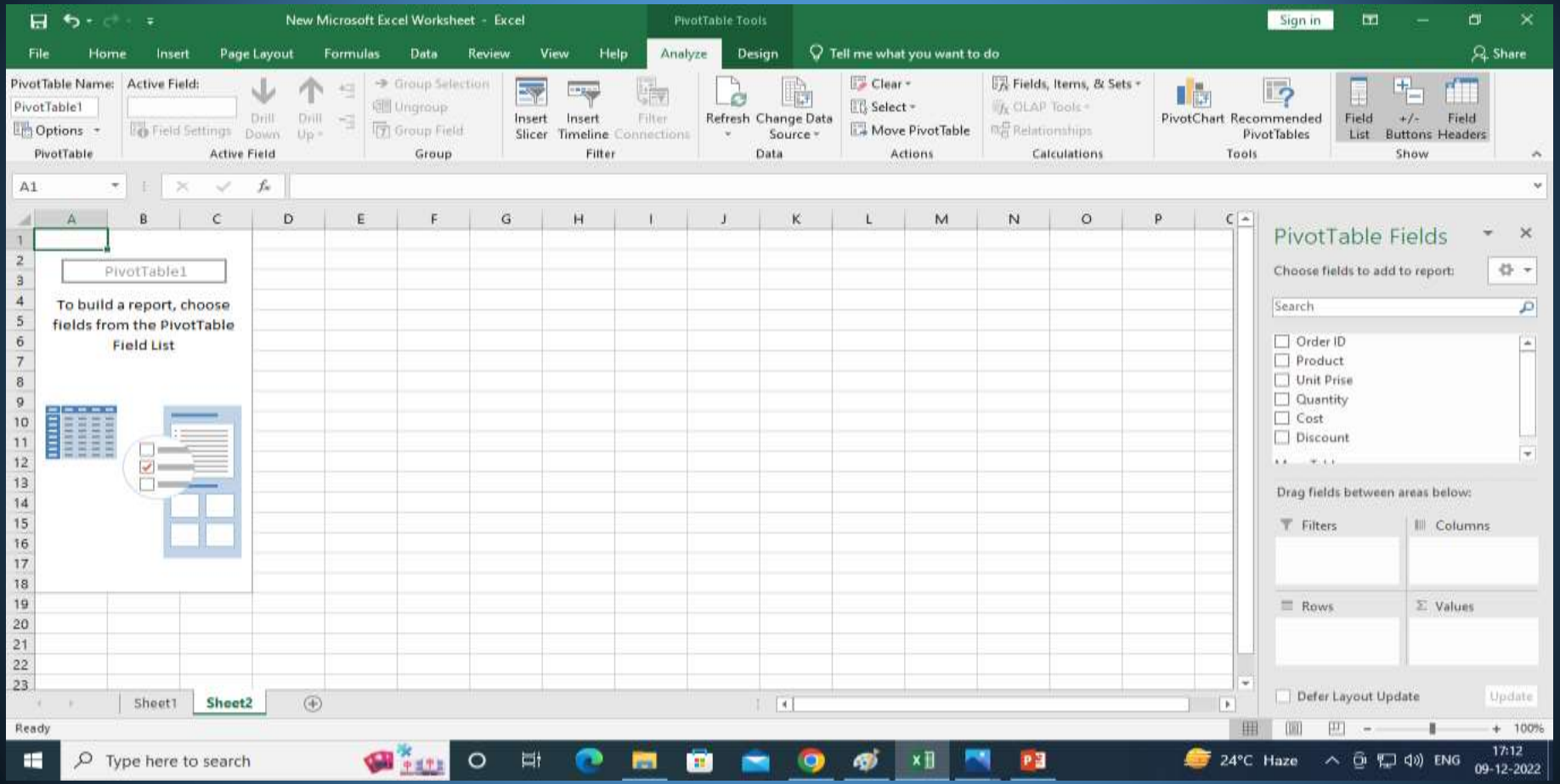
3. Next, select the **Insert tab** from the toolbar at the top of the screen. In the **Tables group**, click on the **PivotTable** to open create Pivot Table dialogue box.



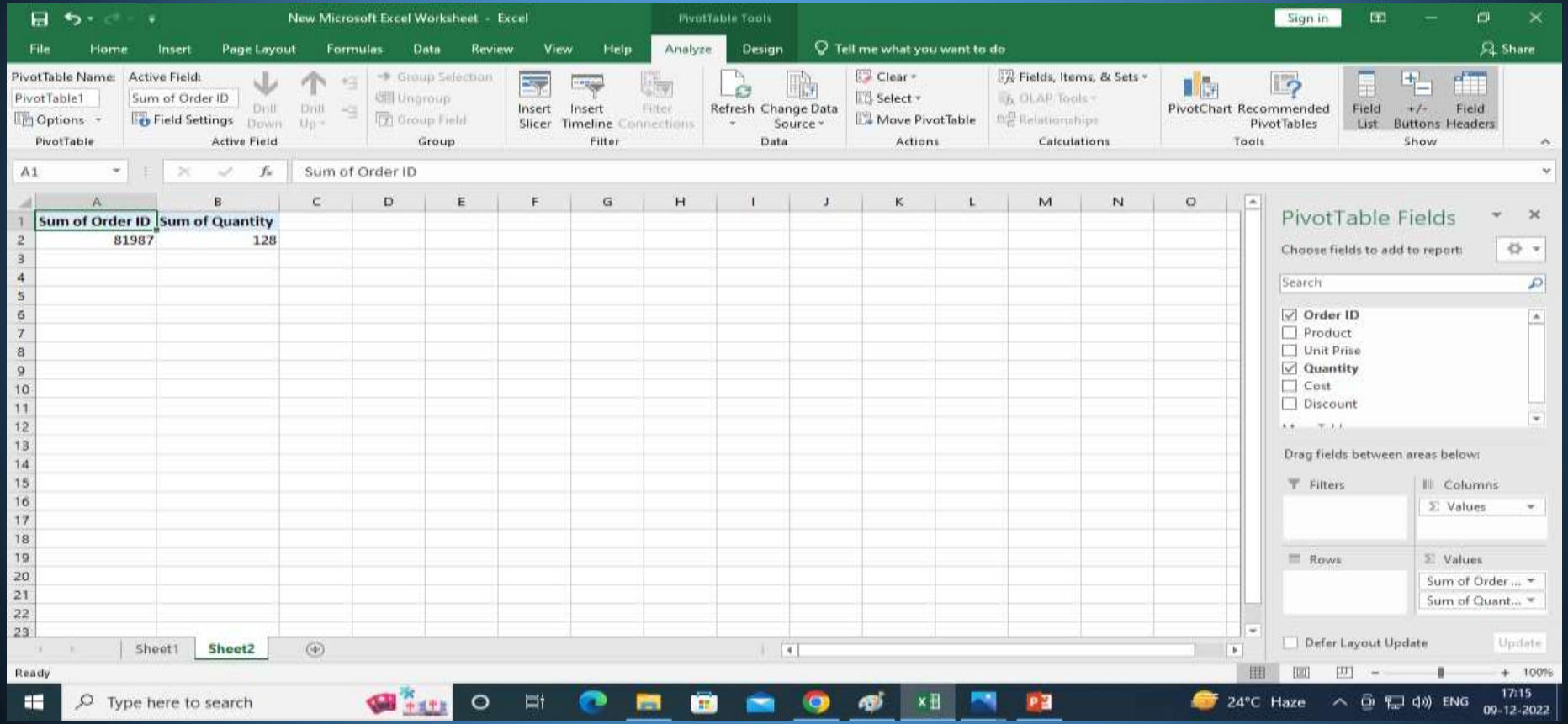
4. Select the range of data for the pivot table and click on the **OK** button. In this example, we've chosen cells A1 to F9 in Sheet1 as indicated by **Sheet1!$A$1:$F$9**



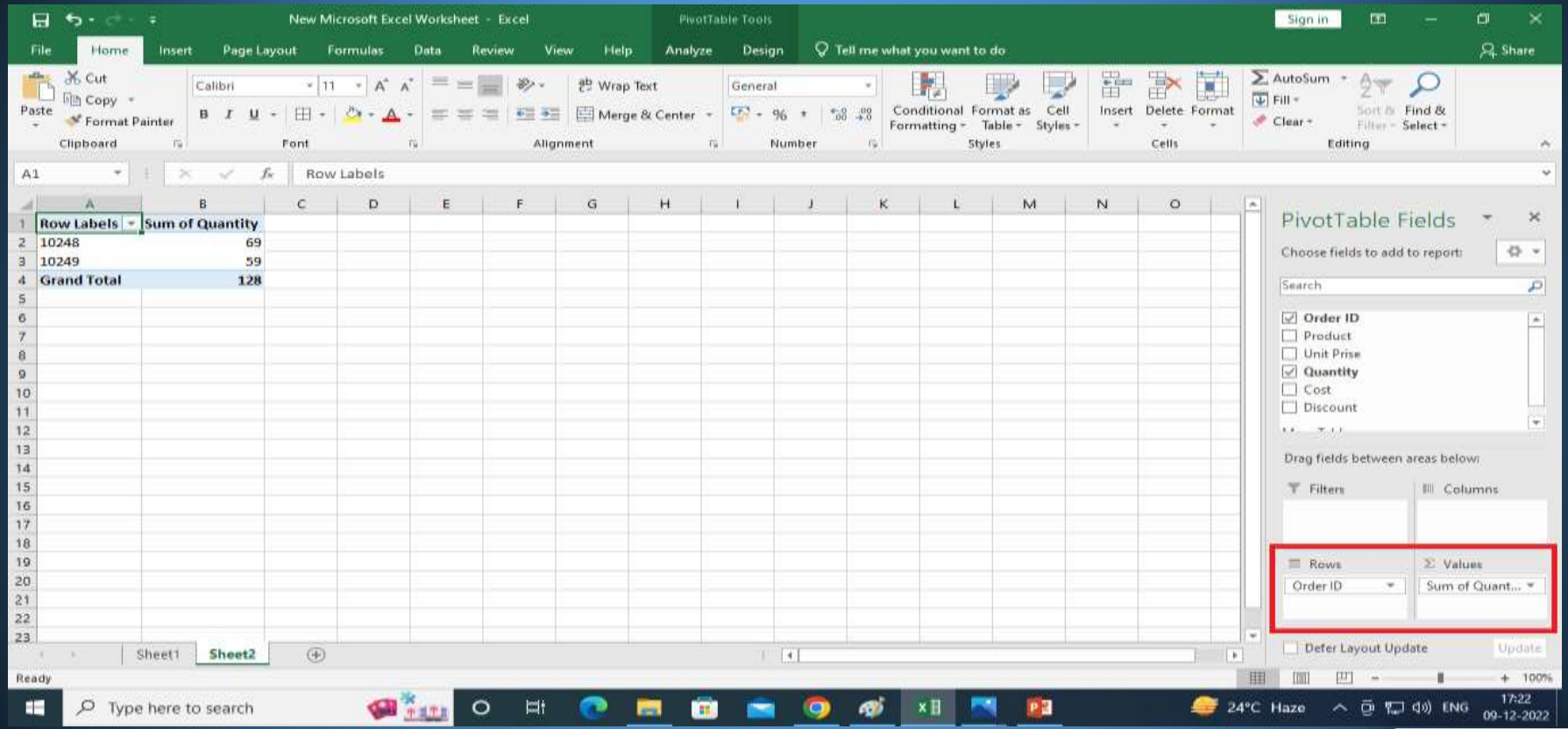
Your Pivot Table Should Now appear as follows



5. Next, choose the fields to add to the report. In this example, we've selected the checkboxes next to the **Order ID** and **Quantity** fields.



6. Next in the **Values** section, click on the "**Sum of Order ID**" and drag it to the Rows section.



Now your Pivot Table is ready

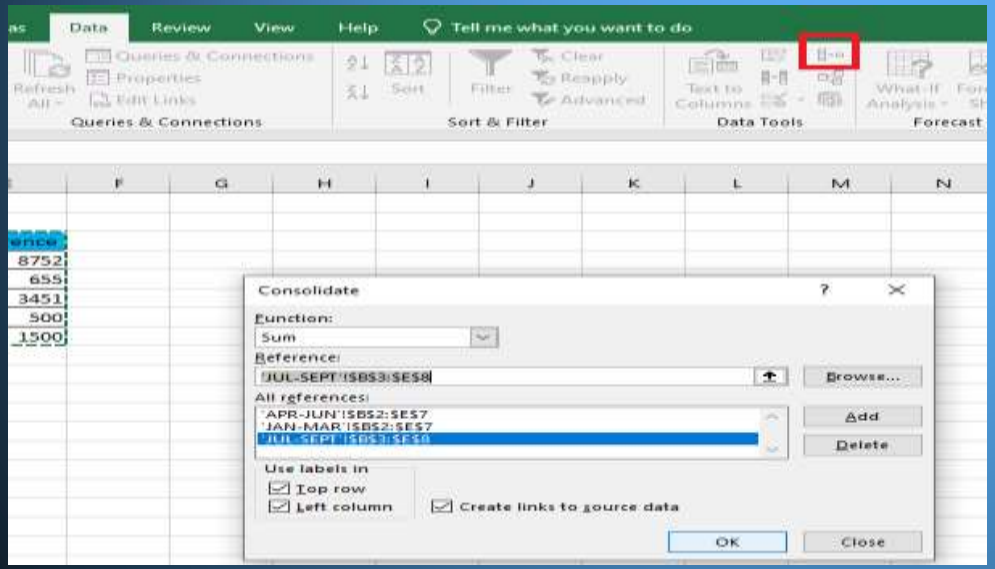
DATA CONSOLIDATION

To summarize and report results from separate worksheets, you can consolidate data from each sheet into a master worksheet.

	JAN-MAR		
Item	Budget	Actual	Difference
Clothing	15375	13251	2124
Food	19781	22650	-2869
Loan	45000	45000	0
Medical	5620	7000	-1380
Rent	23000	23000	0

	APR-JUN		
Item	Budget	Actual	Difference
Clothing	17375	17947	-572
Food	18781	15435	3346
Loan	35000	40000	-5000
Medical	6000	4000	2000
Rent	20000	19000	1000

	JUL-SEPT		
Item	Budget	Actual	Difference
Clothing	20000	11248	8752
Food	17249	16594	655
Loan	43000	39549	3451
Medical	6500	6000	500
Rent	25000	23500	1500



	B	C	D	E	F
			Budget	Actual	Difference
	Clothing		52750	42446	10304
	Food		55811	54679	1132
	Loan		123000	124549	-1549
	Medical		18120	17000	1120
	Rent		68000	65500	2500

3 Decades

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