

## PRACTICAL NO.: 1

**Aim:** Introduction to Spreadsheet.

(A): Data entry using spreadsheet: Text, Number, Function, Auto fill, Auto Correct and data validation

**1. Numbers:** Number can be form of numeric values: Whole numbers (e.g., 12), Decimal numbers (e.g., 12.52) and Scientific notation (e.g., 0.25364E+2).

**2. Text:** First select the cell in which data has to be entered and type the text. Press ENTER key to finish your text entry. The text will display in the active cell as well as in the Formula bar.

**3. Functions:** Functions are prewritten formulas. Functions differ from regular formulas in that you supply the value but not the operators, such as +, -, \*, or /. For e.g., You can use the SUM function to add.

1) Use equal sign to begin a formula.

2) Specify the function name.

3) Enclose arguments within parentheses. Arguments are values on which you want to performed the calculation. For example, arguments specify the numbers or cell you want to add.

4) Use a comma to separate arguments.

Here is an example of function:

=SUM (B2:B6)

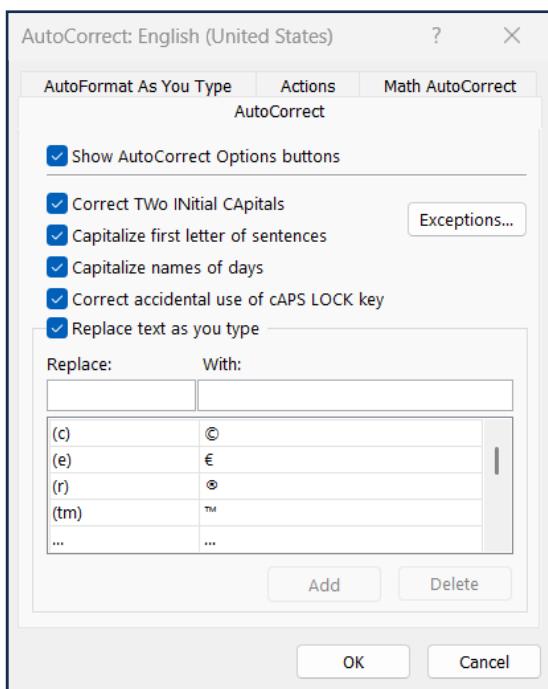
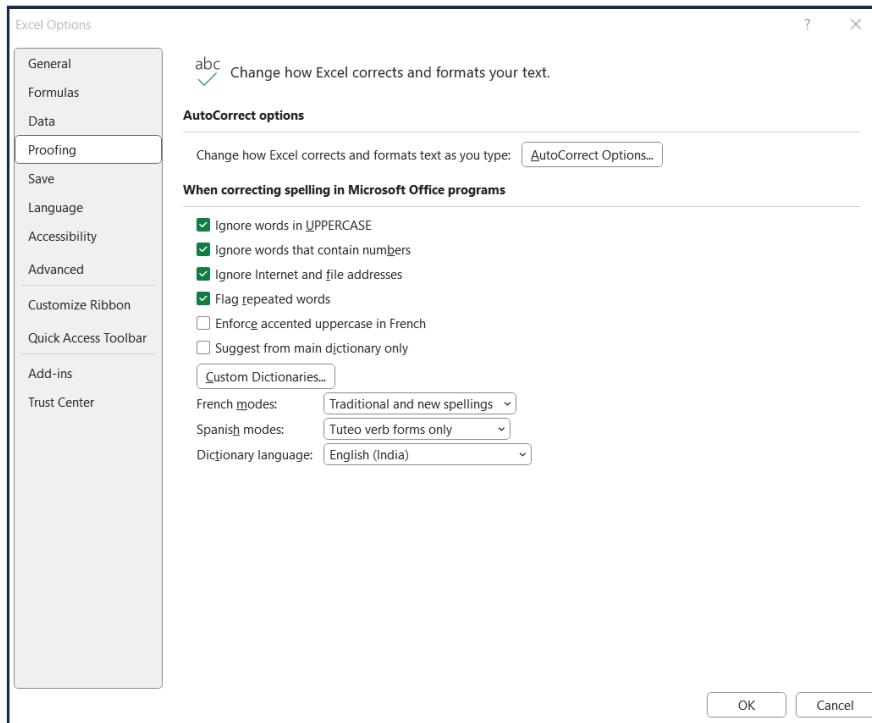
A	B	C	D	E	F	G	H	I	J	K	L	M
1	Item	Quantity										
2	Book	10										
3	Pen	25										
4	Pencil	15										
5	File	18										
6	Eraser	9										
7	Total	=SUM(B2:B6)										
8												

**4. AutoFill:** You can fill a range of cells either with same value or with a series of values with the help of AutoFill.

**5. AutoCorrect:** You can use the AutoCorrect feature to correct typos, capitalization errors, and misspelled words as well as automatically insert symbols and other piece of text.

If you don't like the AutoCorrect Options button that appears while you are typing, you can use the dialog box to turn it off: Clear the check box to Show AutoCorrect Options buttons.

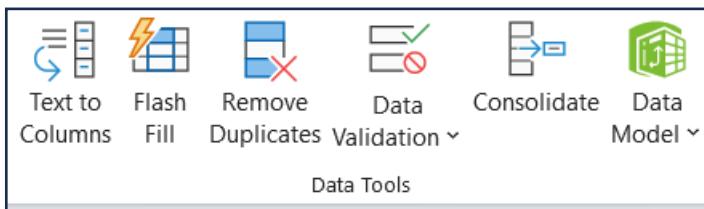
Goto File Menu -> Options -> Proofing



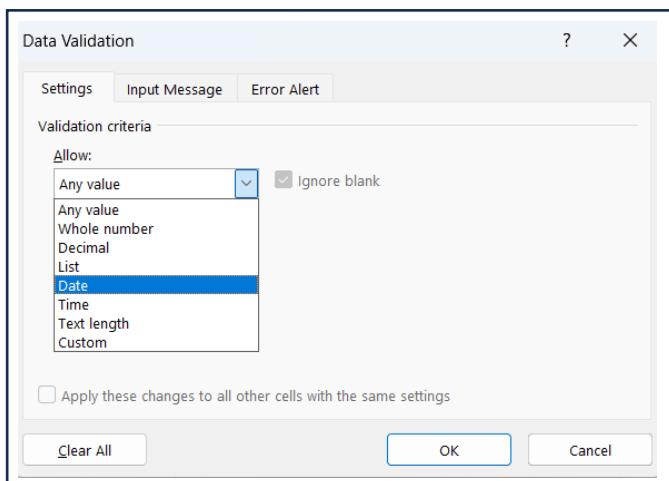
**6. Data Validation:** Data validation processes check for the validity of the data. Using a set of rules, it checks whether the data is within the acceptable values defined for the field or not. The system ensures the inputs stick to the set rules, for instances, the type, uniqueness, format, or consistency of data.

- **Apply data validation to cells**

1. Select the cells you want to create a rule for.
2. Select **Data > Data Tools > Data Validation.**

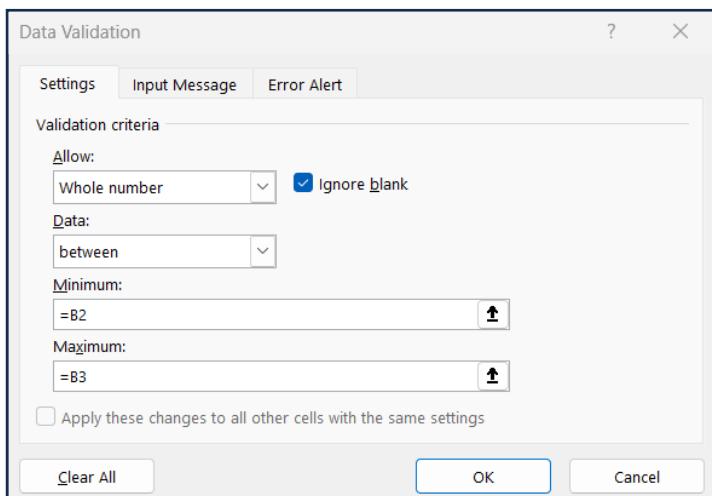


3. On the **Settings** tab, under **Allow**, select an option:

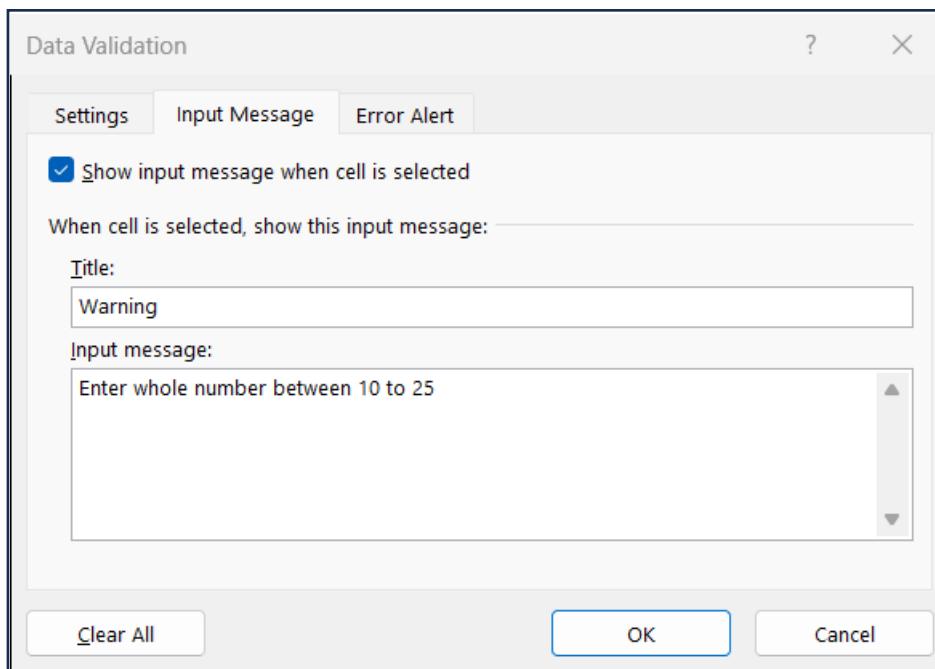


- **Whole Number** – to restrict the cell to accept only whole numbers.
- **Decimal** – to restrict the cell to accept only decimal numbers.
- **List** – to pick data from the drop-down list.
- **Date** – to restrict the cell to accept only date.
- **Time** – to restrict the cell to accept only time.
- **Text Length** – to restrict the length of the text.
- **Custom** – for custom formula.

4. Under **Data**, select a condition.



5. Set the other required values based on what you chose for Allow and Data.
6. Select the **Input Message** tab and customize a message users will see when entering data.
7. select the **Show input message when cell is selected** checkbox to display the message when the user selects or hovers over the selected cells.

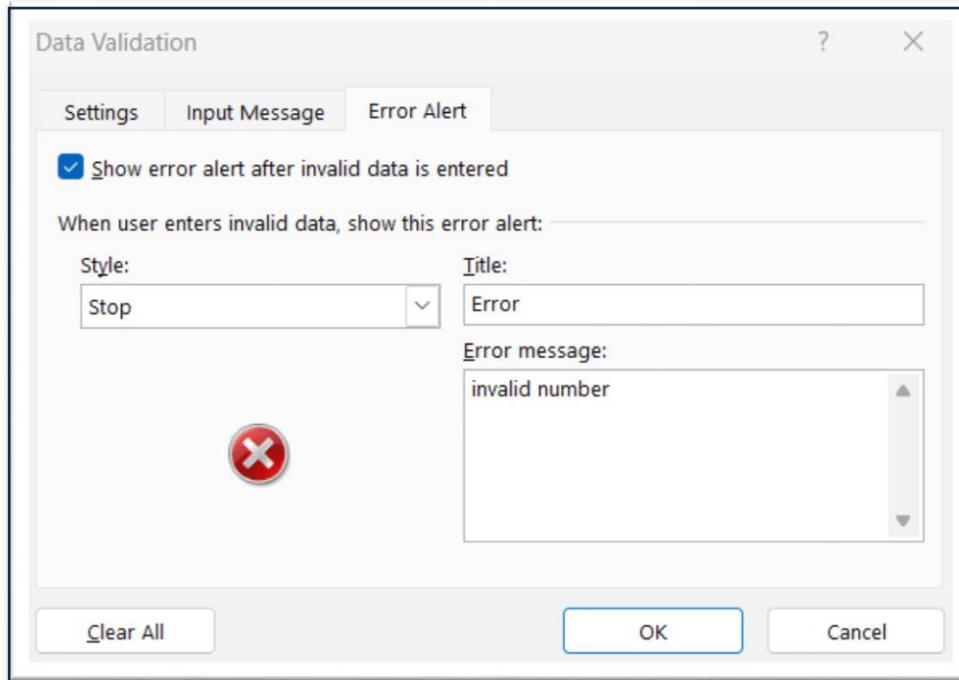


The screenshot displays a Microsoft Excel spreadsheet named 'acc'. The 'Data' tab is currently selected. The worksheet contains a table with two columns: 'Item' and 'Quantity'. The data entries are:

	Item	Quantity
1	Book	10
2	Pen	25
3	Pencil	15
4	File	18
5	Eraser	9
6	Total	
7		Warning Enter whole number between 10 to 25
8		
9		
10		
11		
12		
13		

The 'Data' tab ribbon group includes 'Get & Transform Data' (From Text/CSV, From Web, From Table/Range) and 'Queries & Connections' (Recent Sources, Existing Connections, Refresh All, Properties, Workbook Links). The 'Data Types' group includes 'Stocks' and 'Currencies' buttons. The 'Sort & Filter' group includes 'Sort' (A-Z, Z-A) and 'Filter' buttons.

8. Select the **Error Alert** tab to customize the error message and to choose a **Style**.



9. Select **OK**.

Now, if the user tries to enter a value that is not valid, an **Error Alert** appears with your customized warning

**❖ Keyboard Shortcuts**

- Data and Time
- Use a Shortcut key to quickly enter date and time in your spreadsheet
  - Enter the current Date: Ctrl + ;
  - Enter the current Date: Ctrl + Shift + ;

**Enter Data in Multiple Cells**

- Select all the cells in which you want to enter the same value or formula
- Type the value or formula in the active cell
- Hold the Ctrl key and press Enter

**Copy to Adjacent Cells**

- Select the range, starting with the cell that contain the data to be copied
- Use a shortcut key to fill right or down:
  - Copy Value from cell above: Ctrl +Shift +'
  - Copy Formula (exact) from cell above: Ctrl +'
  - Copy Formula (relational reference) from cell above: Ctrl + D
  - Fill Right – Ctrl + R
  - Fill Down – Ctrl + D

**❖ Mouse Shortcuts****Copy Data to Adjacent Cells**

- Select the cell that contains the data to be copied
- Point to the Fill Handle – the black square at the lower right of the selection
- Point to the Fill Handle
- When the pointer changes to a black plus sign, press the Left mouse button, and drag left, right, up or down, across one or more cells.
- drag left, right, up or down
- When finished, release the mouse button.

**Copy to Adjacent Cells – with options**

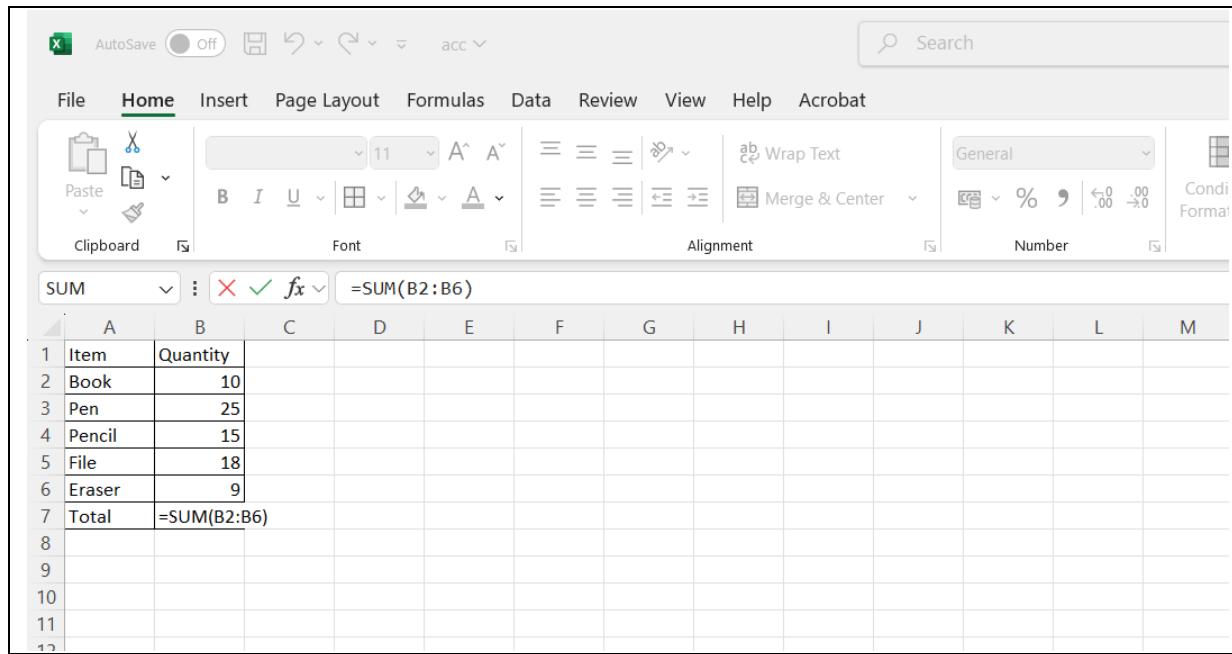
- Select the cell that contains the data to be copied
- Point to the Fill Handle --the black square at the lower right of the selection
- When the pointer changes to a black plus sign, press the Right mouse button, and drag left, right, up or down, across one or more cells.
- When finished, release the mouse button.

## (B): Using Total and Subtotal: Sum (), Quick sum, Subtotal (), Sumif (), Conditional Sums, Sorting of data.

**1. Sum ():** You can use the SUM () function to add row or columns data.

Here is an example of function:

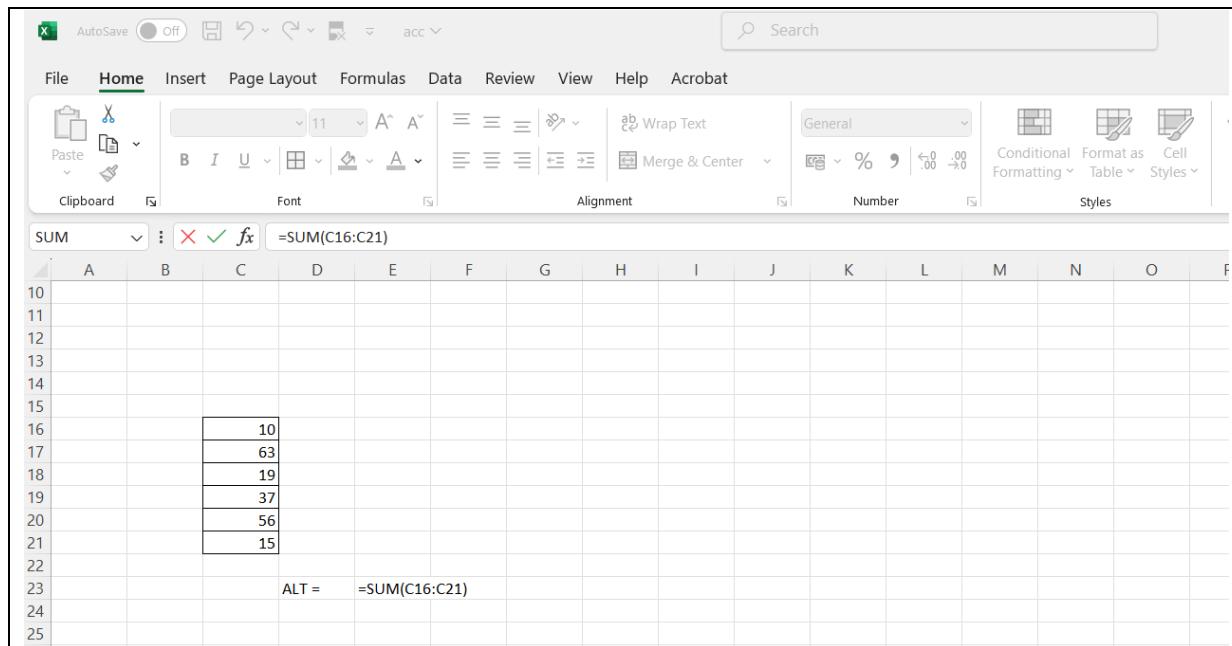
=SUM (B2:B6)



A screenshot of Microsoft Excel showing a table in the worksheet. The table has two columns: 'Item' and 'Quantity'. The data rows are: Book (10), Pen (25), Pencil (15), File (18), Eraser (9). A total row at the bottom contains the formula =SUM(B2:B6) in cell B7. The Excel ribbon is visible at the top, showing the Home tab is selected. The formula bar also displays =SUM(B2:B6).

A	B	C	D	E	F	G	H	I	J	K	L	M
1	Item	Quantity										
2	Book	10										
3	Pen	25										
4	Pencil	15										
5	File	18										
6	Eraser	9										
7	Total	=SUM(B2:B6)										
8												
9												
10												
11												
12												

**2. Quick Sum:** The Auto sum Excel Function can be accessed by typing ALT + The = sign on a spreadsheet, and it will automatically create a formula to sum all the numbers in a continuous range.



A screenshot of Microsoft Excel showing a table in the worksheet. The table has three columns: 'A', 'B', and 'C'. The data rows are: 10, 63, 19, 37, 56, 15. A formula row at the bottom contains the formula =SUM(C16:C21) in cell C23. The formula bar also displays =SUM(C16:C21). The Excel ribbon is visible at the top, showing the Home tab is selected.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	F
10															
11															
12															
13															
14															
15															
16		10													
17		63													
18		19													
19		37													
20		56													
21		15													
22															
23															
24															
25															

**3. Subtotal ()**: Subtotal is the function that returns a subtotal in a list or database. In this context, “subtotal” is not just totalling numbers in a defined range of cells.

It can perform different arithmetic and logical operations such as counting the cells, calculating average, finding the minimum or maximum value, and more.

**Syntax->** =SUBTOTAL (function\_num, ref1, [ref2], ...)

Where:

The function name argument can belong to one of the following sets:

1-11 ignore filtered-out cells, but include manually hidden rows.

101-111 ignore all hidden cells - filtered out and hidden manually.

Function_num	Function	Description
101	AVERAGE	Returns average of numbers.
102	COUNT	Counts cells that contains numeric values.
103	COUNTA	Counts non-empty cells.
104	MAX	Returns largest value.
105	MIN	Returns smallest value.
106	PRODUCT	Calculate the product of cells
107	STDEV	Returns the standard deviation of a population based on a sample of numbers.
108	STDEVP	Returns the standard deviation based on entire population of numbers.
109	SUM	Add up the numbers.
110	VAR	Estimates the variance of a population based on a sample of numbers.
111	VARP	Estimates the variance of a population based on an entire population of numbers.

The screenshot shows a Microsoft Excel spreadsheet with the following details:

- Formula Bar:** Displays the formula `=subtotal()`.
- Dropdown Menu:** A list of functions is displayed, including:
  - (...)2 - COUNT
  - (...)3 - COUNTA
  - (...)4 - MAX
  - (...)5 - MIN
  - (...)6 - PRODUCT
  - (...)7 - STDEV.S
  - (...)8 - STDEV.P
  - (...)9 - SUM** (highlighted in blue)
  - (...)10 - VAR.S
  - (...)11 - VAR.P
  - (...)101 - AVERAGE
- Table Data:** A table with columns "Item" and "Quantity". The data includes:
 

Item	Quantity
Book	10
Pen	25
Pencil	15
File	18
Eraser	9
Total	=subtotal()
- Excel Interface:** Shows the ribbon with the Data tab selected. The status bar at the bottom left shows "acc".

To add a function number to the formula, double-click on it. Then type a comma, specified a range, type the closing parentheses, and press Enter.

The completed formula will look like this:

=SUBTOTAL (9, C4:C8)

In similar manner, you can write a Subtotal 1 formula to get an average, Subtotal 2 to count cell with numbers, Subtotal 3 to count non-blanks, and so on.

A screenshot of Microsoft Excel showing a table with subtotal formulas. The table has columns for Item and Quantity. Row 9 contains a formula =SUBTOTAL(2,C4:C8) in cell C9, resulting in 77. Row 10 contains =SUBTOTAL(1,C4:C8) in cell C10, resulting in 15.4. Rows 11 through 14 contain =SUBTOTAL(5,C4:C8), =SUBTOTAL(4,C4:C8), =SUBTOTAL(2,C4:C8), and =SUBTOTAL(6,C4:C8) respectively, all resulting in 9, 25, 5, and 607500 respectively. The formula bar shows =SUBTOTAL(2,C4:C8).

	Item	Quantity
1		
2		
3	Book	10
4	Pen	25
5	Pencil	15
6	File	18
7	Eraser	9
9	Total	77 = SUBTOTAL(2,C4:C8)
10	Average	15.4 = SUBTOTAL(1,C4:C8)
11	Min	9 = SUBTOTAL(5,C4:C8)
12	Max	25 = SUBTOTAL(4,C4:C8)
13	Count	5 = SUBTOTAL(2,C4:C8)
14	Product	607500 = SUBTOTAL(6,C4:C8)
15		
16		

**4. Sumif ():** The SUMIF () function is a premade function in Excel, which calculates the sum of values in a range based on a true or false condition.

**Syntax->** =SUMIF (range, criteria, [sum\_range])

A screenshot of Microsoft Excel showing a table with a sumif formula. The table has columns for Year, Date, Value, and Criteria. Row 2 contains a formula =SUMIF(A2:A6,D2,C2:C6) in cell F2, resulting in 218.6. The formula bar shows =SUMIF(A2:A6,D2,C2:C6).

	Year	Date	Value	Criteria	
1					
2	2000	08-01-2000	10.5	2000	218.6
3	2003	05-12-2003	7.2		
4	2000	03-12-2000	200		
5	2001	30-07-2001	5.4		
6	2000	28-02-2000	8.1		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

➤ Example SUMIF function, step by step:

1. Select the cell F1
2. Type-SUMIF
3. Double click the SUMIF command
4. Specify the range for the condition A2:A6 (the Type I values)
5. Type.
6. Specify the criteria (the cell D2, which has the value 2000)
7. Type.
8. Specify the range for the sum C2:C6 (the values)
9. Hit Enter

➤ Based on the Excel spreadsheet above, the following SUMIF examples would return:

1.=SUMIF (A2:A6, D2, C2:C6)

Result:218.6 “Criteria is the value in cell D2”

2. =SUMIF (A: A, D2, C:C)

Result:218.6 “Criteria applies to all of column A(i.e.: A:A)”

3. =SUMIF (A2:A6, 2003, C2:C6)

Result:7.2 “Criteria is the number2003”

4. =SUMIF (A2:A6, “>=2001”, C2:C6)

Result:12.6 “Criteria is greater than or equal to 2001”

5. =SUMIF (C2:C6, “<=100”)

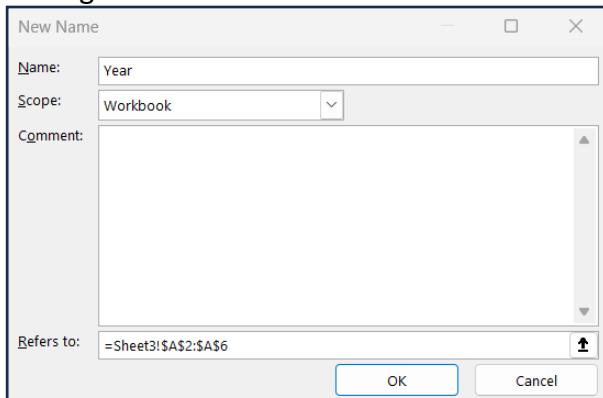
Result:31.2 “Adds values in C2:C6 that are less than 100”

### Using Named Ranges:

You can also use a named range in the SUMIF function. A named range is a descriptive name for a collection of cells or range in a worksheet. If you are unsure of how to setup a named range in your spreadsheet, read our tutorial on Adding a Named Range.

For example, if we created a named range called years in our spreadsheet that refers to cells A2:A6 in Sheet1 (Notice that the named range is an absolute reference that refers to =Sheet1!\$A\$2: \$A\$6 in the image below):

1. Select the cell you want create a Name Range
2. Right click on it and Select the Define name....



We could use this named range in our current example.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Year	Date	Value	Criteria										
2	2000	08-01-2000	10.5	2000		218.6								
3	2003	05-12-2003	7.2											
4	2000	03-12-2000	200											
5	2001	30-07-2001	5.4											
6	2000	28-02-2000	8.1											
7														
8														
9														
10														
11														
12														
13														
14														

This would allow us to replace A2:A6 as the first parameter with the named range called years, as follows:

=SUMIF (A2:A6, D2, C2:C6) "First parameter uses a standard range"

Result: 218.6

=SUMIF (years, D2, C2:C6) "First parameter uses a named range called years"

Result: 218.6

## 5. Conditional Sums:

The SUMIF function, also known as Excel conditional sum, is used to add up cell values based on a certain condition.

## 6. Sorting of Data:

### A. Select the data to sort

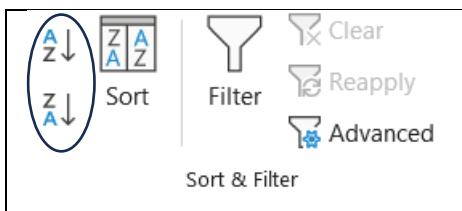
Select a range of tabular data, such as A1:I5 (multiple rows and columns) or C1:C80 (a single column). The range can include the first row of headings that identify each column.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2	40	38	44	46	51	56	67	72	70	59	45	41	
3	34	33	38	41	45	48	51	55	54	45	41	38	
4	61	69	79	83	95	97	100	101	94	87	72	66	
5	0	2	9	24	28	32	36	39	35	21	12	4	
6													
7													
8													

### B. Sort quickly and easily

1. Select a single cell in the column you want to sort.
2. On the Data tab, in the Sort & Filter group, click  to perform an ascending sort (from A to Z, or smallest number to largest).



	A	B	C	D	E	F	G	H	I	J	K	L
1	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	0	2	9	24	28	32	36	39	35	21	12	4
3	34	33	38	41	45	48	51	55	54	45	41	38
4	40	38	44	46	51	56	67	72	70	59	45	41
5	61	69	79	83	95	97	100	101	94	87	72	66

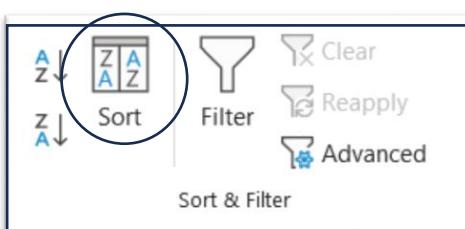
3. Click  command in Excel that sorts Z to A or largest number to smallest to perform descending sort.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	61	69	79	83	95	97	100	101	94	87	72	66
3	40	38	44	46	51	56	67	72	70	59	45	41
4	34	33	38	41	45	48	51	55	54	45	41	38
5	0	2	9	24	28	32	36	39	35	21	12	4
6												

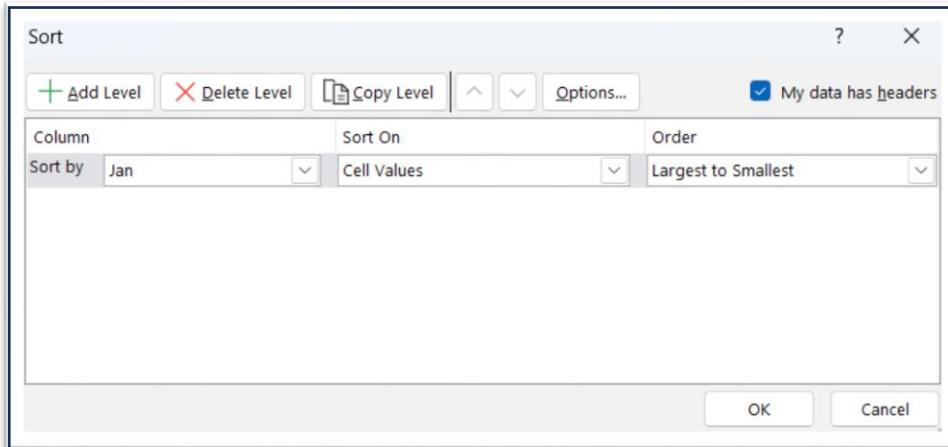
### C. Sort by specifying criteria

Use this technique to choose the column you want to sort, together with other criteria such as font or cell colors.

1. Select a single cell anywhere in the range that you want to sort.
2. On the Data tab, in the Sort & Filter group, click Sort to display the Sort popup window.



3. In the Sort by dropdown list, select the first column on which you want to sort.
4. In the Sort On list, choose values, Cell Color, Font Color, or Cell Icon.
5. In the Order list, choose the order that you want to apply to operation—alphabetically or numerically, ascending or descending.



A	B	C	D	E	F	G	H	I	J	K	L
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
61	69	79	83	95	97	100	101	94	87	72	66
40	38	44	46	51	56	67	72	70	59	45	41
34	33	38	41	45	48	51	55	54	45	41	38
0	2	9	24	28	32	36	39	35	21	12	4

## PRACTICAL NO.: 2

**Aim:** Advanced Functions.

(A): LOOKUP (), HLOOKUP (), VLOOKUP (), date functions, numeric functions, string functions, Index (), Match ()

### 1. LOOKUP ():

Lookup functions in Excel mean referencing a cell to match values in another row or column against the cell and thereby retrieving the corresponding results from the respective rows and columns.

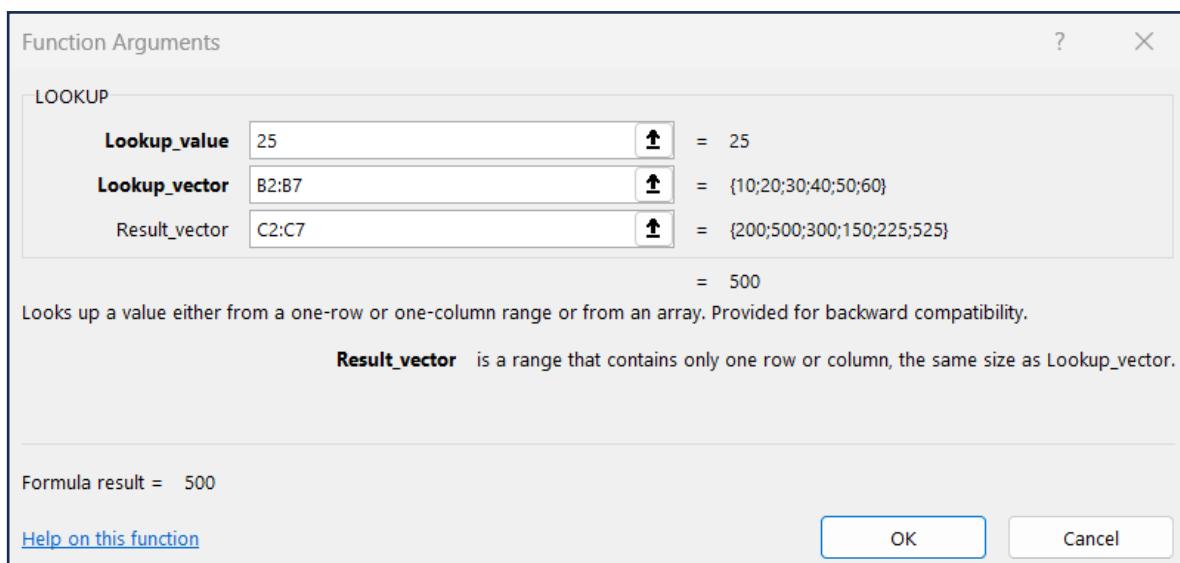
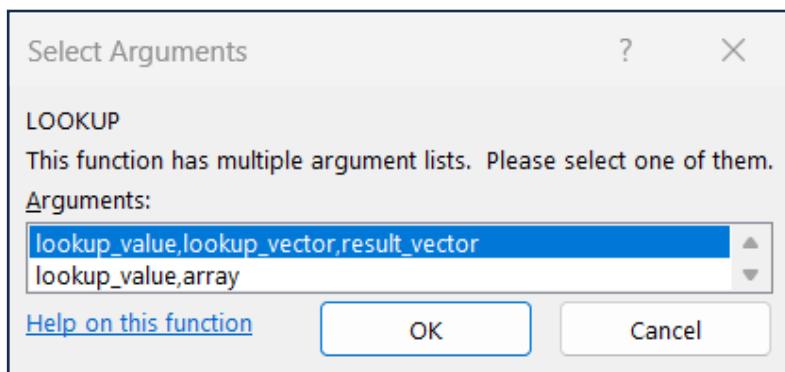
There are two forms of LOOKUP in Excel: Vector and Array.

#### Uses of LOOKUP functions:

- You can find the exact or approximate match by using the lookup function.
- Users can search for data both vertically (columns) and horizontally (rows).
- It is simpler to use and does not require selecting the entire table.

**Syntax:** =LOOKUP (lookup\_value, lookup\_vector, [result\_vector])

Click on **Formulas menu** → **Lookup and Reference** → **Lookup**



The screenshot shows an Excel spreadsheet titled 'acc'. The ribbon is visible with the 'Formulas' tab selected. The formula bar at the top displays the formula '=LOOKUP(25,B2:B7,C2:C7)'. Below the formula bar is a table with columns labeled A through N. The first row contains headers: 'Part Number', 'Serial', 'Part Price', and 'Status'. Rows 2 through 7 contain data: A001 (Serial 10, Part Price 200, Status In Stock), A002 (Serial 20, Part Price 500, Status In Stock), A003 (Serial 30, Part Price 300, Status In Stock), A004 (Serial 40, Part Price 150, Status In Stock), A005 (Serial 50, Part Price 225, Status In Stock), and A006 (Serial 60, Part Price 525, Status In Stock). The cell F9 contains the formula '=LOOKUP(25,B2:B7,C2:C7)', which corresponds to the value 500 in the table.

#### Warnings:

- If the LOOKUP function can't find the lookup\_value, the function matches the largest value in lookup\_vector that is less than or equal to lookup\_value.
- If lookup\_value is smaller than the smallest value in lookup\_vector, LOOKUP returns the #N/A error value.

#### 2. HLOOKUP ():

The Excel HLOOKUP function is designed for horizontal lookup. More specifically, it searches for a value in the first row of the table and returns another value in the same column but from the row that you specify.

**Syntax: =HLOOKUP (lookup\_value, table\_array, row\_index\_num, [range\_lookup])**

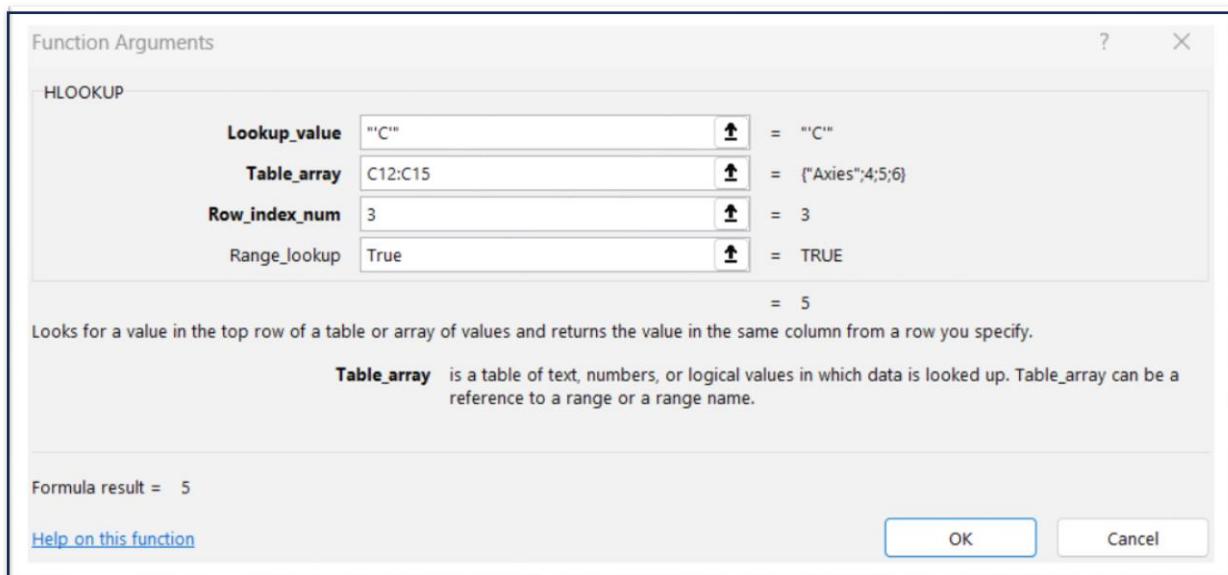
- **Lookup\_value (required)** - the value to search for. It can be a cell reference, numeric value, or text string.
- **Table\_array (required)** - two or more rows of data in which the lookup value is searched. It can be a regular range, named range, or table. Lookup values should always be located in the first row of the table\_array.
- **Row\_index\_num (required)** - the row number in table\_array from which the value should be returned. For example, to return the matching value from the 2nd row, set row\_index\_num to 2, and so on.
- **Range\_lookup (optional)** - a logical (Boolean) value that instructs HLOOKUP to search with an exact or approximate match.

If TRUE or omitted, an approximate match is returned. What it means is if an exact match is not found, your HLOOKUP formula will do a non-exact match and return the next largest value that is less than lookup\_value.

If FALSE, only an exact match is returned. If no value in a specified row matches the lookup value exactly, HLOOKUP throws the #N/A error.

Click on **Formulas** menu → Lookup and Reference → HLOOKUP

	A	B	C	D	E
10					
11					
12	Month	Axies	Bearing	Bolts	
13	JAN	4	7	9	
14	FEB	5	8	10	
15	MAR	6	9	11	
16					



	A	B	C	D	E	F	G	H	I
10									
11									
12	Month	Axies	Bearing	Bolts					
13	JAN	4	7	9					
14	FEB	5	8	10				5	
15	MAR	6	9	11					
16									
17									
18									

**3. VLOOKUP ():** The VLOOKUP function is a premade function in Excel, which allows searches across columns.

**Syntax:** =VLOOKUP (lookup\_value, table\_array, col\_index\_num, [range\_lookup])

**Lookup\_value** – Select the cell where search values will be entered.

**Table\_array** – The table range, including all cells in the table.

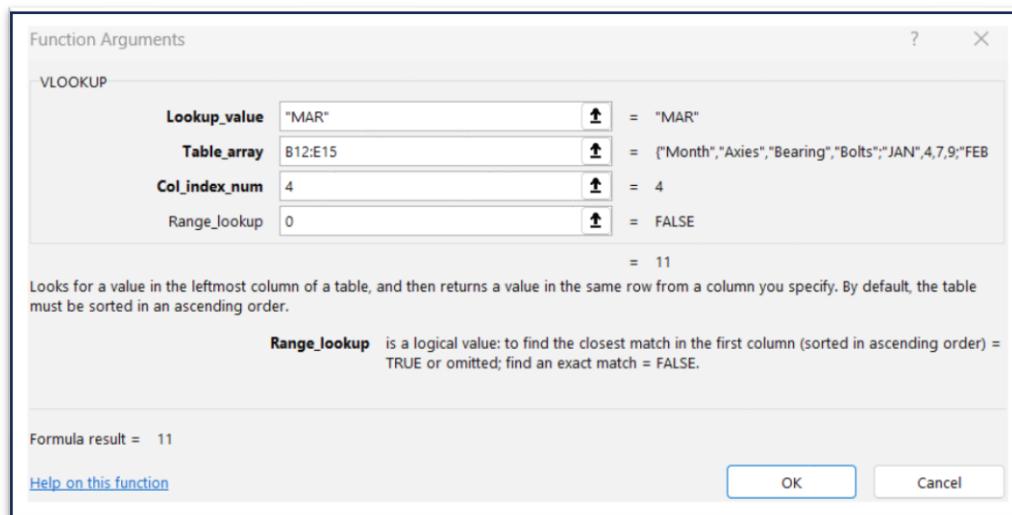
**Col\_index\_num** – The data which is being looked up. The input is the number of the column,

Counted from left.

**Range\_lookup** – TRUE if number (1) or FALSE if text (0).

	A	B	C	D	E
10					
11					
12	Month	Axies	Bearing	Bolts	
13	JAN		4	7	9
14	FEB		5	8	10
15	MAR		6	9	11
16					

Click on **Formulas menu** → **Lookup and Reference** → **VLOOKUP**



	A	B	C	D	E	F	G
10							
11							
12	Month	Axes	Bearing	Bolts			
13	JAN		4	7	9		
14	FEB		5	8	10		
15	MAR		6	9	11		11
16							
17							

**4. Date Function:** DATE (year, month, day) returns a serial number of a date based on the year, month and day values that you specify.

Here are a few Excel DATE formula examples:

=DATE (2015, 5, 20) - returns a serial number corresponding to 20-May-2015.

=DATE (YEAR (TODAY ()), MONTH (TODAY ()), 1) – returns the first day of the current year and month.

=DATE (2015, 5, 20)-5 – subtracts 5 days from May 20, 2015.

Formula	Result
=DATE (2015, 5, 20)	20-05-2015
=DATE (YEAR (TODAY ()), MONTH (TODAY ()), 1)	10-03-2025
=DATE (YEAR (TODAY ()), MONTH (TODAY ()), 1)	01-03-2025
=DATE(2024,9,30)	30-09-2024
=DATE (2015, 5, 20)-5	15-05-2012
=DATE(2024,9,30)+5	05-10-2024

### Excel TODAY () function

Formula	Result
=TODAY()	02-03-2025
=TODAY() + 5	07-03-2025
=TODAY() - 6	24-02-2025
=WORKDAY(TODAY(),20)	28-03-2025
=WORKDAY(TODAY(), -5)	24-02-2025

### Excel NOW function

NOW () function returns the current date and time. As well as TODAY. it does not have any Arguments. If you wish to display today's date and current time in your worksheet, simply put the following formula in a cell.

=NOW ()

=NOW()	02-03-2025 19:06
--------	------------------

**5. Numeric functions:** Some of the numerical functions are given below:

Formula	Result
=FACT(5)	120
=QUOTIENT(12,4)	3
=PRODUCT(3,5)	15
=ROUND(123.2456,2)	123.25
=MEDIAN(2,3,4,5,6,7)	4.5
=SQRT(16)	4
=ISTEXT("DATA")	TRUE
=ISNUMBER(DATA)	FALSE
=MAX(12,9)	12
=MIN((12,9))	9
=POWER(2,4)	16
=PI()	3.14159265
=RAND()	0.03644344
=INT()	11

**6. String functions:** Some of the string functions are as follows:

1. **LEN Function:** LEN function returns the count of characters in the value. In simple words, with the LEN function, you can count how many characters are there in value. You can refer to a cell or insert the value in the function directly.  
**Syntax: LEN (text)**
2. **FIND Function:** FIND function returns a number which is the starting position of a substring in a string. In simple words, by using the find function you can find (case sensitive) a string's starting position from another string.  
**Syntax: FIND (find\_text, within\_text, [start\_num])**
3. **SEARCH Function:** SEARCH function returns a number which is the starting position of a substring in a string. In simple words, with the SEARCH function, you can search (non-case sensitive) for a text string's starting position from another string.  
**Syntax: SEARCH (find\_text, within\_text, [start\_num])**
4. **LEFT Function:** LEFT functions return sequential characters from a string starting from the left side (starting). In simple words, with the LEFT function, you can extract characters from a string from its left side.  
**Syntax: LEFT (text, num\_chars)**
5. **RIGHT Function:** RIGHT functions return sequential characters from a string starting from the right side (ending). In simple words, with the RIGHT function, you can extract characters from a string from its right side.  
**Syntax: RIGHT (text, num\_chars)**
6. **MID Function:** MID returns a substring from a string using specific position and number of characters. In simple words, with MID, you can extract a substring from a string by specifying the starting character and number of characters you want to extract.  
**Syntax: MID (text, start\_num, num\_chars)**
7. **LOWER Function:** LOWER function returns the string after converting all the letters in small. In simple words, it converts a text string where all the letters you have are in small letters, numbers will stay intact.  
**Syntax: LOWER (text)**
8. **PROPER Function:** PROPER function returns the text string into a proper case. In simple words, with a PROPER function where the first letter of the word is in capital and rest in small (proper case).  
**Syntax: PROPER (text)**
9. **UPPER Function:** UPPER function returns the string after converting all the letters in capital. In simple words, it converts a text string where all the letters you have are in capital form and numbers will stay intact.  
**Syntax: UPPER (text)**

**10. REPT Function:** REPT function returns a text value several times. In other words, with the REPT function, you can specify a text, and a number to repeat that text.

**Syntax: REPT (value1, [value], ...)**

Formula	Result
=LEN("HELLO WORLD")	11
=FIND("COLL", "THIS IS VIVA COLLEGE",1)	14
=SEARCH("VIVA", "THIS IS VIVA COLLEGE")	9
=LEFT("HELLO WORLD",5)	HELLO
=RIGHT("HELLO WORLD",5)	WORLD
=MID("HELLO WORLD",4,3)	LO
=LOWER("VIVA")	viva
=UPPER("viva")	VIVA
=PROPER("viva college")	Viva College
=REPT("Viva",2)	VivaViva

**7. Index ():** The INDEX function returns a value or the reference to a value from within a table or range. There are two ways to use the INDEX function: If you want to return the value of a specified cell or array of cells, see Array form. If you want to return a reference to specified cells, see Reference form.

#### Two Forms

The INDEX function has two forms: array and reference. Both forms have the same behaviour. INDEX returns a reference in an array based on a given row and column location. The difference is that the reference form of INDEX allows more than one array, along with an optional argument to select which array should be used. Most formulas use the array form of INDEX, but both forms are discussed below.

##### ➤ Array form

In the array form of INDEX, the first parameter is an array, which is supplied as a range of cells or an array constant. The syntax for the array form of INDEX is:

**INDEX (array, row\_num, [col\_num])**

**For example, to get the third item from the one-dimensional range A1: A5**

**=INDEX (A1:A5,3) // returns value in A3**

**The formulas below show how INDEX can be used to get a value from a two-dimensional range:**

**=INDEX (A1:B5,2,2) // returns value in B2**

**=INDEX (A1:B5,3,1) // returns value in A3**

##### ➤ Reference form

In the reference form of INDEX, the first parameter is reference to one or more ranges, and a fourth optional argument, area\_num, is provided to select the appropriate range.

The syntax for the reference form of INDEX is:

**=INDEX (reference, row\_num, [col\_num], [area\_num])**

The area\_num argument is supplied as a number that acts like a numeric index. The first array inside reference is 1, the second array is 2, and so on.

For example, in the formula below, area\_sum is supplied as 2, which refers to the range A7:C10

**=INDEX ((A1:C5, A7:C10),1,3,2)**

In the above formula, INDEX will return the value at row 1 and column 3 of A7:C10.

The screenshot shows an Excel spreadsheet titled "acc". The ribbon is visible with the "Insert" tab selected. Below the ribbon, there are tabs for PivotTable, Recommended PivotTables, Table, Pictures, Icons, 3D Models, Recommended Charts, and Charts. The main area displays a table with columns labeled A, B, and C. Row 1 contains headers: "First Name", "Last Name", and "Address". Rows 2 through 11 contain data. A callout box is overlaid on the spreadsheet, containing two tables:

Array Form	
Formula	Result
=INDEX(A1:A5,4)	Rajesh
=INDEX(A1:B5,2,2)	Smith
=INDEX(A1:B5,3,1)	Harsh

Reference Form	
Formula	Result
=INDEX((A1:C5,A7:C10),1,3,2)	Andheri

**8. Match ():** The MATCH function in Excel searches for a specified value in a range of cells, and returns the relative position of that value.

The syntax for the MATCH function is as follows:

**MATCH (lookup\_value, lookup\_array, [match\_type])**

**Lookup\_value (required)** - the value you want to find. It can be a numeric, text or logical as well as a cell reference.

**Lookup\_array (required)** - the range of cells to search in.

**Match\_type (optional)** - defines the match type. It can be one of these values: 1,0, -1. The match type argument set to 0 returns only the exact match, while the other two types allow for approximate match.

In the following table students names in column A and their exam scores in column B , sorted from largest to smallest. To find out where a specific student (say, Laura) stands among others. Use this simple formula:

**=MATCH ("Laura", A2:A8, 0)**

Optionally, you can put the lookup value in some cell (E1 in this example) and reference that cell in your Excel for formula:

**=MATCH ("E1", A2:A8, 0)**

Student Name	Score
Aman	287
Niraj	280
Pankaj	274
Niitin	240
Laura	237
Tony	210
Steve	126

D3 table:

Name	Laura
Position	5

=MATCH ("car\*", A2:A11,0)

=MATCH (E1&" \*", a2: a11,0)

=MATCH ("ba? er", A2:A11,0)

Reseller	Sales
Alexander	\$965
Carter	\$960
Campbell	\$930
Brown	\$870
Baker	\$820
Hayes	\$815
Bailey	\$800
Graham	\$790
Adams	\$710
Evans	\$650

E1 table:

Reseller	Car
Position	2

## (B) Financial functions:

**1. FV Function:** FV function returns the future value of an investment using constant payments and the constant interest rate. In simple words, it will return a future value of an investment where you have constant payments and a constant interest rate throughout the investment period.

**Syntax:** `FV (rate, nper, pmt, [pv], [type])`

### Arguments

**rate:** A constant interest rate that you want to use in the calculation.

**nper:** Total number of payments.

**pmt:** A constant payment amounts to pay periodically throughout the investment time.

**[pv](optional):** The present value of future payments. It must be entered as a negative value if omitted.

**[type]:** A number to specify when payment is due. 0 = at the end of the period, 1= the beginning of the period.

A	B	C	D
PMT	RATE	NPER	FV
₹ 1,000	8.00%	3	₹ 40,536

**2. PMT:** PMT function returns a periodic payment of loan which you need to pay. In simple words, it calculates the loan payment based on fixed monthly payments and a constant rate of interest (loan payment based on fixed monthly payments and a constant rate of interest).

**Syntax:** `PMT (rate, nper, pv, [fv], [type])`

### Arguments

**rate:** The rate of interest for the loan. This rate of interest should be constant.

**nper:** The total number of payments.

**pv:** The present value or the total amount of loan.

**[fv]:** The future value or the cash balance which you want after the last payment The default value is 0.

**[type]:** A number to specify when payment is due. 0 = at the end of the period, 1= the beginning of the period.

A	B	C	D
PV	RATE	NPER	PMT
₹ 1,00,000	12%	2	₹ 4,707

**3. PV:** PV Function returns the present value of a financial investment of a loan. In simple words, with the PV function you can calculate the present value of an investment a loan where you can check is that.

**Syntax:** PV (rate, nper, pmt, [fv], [type])

#### Arguments

**rate:** The rate of interest for the payment of the loan.

**nper:** Total number of payment periods.

**pmt:** A constant amount of payment you have to make after every period. [FV]: The future value or a cash balance of a loan or investment you want to attain after the last payment is made. It omitted; it will be assumed as 0.

**[type]:** Time of the payment. Beginning of the period (use "0") or the end of the period (Use "1").

				D14	fx	=PV(B14/12,C14*12,-A14)
	A	B	C	D		
13	PMT	RATE	NPER	PV		
14	₹ 4,707	12%	2	₹ 99,993		
15						

**4. Rate:** RATE function is used to calculate the interest rate per period for an annuity (such as a loan or investment) based on regular payments and a fixed number of periods.

**Syntax:** RATE (nper, pmt, pv, [fv], [type], [guess])

#### Arguments:

**nper:** Total number of payments until maturity.

**pmt:** Amount of payment each period.

**pv:** Present value of the payments across the life of the bond, i.e., the cost of the bond.

**[fv]:** This is an optional argument that you can set to the desired balance of cash after the final payment: it's set to 0 by default.

**[type]:** This is an optional argument to set the payment as due at the end (0) or beginning the period; it's set to 0 by default

**[guess]:** This is an optional argument where you can input a guessed rate: it's set to 0.1 by default.

				D20	fx	=RATE(C20*12,-A20,B20)*12
	A	B	C	D		
19	PMT	PV	NPER	RATE		
20	₹ 4,707	₹ 1,00,000	2	12%		

**5. NPV:** Net Present Value is the sum total of positive and negative cash flows over the years.

**Syntax:** NPV (Rate, Value1, [Value2], ...)

#### Arguments

**Rate:** Discount rate for a period.

**Value1, [Value2], ...** = Positive or negative cash flows

Here, negative values would be considered as payments, and positive values would be treated as inflows.

	A	B	C	D
25	Details		In US \$	
26	Rate of Discount		5%	
27	Initial Investment		-1000	
28	Return from 1st year		300	
29	Return from 2nd year		400	
30	Return from 3rd year		400	
31	Return from 4th year		300	
32				
33	NPV=		\$240.87	
34				

**6. PPMT:** It is another version of PMT. The only difference is this - PPMT calculates payment in principle with a constant interest rate and constant periodic payments.

**Syntax:** PPMT (Rate, Per, Nper, PV, [FV], [Type])

#### Arguments:

**Rate:** It is the interest rate/period.

**Per:** The period for which the principal is to be calculated.

**Nper:** Number of periods

**PV:** Present Value

**[FV]:** An optional argument which is about the future value of a loan (if nothing is mentioned, FV is considered as "0")

**[Type]:** When the payment is made (if nothing is mentioned, it's assumed that the payment has been made at the end of the period).

#### Example:

The US \$1000 needs to be paid in full in 3 years. The interest rate is 10% p.a. and the payment needs to be done yearly. Find out the PPMT in the first year and second year

Solution: In excel, we will calculate it in the following manner -

	A	B	C	D
37	RATE	10%		
38	NPER	3		
39	PV	1000		
40				
41	YEAR	PPMT		
42	1	\$302.11		
43	2	\$332.33		
44	3	\$365.56		
45				

**7. NPER:** It is simply the number of periods one requires to pay off the loan.

**Syntax: NPER (Rate, PMT, PV, [FV], [Type])**

**Arguments:**

**Rate:** It is the interest rate per period.

**PMT:** Amount paid per period.

**PV:** Present Value.

**[FV]:** An optional argument which is about the future value of a loan (if nothing is mentioned, FV is considered as "0").

**[Type]:** When the payment is made (if nothing is mentioned, it's assumed that the payment has been made at the end of the period).

**Example:**

US \$200 is paid per year for a loan of US \$1000. The interest rate is 10% p.a. and the payment needs to be done yearly. Find out the NPER.

B52		fx	=NPER(B47,B48,B49)
A	B	C	D
46			
47 RATE	10%		
48 PMT	-200		
49 LOAN	1000		
50			
51			
52 NPER=	7.2725409		
53			

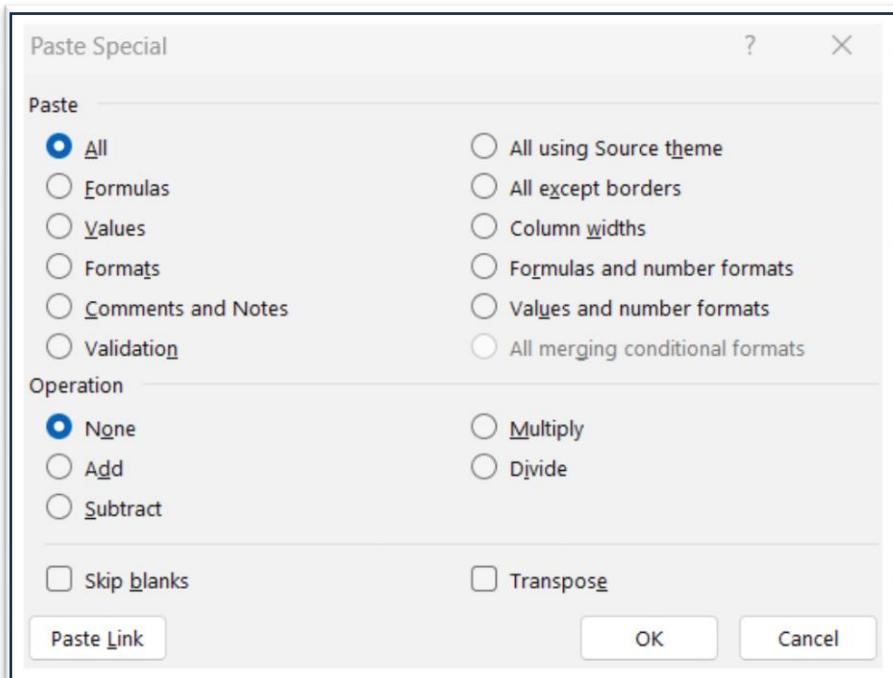
### PRACTICAL NO.: 3

**Aim:** Using paste special.

(A): To demonstrate different types of paste options available in paste special.

To use options from the Paste Special Box, select Home, select the clipboard icon(paste), And select Paste Special.

Keyboard Shortcut: Press Ctrl + Alt + V.



In the Paste Special box, pick the attribute you want to paste.

Paste Options	Action
All	Paste all cell contents and formatting of the copied data.
Formulas	Paste only the formulas of the copied data as entered in the formula bar.
Values	Pastes only the values of the copied data as displayed in the cells.
Formats	Pastes only cell formatting of the copied data.
Comments and Notes	Pastes only comments and notes attached to the copied cell.

<b>Validation</b>	Pastes data validation rules for the copied cells to the paste area.
<b>All using Source theme</b>	Pastes all cell contents in the document theme formatting, that is applied to the copied data.
<b>All except border</b>	Pastes all cell contents and formatting applied to the copied cell except borders.
<b>Column widths</b>	Pastes the width of one copied column or range of columns to another column or range of columns.
<b>Formulas and number formats</b>	Pastes only formulas and all number formatting options from the copied cells.
<b>Values and number formats</b>	Pastes only values and all number formatting options from the copied cells.
<b>All merging conditional formats</b>	Pastes the contents and conditional formatting options from the copied cells.

You can also specify a mathematical operation to apply to the copied data.

Operation	Action
<b>None</b>	Specifies that no mathematical operation will be applied to the copied data.
<b>Add</b>	Adds the copied data to the data in the destination cell or range of cells.
<b>Subtract</b>	Subtracts the copied data from the data in the destination cell or range of cells.
<b>Multiply</b>	Multiplies the copied data with the data in the destination cell or range of cells.
<b>Divide</b>	Divides the copied data by the data in the destination cell or range of cells.

Other Options	Action
<b>Skip blanks</b>	Avoids replacing values in your paste area when blank cells occur in the copy area when you select this check box.
<b>Transpose</b>	Changes columns of copied data to rows and vice versa when you select this check box.
<b>Paste Link</b>	Click to create a link to the copied cell(s).

**1. Transpose Data:** Transposing data changes columns of copied data to rows, and vice versa.

1. Select a cell range.

2. Click Copy.

	A	B	C	D
1	Jan	Feb	Mar	Apr
2	61	69	79	83
3	40	38	44	46
4	34	33	38	41
5	0	2	9	24
6				
7				

3. Click the cell where you want to paste the data.

4. Click the Paste list arrow.

5. Select Transpose.

	B	C	D	E	F	G
1	Feb	Mar	Apr			
2	69	79	83			
3	38	44	46			
4	33	38	41			
5	2	9	24			
6						
7						
8						
9						

The selected data is transposed from columns to rows.

	A	B	C	D	E	F	G	H	I	J	K
1	Jan	Feb	Mar	Apr							
2	61	69	79	83							
3	40	38	44	46							
4	34	33	38	41							
5	0	2	9	24							
6											
7											
8	Jan		61	40	34	0					
9	Feb		69	38	33	2					
10	Mar		79	44	38	9					
11	Apr		83	46	41	24					
12											

**2. Paste Values:** You can paste only the values as displayed in the cells, instead of the formulas that are used to calculate those values.

1. With a cell containing a value you want to copy selected, click Copy.
2. Click the cell where you want to paste the data.
3. Click the Paste list arrow.
4. Select Values.
5. Excel pastes the values of the copied cell into selected cell.

	B	C	D	E	F	G	H	I
Feb	69	79	83		61	69	79	83
38	44	46		40	38	44	46	
33	38	41		34	33	38	41	
2	9	24		0	2	9	24	

**3. Paste Formats:** You can also copy and paste cell formatting, applying formats such as a cell's font, font size, and color to other cells.

1. Select the cell that has the format you want to copy.
2. Click the Copy button.
3. Click the cell where you want to paste the format.
4. Click the Paste list arrow.
5. Select Formatting.

	B	C	D	E	F	G	H	I	
Feb	69	79	83		Jan	61	69	79	83
	38	44	46			40	38	44	46
	33	38	41			34	33	38	41
	2	9	24			0	2	9	24
6									
7									
8	Jan	61	40	34	0				
9	Feb	69	38	33	2				
10	Mar	79	44	38	9				
11	Apr	83	46	41	24				
12									

**4. Advanced Paste Special Commands:** If the paste commands you're looking for aren't available in the Paste menu, you can open the Paste Special dialog box to view advanced paste special commands.

1. Copy a cell value.
2. Click the cell where you want to paste the value.
3. Click the Paste list arrow.
4. Select Paste Special.
5. The Paste Special dialog box displays, containing numerous paste options.

6. Select a paste option.

7. Click OK.

The screenshot shows a Microsoft Excel spreadsheet with data from January to April. The range A8:E11 is selected and highlighted with a green dashed border. The formula bar shows "Jan". The "Home" tab is selected in the ribbon. A "Paste Special" dialog box is open, centered over the selected range. The "Paste" section has "All" selected. The "Operation" section has "Add" selected. The "OK" button is visible at the bottom right of the dialog box. The background grid shows rows 7 through 18 and columns A through J.

	A	B	C	D	E	F	G	H	I	J
7										
8	Jan	61	40	34	0					
9	Feb	69	38	33	2					
10	Mar	79	44	38	9					
11	Apr	83	46	41	24					
12										
13		122	80	68	0					
14		138	76	66	4					
15		158	88	76	18					
16		166	92	82	48					
17										
18										

## **PRACTICAL NO.: 4**

**Aim:** Analyzing Data OR Basic use of what if analysis using excel.

- a) Data tables
  - b) Scenarios
  - c) Goal Seek
- What-If Analysis is the process of changing the values in cells to see how these changes will affect the outcome of formulas on the worksheet.
  - Three kinds of What If Analysis tools come with Excel: Scenario, Goul Seek, and Data Tables. Scenarios and Data tables take sets of input values and determine possible results.
  - What-if Excel is used data analyst and especially middle to higher professionals to make better, faster and more accurate decisions based on data. What if analysis is useful in many situations. such as:
    - You can propose different budgets based on revenue.
    - You can predict the future values based on the given historical values.
    - If you expect a certain value due to a formula, you can find different sets of input values that produce the desired result.
  - To enable the what-if analysis tool go to the Data menu tab and click on the What-if Analysis option under the Forecast section.
  - After that click on the What-If Analysis. Excel has the following What-if analysis tools that can used based on the data analysis needs.
    - Scenario Manager
    - Goal Seek
    - Data Tables

**1. Scenario Manager:**

- A scenario is a set of values that Excel saves and can substitute automatically in cells on worksheet.
- Scenario Manager is a dialog box that allows you to save the values as a scenario and name the scenario.

**2. Goal Seek:**

- Goal Seek is useful if you want to know the formula's result but unsure what input value the formula needs to get that result.
- For example, if you want to borrow a loan and know the loan amount, tenure of loan and the EMI that you can pay, you can use Goal Seek to find the interest rate at which you can avail of the loan.

**3. Data Table:**

- A Data Table is a range of cells where you can change values in some of the cells and answer different answers to a problem.
- For example, you might want to know how much loan you can afford for a home by analyzing different loan amounts and interest rates. You can put these different values and the PMT function in a Data Table and get the desired result. Create an analysis report with Scenario Manager, follow the following steps, such as:

**Step 1:** Click the Data tab.

**Step 2:** Go to the What If Analysis button and click on the Scenario Manager from the dropdown list.

Assume a book store and have 100 books in storage. You sell a certain % for the highest price of \$50 and a certain % for the lowest price of \$20.

G13	<input type="button" value="X"/>	<input type="button" value="√"/>	<input type="button" value="fx"/>	= $(100*F7*G10)+(100-100*F7)*G11$
D	E	F	G	H
2				
3	<b>Book Store</b>			
4				
5				
6	Total number of books	% sold for the highest price		
7	100	60%		
8				
9		Number of books	Unit profit	
10	Highest price	60	\$50	
11	Lowest price	40	\$20	
12				
13		Total profit	\$3,800	
14				

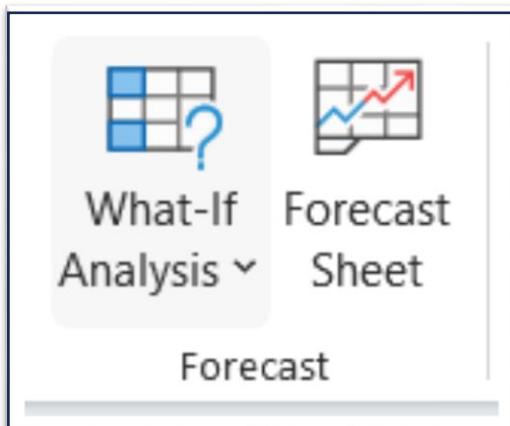
If you sell 60% for the highest price, cell G13-calculates a total profit of  $60*\$50+40*\$20=\$3800$

### Create Different Scenarios

But what if you sell 70% for the highest price? And what if you sell 80% for the highest price? Or 90%. or even 100%? Each different percentage is a different scenario. You can use the Scenario Manager to create these scenarios.

Note: You can simply type in a different percentage into cell F7 to see the corresponding result of a scenario in cell G13. However, what-if analysis enables you to easily compare the results of different scenarios. Read on.

1. On the Data tab, in the Forecast group, click What-If Analysis.

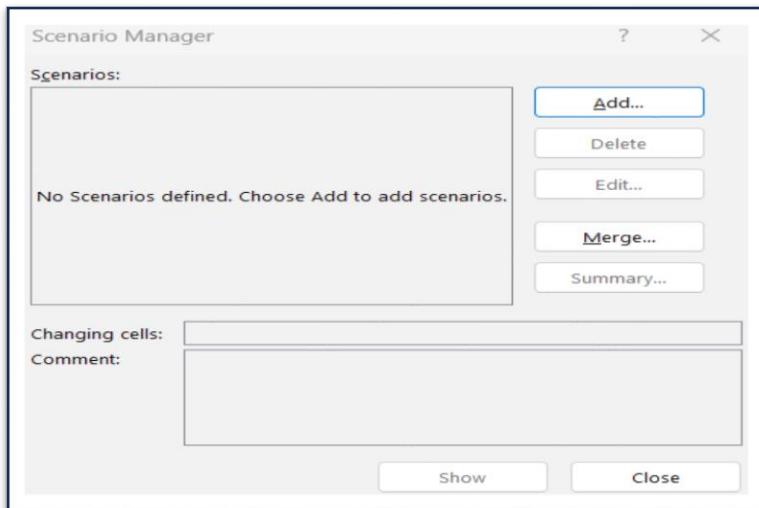


2. Click on Scenario Manager.

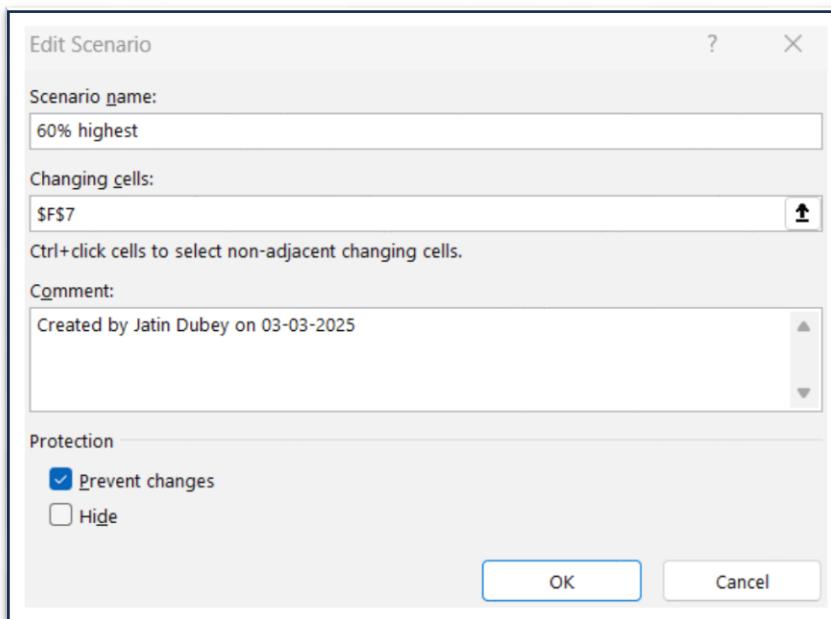


The Scenario Manager dialog box appears.

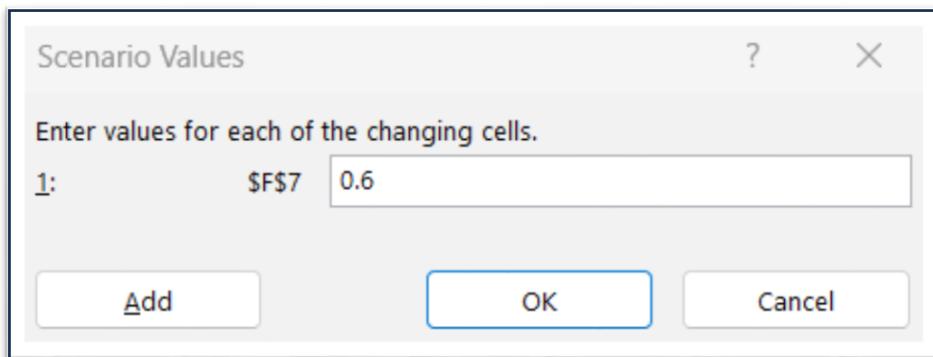
3. Add a scenario by clicking on Add.



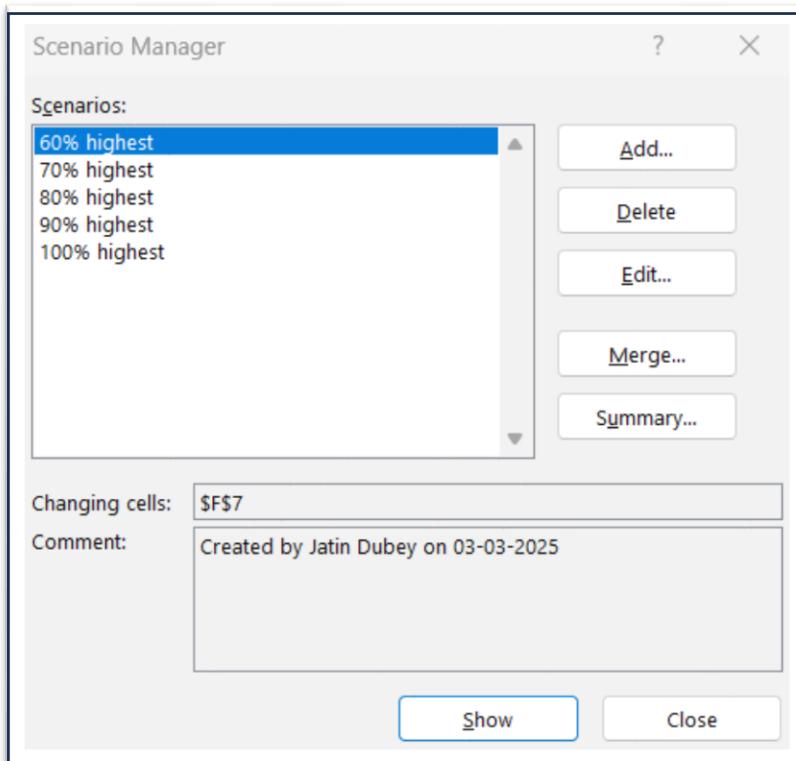
4. Type a name (60% Highest), select cell F7(% sold for the highest price) for the Changing cells and click on OK.



5. Enter the corresponding value 0.6 and click on OK again.



6. Next. Add 4 other scenario (70%, 80%,90% and 100%).

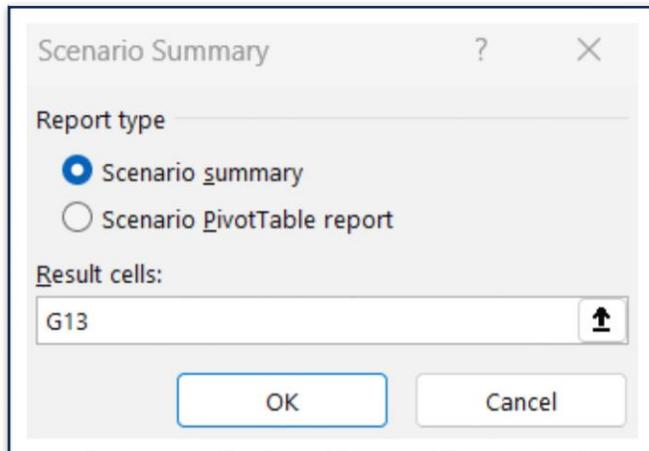


Note: to see the result of a scenario, select the scenario and click on the Show button. Excel will change the value of cell F7 accordingly for you to see the corresponding result on the sheet.

### Scenario Summary

To easily compare the results of these scenarios, execute the following steps.

1. Click the Summary button in the Scenario Manager.
2. Next, select cell G13 (total profit) for the result cell and click on OK.



Scenario Summary						
	Current Values:	60% highest	70% highest	80% highest	90% highest	100% highest
<b>Changing Cells:</b>	\$F\$7	60%	60%	70%	80%	90%
<b>Result Cells:</b>	\$G\$13	\$3,800	\$3,800	\$4,100	\$4,400	\$4,700

Notes: Current Values column represents values of changing cells at time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.

### Conclusion:

If you sell 70% for the highest price, you obtain a total profit of \$4100, if you sell 80% for the highest price, you obtain a total profit of \$4400, etc. That how easy what-if analysis in Excel can be.

## PRACTICAL NO.: 5

**Aim:** Pivot Table.

**A) Creating a Pivot Table**

**B) Layout of the Pivot Table**

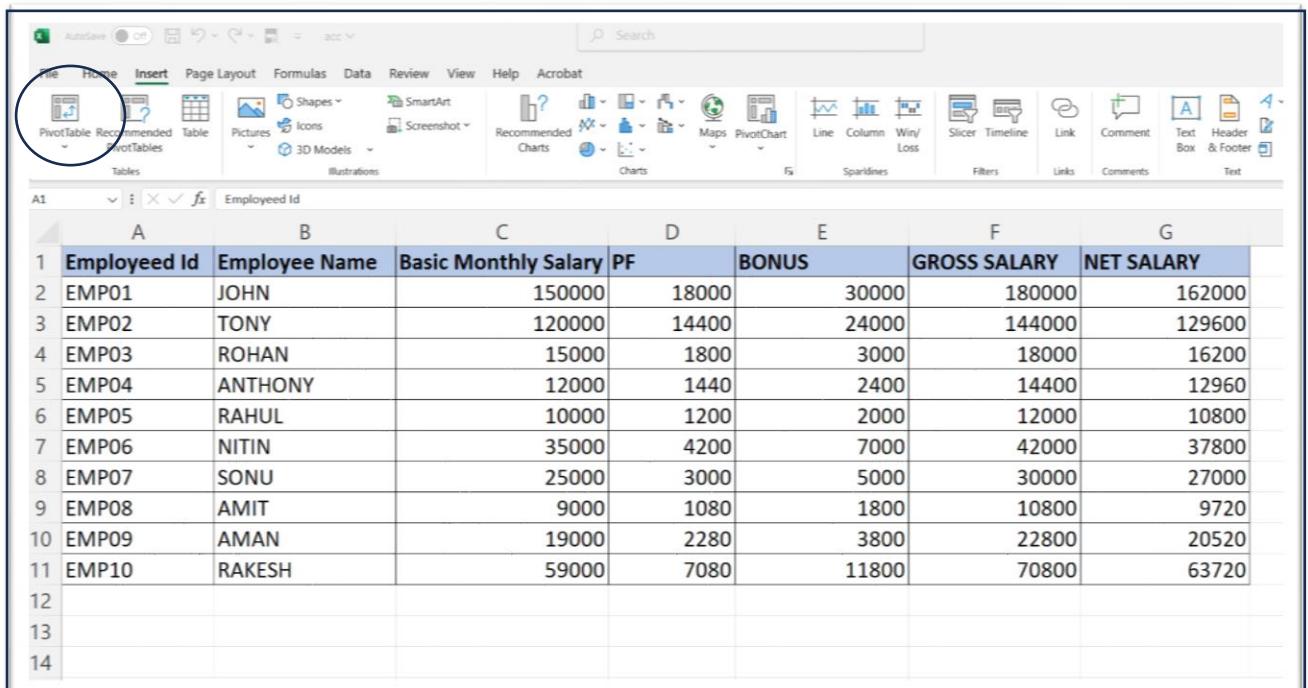
**Procedure:** Pivot Table is a tool to calculate, summarize, and analyze data that lets you see comparisons, patterns, and trends in your data. Pivot Tables work a little bit differently to run Excel

**Create Pivot table in MS-Excel**

1. Select the cells you want to create a PivotTable from
2. Select Insert then click on Table > Pivot Table and Pivot chart.

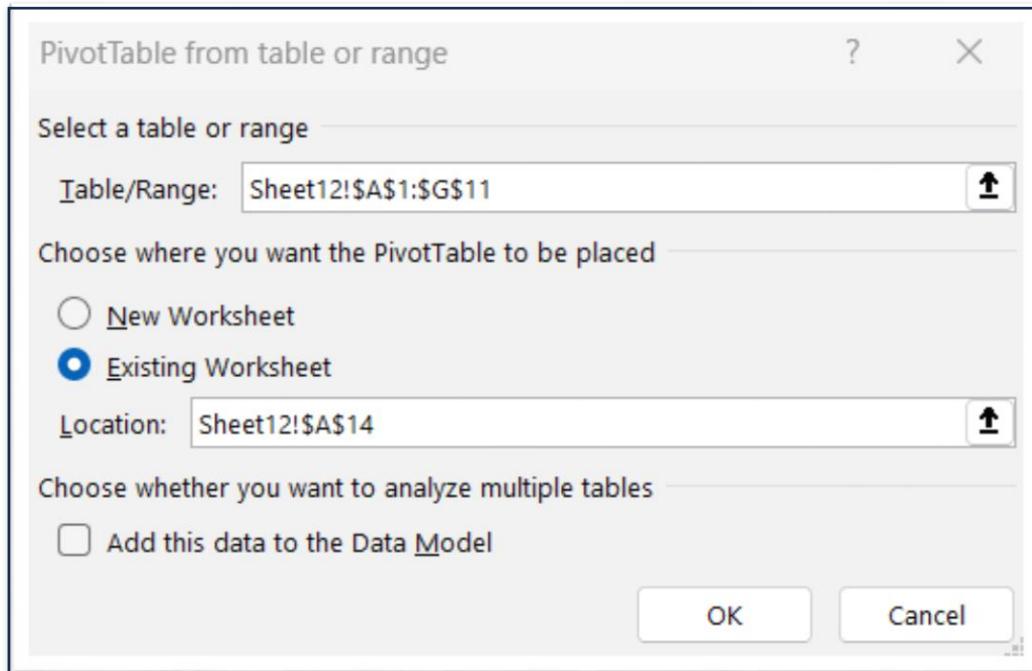
**STEPS:**

1. Now to create pivot table click on Insert Menu -> Pivot Table



	A	B	C	D	E	F	G
1	Employee Id	Employee Name	Basic Monthly Salary	PF	BONUS	GROSS SALARY	NET SALARY
2	EMP01	JOHN	150000	18000	30000	180000	162000
3	EMP02	TONY	120000	14400	24000	144000	129600
4	EMP03	ROHAN	15000	1800	3000	18000	16200
5	EMP04	ANTHONY	12000	1440	2400	14400	12960
6	EMP05	RAHUL	10000	1200	2000	12000	10800
7	EMP06	NITIN	35000	4200	7000	42000	37800
8	EMP07	SONU	25000	3000	5000	30000	27000
9	EMP08	AMIT	9000	1080	1800	10800	9720
10	EMP09	AMAN	19000	2280	3800	22800	20520
11	EMP10	RAKESH	59000	7080	11800	70800	63720
12							
13							
14							

2. Now in Create Pivot Table window select existing worksheet option and also select proper location where you want to display pivot table and click OK.



3. After clicking on OK button, it will display like this.

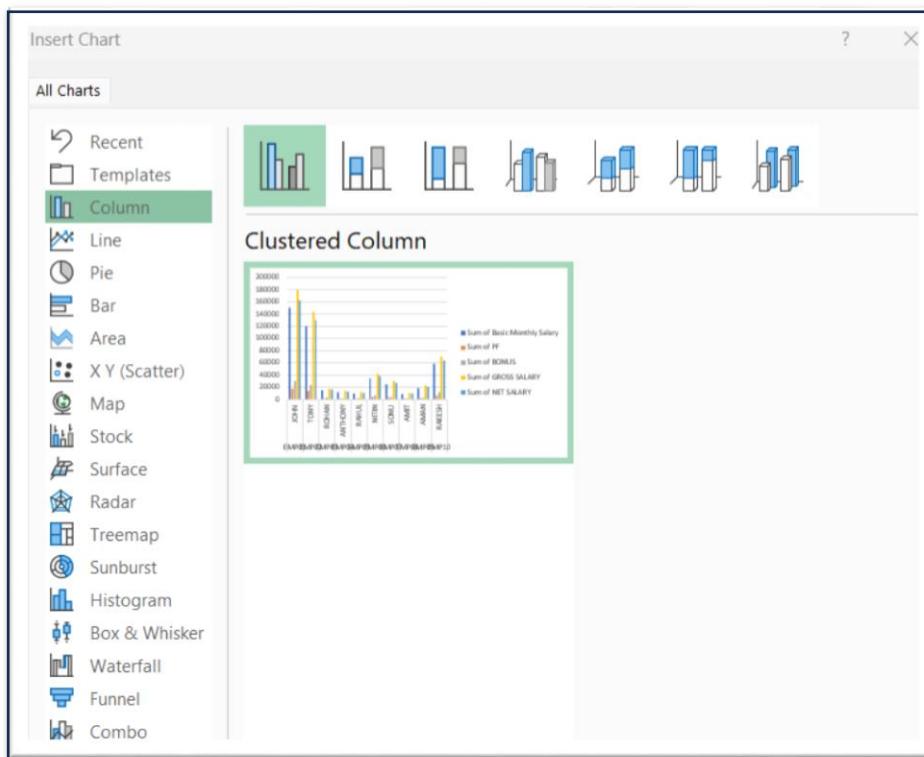
	A	B	C	D	E	F	G	H
I1	EMP10	RAKESH		59000	7080	11800	70800	63720
I2								
I3								
I4								
I5								
I6								
I7								
I8								
I9								
I10								
I11								
I12								
I13								
I14								
I15								
I16								
I17								
I18								
I19								
I20								
I21								
I22								
I23								
I24								
I25								
I26								
I27								
I28								
I29								
I30								
I31								

4. In select pivot table fields, we can choose fields to add to report -> here we are selecting all the fields.

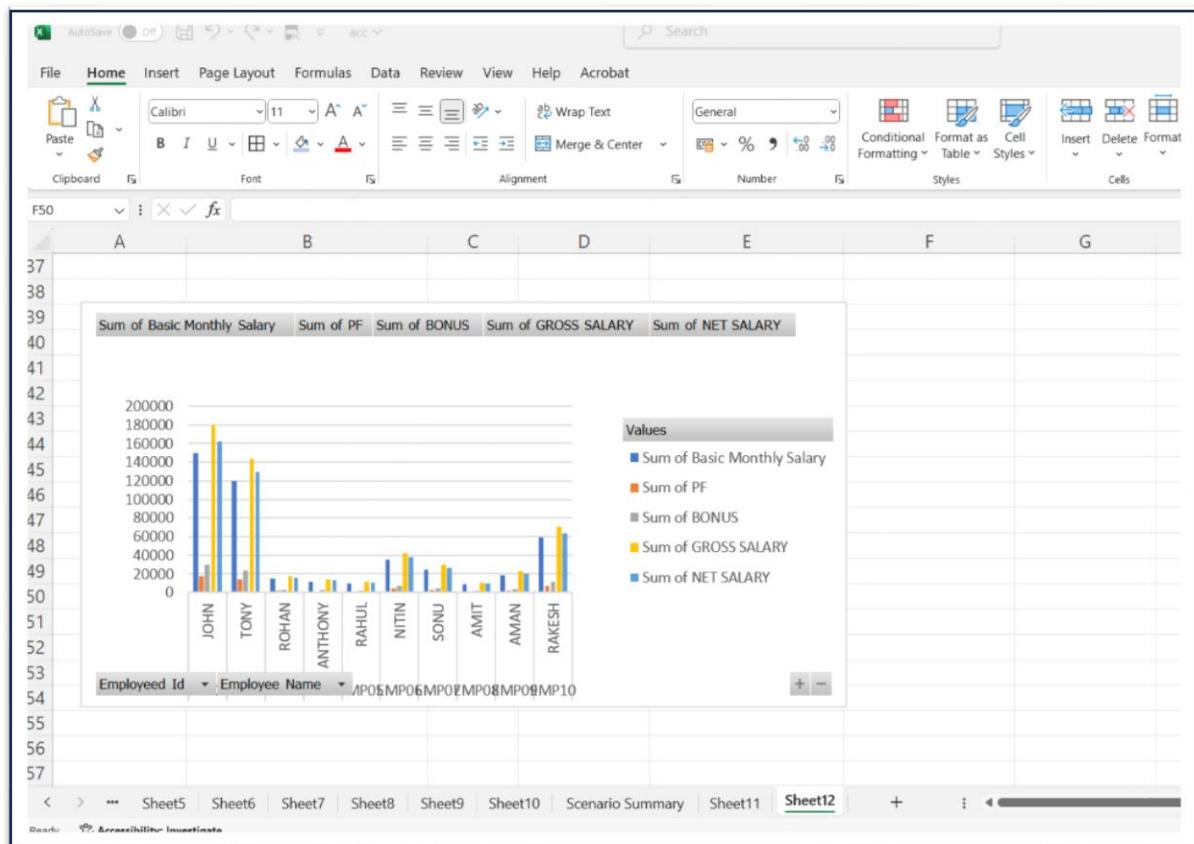
	A	B	C	D	E	F	G	H
Row Labels		Sum of Basic Monthly Salary	Sum of PF	Sum of BONUS	Sum of GROSS SALARY	Sum of NET SALARY		
EMP01		150000	18000	3000	180000	162000		
JOHN		150000	18000	3000	180000	162000		
EMP02		120000	14400	2400	144000	129600		
TONY		120000	14400	2400	144000	129600		
EMP03		15000	1800	3000	18000	16200		
ROHAN		15000	1800	3000	18000	16200		
EMP04		12000	1440	2400	14400	12960		
ANTHONY		12000	1440	2400	14400	12960		
EMP05		10000	1200	2000	12000	10800		
RAHUL		10000	1200	2000	12000	10800		
EMP06		35000	4200	7000	42000	37800		
NITIN		35000	4200	7000	42000	37800		
EMP07		25000	3000	5000	30000	27000		
SONU		25000	3000	5000	30000	27000		
EMP08		9000	1080	1800	10800	9720		
AMIT		9000	1080	1800	10800	9720		
EMP09		19000	2280	3800	22800	20520		
AMAN		19000	2280	3800	22800	20520		
EMP10		59000	7080	11800	70800	63720		
RAKESH		59000	7080	11800	70800	63720		

5. To create Pivot Chart again go to Insert Menu -> Pivot Chart.

	A	B	C	D	E	F	G	H
Employee Id	Employee Name	Basic Mon	PF	BONUS		GROSS SALARY	NET SALARY	
EMP01	JOHN	150000	18000	30000		180000	162000	
EMP02	TONY	120000	14400	24000		144000	129600	
EMP03	ROHAN	15000	1800	3000		18000	16200	
EMP04	ANTHONY	12000	1440	2400		14400	12960	
EMP05	RAHUL	10000	1200	2000		12000	10800	
EMP06	NITIN	35000	4200	7000		42000	37800	
EMP07	SONU	25000	3000	5000		30000	27000	
EMP08	AMIT	9000	1080	1800		10800	9720	
EMP09	AMAN	19000	2280	3800		22800	20520	
EMP10	RAKESH	59000	7080	11800		70800	63720	



## 6. Select clustered column chart and click on OK.



## **PRACTICAL NO.: 6**

**Aim:** Auditing Tools.

### **(A) Auditing Toolbars.**

1. Trace Precedents.
2. Trace Dependents.
3. Remove Arrows.
4. Show Formulas.
5. Error Checking (that includes the Error Checking. Trace error as well as the Circular Reference).
6. Evaluation of the formulas.

### **Example # 1: Trace Precedents**

Trace precedents can be effectively defined in the individual cells affecting the values or the Formulae present under the selected cell. Let us know we will consider that we have five Principal amount which we can effectively invest with a rate of interest that is 12% and for six years respectively, and we have calculated the interest amounts for the entire five available principles amount using a simple formula that is:

$$\text{Principle} * \text{Interest Rate} * \text{Period (in years)}$$

As can be effectively depicted in the below figure,

A	B	C	D	E	F	G	H	I
Principle Amount 1	Principle Amount 2	Principle Amount 3	Principle Amount 4	Principle Amount 5		Interest Rate	Period (Year)	
\$86,756	\$72,590	\$58,919	\$66,167	\$57,712		12%	6	
3								
Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5				
7								
8								

Just after that, if we click on the cell that is cell A6 and will press F2, then after pressing we can see that the formula which we can use to

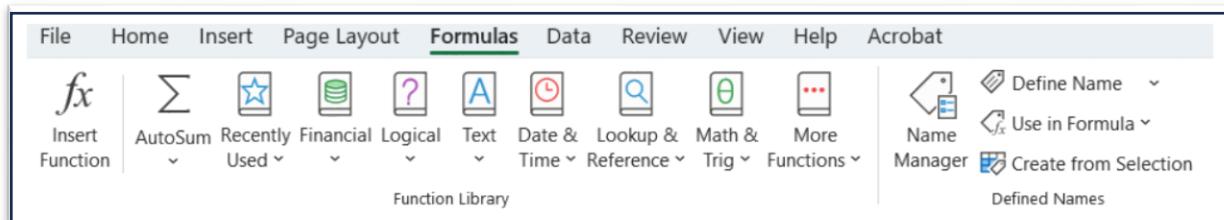
capture Interest Amount 1, can be efficiently seen in the below depicted screenshot.

Now drag the formula for all cell (till E6).

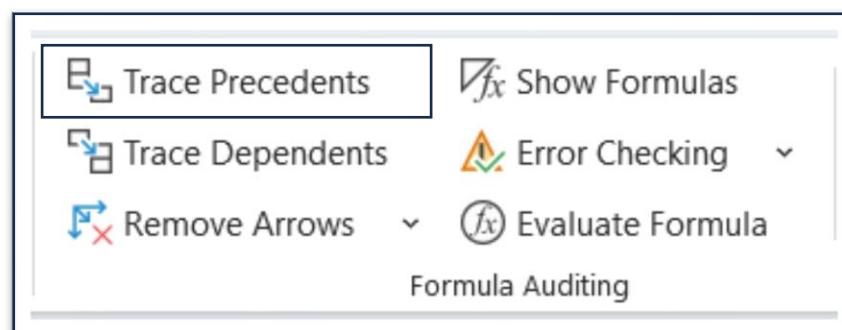
A	B	C	D	E	F	G	H
Principle Amount 1	Principle Amount 2	Principle Amount 3	Principle Amount 4	Principle Amount 5		Interest Rate	Period (Year)
\$86,756	\$72,590	\$58,919	\$66,167	\$57,712		12%	6
Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5			
\$62,464.32	\$52,264.80	\$42,421.68	\$47,640.24	\$41,552.64			

Microsoft Excel has its way of showing this relationship through the Help of the cell precedents present under the formula auditing group respectively.

**Step 1:** Select the cell A6 from the available worksheet and click on the Formulas tab present on the Microsoft Excel ribbon.



**Step 2:** Once we will click on the Formulas tab, we can see the Formula Auditing group, which is present just under it with the different formula auditing options which are efficiently available.



**Step 3:** Now, in this particular step, we will be clicking on the Trace Precedents option, that are basically present just under the Formula Auditing group, and

then eventually it will make a connection between all the individual cells that are affecting the currently selected cell through blue-colored arrows as clearly depicted in the below-attached screenshot:

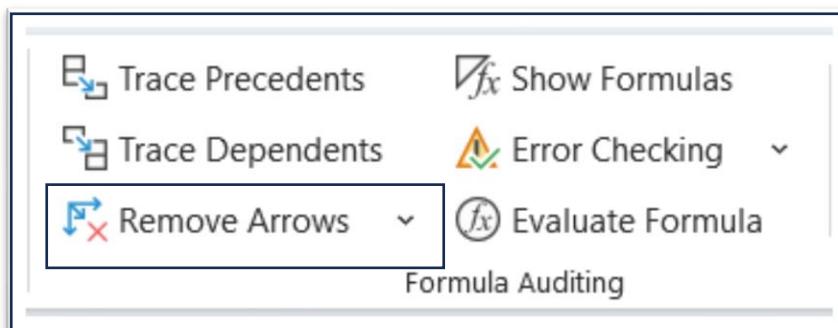
A	B	C	D	E	F	G	H
1	Principle Amount 1	Principle Amount 2	Principle Amount 3	Principle Amount 4	Principle Amount 5	Interest Rate	Period (Year)
	\$86,756	\$72,590	\$58,919	\$66,167	\$57,712	12%	6
4							
5	Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5		
	\$62,464.32	\$52,264.80	\$42,421.68	\$47,640.24	\$41,552.64		
6							

The particular Trace Precedents will help us (or an individual) find out the cells associated with the specific formula using which the values are obtained respectively.

## # Example 2: Removing Arrows

It was well known that the "Trace Precedents" were excellent and sound since they allowed an individual or us the efficient relationship between the different cells present inside our Microsoft Excel sheet.

An individual or we must move or go again to the Formula Auditing group (In which we will select out the Formulas tab through the Help of the ribbon, and if we are not there and also, we can see this group within it respectively). After that, we need to click on the "Remove Arrows dropdown," as depicted in the figure below.



And once we click on the respective Remove Arrows dropdown, then we can see the list of option which are seen in the below-attached screenshot effectively:



And soon, we can either hit the first option, which is capable of removing all the arrows (precedents as well as dependents one in the Microsoft Excel sheet), or else we can select the particular options that will remove the precedents or the dependents efficiently.

A	B	C	D	E	F	G	H
Principle Amount 1	Principle Amount 2	Principle Amount 3	Principle Amount 4	Principle Amount 5		Interest Rate	Period (Year)
\$86,756	\$72,590	\$58,919	\$66,167	\$57,712		12%	6
Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5			
\$62,464.32	\$52,264.80	\$42,421.68	\$47,640.24	\$41,552.64			

### #Example 3: Trace Dependents in the Microsoft Excel

Now, let us suppose that we randomly click on any particular cell of the Microsoft Excel sheet, and we want to check out the cells that depend on the currently selected cell.

Now on moving further, let us suppose that we have selected out the cell, which is the cell G2 (Interest Rate). And we wanted to check out what are all the other cells that have a dependency on G2, and this could be easily attained or accomplished by an individual or us in Microsoft Excel by just following the below-mentioned steps which are as follows:

**Step 1:** First of all, we will select the cell which is none other than the cell that is cell G2 which is present in our Microsoft Excel sheet, as seen in the figure attached below.

A	B	C	D	E	F	G	H
Principle Amount 1	Principle Amount 2	Principle Amount 3	Principle Amount 4	Principle Amount 5		Interest Rate	Period (Year)
\$86,756	\$72,590	\$58,919	\$66,167	\$57,712		12%	6
Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5			
\$62,464.32	\$52,264.80	\$42,421.68	\$47,640.24	\$41,552.64			

Step 2: Now, after that, we will click on the Formulas tab, which is present on the Microsoft Excel ribbon. and then from there, we will select the Trace Dependent to see what all are the cells that are primarily dependent on the cell G2 at it was depicted in the below attached screenshot:

A	B	C	D	E	F	G	H	I
Principle Amount 1	Principle Amount 2	Principle Amount 3	Principle Amount 4	Principle Amount 5		Interest Rate	Period (Year)	
\$86,756	\$72,590	\$58,919	\$66,167	\$57,712		12%	6	
Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5				
\$62,464.32	\$52,264.80	\$42,421.68	\$47,640.24	\$41,552.64				

And after that, once when we click on Trace Dependents, and then we will be able see all the individual cells which have an efficient dependency on the cell that cell G2, and they will be connected with blue arrows.

#### # Example 4: How to Show Formula in the Microsoft Excel

We need to go to the Formulas tab through the Microsoft Excel ribbon. After that we will be clicking on the Show Formulas button which is present just under the Formula Auditing group in order to see all the formulas in the current Microsoft Excel sheet respectively, as depicted clearly in the below attached figure.

A	B	C	D	E	F	G	H	I	J
Principle Amount 1	Principle Amount 2	Principle Amount 3	Principle Amount 4	Principle Amount 5		Interest Rate	Period (Year)		
\$86,756	\$72,590	\$58,919	\$66,167	\$57,712		12%	6		
Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5					
\$62,464.32	\$52,264.80	\$42,421.68	\$47,640.24	\$41,552.64					

And once we click on the particular "Show Formulas button," we can see all the formulated cells with formulas instead of values, as clearly seen in the screenshot below:

4					
5	Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5
6	=A2*\$G\$2*\$H\$2	=B2*\$G\$2*\$H\$2	=C2*\$G\$2*\$H\$2	=D2*\$G\$2*\$H\$2	=E2*\$G\$2*\$H\$2
7					

### Example 5: Error Checking in the Microsoft Excel

Let us assume that we have two respective numbers which are, Number 1 and Number 2, respectively, as seen in the screenshot below:

A10	B
A	
10 Number 1	0
11 Number 2	120
12	

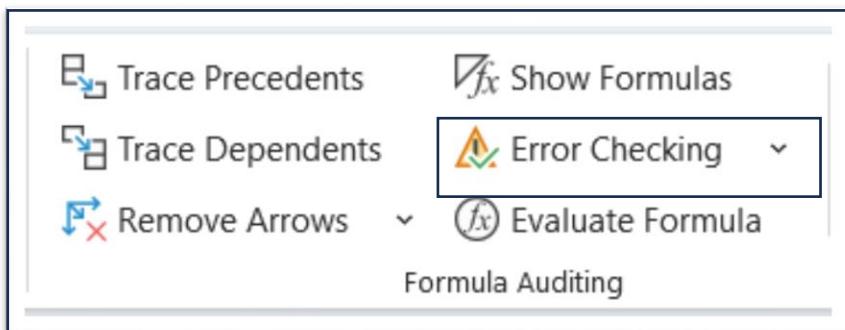
After that we will call the function that takes these two particular cell references, and we should give some of the output. We will be using the ROUNDUP function in Microsoft Excel. As could be seen in the cell B12; for more reference, it can be seen in the below-attached screenshot:

FV	B
A	
10 Number 1	0
11 Number 2	120
12 Function Called	=ROUNDUP(B11/B10,0)
13	

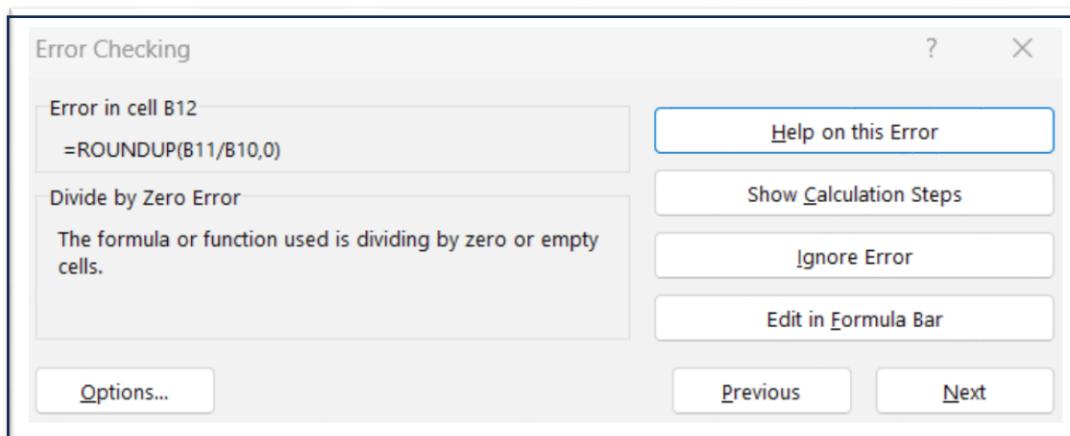
We should make use of the ROUNDUP function that can be used to divide 120 by zero and round it up the nearest integer. And after that, we will "Hit" Enter in order to see the output of this formula, depicted in the screenshot below.

B12	B
A	
10 Number 1	0
11 Number 2	120
12 Function Called	#DIV/0!
13	

We are getting an error here. How to check the error? Excel has an Error Checking option with it Now we are moving to the Formula Auditing group, and then we will click on the Error Checking button. as seen in the screenshot below.



The Error Checking dialogue box will appear on the screen, as seen in the screenshot below.



Now we can see that we can get online Help on this error by clicking on the "Help" on this Error button. or else we can see the calculation steps which are involved in this error by hitting out Show Calculation Steps, or we can ignore the error or edit the formula as well.

After that, we will click Help on this Error button, we will be redirected to the Office Support online page, as shown below in the attached screenshot.

### How to correct a #DIV/0! error

Microsoft Excel shows the #DIV/0! error 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 0 or is blank, as shown in this picture.

From here, we will get the #DIV/0! An error occurs when we try to divide some of the numbers with zero and then, we will change out the value of Number 1 under cell B10 and see how the formula works in B12 as clearly depicted in the below-attached screenshot.

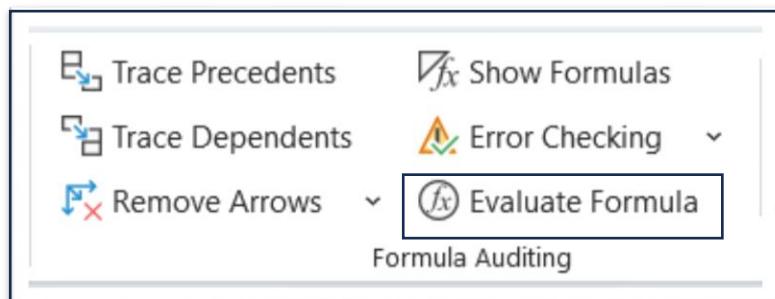
	A	B
10	Number 1	10
11	Number 2	120
12	Function Called	12
13		

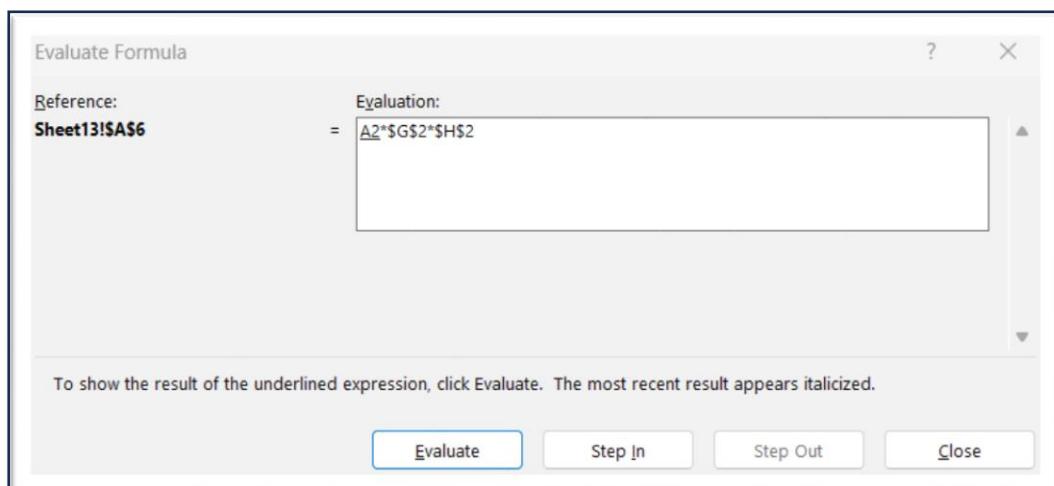
This is how error checking will help us in Microsoft Excel.

### #Step 6: Evaluation of the formulas.

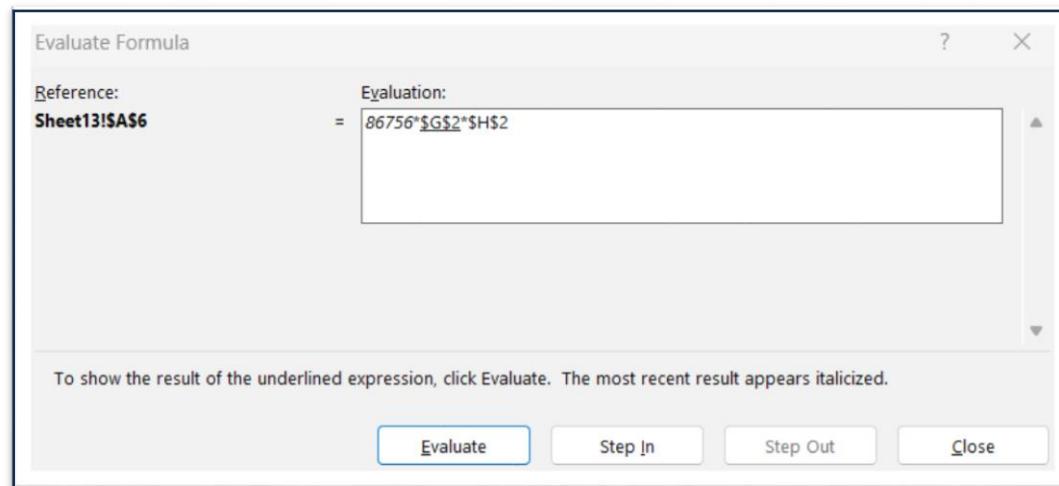
Now to evaluate formula first we select A6 cell of Interest Amount 1 and then we are moving to the Formula Auditing group, and then we will click on the Evaluate Formula button, it will show you Following window:

A	B	C	D	E	F	G	H
1	Principle Amount 1	Principle Amount 2	Principle Amount 3	Principle Amount 4	Principle Amount 5	Interest Rate	Period (Year)
2	\$86,756	\$72,590	\$58,919	\$66,167	\$57,712	12%	6
3							
4							
5	Interest Amount 1	Interest Amount 2	Interest Amount 3	Interest Amount 4	Interest Amount 5		
6	\$62,464.32	\$52,264.80	\$42,421.68	\$47,640.24	\$41,552.64		
7							
8							

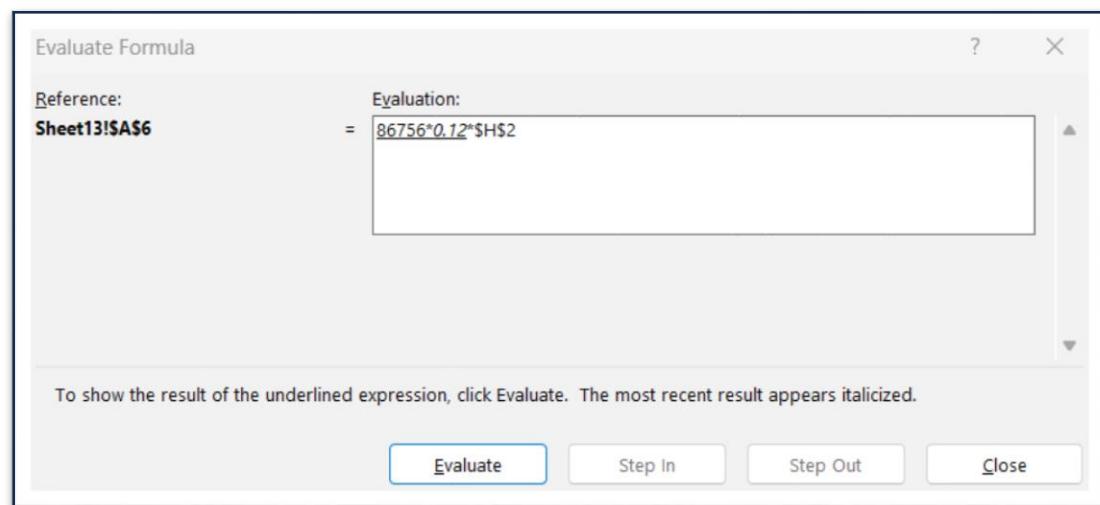




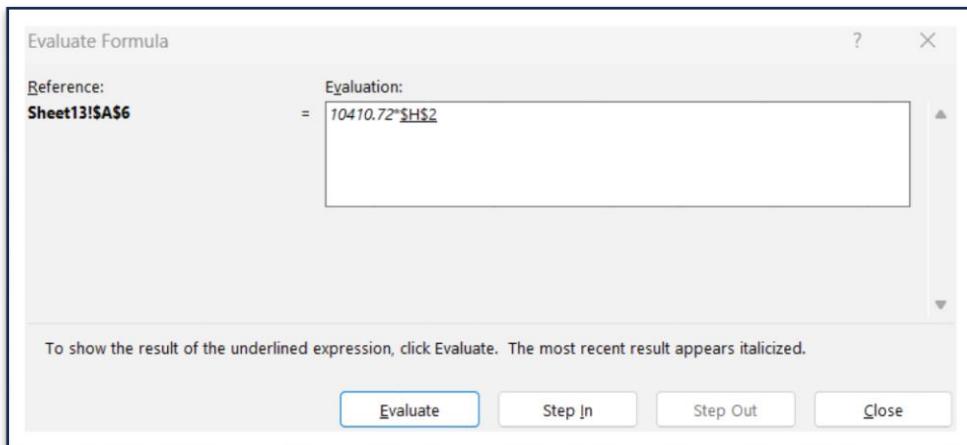
Now click on Evaluate button. It will show you the principle amt 1 in formula as follows:



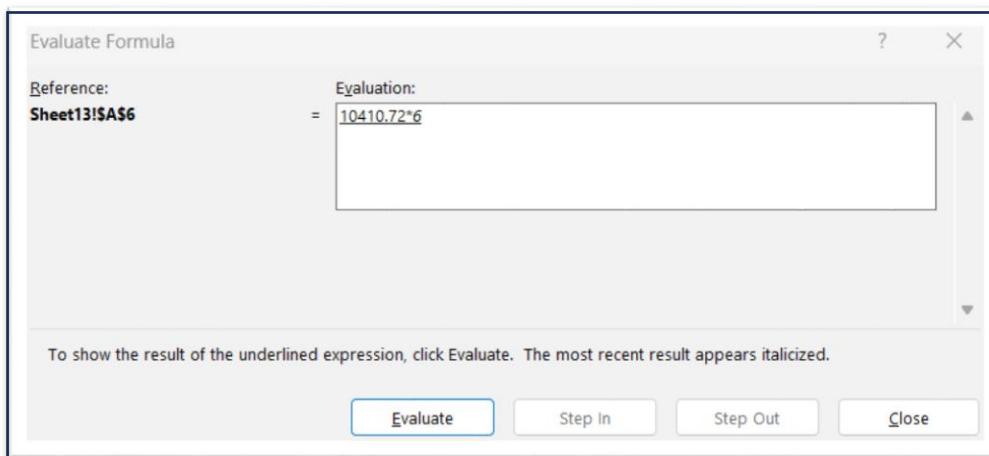
Now again click on evaluate button, it will show you Interest Rate amt in the formula as follows:



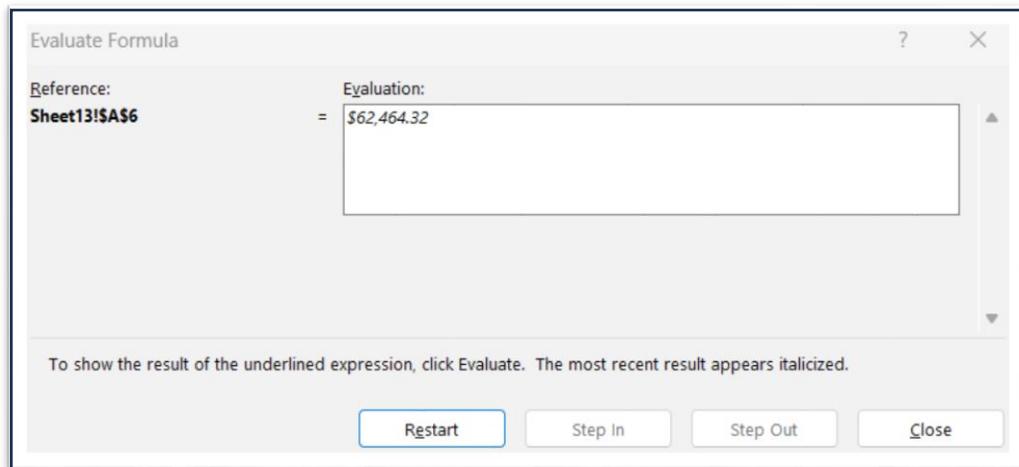
Now again click on evaluate button, it will show you product of principle amt and Interest Rate amt in formula as follows:



Now when you click on evaluate button again, it will show you Period in formula as follows:



Finally, when you click on evaluate, it will show you Interest Amt as follows:



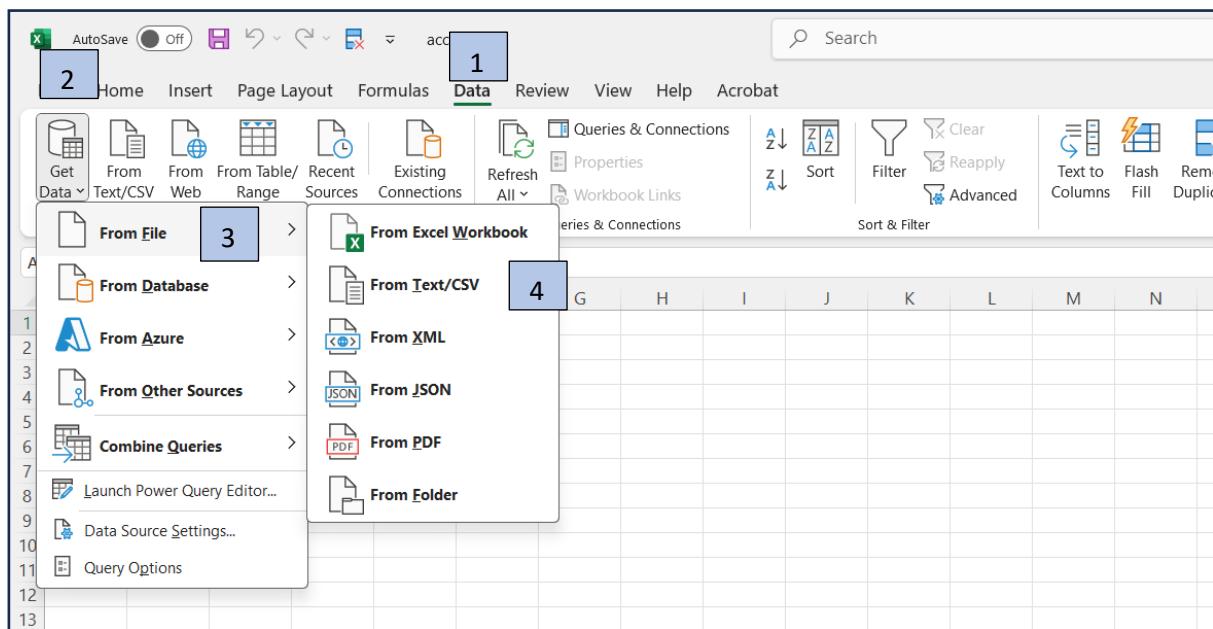
## (B) Migrating data from other software.

Data migration is the process of moving data from one system to another. While this might seem pretty straightforward, it involves a change in storage and database application.

### Import Data

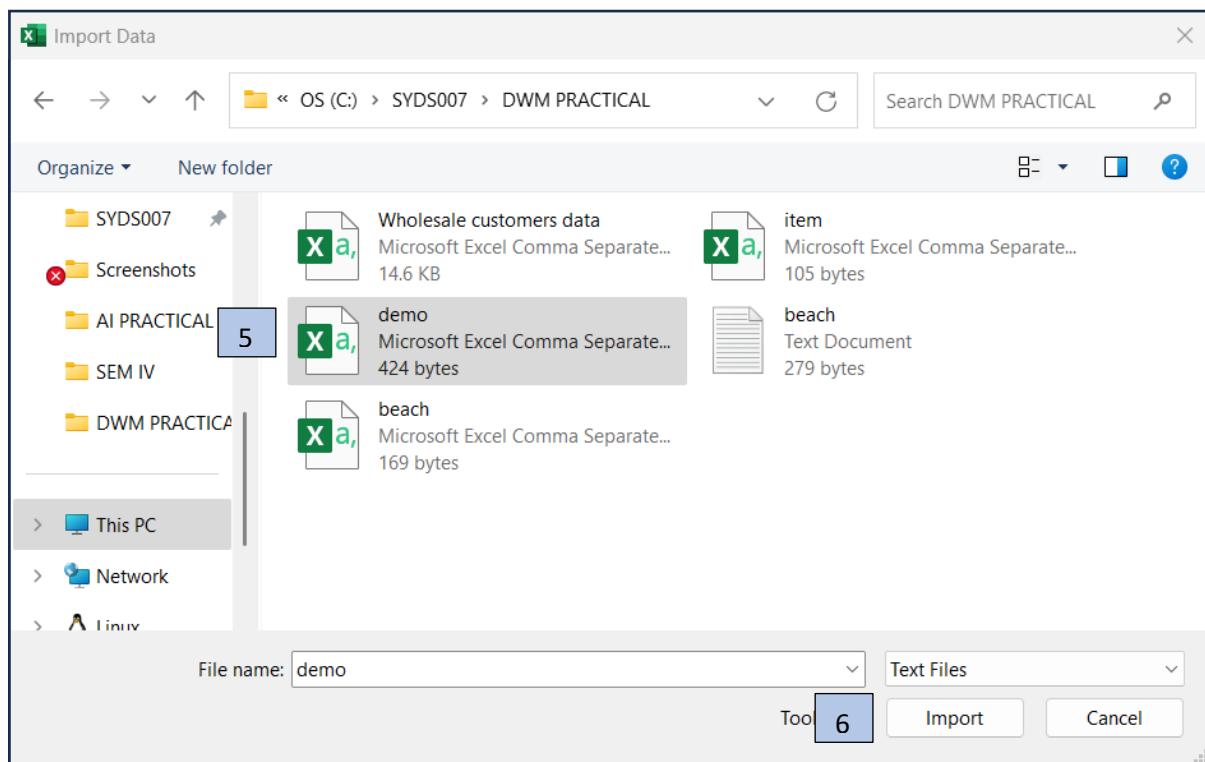
Excel can import data from external data sources including other files, databases, or web pages.

- Click the Data tab on the Ribbon.
- Click the Get Data button.
- Select From File.
- Select From Text/CSV.

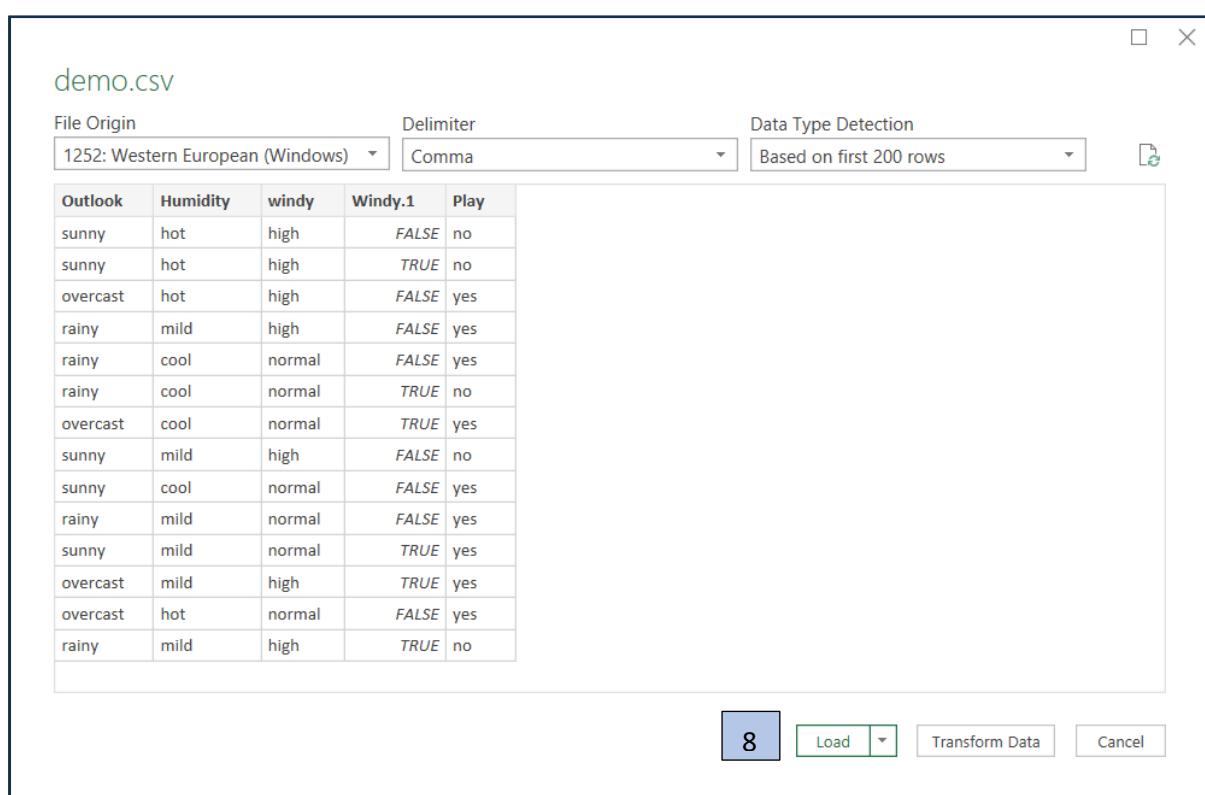


If you have data to import from Access, the web, or another source, select one of those options in the Get External Data group instead.

- Select the file you want to import.
- Click Import.
- If, while importing external data, a security notice appears saying that it is connecting to an external source that may not be safe, click OK.



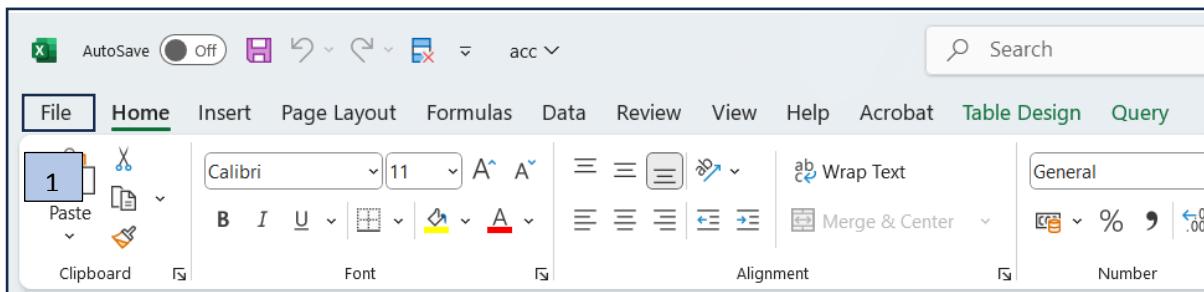
- Verify the preview looks correct.  
Because we've specified the data is separated by commas, the delimiter is already set. If you need to change it, it can be done from the menu.
- Click Load.



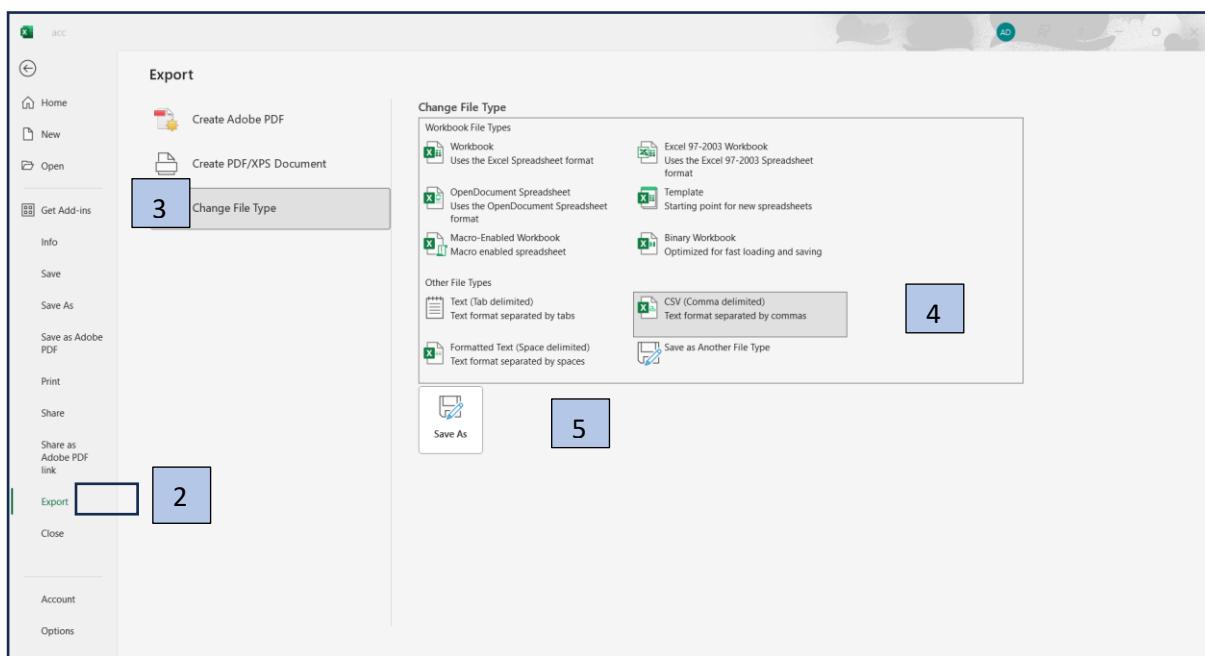
## Export Data

When you have data that needs to be transferred to another system, export it from Excel in a format can be interpreted by other programs, such as a text or CSV file.

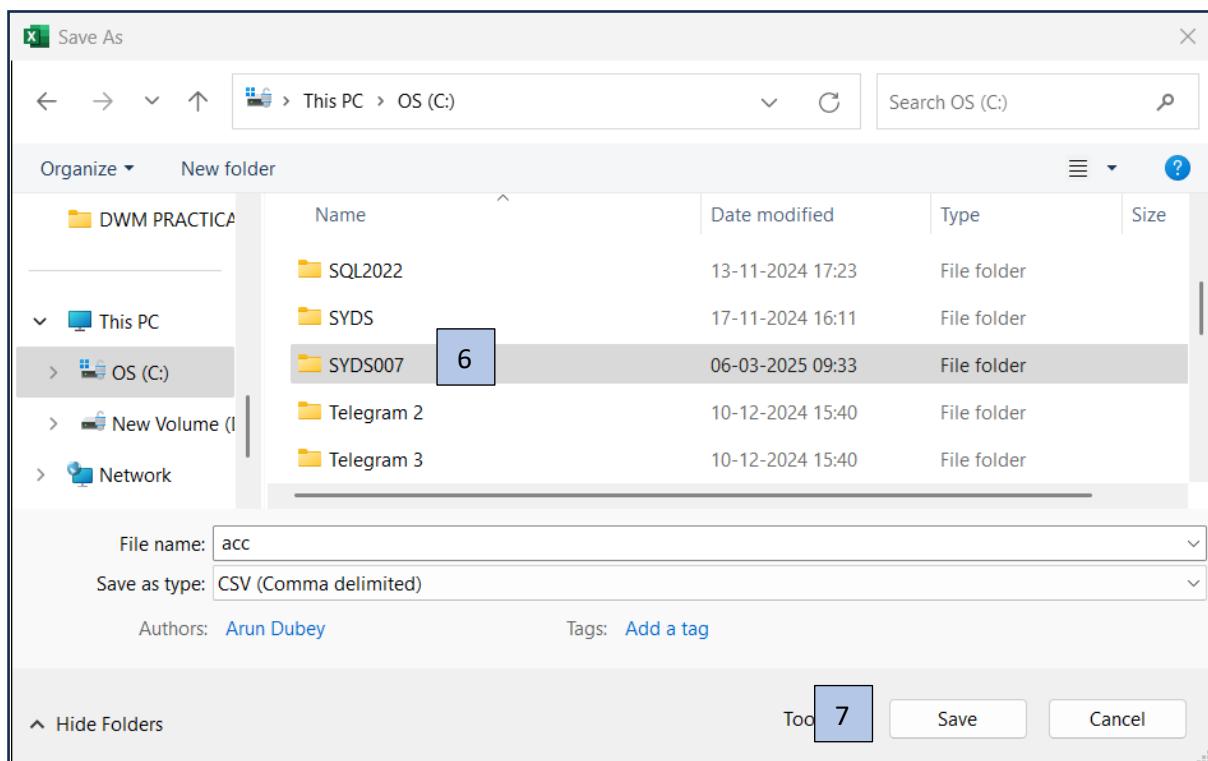
- Click the File tab.



- At the left, click Export.
- Click the Change File Type.
- Under Other File Types, select a file type.
  - Text (Tab delimited): The cell data will be separated by a tab.
  - CSV (Comma delimited): The cell data will be separated by a comma.
  - Formatted Text (space delimited): The cell data will be separated by a space.
  - Save as Another File Type: Select a different file type when the Save As dialog box appears.
- The file type you select will depend on what type of file is required by the program that consume the exported data.
- Click Save As.



- Specify where you want to save the file.
- Click Save.



- A dialog box appears stating that some of the workbook features may be lost.
- Click Yes.

## PRACTICAL NO.: 7

**Aim:** Creating a General Ledger.

### **What Is a Ledger?**

- Ledger is an essential document for any organization. It shows us the details of debit and credit and the current balance of that company after every transaction.
- Ledger books are usually three types:

#### **1. Sales Ledger**

- A sales ledger is a record of the sale of goods or services to customers that are kept by the company. As a result of this ledger, we are able to get the idea of sales profit and income statement.

#### **2. Purchase Ledger**

- The Purchase ledger records the transactions of that company when purchasing goods, services, or products from other organizations. It provides us with visible information on how much the organization paid to other companies.

#### **3. General Ledger**

- General ledger is usually two types:
  - a. **Nominal Ledger:** The nominal ledger provides us with information on earnings, expenses, insurance, depreciation, etc.
  - b. **Private Ledger:** The private ledger keeps track of private information such as salaries, wages, capital, etc. A private ledger is usually not reachable to every person.

For every businessman, it is common to use a journal for their daily transaction. These entities can be entered into Excel or any other preferable platform. By using this general journal data, you can create a specific account form which is known as a **general ledger**.

### **What Is General Journal?**

The general journal is an accounting record of any company's financial transaction. It is the master of all company entities. Each transaction that a company produces throughout the year is recorded in its general journal. A

A typical general journal consists of 5 different columns such as date, account, reference, debit, and credit columns. One of the main purposes of a general journal is to track assets and liabilities. This report also allocates costs and expenses.

### **What Is General Ledger?**

A general ledger can be used to track specific kinds of income and expenses. This report contains the same type of information as general journal data. Because in most cases, the general ledger is created through the general journal data. In accounting, the general ledger is used to create some subgroup through which a company can create a trial balance or any type of balance sheet.

### **Step-by-Step Procedure to Create a General Ledger in Excel from General Journal Data**

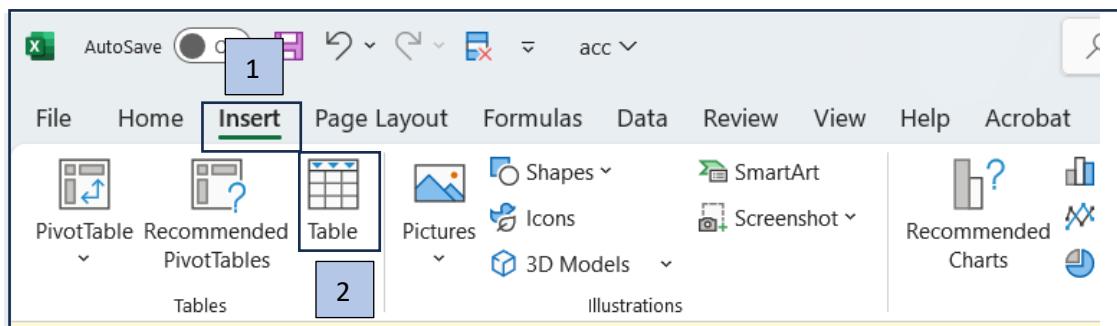
#### **Step 1: Create General Journal Data**

First, we need to create general journal data. A general journal data consists of date, account, reference, debit and credit. Using these headings, we will create general journal data.

- First, create those five headings in Excel.

	A	B	C	D	E	F	G
1							
2							
3	<b>General Journal Data</b>						
4	Date	Account	Reference	Debit	Credit		
5							
6							

- Then, select the range of cells B4 to F4.
- After that, go to the Insert tab on the ribbon.
- Then, select Table from the Tables group.



- The Create Table dialog box will appear.
- Make sure you check on My tab'
- Finally, click on OK.



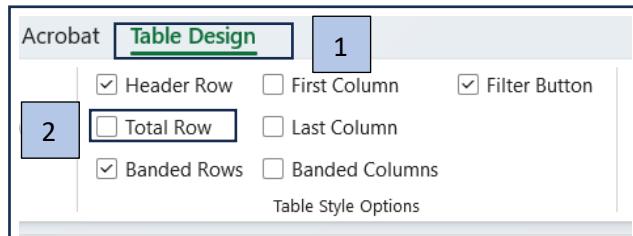
- As a result, a table is created using the headings. see the screenshot.

A	B	C	D	E	F
1					
2					
3	<b>General Journal Data</b>				
4	Date	Account	Reference	Debit	Credit
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					

- Then, add your company's transaction along with the specific date.
- Finally, we will get the following general journal data.

A	B	C	D	E	F
<b>General Journal Data</b>					
4	Date	Account	Reference	Debit	Credit
5	01-Jul-22	Cash	101		\$20,000
6	01-Jul-22	Prepaid Rent	211	\$1,200	
7	01-Jul-22	Furniture	212	\$1,500	
8	03-Jul-22	Cash	304	\$2,500	
9	03-Jul-22	Sales	102	\$4,000	
10	05-Jul-22	Purchase	422		\$5,000
11	07-Jul-22	Drawing	515	\$4,500	
12	07-Jul-22	Purchase	726	\$5,000	
13	08-Jul-22	Cash	516	\$4,200	
14	09-Jul-22	Sales	103		\$6,500
15	11-Jul-22	Cash	423		\$2,500
16	13-Jul-22	Account	104	\$6,000	
17	15-Jul-22	Account Payable	305	\$3,000	
18	17-Jul-22	Account Receivable	826		\$4,500
19	21-Jul-22	Sales	424		\$3,000
20	25-Jul-22	Salaries	175	\$9,600	
21					

- Then, we need to add the Sum of the debit and credit columns.
- First, select the table, it will open up the Table Design tab on the ribbon.
- Select the Table Design tab on the ribbon.
- Then, select Total Row from the Table Style Options group.



- It will create the total of the last columns. See the screenshot.

General Journal Data					
Date	Account	Reference	Debit	Credit	
01-Jul-22	Cash	101		\$20,000	
01-Jul-22	Prepaid Rent	211	\$1,200		
01-Jul-22	Furniture	212	\$1,500		
03-Jul-22	Account Payable	304	\$2,500		
03-Jul-22	Cash	102	\$4,000		
05-Jul-22	Sales	422		\$5,000	
07-Jul-22	Purchase	515	\$4,500		
07-Jul-22	Drawing	726	\$5,000		
08-Jul-22	Purchase	516	\$4,200		
09-Jul-22	Cash	103		\$6,500	
11-Jul-22	Sales	423		\$2,500	
13-Jul-22	Cash	104	\$6,000		
15-Jul-22	Account Payable	305	\$3,000		
17-Jul-22	Account Receivable	826		\$4,500	
21-Jul-22	Sales	424		\$3,000	
25-Jul-22	Salaries	175	\$9,600		
<b>Total</b>			<b>\$41,500</b>	<b>\$41,500</b>	

- Then, in the Debit column, you will get a data validation button.
- From there, you can select the Sum option.

A	B	C	D	E	F
1					
2					
3	General Journal Data				
4	Date	Account	Reference	Debit	Credit
5	01-Jul-22	Cash	101		\$20,000
6	01-Jul-22	Prepaid Rent	211	\$1,200	
7	01-Jul-22	Furniture	212	\$1,500	
8	03-Jul-22	Cash	304	\$2,500	
9	03-Jul-22	Sales	102	\$4,000	
10	05-Jul-22	Purchase	422		\$5,000
11	07-Jul-22	Drawing	515	\$4,500	
12	07-Jul-22	Purchase	726	\$5,000	
13	08-Jul-22	Cash	516	\$4,200	
14	09-Jul-22	Sales	103		\$6,500
15	11-Jul-22	Cash	423		\$2,500
16	13-Jul-22	Account	104	\$6,000	
17	15-Jul-22	Account Payable	305	\$3,000	
18	17-Jul-22	Account Receivable	826		\$4,500
19	21-Jul-22	Sales	424		\$3,000
20	25-Jul-22	Salaries	175	\$9,600	
21	<b>Total</b>			<b>\$41,500</b>	
22					
23					
24					
25					
26					
27					
28					
29					

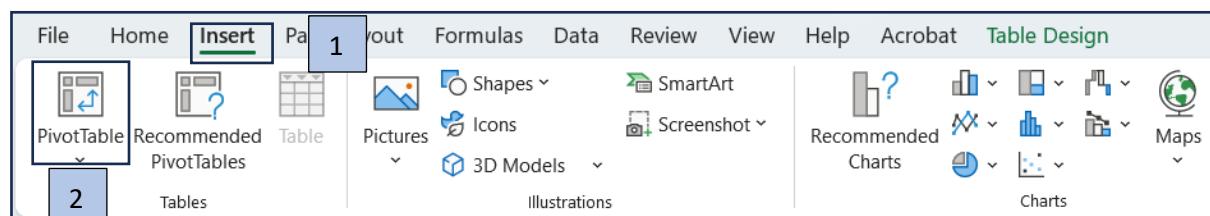
None  
Average  
Count  
Count Numbers  
Max  
Min  
Sum  
StdDev  
Var  
More Functions...

- As a result, it will create the total of the debit column. See the screenshot.

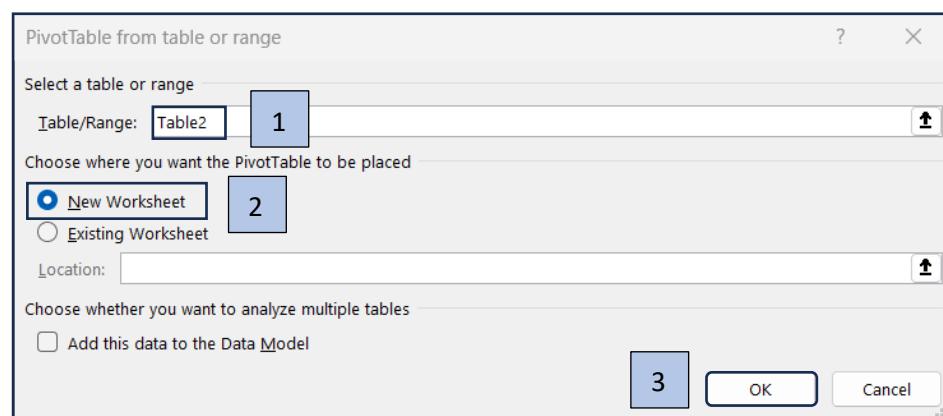
A	B	C	D	E	F
1					
2					
<b>General Journal Data</b>					
Date	Account	Reference	Debit	Credit	
01-Jul-22	Cash	101		\$20,000	
01-Jul-22	Prepaid Rent	211	\$1,200		
01-Jul-22	Furniture	212	\$1,500		
03-Jul-22	Cash	304	\$2,500		
03-Jul-22	Sales	102	\$4,000		
05-Jul-22	Purchase	422		\$5,000	
07-Jul-22	Drawing	515	\$4,500		
07-Jul-22	Purchase	726	\$5,000		
08-Jul-22	Cash	516	\$4,200		
09-Jul-22	Sales	103		\$6,500	
11-Jul-22	Cash	423		\$2,500	
13-Jul-22	Account	104	\$6,000		
15-Jul-22	Account Payable	305	\$3,000		
17-Jul-22	Account Receivable	826		\$4,500	
21-Jul-22	Sales	424		\$3,000	
25-Jul-22	Salaries	175	\$9,600		
<b>Total</b>			<b>\$41,500</b>	<b>\$41,500</b>	

## Step 2: Create Pivot Table

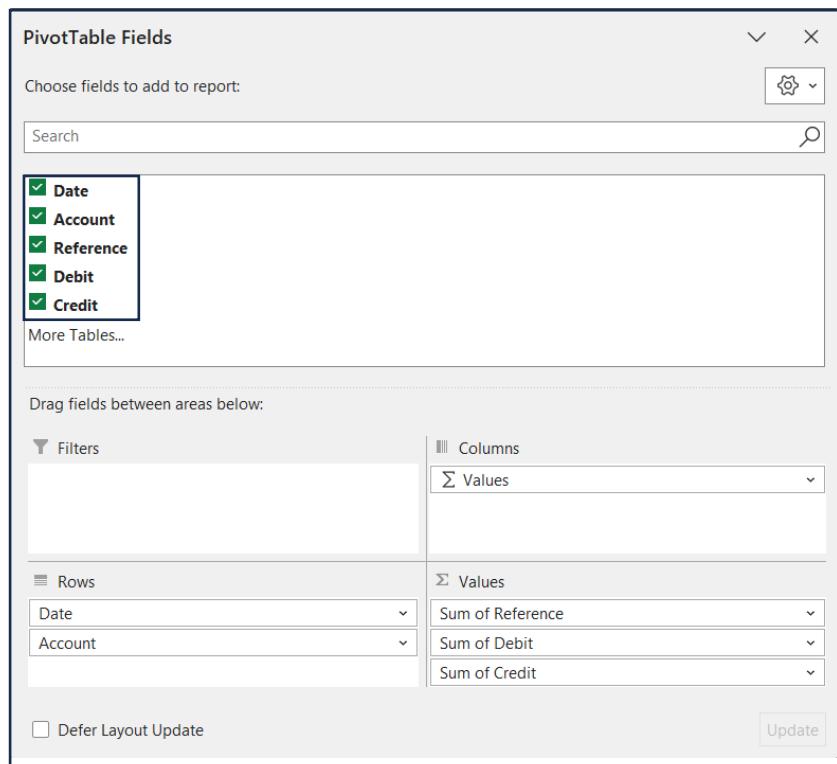
- After creating the general journal data, we want to convert the table into the pivot Table In the pivot table, we will create the general ledger from the general journal data
- First, go to the insert tab in the ribbon
- Then, select Pivot Table from the Tables group



- First, select the table or range.
- Then, choose New Worksheet Where you want to put your Pivot Table.
- Finally, click on OK to apply.



- It will open the PivotTable Fields dialog box in the new worksheet.
- Select all the available options.

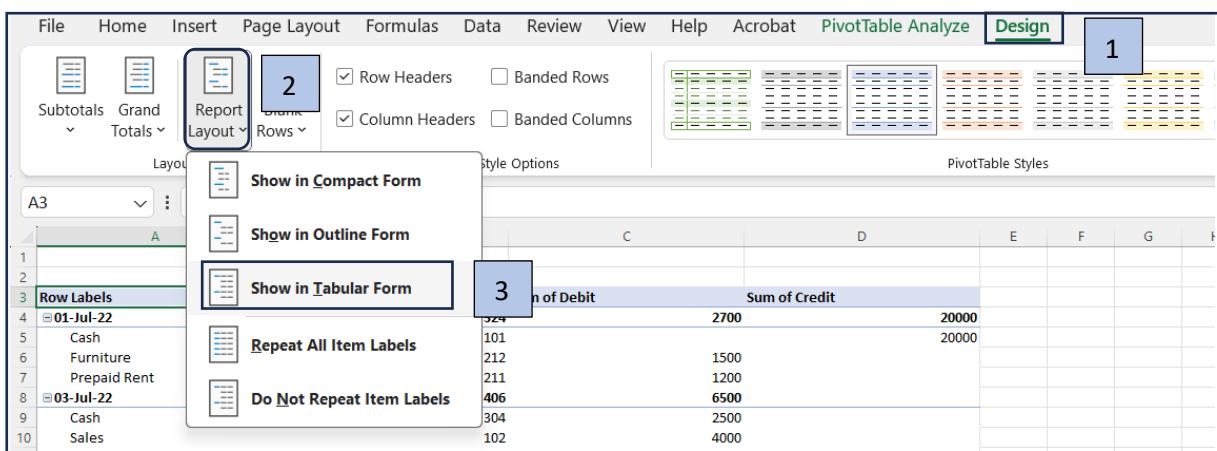


- It will create a pivot table from the general journal data.

	Row Labels	Sum of Reference	Sum of Debit	Sum of Credit
2				
3	<b>Row Labels</b>	<b>Sum of Reference</b>	<b>Sum of Debit</b>	<b>Sum of Credit</b>
4	<b>Account Payable</b>	<b>609</b>	<b>5500</b>	
5	03-Jul-22	304	2500	
6	15-Jul-22	305	3000	
7	<b>Account Receivable</b>	<b>826</b>		<b>4500</b>
8	17-Jul-22	826		4500
9	<b>Cash</b>	<b>410</b>	<b>10000</b>	<b>26500</b>
10	01-Jul-22	101		20000
11	03-Jul-22	102	4000	
12	09-Jul-22	103		6500
13	13-Jul-22	104	6000	
14	<b>Drawing</b>	<b>726</b>	<b>5000</b>	
15	07-Jul-22	726	5000	
16	<b>Furniture</b>	<b>212</b>	<b>1500</b>	
17	01-Jul-22	212	1500	
18	<b>Prepaid Rent</b>	<b>211</b>	<b>1200</b>	
19	01-Jul-22	211	1200	
20	<b>Purchase</b>	<b>1031</b>	<b>8700</b>	
21	07-Jul-22	515	4500	
22	08-Jul-22	516	4200	
23	<b>Salaries</b>	<b>175</b>	<b>9600</b>	
24	25-Jul-22	175	9600	
25	<b>Sales</b>	<b>1269</b>		<b>10500</b>
26	05-Jul-22	422		5000
27	11-Jul-22	423		2500
28	21-Jul-22	424		3000
29	<b>Grand Total</b>	<b>5469</b>	<b>41500</b>	<b>41500</b>
30				

### Step 3: Modify Pivot Table

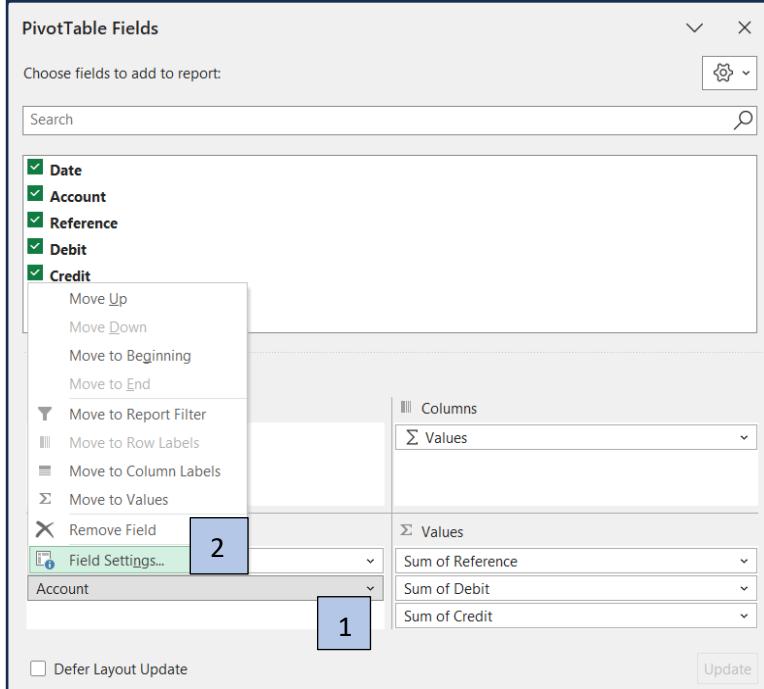
- After creating the pivot table, we need to modify it to make a better in this step, we will add some changes through which the pivot table will become more composed.
- First, we need to change the report layouts
- To do this, select the pivot table, it will open up the Design tab on the ribbon.
- Select the Design tab on the ribbon.
- Then, select Show in Tabular Form from Report Layout drop-down option from the Layout group



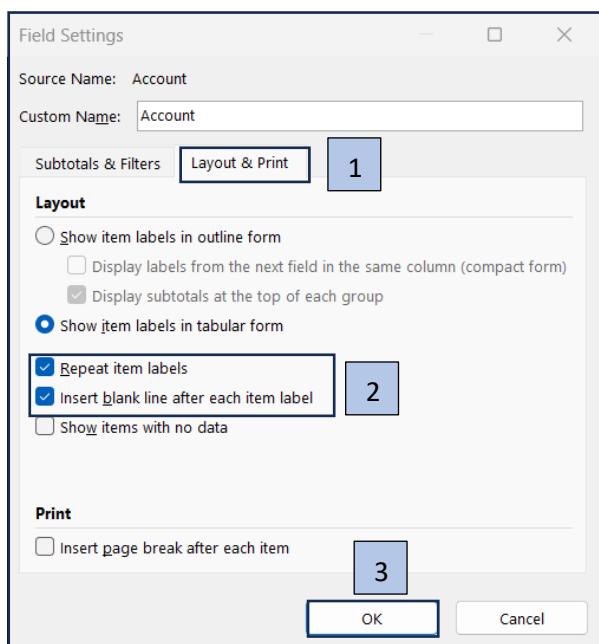
- It will set the pivot table in a tabular form. See the screenshot.

	Account	Date	Sum of Reference	Sum of Debit	Sum of Credit
4	Account Payable	03-Jul-22		304	2500
5		15-Jul-22		305	3000
6	Account Payable Total			609	5500
7	Account Receivable	17-Jul-22		826	4500
8	Account Receivable Total			826	4500
9	Cash	01-Jul-22		101	20000
10		03-Jul-22		102	4000
11		09-Jul-22		103	6500
12		13-Jul-22		104	6000
13	Cash Total			410	26500
14	Drawing	07-Jul-22		726	5000
15	Drawing Total			726	5000
16	Furniture	01-Jul-22		212	1500
17	Furniture Total			212	1500
18	Prepaid Rent	01-Jul-22		211	1200
19	Prepaid Rent Total			211	1200
20	Purchase	07-Jul-22		515	4500
21		08-Jul-22		516	4200
22	Purchase Total			1031	8700
23	Salaries	25-Jul-22		175	9600
24	Salaries Total			175	9600
25	Sales	05-Jul-22		422	5000
26		11-Jul-22		423	2500
27		21-Jul-22		424	3000
28	Sales Total			1269	10500
29	Grand Total			5469	41500
30					41500

- Then, go to the PivotTable Fields dialog box.
- Select the Account drop-down option.
- From there, Select Field Settings.



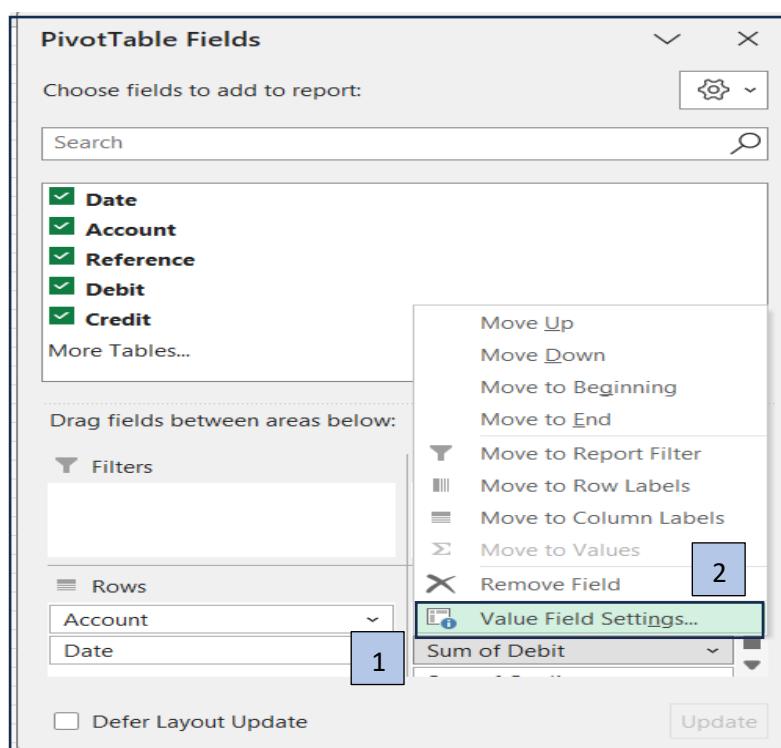
- As a result, it will open up the Field settings dialog box.
- Then, select the Layout & Print tab.
- Check on Repeat item's labels and insert blank line after each item label.
- Finally, Click on OK.



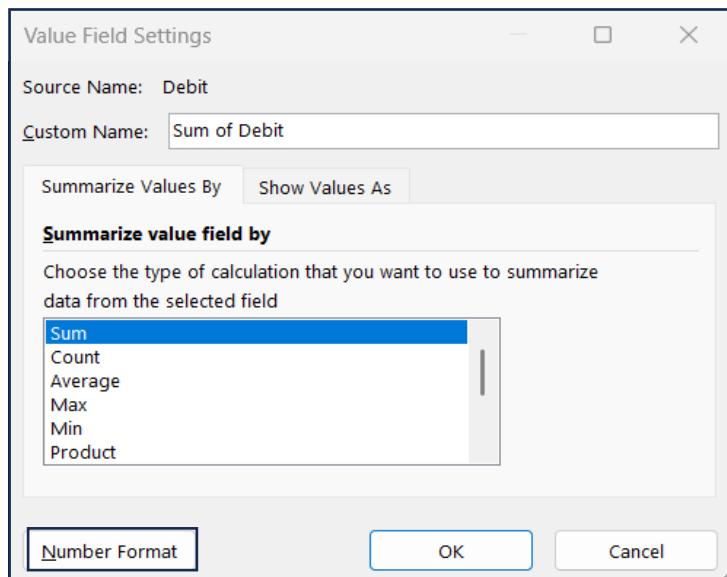
- It will repeat the item labels and insert a blank line after each item label. See the screenshot.

	Account	Date	Sum of Reference	Sum of Debit	Sum of Credit
3	Account				
4	Account Payable	03-Jul-22	304	2500	
5	Account Payable	15-Jul-22	305	3000	
6	<b>Account Payable Total</b>		<b>609</b>	<b>5500</b>	
7					
8	Account Receivable	17-Jul-22	826		4500
9	<b>Account Receivable Total</b>		<b>826</b>		<b>4500</b>
10					
11	Cash	01-Jul-22	101		20000
12	Cash	03-Jul-22	102	4000	
13	Cash	09-Jul-22	103		6500
14	Cash	13-Jul-22	104	6000	
15	<b>Cash Total</b>		<b>410</b>	<b>10000</b>	<b>26500</b>
16					
17	Drawing	07-Jul-22	726	5000	
18	<b>Drawing Total</b>		<b>726</b>		<b>5000</b>
19					
20	Furniture	01-Jul-22	212	1500	
21	<b>Furniture Total</b>		<b>212</b>		<b>1500</b>
22					
23	Prepaid Rent	01-Jul-22	211	1200	
24	<b>Prepaid Rent Total</b>		<b>211</b>		<b>1200</b>
25					
26	Purchase	07-Jul-22	515	4500	
27	Purchase	08-Jul-22	516	4200	
28	<b>Purchase Total</b>		<b>1031</b>		<b>8700</b>
29					
30	Salaries	25-Jul-22	175	9600	
31	<b>Salaries Total</b>		<b>175</b>		<b>9600</b>
32					
33	Sales	05-Jul-22	422		5000
34	Sales	11-Jul-22	423	2500	
35	Sales	21-Jul-22	424		3000
36	<b>Sales Total</b>		<b>1269</b>		<b>10500</b>
37					
38	<b>Grand Total</b>		<b>5469</b>	<b>41500</b>	<b>41500</b>
39					

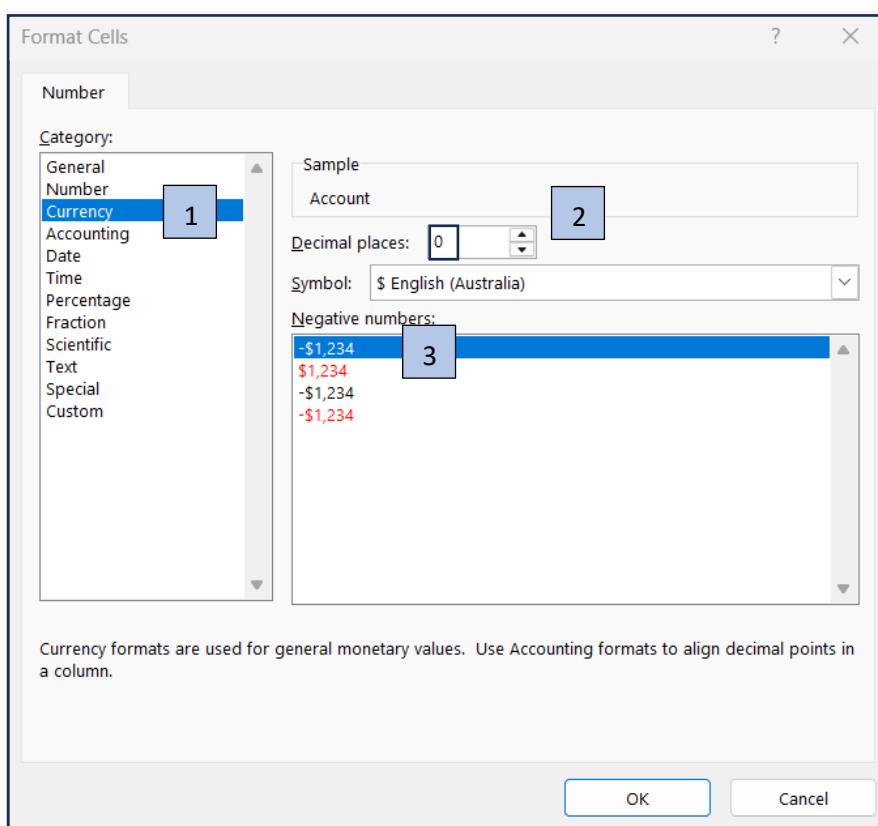
- Then, we want to change the format of the debit and credit columns.
- To do this, go to the PivotTable Fields dialog box.
- From there, select the Sum of Debit drop-down option.
- Then, select Value Field Settings option.



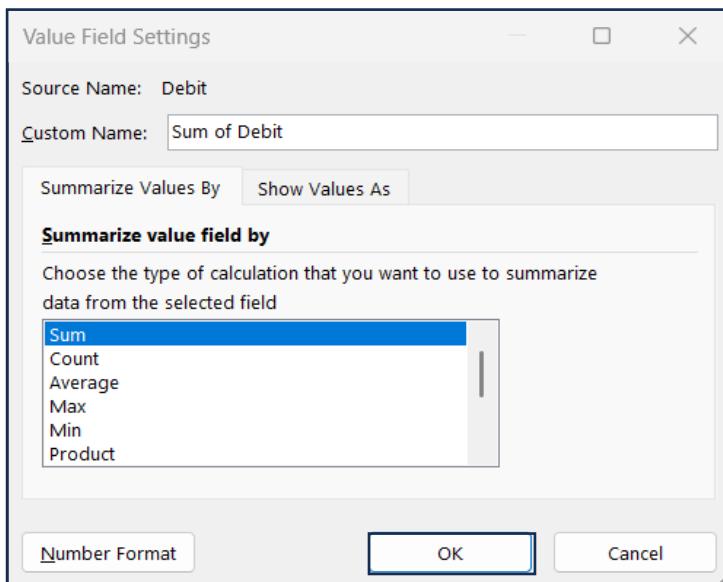
- It will open up the value Field Setting dialog box.
- Then, select the Number Format



- As a result, the format Cells dialog box will appear.
- then, Select Currency from the Category section
- Then, set your preferred negative numbers format
- Finally, Click on OK



- Then, click on OK in the Value Field Settings dialog box to apply the changes.

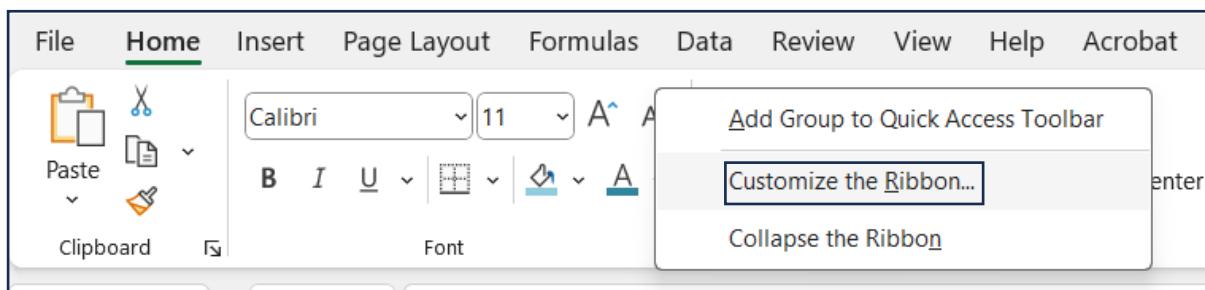


- It will change the format of the debit column. See the screenshot.
- Then, do the same procedures to change the number format of the credit column.
- Finally, you will get the following result. See the screenshot

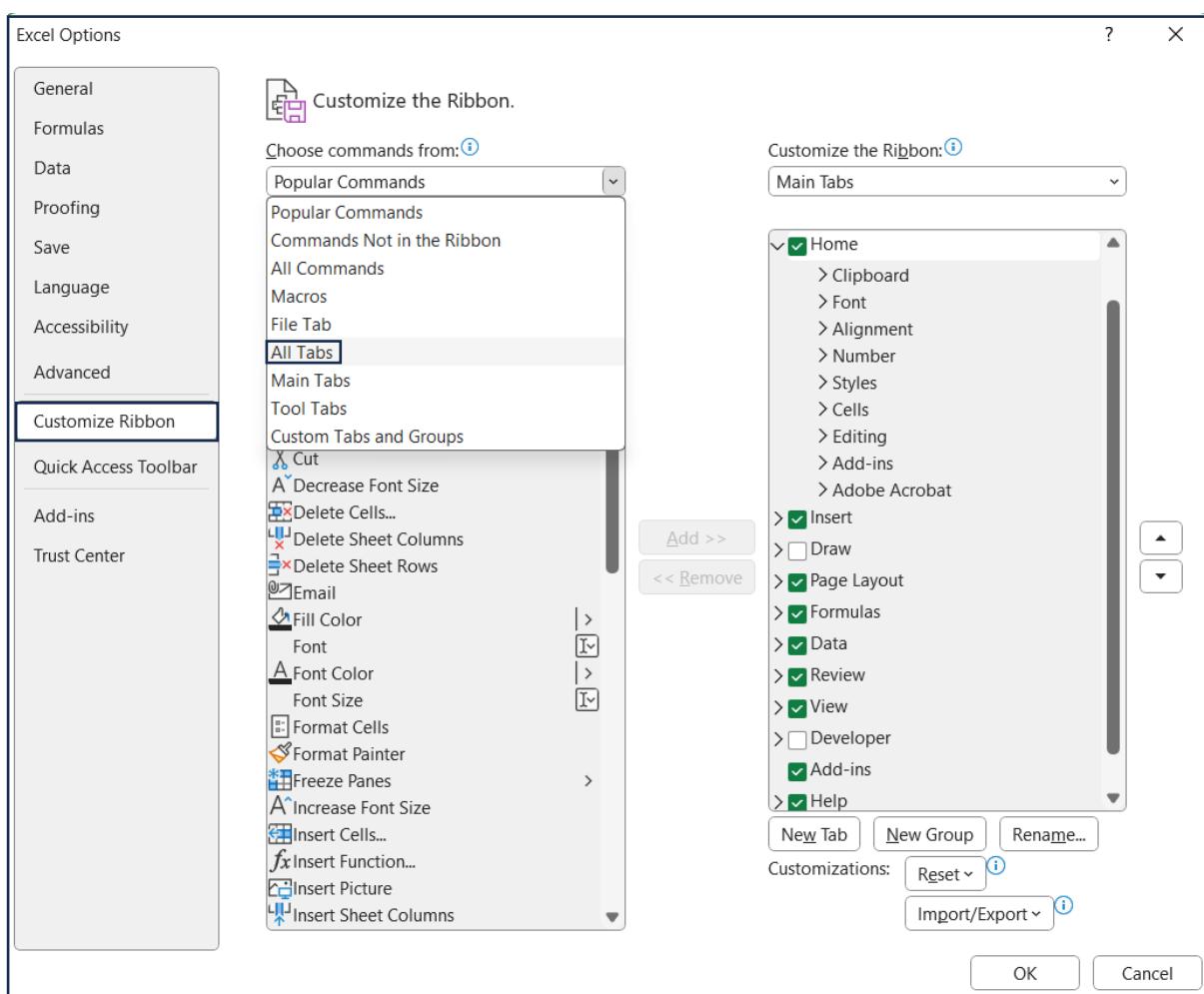
	Account	Date	Sum of Reference	Sum of Debit	Sum of Credit
4	Account Payable	03-Jul-22	304	\$2,500	
5	Account Payable	15-Jul-22	305	\$3,000	
6	Account Payable Total		609	<b>\$5,500</b>	
7					
8	Account Receivable	17-Jul-22	826		\$4,500
9	Account Receivable Total		826		<b>\$4,500</b>
10					
11	Cash	01-Jul-22	101		\$20,000
12	Cash	03-Jul-22	102	\$4,000	
13	Cash	09-Jul-22	103		\$6,500
14	Cash	13-Jul-22	104	\$6,000	
15	Cash Total		410	<b>\$10,000</b>	<b>\$26,500</b>
16					
17	Drawing	07-Jul-22	726	\$5,000	
18	Drawing Total		726		<b>\$5,000</b>
19					
20	Furniture	01-Jul-22	212	\$1,500	
21	Furniture Total		212		<b>\$1,500</b>
22					
23	Prepaid Rent	01-Jul-22	211	\$1,200	
24	Prepaid Rent Total		211		<b>\$1,200</b>
25					
26	Purchase	07-Jul-22	515	\$4,500	
27	Purchase	08-Jul-22	516	\$4,200	
28	Purchase Total		1031		<b>\$8,700</b>
29					
30	Salaries	25-Jul-22	175	\$9,600	
31	Salaries Total		175		<b>\$9,600</b>
32					
33	Sales	05-Jul-22	422		\$5,000
34	Sales	11-Jul-22	423		\$2,500
35	Sales	21-Jul-22	424		\$3,000
36	Sales Total		1269		<b>\$10,500</b>
37					
38	Grand Total		5469	<b>\$41,500</b>	<b>\$41,500</b>
39					

### Step 4: Enable Pivot Table Analyse Tab on Ribbon.

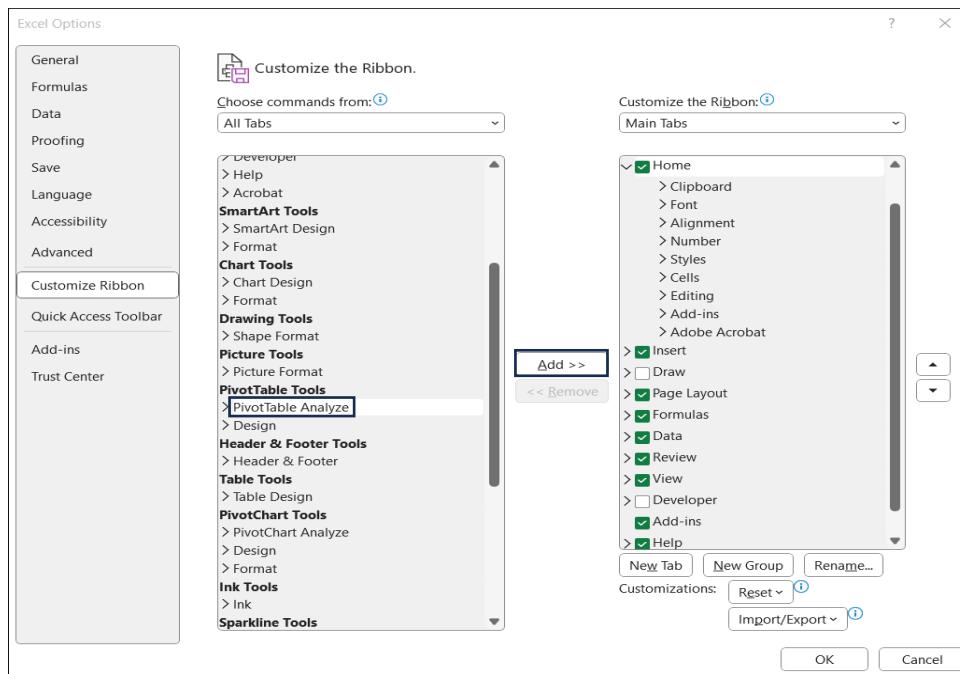
- Before doing any further calculations, you need to enable the PivotTable Analyse tab by customizing the ribbon.
- First, right-click on the ribbon.
- Then, select Customize the Ribbon.



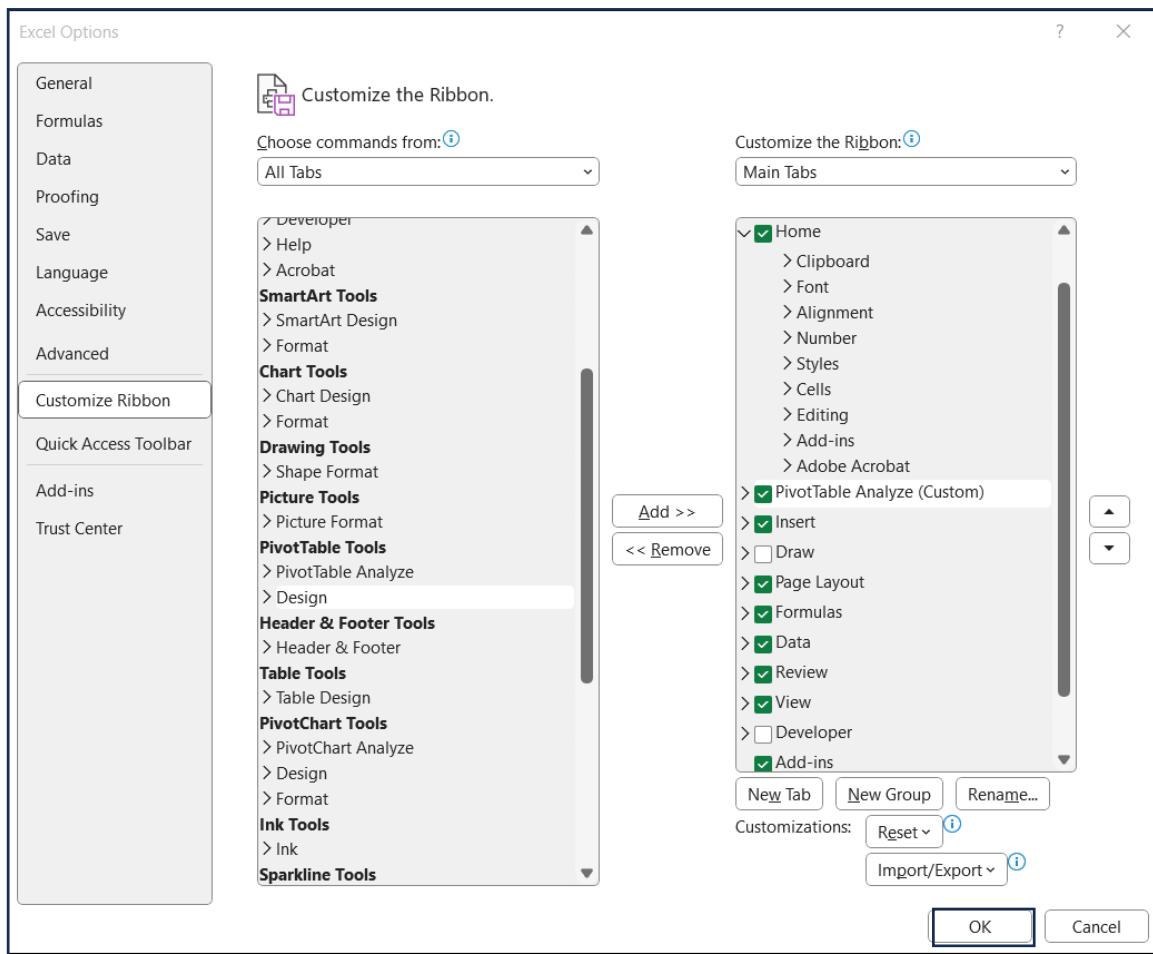
- As a result, it will open up the Excel options dialog box.
- Then, select Customize Ribbon.
- After that, select All Tabs from the Choose commands from drop-down menu.



- Then, scroll down and select the PivotTable Analyze tab.
- After that, click on Add.

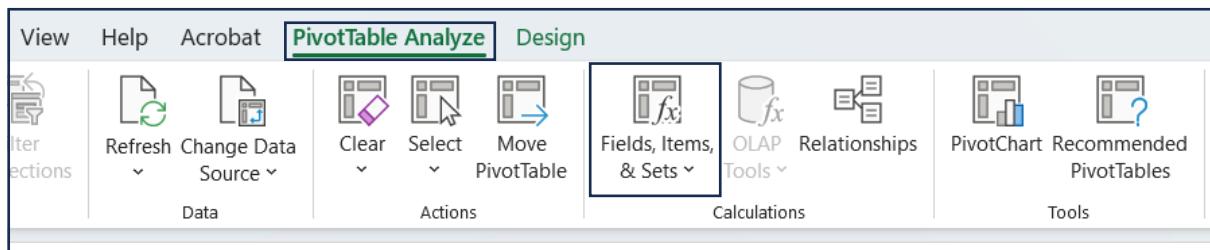


- Then, click on OK to apply the change.

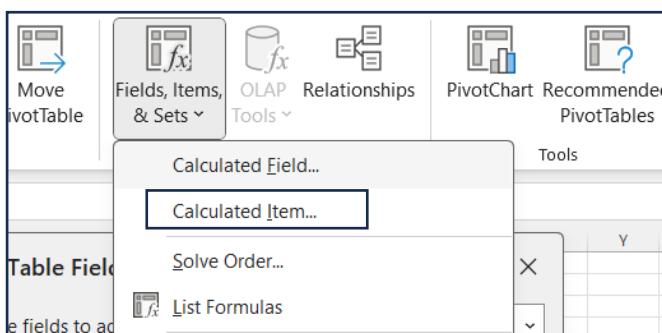


### Step 5: Create General Ledger

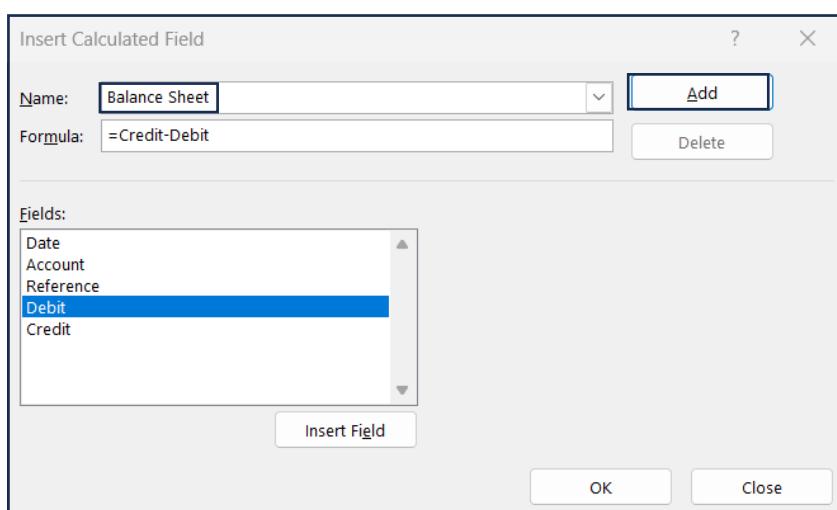
- After completing all the previous steps, we will create the general ledger from the general journal data using the pivot Table Analyze tab
- First, select the pivot table.
- Then, go to the Pivot Table Analyse tab on the ribbon.
- Select the fields, Items & Sets drop-down option from the Calculations group.



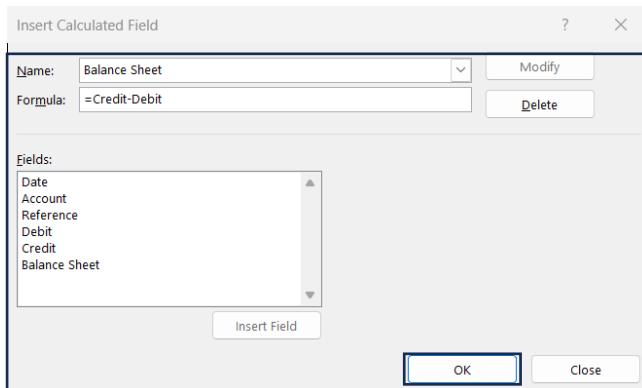
- Then, select Insert Calculated Field after clicking on Calculated Field.



- As a result, it will open the Insert Calculated Field dialog box.
- Then, set the name and formula.
- After that, click on Add.



- Finally, click on OK to apply the change.

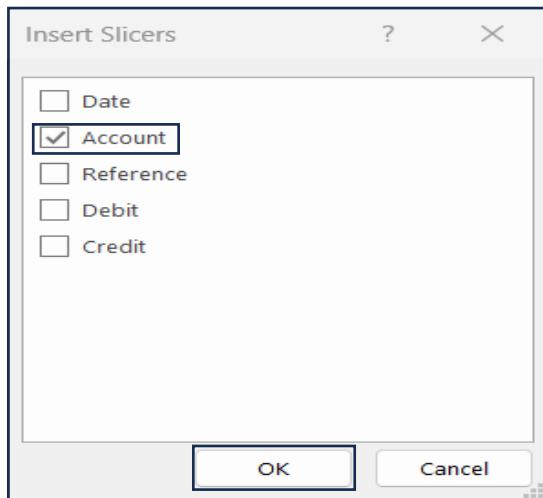


- As a result, it will create a new column using your given formula and name. See the screenshot.

	Account	Date	Sum of Reference	Sum of Debit	Sum of Credit	Sum of Balance Sheet
0	Account Payable	03-Jul-22	304	\$2,500		-\$2,500
1	Account Payable	15-Jul-22	305	\$3,000		-\$3,000
2	Account Payable Total		609	\$5,500		-\$5,500
3	Account Receivable	17-Jul-22	826		\$4,500	\$4,500
4	Account Receivable Total		826		\$4,500	\$4,500
5	Cash	01-Jul-22	101		\$20,000	\$20,000
6	Cash	03-Jul-22	102	\$4,000		-\$4,000
7	Cash	09-Jul-22	103		\$6,500	\$6,500
8	Cash	13-Jul-22	104	\$6,000		-\$6,000
9	Cash Total		410	\$10,000	\$26,500	\$16,500
10	Drawing	07-Jul-22	726	\$5,000		-\$5,000
11	Drawing Total		726	\$5,000		-\$5,000
12	Furniture	01-Jul-22	212	\$1,500		-\$1,500
13	Furniture Total		212	\$1,500		-\$1,500
14	Prepaid Rent	01-Jul-22	211	\$1,200		-\$1,200
15	Prepaid Rent Total		211	\$1,200		-\$1,200
16	Purchase	07-Jul-22	515	\$4,500		-\$4,500
17	Purchase	08-Jul-22	516	\$4,200		-\$4,200
18	Purchase Total		1031	\$8,700		-\$8,700
19	Salaries	25-Jul-22	175	\$9,600		-\$9,600
20	Salaries Total		175	\$9,600		-\$9,600
21	Sales	05-Jul-22	422		\$5,000	\$5,000
22	Sales	11-Jul-22	423		\$2,500	\$2,500
23	Sales	21-Jul-22	424		\$3,000	\$3,000
24	Sales Total		1269		\$10,500	\$10,500
25	Grand Total		5469	\$41,500	\$41,500	\$0

- Then, go to the PivotTable Analyze tab on the ribbon again
- From the Filter group, select Insert Slicer.

- Then, select Account in the Insert Slicers dialog box.
- Finally, click on OK.



- It will create a specific sub-group where you can only see a certain group of transactions when you click on any item.

Account
Account Payable
Account Receivable
Cash
Drawing
Furniture
Prepaid Rent
Purchase
Salaries

- Then, if we select cash in the slicer then it will show the details of cash from the general journal data.

A	B	C	D	E	F	G	H	I	J	K	L
1											
2											
3	Account	Date	Sum of Reference	Sum of Debit	Sum of Credit	Sum of Balance Sheet					
4	Cash	01-Jul-22	101	\$20,000	\$20,000						
5	Cash	03-Jul-22	102	\$4,000	-\$4,000						
6	Cash	09-Jul-22	103	\$6,500	\$6,500						
7	Cash	13-Jul-22	104	\$6,000	-\$6,000						
8	Cash Total		410	\$10,000	\$26,500	\$16,500					
9											
10	Grand Total		410	\$10,000	\$26,500	\$16,500					
11											
12											
13											
14											
15											
16											

Account
Account Payable
Account Receivable
Cash
Drawing
Furniture
Prepaid Rent
Purchase
Salaries

- Now, if you change the transaction from cash to purchase, you will get only the purchase transaction. See the screenshot.

Account	Date	Sum of Reference	Sum of Debit	Sum of Credit	Sum of Balance Sheet
Purchase	07-Jul-22	515	\$4,500		-\$4,500
Purchase	08-Jul-22	516	\$4,200		-\$4,200
Purchase Total		1031	\$8,700		-\$8,700
Grand Total		1031	\$8,700		-\$8,700

Account
Cash
Drawing
Furniture
Prepaid Rent
Purchase
Salaries
Sales

- After that, change the transaction from purchase to sales. See the screenshot.

Account	Date	Sum of Reference	Sum of Debit	Sum of Credit	Sum of Balance Sheet
Sales	05-Jul-22	422		\$5,000	\$5,000
Sales	11-Jul-22	423		\$2,500	\$2,500
Sales	21-Jul-22	424		\$3,000	\$3,000
Sales Total		1269		\$10,500	\$10,500
Grand Total		1269		\$10,500	\$10,500

Account
Cash
Drawing
Furniture
Prepaid Rent
Purchase
Salaries
Sales