

*This manual is created for MS
Excel Users to understand its
advanced concepts*

Microsoft Excel Advance Level

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TOPICS

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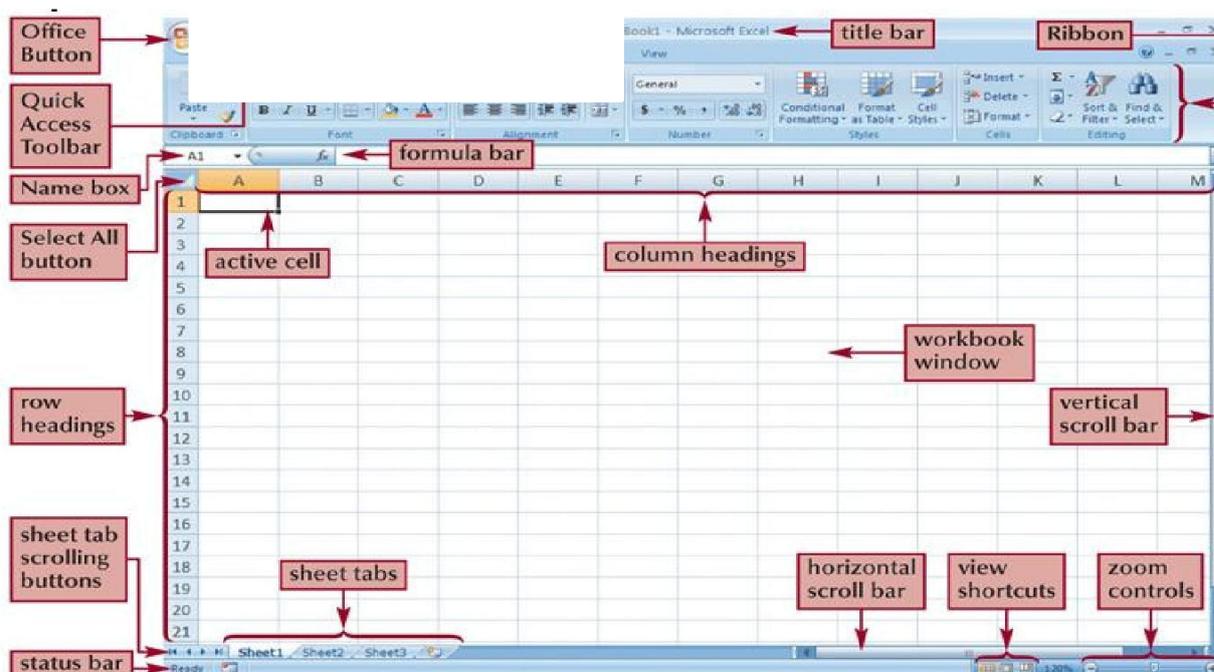
Chapter 1: Introduction to M.S Excel

Microsoft Office Excel is a powerful spreadsheet tool used to organize, manipulate and analyze data. Spreadsheets are commonly be used to perform many different types of calculations. Excel is often used in the workplace to track statistics, create sales reports, financial modelling, scientific engineering, and making charts and graphics.

THE EXCEL WINDOW

When you first open up Excel, a new file is created named as **Book1** by default (you can rename it later). It is named as “Book” because it is a **workbook** made up of **three worksheets** (each worksheet can be accessed from tabs in the lower left corner of the excel window)

The Excel Workbook window is the area where the data are stored and manipulated. This window is divided into **rows and columns**. **Rows** travel horizontally and are **numbered**. **Columns** travel vertically and are assigned **alphabets**.



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Cell The intersection of a row and column is called a cell. Cells are the basic rectangular building blocks of a spreadsheet. Each Cell is assigned with cell address. Cell Address/Cell Reference begins with Column Name followed by Row Number (e.g. Cell Address is C9, having column name C and row number 9). Each cell is made up of inbuilt calculator.

Title Bar Displays the name of the current workbook and it holds some control buttons to Minimise, Restore & Close the Excel Window.

Quick Access Toolbar Found next to the office button in the Title Bar provides quick access to commonly used buttons. The default buttons are Save, Undo and Redo, It can also be customized.

Ribbon/Menu Bar Menu Bar consist of Menus such as File, Edit, View, Insert, Format, Tools, Data, Window and Help. In Excel 2007 the Drop-down Menu Bar is replaced by Tabs with Horizontal Ribbon such as Home, Insert, Page Layout, Formulas, Data, Review and View Tab. Within each tab, various related options may be grouped together for easy identification. The Ribbon is designed to make the features of the application more discoverable and accessible with fewer mouse clicks.

Formula Bar Displays the contents of the active cell. This could be a formula, data or just text. Formula always begins with = (*equal to*) otherwise Value is a Text or Constant. The Cell which contains formula will display only the end result of the formula where as Formula will be displayed in the Formula Bar.

Active Cell The cell you are currently working with is active cell. Thick Bordered Black outline surrounding the cell indicated the current active cell. To change which cell is the active cell, simply click on it or move to it using the arrow keys on your keyboard.

Name Box Displays the active cell address or the name of the selected cell/range. Cells are named by giving the column letter and then the row number. For example, B3 means the active cell is located in column B and is in the 3rd row.

Chapter 2: Data Entry & Fill Series

DATA ENTRY IN EXCEL

Entering repetitive data into a spreadsheet can be time-consuming, and mistakes will often find their way in — with Excel's simple built-in data entry tools you can improve both speed and accuracy.

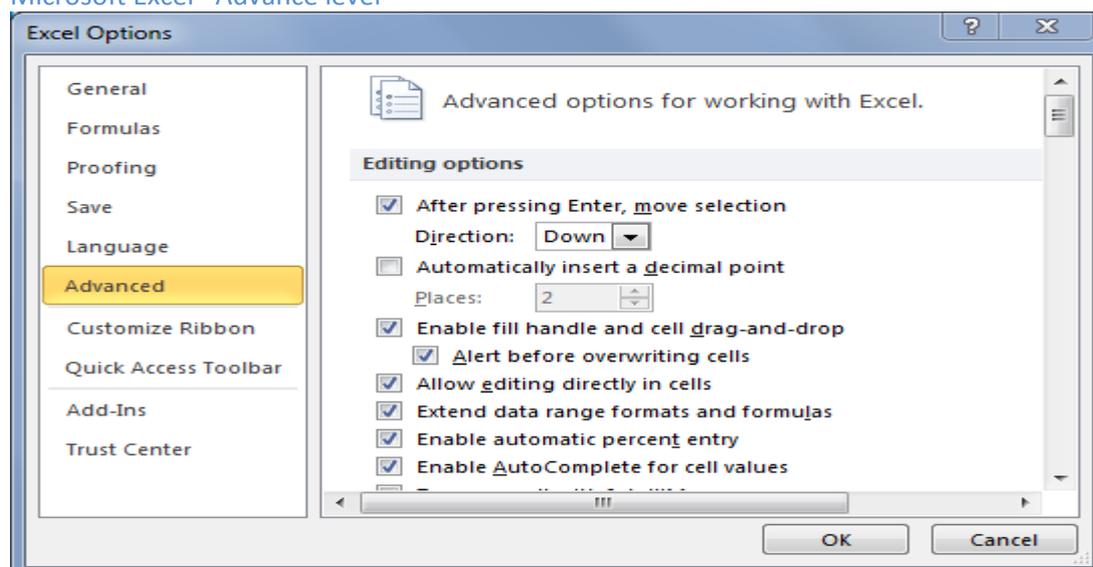
The standard setup in Excel is to press **TAB** to move your active cell to the right by one cell, and press **ENTER** to move your active cell down by one cell.

Simply use **SHIFT + TAB** to the previous cell on the same line. And you can use **SHIFT + ENTER** to go one cell up.

How to configure Excel's default cell movement

In **Excel 2007 / 2010** you need to first choose **OPTIONS** from the **OFFICE BUTTON** or **FILE** menu. Then, click the **ADVANCED** menu and do one of these things:

1. Check the —After pressing Enter, move selection check box and select the direction you want (Down / Right / Up / Left)
2. Clear the —After pressing Enter, move selection check box to inhibit any movement when pressing Enter.



3 ways to edit a Cell: First activate the cell to be edited. Then go for any of these options

- **Option1:** Press F2
- **Option2:** Double click the cell
- **Option3:** Edit in the Formula Bar

FILL SERIES IN EXCEL

Instead of entering data manually on a worksheet, you can use the Auto Fill feature to fill cells with data that follows a pattern or that is based on data in other cells.

Fill Handle is a small black dot or square in the bottom right corner of the Active Cell. The fill handle has a number of uses including copying a cell's contents to adjacent cells or to create a series. Use the fill handle by clicking on it with the mouse pointer to drag & select adjacent cells.

AutoFill using Fill Handle: It allows you to quickly fill data in a series into adjacent cells. (e.g. months, days of the week, or a numeric series)

- **Numeric Series:** Auto fill can also be used to quickly enter numeric patterns (e.g. 1, 2, 3 or 10, 20, 30) into adjacent cells. To use Auto fill with numeric patterns, enter the first two values in the series, one value in one cell and the next in the cell immediately below or to the right. Now select both cells. Using Fill

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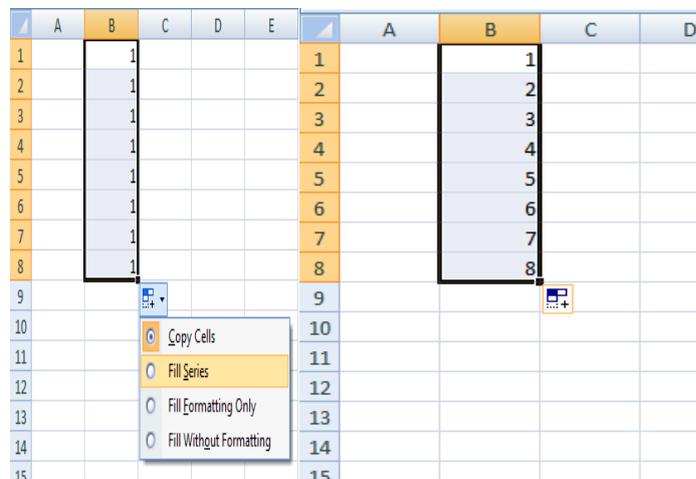
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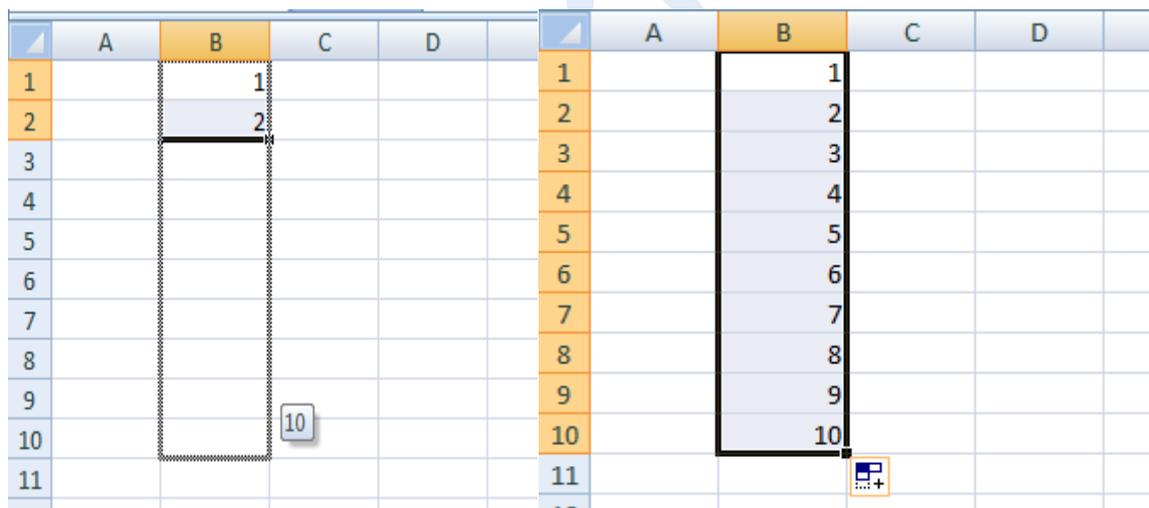


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Handle, Click and drag down or across the cells you want to fill, and then release the mouse button.



(Method 1)



(Method 2)

- **Text Series:** Type the first word of the series (e.g. January) then using fill handle click and drag the series down or across the number of cells you would like to fill this series.

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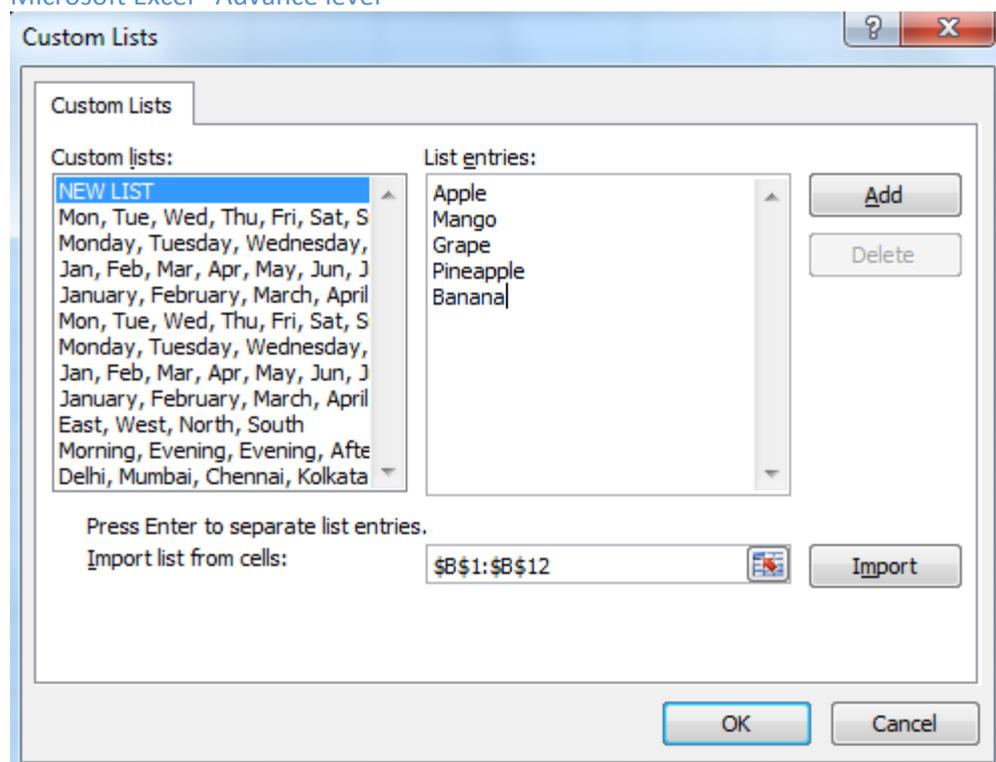
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	A	B	C			A	B	C	
1		January			1		January		
2					2		February		
3					3		March		
4					4		April		
5					5		May		
6					6		June		
7					7		July		
8					8		August		
9					9		September		
10					10		October		
11					11		November		
12					12		December		
13			December		13				
14					14				

The series can also be customized, **click Office Button ⇌ Excel Options ⇌ Popular**

Category ⇌ Click Edit Custom Lists. When the Custom Lists window appears, select

“New List” in the column on the left (it will probably already be selected) and type your whole list in the column on the right. You can also import a list you have already typed into cells by clicking on the import symbol, selecting the list you wish to import, and pressing “Enter.” Click “OK,”



CTRL + PAGE_DOWN	Moves to NEXT SHEET in a Workbook
CTRL + PAGE_UP	Moves to PREVIOUS SHEET in a Workbook
CTRL + ARROW_KEYS	Jumps to the last populated cell in that direction, Moves to the end of the range
CTRL + SHIFT + ARROW_KEYS	Extends the selection of cells to the last nonblank cell in the same column or row from the active cell
CTRL + D	Fill Down command
CTRL + R	Fill Right command
ALT + TAB	Toggles/Switches between different/same applications
CTRL + TAB	Toggles/Switches between different/same applications
ALT + F4	Closes all Opened Files
CTRL + F4	Closes only Current File

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Chapter 3: Inserting and Deleting Row/Column

Column is always inserted to the left hand side of the selected cell. Row is inserted above the selected cell.

4 WAYS TO INSERT ROWS/COLUMNS

- Click the single Cell >> Right Click & choose **INSERT** >> In Insert Dialog Box, Select **Entire Column/Entire Row** >> Click **OK**
- GoTo **Cells Group** from **Home Tab** >> Click down arrow from **Insert Icon** >> Select **Insert Sheet Rows/ Insert Sheet Columns**
- Select the **column Heading/Row Heading** >> Right Click & choose **INSERT** (if column heading is selected Column is inserted, if row heading is selected Row is inserted)

Shortcut Key

- *Select a Single Cell >> CTRL "+" (in PC), CTRL + SHIFT "+" (Laptop) >> From Insert Dialog Box, Press "C" to Insert Column & Press "R" to Insert Row.*
- *Select Column/Row Heading >> CTRL "+" (in PC), CTRL + SHIFT "+" (Laptop)*

4 WAYS TO DELETE ROWS/COLUMNS

- Click the single Cell >> Right Click & choose **DELETE** >> In Delete Dialog Box, Select **Entire Column/Entire Row** >> Click **OK**
- GoTo **Cells Group** from **Home Tab** >> Click down arrow from **Delete Icon** >> Select **Delete Sheet Rows/ Delete Sheet Columns**
- Select the **column Heading/Row Heading** >> Right Click & choose **Delete** (if column heading is selected Column is deleted, if row heading is selected Row is deleted)

Shortcut Key

- *Select a Single Cell >> CTRL "-" (minus)" >> From Delete Dialog Box, Press "C" to Delete Entire Column & Press "R" to Delete Entire Row.*
- *Select Column/Row Heading >> CTRL "-(minus)"*

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INSERT ALTERNATE COLUMNS/ROWS

Use CTRL Key and select multiple Columns/Rows one by one then Press CTRL + “Plus(+)”. It inserts columns next to each selected column.

F4 – Repeats last action

F4 can also be used to insert Alternate Columns/Rows after inserting a row/column

Changing Cell Background, Text Color, Bold, Italic, Underline is encountered by excel as actions and these task can be repeated using **shortcut key F4**. Only the recent action will be repeated. To make all this into single action, *Right Click & Choose **Format Cells** >> Now Change **Cell***

Background, Text Color, Bold, Italic, Underline** >> Click **OK. Now use F4, which performs all the actions done in format cells dialog box into a single action.

Chapter 4: Cell References & Ranges

CELL REFERENCES

When we copy a reference from one cell to another, it gets updated automatically.

	A	B	C	D
1				
2		=A2		=C2
3				
4				

Example: we have a reference in cell B2 as A2 and we copy the same to D2, it automatically updates itself to B2.

Types of Cell Reference:

There are three types of cell references as mentioned below;

1. Relative cell references
2. Absolute cell references
3. Mixed cell references

Relative Reference

A relative reference will change column and row numbers as it is copied to other cells. When you fill formulae to another cell the row and column references will be updated to the corresponding row and column. By default, Excel creates relative cell references in formulas.

If you drag the formula in Row, row reference will change. If you drag the formula in Column, Column reference will change.

Example: $F2=D2 * E2$ (D2 refers to the Column D & Row 2, E2 refers to Column E & Row 2). When this formula is copied in F5, Excel will have the

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updated references to the current row number $F5=D5 * E5$

Absolute Reference

When you want to freeze a cell reference or you want a reference to change when you copy a formula, you can use absolute cell references. To make a cell reference absolute, we place **dollar (\$)** sign before the column name and row number of the reference.

An absolute reference is one that does not change the cell references when copied to another cell. If you refer to a cell in a certain row and column and then copy that reference elsewhere, it will still refer to exactly the same cell or range.

“\$” symbol is use lock the cell reference.

\$A\$1	Absolute column and Absolute Row
A\$1	Relative Column and Relative Row
\$A1	Absolute Column and Relative Row
A1	Relative Column and Relative Row

Mixed Cell references

However at times you may want to freeze only the row or column in a cell reference. Example: \$A1/A\$1- Where both Absolute and Relative references are used.

F4 is the Shortcut Key to introduce Dollar Sign (\$) or to lock a cell reference.

For example, if you enter =A1 to start a formula, pressing F4 converts the cell reference to =\$A\$1. Pressing F4 again converts it to =A\$1. Pressing it again displays =\$A1. Pressing it one more time returns to the original =A1. Keep pressing F4 until Excel displays the type of reference that you want.

Outside Formula >> Repeats Last Action

Inside Formula >> Introduces “\$” sign (Absolute Reference)

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FREQUENTLY USED EXCEL SHORTCUTS

F2	Edit Cell
F4	To lock the cell or Range
CTRL + D	Fill Down
CTRL + R	Fill Right
CTRL + SHIFT + Arrow Keys	To select the Range or Table
CTRL + 1	Format cells
ALT + ENTER	Move to the Next Line in the same cell

RANGES

Range: Selection of more than one cell/ group of cells is known as Range.

Define Range: [Starting Cell Address: Ending Cell Address] **or** [Top Left Corner Cell Address: Bottom Right Corner Cell Address]. E.g. A1: B10 (A1-> Starting Cell Address, B10 -> Ending Cell Address)

Note: If a range is very large you can find the Starting cell Address from the Name Box without scrolling the screen.

3 different methods to select range

1. Using Mouse

- ❖ **Single Range:** Click & Drag from the Starting Cell address to Ending cell Address
- ❖ **Multiple & Non-Adjacent Ranges:** To Select 2nd, 3rd, 4th.... range Press **CTRL Key**, then click & drag from the starting cell address to ending cell address for each range.

2. Using Keyboard

- ❖ **Single Range:** Use SHIFT Key + Arrow keys to select range.
- ❖ **Multiple & Non-Adjacent Ranges:** Press SHIFT + F8, then use SHIFT + Arrow keys to select each non-adjacent range

3. Directly Enter Range Address in the Cell

NAMED RANGES

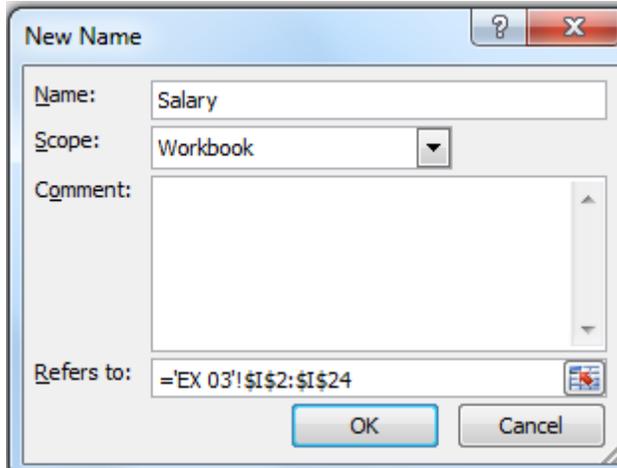
Many a times, when we write formulas/functions, we need to select a range of cells. However, doing this can be time consuming. Excel allows us to use a cell or a group of cells by its name. eg. Sum (Basic) sounds much easier compared to sum(H2:H101). However to do this, first we would need to name the range H2:H10 as Basic.

Creating a Named Range

2-ways you can create Named Ranges

- Select the range and type the name in the Name Box.
- Select a range >> Choose **Formula Tab** >> Under **Defined Names** >> Click **Define Name** >> **New Name Dialog Box** is opened >> Enter the Name you wish to give and **Click OK**

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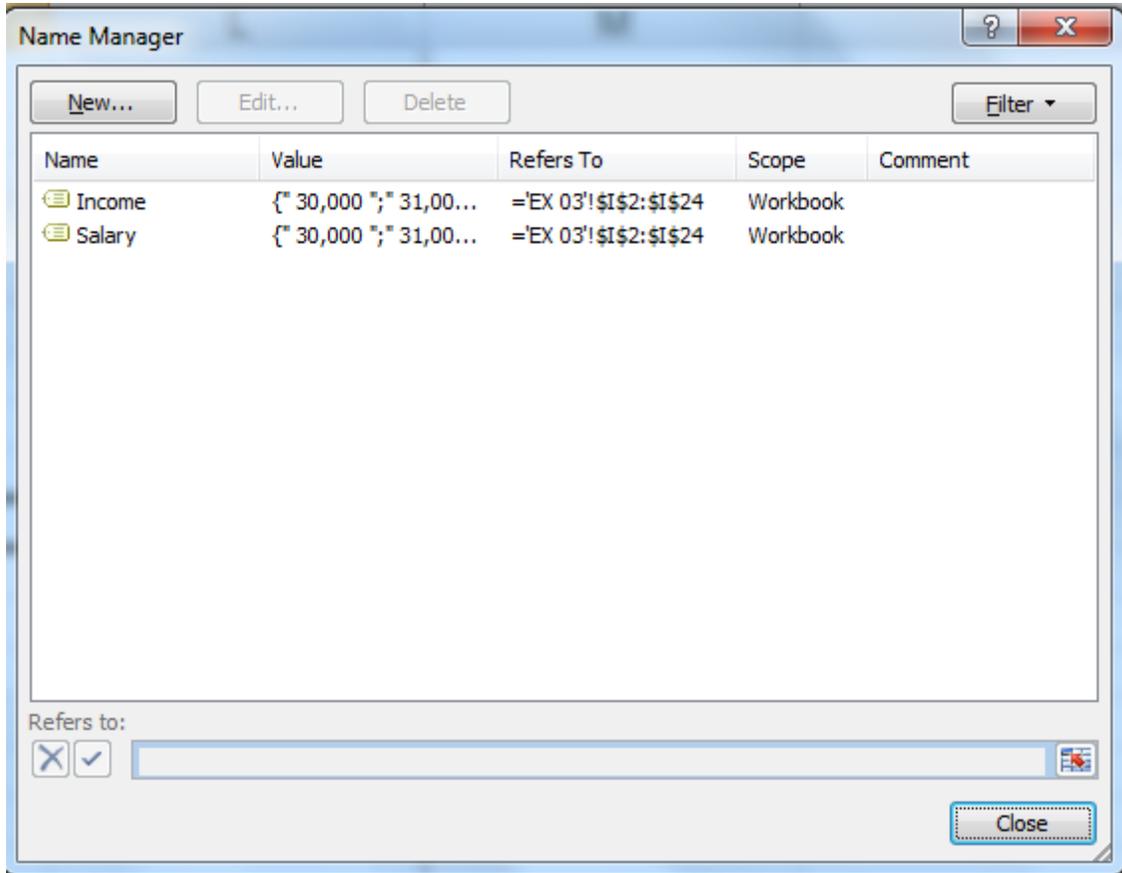
Now you may use the name instead of the range anywhere in the workbook. The named range can be used.

<code>=SUM(Sa</code>	Total Salary	<code>=SUM(Salary)</code>
<code>SUM(number1, [number2], ...)</code>	Highest Salary	<code>=MAX(Salary)</code>
<code>Salary</code>	Lowest Salary	<code>=MIN(Salary)</code>
	Number of Employees	<code>=COUNT(Salary)</code>

To Edit/Delete Named Range

Choose **Formula Tab** >> Under **Defined Names** >> Click **Name Manager** >> **Name Manager Dialog Box** is opened >> Select the Named Range and then Perform Either Edit/Delete as per your wish.

Shortcut: Press **Ctrl + F3** to get a Name Manager dialog box



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Chapter 5: Working with Formulas & Functions

FORMULAS

Formula is a calculation that can be entered into any cell and consists of a series of numbers (or cell references) and mathematical operators.

Formulas are equations that perform calculations on values. A formula starts with an equal sign

(=). It contains at least two operands and at least one operation.

- Begin EVERY formula with an equal sign (=).
- After entering a formula, press ENTER to display the formula result.

Select the cell in which the formula result has to be displayed in. Formula can be constructed directly into that cell or in the formula bar. *Close bracket is not mandatory for single Formula and it's Mandatory for Nested Formulas.*

Excel will calculate based on **BODMAS RULE** (Brackets, Order/Index (or Power), Division, Multiplication, Addition & Subtraction)

Example: If you type $2+3*4$ in Excel end result will be **14** (Based on BODMAS RULE). To **add 2&3 first and then multiply with 4**, Use Brackets $(2+3)*4$ and follow BODMAS RULE result will be **20**.

Operand in a formula can be functions, references or constants. Operators may be any arithmetic or logical operator

3 Ways of constructing formulas

- If you know the range, directly type the range in the cell. (=C2+D2)
- If you don't know the range, Select the range by using mouse.

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- You can also use Arrow Keys to select the range. *(In certain places you cannot use mouse to select the previous cell because the existing cell content will overwrite the previous cell. In such cases only arrow keys can be used to select the range)*

AutoFill the Formulas

AutoFill helps you fill in formulae quickly once you have constructed one in a cell. In order to AutoFill, select the cell with the formula. Using fill handle simply drag your formula down the column (or across the row). AutoFill will change the cell references accordingly. (E.g.: If the formula in A3 is =A1+A2, when you drag that formula over to B3 then the formula becomes =B1+B2.).

Note: The cell references can also change automatically when you copy and paste a formula

AutoComplete the Formulas

AutoComplete Option displays the list of formulas when you start to type a formula. To select the formulas from the AutoComplete List press **TAB Key** or Use **down Arrow Key** to select the next formula from the AutoComplete List.

Array Formulae

	A	B	C	D
1				
2	Product	Quantity	Price	Total Sales
3	Pen	25	100	=B3*C3
4	Box	15	132	=B4*C4
5	PenDrive	7	1250	=B5*C5
6	Software	16	1245	=B6*C6
7	Calculator	3	730	=B7*C7
8	Total Sales	=SUM(B3:B7*C3:C7)		=SUM(D3:D7)

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	A	B	C	D
1				
2	Product	Quantity	Price	Total Sales
3	Pen	25	100	2500
4	Box	15	132	1980
5	PenDrive	7	1250	8750
6	Software	16	1245	19920
7	Calculator	3	730	2190
8	Total Sales	35340		35340

In a normal scenario we would individually calculate the amount for each product and add them to get the answer. However, to make things simpler we may also use Array Formulae.

=SUM (B3:B7*C3:C7)

and **Press CTRL + SHIFT + ENTER** to fill the array Formula {=SUM(B3:B7*C3:C7)} in the selected cell.

Note: Curly Brackets ({} around the formula indicates that it is applied to an array.

FUNCTIONS

Functions are prewritten formulas. Functions differ from regular formulas in that you supply the value but not the operators, such as +, -, *, or /. For example, you can use the SUM function to add. When using a function, remember the following:

- Use an equal sign to begin a formula.
- Specify the function name.
- Enclose arguments within parentheses. Arguments are values on which you want to perform the calculation. Arguments can be either numbers or cell reference having values to be added.

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- Use a comma to separate arguments.

The syntax of a function is as follows

=Function_name(argument1,argument2,...)

Example:

=SUM (A10, B5: B10, 50, 37)

You don't need to memorize all the functions available and the arguments necessary for each function. Instead, you can use Sigma sign (Σ) which is used for sum or click on the drop down for some more function like Max, Min, etc. Excel prompts you for required and optional arguments.

Shortcut: You can use "Alt + =" key combination to get the sum function on your worksheet.

AutoComplete List

After you type the first letter of a function name, the AutoComplete list appears. There are two ways to pick functions from the AutoComplete List:

- Double –Click to pick the function from the list.
- Use Arrow keys to select the function and then use tab key to pick the function from the list.

Once you pick the function from the AutoComplete List. Excel will complete the function name and enter the first parenthesis.

FUNCTION	DESCRIPTION	SYNTAX	EXAMPLE
Sum	To find the total of the selected range	=SUM(RANGE)	=SUM(A1:D13)
Average	To find the Average	=AVERAGE(Range)	=AVERAGE(A1:A10)
Max	To find the Maximum, Highest & Larger Value	=MAX(Range)	=MAX(A1:A10)
Min	To find the Minimum, Smallest & Lower Value	=MIN(Range)	MIN(A2:E100)
count	Counts the number of cells that contain numbers & Counts within specified Range	=COUNT(Range)	=COUNT(A1:A20)
CountA	Counts the number of cells that are not empty in a range/ Counts both text & Numbers.	=COUNTA(Range)	=COUNTA(A1:A20)
CountBlank	Counts empty cells in a specified range of cells.	=CountBlank(Range)	=CountBlank(A1:A20)

IF Function

IF Function will check the logical condition and displays result, if the condition is true, it display true result or it display false result.

You can use the IF function to evaluate a condition. The **IF** function returns different values depending on whether the condition is true or false.

The syntax for the IF function is:

If(logical_test, [Value_if_true], [Value_if_false])

The first argument is the condition that you want the function to evaluate. The

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second argument is the value to be returned if the condition is true and the third argument is the value to be returned if the condition is false. Second and third parameters are optional.

Example:

=IF(D3>1250,"Good","Bad")

If the condition is TRUE, would return "Good"

If the condition is FALSE, would return "Bad"

	A	B	C	D	E	F	G
1							
2	Product	Quantity	Price	Total Sales			
3	Pen	25	100	2500	=IF(D3>1250,"Good","Bad")		
4	Box	15	132	1980	IF(logical_test, [value_if_true], [value_if_false])		
5	PenDrive	7	1250	8750			
6	Software	16	1245	19920			
7	Calculator	3	730	2190			
8	Total Sales	35340		35340			

NESTED IF

A Nested IF function is when a second IF function is placed inside the first in order to test additional conditions.

The syntax for the Nested IF function is:

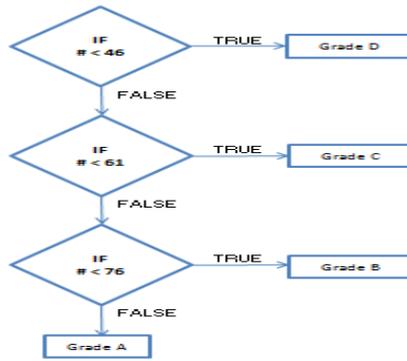
IF(logical_test, [Value_if_true], IF(logical_test, [Value_if_true], [Value_if_false]))

Examples:

Suppose you want to assign letter grades to numbers referenced by the name Average Score. See the following table.

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Range	Grade
0 - 45	D
46 - 60	C
61 - 75	B
> 75	A



You can use the following nested IF function:

=IF(J2<=45,"D",IF(J2<=60,"C",IF(J2<=75,"B","A")))

	I	J	K	L	M
1	Total	Average	Result		
2	318	63.60	B		
3	110	36.67	D		
4	353	70.60	B		
5	132	44.00	D		
6	289	57.80	C		
7	309	61.80	B		
8	143	47.67	C		
9	334	66.80	B		
10	401	80.20	A		
11	369	73.80	B		

Tips: You can nest up to sixty four levels of If functions in a single formula.

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IF with AND

AND is a logical function in excel which returns the combined truth value of two arguments or conditions. It returns false only when all the conditions listed are false.

Syntax:

AND(logical1, logical2...)

If there is a scenario where we have two conditions whose combined truth value would decide the output of an IF function, we can use AND with IF.

Syntax using AND with If

If(AND(Condition1, condition2....), True, False)

Example:

Criteria for target customers: Male, have children, and younger than 45 years of age

We would use the following formula.

=IF(AND(D4="M",F4="Yes",E4<45),"Target","NotTarget")

	A	B	C	D	E	F	G
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							

Name	State of Residence	Gender	Age	Children	Target Customer
Customer 1	AP	F	21	Yes	NotTarget
Customer 2	TN	M	30	Yes	Target
Customer 3	KA	F	32	Yes	NotTarget
Customer 4	TN	M	30	No	NotTarget
Customer 5	KL	F	45	Yes	NotTarget
Customer 6	TN	M	25	No	NotTarget
Customer 7	AP	M	40	Yes	Target
Customer 8	KA	M	46	Yes	NotTarget

Criteria for target customers: Male, have children, and younger than 45 years of age

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IF with OR

OR is a logical function in excel which returns False if any one of the arguments returns false.

Syntax

OR(logical1, logical2...)

If there is a scenario where we have two conditions of which any one of the conditions is false, the if should return the value in the false argument, we may use OR with IF.

Syntax using OR with If

If(OR(Condition1, condition2....), True, False)

Example:

Criteria for target customers: should live in either TN or AP

We would use the following formula.

```
=IF(OR(C17="TN",C17="AP"),"Target","NotTarget")
```

G17 fx =IF(OR(C17="TN",C17="AP"),"Target","NotTarget")

	A	B	C	D	E	F	G
14							
15							
16							
17		Customer 1	TN	F	21	Yes	Target
18		Customer 2	AP	M	50	Yes	Target
19		Customer 3	KA	F	32	Yes	NotTarget
20		Customer 4	TN	M	30	No	Target
21		Customer 5	KL	F	45	Yes	NotTarget
22		Customer 6	TN	M	25	No	Target
23		Customer 7	AP	M	40	Yes	Target
24		Customer 8	KA	M	46	Yes	NotTarget
25							
26							

Criteria for target customers: should live in either TN or AP

IF with NOT

Not is a logical function used to negate an argument.

Syntax

NOT(logical)

If we have a condition which when not satisfied we ne formula, we may use NOT with

IF Syntax using NOT with If

If(NOT(Condition), True, False)

Example:

Criteria for Quarterly Bonus is given to everyone except people not met goal.

We would use the following formula.

=IF(NOT(H5="Not Met"),H5*\$\$2,0)

	I5	=IF(NOT(H5="Not Met"),H5*\$I\$2,0)	
	G	H	I
1			
2	Salary		\$ 34,000.00
3			
4	Was Goal Met?	Bonus Status(Quaterly)	
5	10%	3400	
6	Not Met	0	
7	Not Met	0	
8	50%	17000	
9	60%	20400	

COUNT IF

Excel COUNTIF formula/function can only check to see if specified cells meet one condition. The Countif function is a specialized form of an array formula which is great when you have a single criteria. It does not work well when you have multiple criteria.

COUNTIF Syntax

=countif(range,criteria)

COUNTIF	Counts the number of cells within a range that meet the specified criteria.	=COUNTIF(Range,Criteria) =COUNTIF(B1:B10,"Male")
----------------	--	---

Example:

=COUNTIF(A1:A20,">20") Which would COUNT all numeric cells in the range **A1:A20** where values were greater than 20.

Note the criteria argument is in the form of a number, expression, or text that defines which cells will be counted. For example, criteria can be expressed as 20, "20", "=20", ">20", "East", "E*"

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TEXT Functions

Function	Description	Syntax	Example	Result
UPPER	Converts the text to all uppercase.	=UPPER (text)	=UPPER(A1)	ACTIVE EDU
LOWER	Converts the text to all lowercase.	=LOWER (text)	=LOWER(A1)	active edu
PROPER	Converts the text to Proper Case (the first letter in each word is capitalized)	=PROPER (text)	=PROPER(A1)	Active Edu
LEN	Returns the number of characters in the arguments/cell	=LEN (text)	=LEN(A1)	10
TRIM	Removes all leading and trailing spaces and replaces internal strings of multiple spaces by a single space	=TRIM (text)	=TRIM(A2)	Technologies
CLEAN	Removes all nonprinting characters from a string. "garbage" These characters often appear when you import certain types of data.	=CLEAN (text)	=CLEAN(A1)	

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CONCATENATE	To join two or more words or text together without space.	=CONCATENATE(text1, text2)	=CONCATENATE(A1,A2)	Active EduTechnologies
CONCATENATE	To join two or more words or text together with space.	=CONCATENATE(text1, " ",text2)	=CONCATENATE(A1," ",A2)	Active Edu Technologies
&	Does some activity of concatenate function (without space)	=text1&text2	=A1&A2	ACTIVE EDU Technologies
LEFT	Returns the leftmost characters from a text value	=LEFT(text,[num_char])	=LEFT(A1,5)	Activ
RIGHT	Returns the rightmost characters from a text value	=RIGHT(text,[num_char])	=RIGHT(A1,7)	Ive Edu
MID	Extracts a substring from a string (starting at any position)	=MID(text, start_position, [num_char])	=MID(A1,2,4)	ctiv
Cell A1 has text "Active Edu" Cell A2 has text "Technologies"				

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Date-Related Functions

END DATE – START DATE -To find the number of days between two dates

Function	Description	Syntax	Example
DATE	Returns the serial number of a particular date	= DATE (year, month, day)	=DATE(2008,9,13) returns 39704, serial number represents 13/09/2013
DAY	Returns the day from a date	=DAY(DATE CELL)	=DAY(A1) Returns 3 for the date 03/09/1989
MONTH	Returns the month from a date	=MONTH(DATE CELL)	=MONTH(A1) Returns 9 for the date 03/09/1989
YEAR	Returns the year from a date	=YEAR(DATE CELL)	=YEAR(A1) Returns 1989 for the date 03/09/1989

DATEDIF: Calculates the number of days, months, or years between two dates.

=DATEDIF (Start_Date, End_Date, Unit_Code)

Unit_Code	Returns	Example
"Y"	The number of complete years in the period.	=DATEDIF(A1,A2,"Y")
"M"	The number of complete months in the period.	=DATEDIF(A1,A2,"M")
"D"	The number of days in the period.	=DATEDIF(A1,A2,"D")
"MD"	Remaining days after completed months	=DATEDIF(A1,A2,"MD")
"YM"	Remaining months after completed years	=DATEDIF(A1,A2,"YM")
"YD"	The difference between the days of start_date and end_date. The years of the dates are ignored.	=DATEDIF(A1,A2,"YD")

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Chapter 6: VLOOKUP

V-lookup is a function that searches for a value (lookup value) in the leftmost column of a given database (table array) and returns a value in the same row from a column you specify.

Vlookup is used to Match data & Retrieve the result. A *lookup formula* essentially returns a value from a table by looking up another related value.

Syntax:

VLOOKUP (lookup_value,table_array,col_index_num,range_lookup)

The VLOOKUP function's arguments are as follows:

- **Lookup value** is the value to be found in the first column of the table. It is the value that you are looking for. Lookup_value can be a value, a reference or a text string.
- **Table array** is the table of information in which data is looked up. It is the source database. Use a reference to a range or a range name.
- **Col_index_num** is the column number in table_array from which the matching value must be returned.
- **Range lookup** is a logical value that specifies whether you want VLOOKUP to find an exact match or an approximate match. If Range Lookup is set as FALSE or 0, VLOOKUP will find an exact match. If exact match is not found, the error value #N/A is returned. If it is set to TRUE or non-zero, it finds the nearest value that is less than lookup value.

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	A	B	C	D	E	F	G	H
1		Test Cricket - Top 100 Batsman (Nov - 2010)						
2	ID	Ratings	Name	N.Code	Nations			
3	1	891	S.R. Tendulkar	IND				
4	2	874	K.C. Sangakkara	SL				
5	3	819	V. Sehwag	IND				
6	4	807	S. Chanderpaul	WI				
7	5	807	D.P.M.D. Jayawardena	SL				
8	5	791	J.H. Kallis	SA				
9	7	787	G.C. Smith	SA				
10	8	767	V.V.S. Laxman	IND				
11	9	766	R.L. Taylor	NZ				
12	10	762	A.B. de Villiers	SA				
13	11	748	T.T. Samaraweera	SL				
14	12	745	H.M. Amla	SA				
15	13	738	M.J. Clarke	AUS				

N.Code	Nations
IND	India
SL	Sri Lanka
WI	West Indies
SA	South Africa
NZ	New Zealand
AUS	Australia
ENG	England
PAK	Pakistan
BAN	Bangladesh

In the above figure lookup value is in Column D; table array G3:H12; Column index number is 2.

Example: =VLOOKUP(D3,G3:H12,2, FALSE)

The lookup table resides in a range that consists of three columns (G3:H12). Because the column index number for the VLOOKUP function is 2, the formula returns the corresponding value in the second column of the lookup table. Note that an exact match is required.

Excel's *data validation* feature enables you to set up certain rules that dictate what can be entered into a cell. ***Restrict the cells to accept only certain value based on condition.***

Data Validation is a process which restricts the users from entering invalid data for individual cells or cell ranges. It limits the data entry to a particular type, such as whole numbers, decimal numbers or text and sets limit on valid entries.

For example, you may want to limit data entry in a particular cell to whole numbers between 1 and 12. If the user makes an invalid entry, you can display a custom message.

Chapter7: Data validation

SETTING DATA VALIDATION

- Select the Cells to which Data validation to be applied
- Click **Data Tab >> Data Tools Group >> Click Data Validation >> Data Validation Dialog Box** is Opened
- On the Settings tab, Data Validation dialog box enables you to specify a wide variety of data validation criteria. From the Allow list, select a data validation option.
 - **Any Value:** Selecting this option removes any existing data validation.
 - **Whole Number:** The user must enter a whole number. For example, whole number greater than or equal to 100.
 - **Decimal:** The user must enter a number. For example, greater than or equal to 0 and less than or equal to 1.
 - **List:** The user must choose from a list of entries you provide.
 - **Date:** The user must enter a valid date. For example, greater than or equal to January 1, 2007, and less than or equal to December 31, 2007.
 - **Time:** The user must enter a valid time. For example, greater than 12:00 p.m.
 - **Text Length:** The length of the data (number of characters) is limited. For example, length of the entered data be 1 (a single alphanumeric character).
 - **Custom:** You must supply a logical formula that determines the validity of the user's entry (a logical formula returns either True or False). You can enter the formula directly into the Formula control or you can specify a cell reference that contains a formula.

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- From the Data list, select the operator you want. Then complete the remaining entries
- Enter the Input Message if required in Input Message tab. Enter the error message if required in Error Alert tab. Click OK to set the validation rule and close the dialog box.

USAGE OF DATA VALIDATION

Creating a List

A list is an effective form of data validation where the user is allowed to select an option from a drop-down list which is built-in to the cell. The data source may be written manually by the user or selected from the same sheet.

Select a blank cell >> Select **Data Tab** >> Select **Data Validation** from **Data Tool** group >> Select **List** from the Allow Drop-Down>> In Source, select the cell with values, or type the data with comma. If the source is from a different sheet, create a named range for all the values and use the name in the Source field for Data Validation.

	A	B	C	D	E	F	G	H	I	J
1	Data Validation									
2										
3										
4	Exercise	Using Data Validation, restrict the values in A8 to the values in the list on the DEMO List								
5										
6										
7	Account	Date	Amount		DEMO List					
8		14-02-2002	100		Cash					
9					AR					
10					Prepays					
11					Inventory					
12					Fixed Assets					
13					AP					
14					Accruals					
15					Debt					
16					Equity					
17					Sales					
18					COGS					
19					SG&A					
20										
21										

Data Validation

Settings | Input Message | Error Alert

Validation criteria

Allow: List

Data: between

Source: =\$E\$8:\$E\$19

Ignore blank

In-cell dropdown

Apply these changes to all other cells with the same settings

Clear All | OK | Cancel

Allow Numbes within Limits

In the Allow box, click **Whole Number or Decimal**. >> In the Data box, select the type of restriction you want. For example, to set upper and lower limits, select Between. >> Enter the minimum, maximum, or specific value to allow.

Allow Dates or Times within a Timeframe

In the Allow box, select **Date or Time**. >> In the Data box, select the type of restriction you want. For example, to allow dates after a certain day, select greater than. >> Enter the start, end, or specific date or time to allow.

Allow Text of a Specified Length

In the Allow box, click **Text Length**. >> In the Data box, click the type of restriction you want. For example, to allow up to a certain number of characters, click less than or equal to. >> Enter the minimum, maximum, or specific length for the text.

Chapter 8: Security & Protection

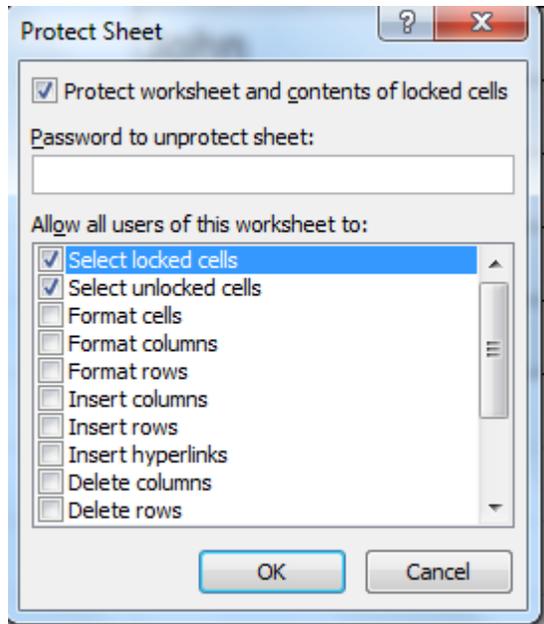
To prevent a user from accidentally or deliberately changing, moving, or deleting important data from a worksheet or workbook, you can protect certain worksheet or workbook elements, with or without a password. You can remove the protection from a worksheet as needed.

- Protecting worksheet elements
- Using a password to control access to protected elements
- Protecting the structure and windows of a workbook

Protecting Worksheet

- Home Tab >> Under Cells Group >> Click Down arrow below Format Button >> Click Protect Sheet from the Drop-Down >> Protect Sheet Dialog Box Display >> Type Password & Click Ok.
- Review Tab >> Under Changes Group >> Click Protect Worksheet >> Protect Sheet Dialog Box Display >> Type Password & Click Ok.

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Protecting Part of a Worksheet

When you protect an entire worksheet, all the cells in the worksheet are locked by default. This means that users cannot make changes to any cell in the worksheet. To allow the users to make changes to particular cells only, you must unlock the cells manually before protecting the worksheet.

This will allow the users to change data only in the unlocked cells. You can hide the formula before protecting the sheet, so that it is not visible to the user after sheet level protection is activated. To password protect only part of a worksheet perform the following steps.

STEP 1: Select the range of cells to be accessible >> Right Click & Select Format Cell >> Format Cells Dialog Box is Opened >> Activate Protection Tab >> UnCheck —Locked >> Click OK

Follow Step 2 only if you wish to hide your formulae or proceed to step 3.

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STEP 2: Select the range of cells with formulae to hide from users >> Right- click and Select Format Cells >> Format Cells Dialog Box is Opened >> Activate Protection Tab
>> Check Hidden locked >> Click OK

Follow step 3 to password protect the worksheet.

STEP 3: Click Review Tab >> In the Changes ribbon group, click Protect Sheet to open the Protect Sheet dialog box >> Type a password and click OK.

Protecting a Workbook

Workbook level protection can be done in two ways:

- Workbook **structure** (prevent changes like worksheets being moved, deleted, inserted, hidden, unhidden, or renamed)
- Workbook **window** (ensure that a workbook's window is the same size and position each time it is opened.)

To protect a workbook,

Click Review Tab >> In the Changes ribbon group, click Protect Workbook >> Protect Workbook dialog box appears >> Select either or both the options (Structure or Windows) >> To prevent others from removing workbook protection, you can set a password >> Click OK.

Password Protecting a File

File can also be password such that any user would be asked for a password before he is able to view or modify your file.

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To do this, follow the steps below,

Click on office- button > Save as >> In the save as dialog box, click on tools > General options >> Set the password to open or modify as the case may be >> Save the file.

Now the file is password protected

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website: www.activeedu.in, www.activeexcel.com

Chapter 9: Sorting & Filtering in Excel

DATA SORT

Sorting rearranges the rows based on the contents of a particular column.

Note: If your spreadsheet contains formulas, be careful when using the sort feature. Formulas rely on cell references to perform their calculations and moving the data with the sort feature may destroy these references.

To sort a list of data:

- Select a single cell in the column containing the data you want to sort.
- Select the **Home** tab, Under the **Editing** group, press the **Sort and Filtering** button and select the order you want your data to be sorted.

Note: If you select an entire column, Excel will sort only that column and will mismatch the data contained in the other columns.

Single Level Sorting

Sorting done with respect to the contents of one column

- ☐ Select any cell in the column by which you want to sort >> Activate the Data Tab >> In the Sort & Filter group, click the Sort Ascending or Sort Descending button >> This will sort the entire database.

Multi-Level Sorting

Sorting done with respect to the contents of multiple columns. Data sort can be done with any number of columns.

STEP 1: Open Sort Dialog Box

Sort Dialog Box can open by three ways:

Sort Dialog Box can open by three ways:

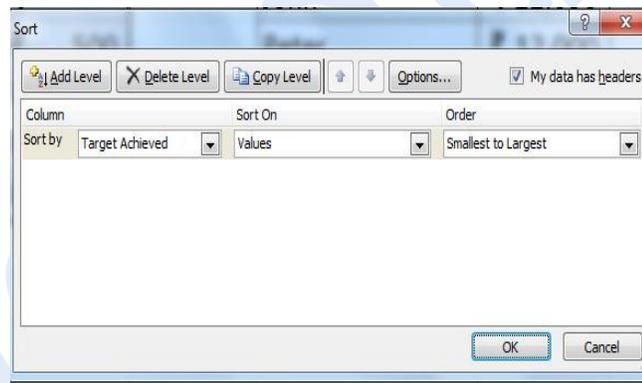
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☐ Choose Data Tab >> In the Sort & Filter Group, >> Click Sort Button >> Sort dialog box is opened.

- Choose Home Tab ⇔ Editing
⇔ Sort & Filter ⇔ Custom Sort.

- Right-click any cell in the table and choose Sort ⇔ Custom Sort from

the shortcut menu. In the Sort Dialog box, click the Add Level button to insert any number of



STEP 2: Add Levels to Sorting

- From the Sort by list, select the column heading of the column by which you want to sort the list, and then select a sorting order. All records will be sorted first based on the column and the sorting order you selected.
- Then click “Add Level” and select the next column by which you want to sort. If necessary, add more “Then by” fields by clicking “Add Level.”
- When all “Then by” fields are complete, click OK.

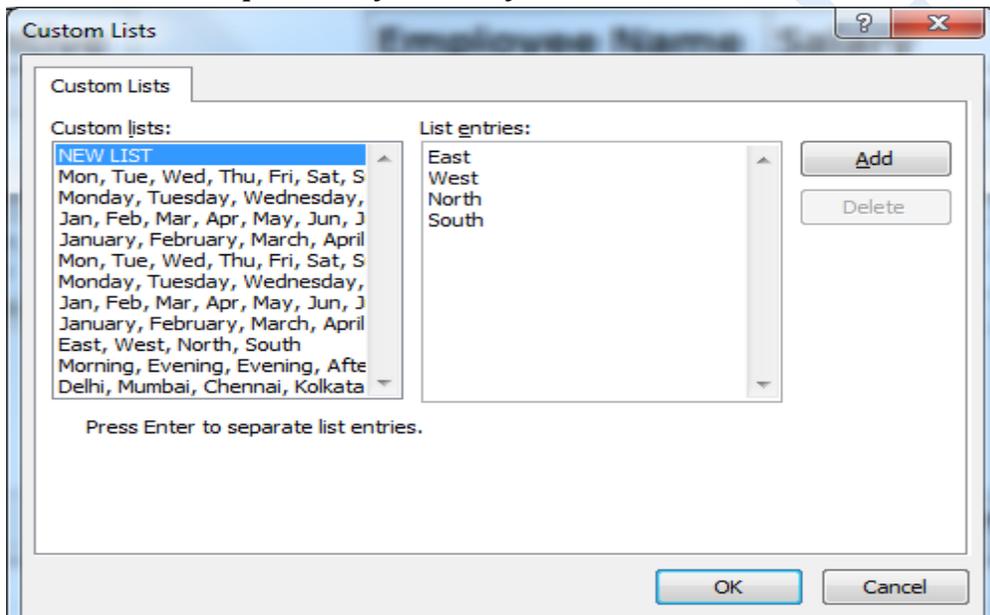
Customized Sorting

When we sort the data, region wise, it sorts either in the ascending or descending order. However, if you want to sort your data in a

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customized order, for Example East, West North, and South, we would need to perform a custom sort.

- Select any cell in the list >> Data Tab >> In Sort & Filter Group, click sort >> Sort Dialog Box is opened >> From the Sort By list, select the column heading of the column by which you want to sort the list >> Select Custom List under order drop down Menu >> Custom List Dialog Box gets opened >> Type the sequence by which you wish to sort >> Click Add



DATA FILTER

Filtering a table refers to displaying only the rows that meet certain conditions (The other rows are hidden). Unlike sorting, filtering doesn't just reorder the list. It actually hides the rows or columns containing data that do not meet the filter criteria you define. Excel has an **AutoFilter** feature that makes it very easy to extract data.

To use the AutoFilter:

- Click on any cell in your spreadsheet.
- Select the **Home** tab, Under the **Editing** group, press the **Sort and Filtering** button and select the **Filter** button.

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- Drop-down menus will appear next to each cell heading. Clicking on any drop-down menu will provide you with options for sorting or filtering.

For example:

If you want only **Chennai & Bangalore Region** to be displayed under **Area Column**, Place the check mark next to Chennai & Bangalore alone, click OK.

You can filter a table using any number of columns.

For example, you may want to see only the **Chennai** listings in which the **“Type”** is **Single Family**. Just repeat the operation using the **“Type”** column. Tables will display only the rows in which the **“Area”** is Chennai and the **“Type”** is Single Family.

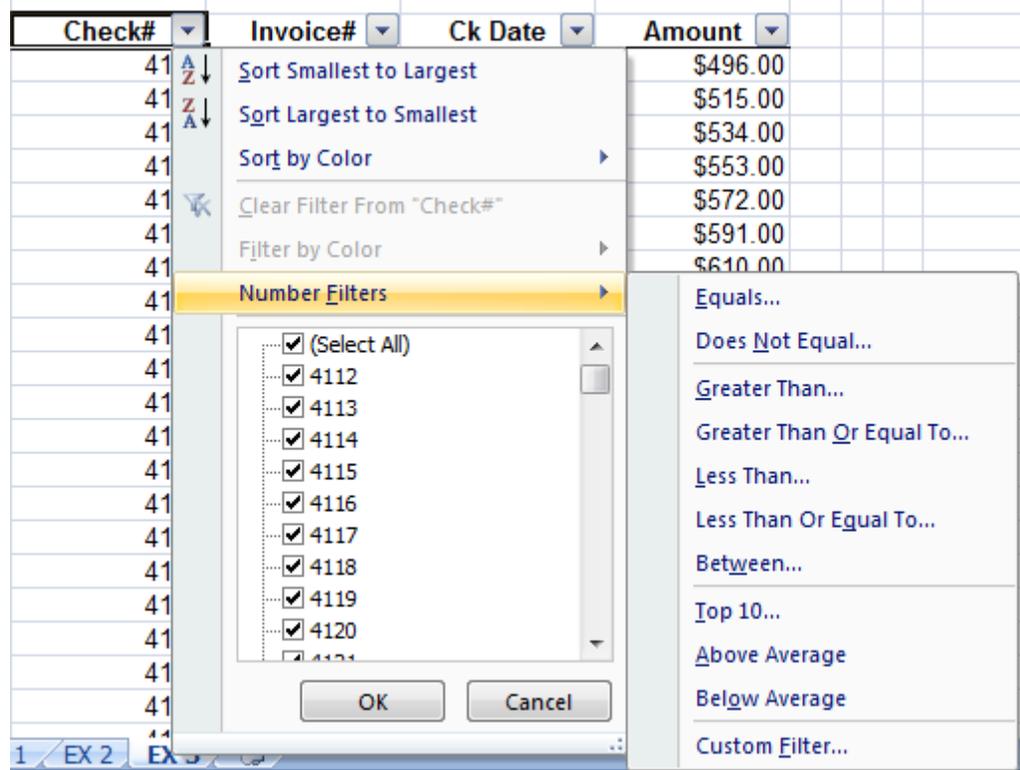
Number, Text or Date Filters

Once you add filter to data, you also get a Number, Text or Date Filter Option in each fields depending on the type of data in that column. These can be used for field specific filtering like —Begins with, —Contains, —Greater than, —Lesser than, —Between for number fields or —Before, —After for date fields.

From the drop-down list of the column for which you want to create criteria, choose Text Filters, Date Filters or Number Filters, click on Custom to display the Custom AutoFilter dialog box.

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Microsoft Excel –Advance level



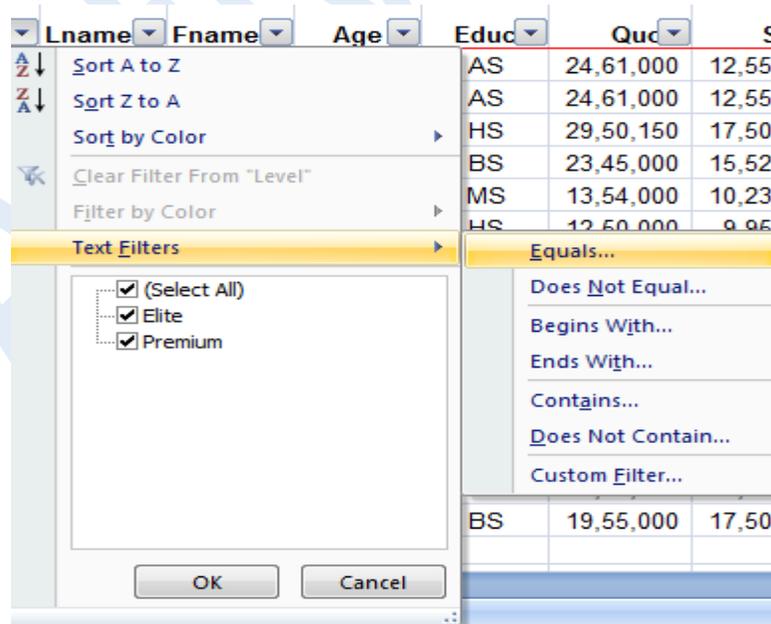
The screenshot shows an Excel spreadsheet with columns: Check#, Invoice#, Ck Date, and Amount. A context menu is open over the 'Amount' column, and the 'Number Filters' option is selected. A sub-menu is displayed with the following options:

- Sort Smallest to Largest
- Sort Largest to Smallest
- Sort by Color
- Clear Filter From "Check#"
- Filter by Color
- Number Filters**
 - Equals...
 - Does Not Equal...
 - Greater Than...
 - Greater Than Or Equal To...
 - Less Than...
 - Less Than Or Equal To...
 - Between...
 - Top 10...
 - Above Average
 - Below Average
 - Custom Filter...

The 'Number Filters' sub-menu is also open, showing a list of values with checkboxes:

- (Select All)
- 4112
- 4113
- 4114
- 4115
- 4116
- 4117
- 4118
- 4119
- 4120

Number Filter



The screenshot shows an Excel spreadsheet with columns: Lname, Fname, Age, Educ, Quc, S. A context menu is open over the 'Level' column, and the 'Text Filters' option is selected. A sub-menu is displayed with the following options:

- Sort A to Z
- Sort Z to A
- Sort by Color
- Clear Filter From "Level"
- Filter by Color
- Text Filters**
 - Equals...
 - Does Not Equal...
 - Begins With...
 - Ends With...
 - Contains...
 - Does Not Contain...
 - Custom Filter...

The 'Text Filters' sub-menu is also open, showing a list of values with checkboxes:

- (Select All)
- Elite
- Premium

Data Filter

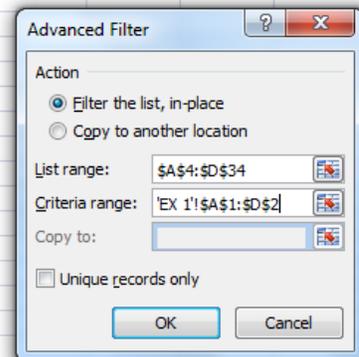
Text Filter

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Advanced Filter

While using Advanced Filter, we need to have a criteria range and a list range. List range is your database. To create a criteria range, we need to make a copy of the column header of the database.

	A	B	C	D	E	F	G	H
1	Concert Date	Location	Item	Sales				
2		Hartford, CT	CD's					
3								
4	Concert Date	Location	Item	Sales				
5	20-08-2006	Hartford, CT	Mugs	£ 99.00				
6	21-08-2006	Hartford, CT	CD's	£ 100.00				
7	22-08-2006	Hartford, CT	T-shirts	£ 101.00				
8	23-08-2006	Springfield, MA	Mugs	£ 102.00				
9	21-08-2006	Hartford, CT	CD's	£ 100.00				
10	25-08-2006	Springfield, MA	T-shirts	£ 104.00				
11	26-08-2006	Wallingford, CT	Mugs	£ 105.00				
12	27-08-2006	Wallingford, CT	CD's	£ 106.00				
13	28-08-2006	Wallingford, CT	T-shirts	£ 107.00				
14	21-08-2006	Hartford, CT	CD's	£ 100.00				
15	30-08-2006	Amherst, MA	CD's	£ 109.00				
16	31-08-2006	Amherst, MA	T-shirts	£ 110.00				
17	01-09-2006	Mansfield, MA	Mugs	£ 111.00				
18	02-09-2006	Mansfield, MA	CD's	£ 112.00				
19	03-09-2006	Mansfield, MA	T-shirts	£ 113.00				
20	31-08-2006	Amherst, MA	T-shirts	£ 110.00				
21	05-09-2006	Boston, MA	CD's	£ 115.00				
22	06-09-2006	Boston, MA	T-shirts	£ 116.00				
23	31-08-2006	Amherst, MA	T-shirts	£ 110.00				
24	08-09-2006	Hartford, CT	CD's	£ 118.00				
25	09-09-2006	Hartford, CT	T-shirts	£ 119.00				
26	10-09-2006	Springfield, MA	Mugs	£ 120.00				
27	11-09-2006	Springfield, MA	CD's	£ 121.00				
28	12-09-2006	Springfield, MA	T-shirts	£ 122.00				
29	31-08-2006	Amherst, MA	T-shirts	£ 110.00				



- Data Tab >> In Sort & Filter Group >> Click Advanced >> Advanced Filter Dialog box is displayed
- In the List Range box, select the cell range you want to filter. The cell range must include the associated column headings.
- In the Criteria Range box, select the cell range that contains your criteria.

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Chapter: 10 Pivot Table

Excel pivot tables are very useful and powerful feature of MS Excel. They can be used to summarize, analyze, explore and present your data. Pivot Tables are interactive tables that allow the user to group and summarize large amounts of data in a concise, tabular format for easier reporting and analysis.

A **Pivot Table** is an interactive worksheet based table that quickly summarizes large amounts of data using the format and calculation methods you choose. It is called a Pivot Table because you can rotate its row and column headings around the core data area to give you different views of the source data. As source data changes, you can update a pivot table. It resides on a worksheet thus; you can integrate a Pivot Table into a larger worksheet model using standard formulas.

Grouping and summarizing large amount of data into a simple report

First identify the common field column and draw sample report & create the pivot.

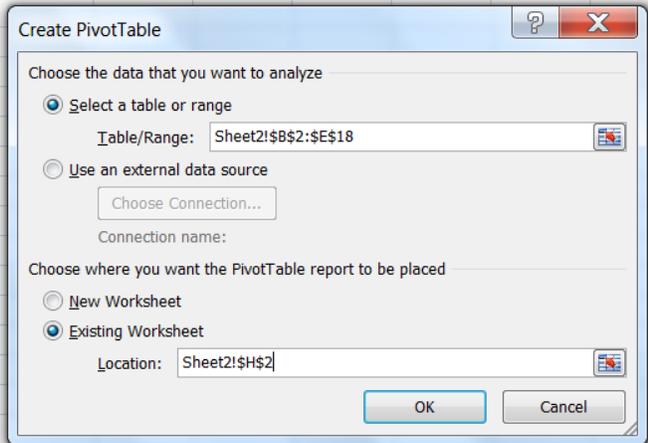
Group the data to create monthly, quarterly and yearly reports. Shortcut for date grouping (F12)

Steps to create pivot table

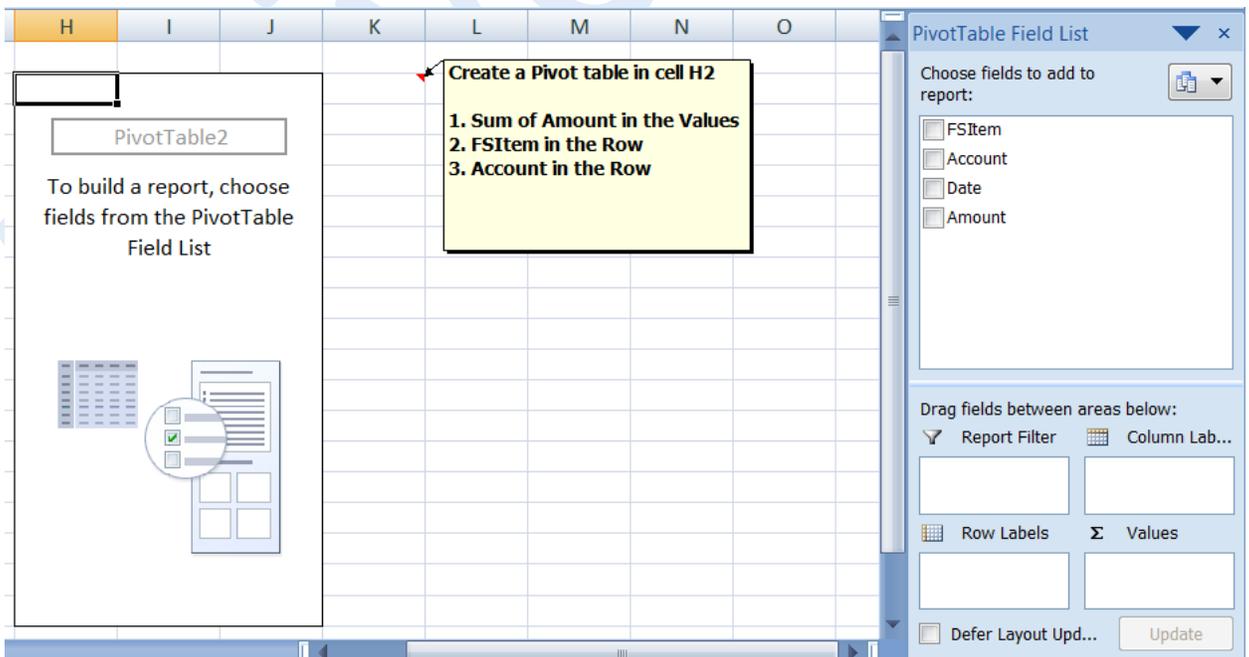
- ❑ To insert a new pivot table in to your spreadsheet, go to Insert ribbon and click pivot table icon and select pivot table option.
- ❑ Excel will display a pivot table wizard where you can specify the table range & choose the target location where pivot table has to be placed. Select **“New worksheet”** option and your pivot table will be placed in newly created worksheet or select **“Existing Worksheet”** with location to place pivot table in the current worksheet.

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	A	B	C	D	E	F	G	H	I	J	K	L
1												
2		FSItem	Account	Date	Amount							
3		Cash	Cash-WF	01-01-2002	3,214							
4		Cash	Cash-BofA	02-01-2002	1,234							
5		Inventory	WIP	03-01-2002	3,278							
6		Inventory	WIP	04-01-2002	35,791							
7		Inventory	FG	05-01-2002	68,751							
8		Inventory	FG	06-01-2002	6,651							
9		FixedAssets	FF	07-01-2002	64,321							
10		FixedAssets	Computers	08-01-2002	654							
11		FixedAssets	Computers	09-01-2002	321							
12		Cash	Cash-WF	01-02-2002	3,214							
13		Cash	Cash-BofA	02-02-2002	1,234							
14		Inventory	WIP	03-03-2002	3,278							
15		Inventory	WIP	04-02-2002	35,791							
16		Inventory	FG	05-03-2002	68,751							
17		Inventory	FG	06-02-2002	6,651							
18		FixedAssets	FF	07-03-2002	64,321							



The pivot report UI is very intuitive and sandbox like. To make powerful analysis, all you have to do is drag and drop fields in to the pivot table grid area. The pivot report is divided in to header and body sections. You can drag and drop the fields you want in each area.

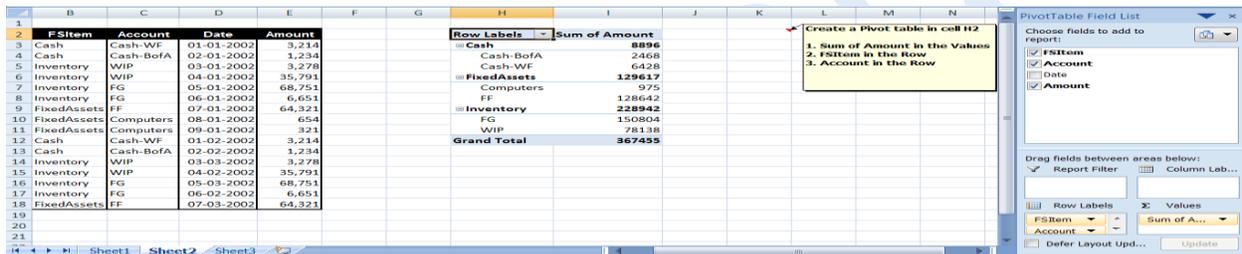


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Examining PivotTables

The data on which a PivotTable is based is called the Source Data. Each column represents a field or category of information, which you can assign to different parts of the PivotTable to determine how the data is arranged. We can add four types of fields Report Filter, Row Labels, Column Labels & Σ Values.

- Pivot Table is created as shown below.



Row Labels	Sum of Amount
Cash	8896
Cash-BofA	2468
Cash-WF	6428
FixedAssets	129617
Computers	975
FF	128642
Inventory	228942
FG	150804
WIP	78138
Grand Total	367455

Using “Group” feature of Excel, you can easily create monthly or quarterly reports from daily data. Right Click Pivot Table and **Untick Subtotal**, subtotal will not be displayed in the pivot table. Report Filter is used to simplify the Pivot further.

Create a Graph using Pivot Data

You can use a PivotChart to graphically display data from a PivotTable. A single PivotChart provides different views of the same data .When you create a PivotChart, the row fields of the PivotTable become the categories, and the column fields become the series.

To create a PivotChart,

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- ☐ Select any cell within a PivotTable >> Click Chart in the Tools group on the Options tab >> Select options for the chart >> click OK.

You can also create a new PivotChart and PivotTable at the same time by selecting a cell in the source data, and selecting PivotChart from the PivotTable list in the Tables group on the Insert tab.

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Chapter:11 Conditional Formatting

Conditional formatting enables you to apply cell formatting selectively and automatically, based on the contents of the cells.

Conditional formatting allows you to change font style, underline, and color. Using conditional formatting, you can also apply strike-through as well as borders and shading to the cells. However, you cannot change the font or the font size of the contents in the cell.

For example, you can set cell background color as Red for Negative values & Green for Positive values.

To apply a conditional formatting

- Click the cell you want to format.
- Click **Home Tab >> Styles >> Conditional Formatting**
- Then use any of the choices below as per your need,
 - **Highlight Cell Rules:** Rules include highlighting cells that are greater than a particular value, between two values, contain specific text string, or are duplicated.
 - **Top Bottom Rules:** Rules include highlighting the top 10 items, the items in the bottom 20 percent, and items that are above average.
 - **Data Bars:** Applies graphic bars directly in the cells, proportional to the cell's value.
 - **Color Scales:** Applies background color, proportional to the cell's value.
 - **Icon Sets:** Displays icons directly in the cells. The icons depend on the cell's value.
 - **New Rule:** Enables you to specify other conditional formatting rules, including rules based on a logical formula.
 - **Clear Rules:** Deletes all the conditional formatting rules from the

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- **Manage Rules:** Displays the Conditional Formatting Rules Manager dialog box, in which you create new conditional formatting rules, edit rules, or delete rules.

For Example: Value greater than equal to 50 should have cell colour as green, then choose

Highlight Cell Rules and click **More Rules. New Formatting Rule** dialog Box is opened. Choose **greater than or equal** to from the drop down. Then Click **Format** button **Format Cells dialog box opens**. In the **Fill tab** select the **background colour as Green** and Click **OK**.

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Chapter 12: Page setup & Print

When you want a hard copy of worksheet data, Excel gives you many tools for choosing how that printout will look. Swapping the page orientation between portrait and landscape, scaling the size of the printout and choosing whether to print worksheet gridlines are but a few of the options that can be set. Excel automatically assigns headers and footers to your worksheet data, but you can change or enhance these very easily.

Print Preview

Before sending anything to print, it is always a good idea to preview what you will see on the page. Print Preview shows you what the worksheet will look like when it is printed.

To access **Print Preview**: Select **Office Button >> Print >> Print Preview**

Page Setup

When you want to alter headers and footers, orientation and so on, you use the Page Setup dialog box. You can open **Page Setup dialog box** by clicking dialog box launcher from the **Page Setup Group**, under **Page Layout Tab**. There are four tabs within this dialog; each gives one aspect of your printout.

☐ **PAGE TAB**

- o **Orientation**: Use this setting to swap between portrait and landscape printouts.
- o **Scaling**: The size of your printout can be increased or decreased manually.
- o **Paper Size**: Size of the paper in which you wish to print the content can be selected.

☐ **Margin Tab**: The Margins tab lets you set top, bottom, left and right margins and center your data horizontally and vertically on the page.

☐ **Header & Footer Tab**: use this setting to include the Header/Footer in your print out. You can also add Picture instead of text to header & footer.

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- ☐ **SHEET TAB:** Use this tab to set a print area
- o **Print Area-** Use this to set the range of cells that you want to print. If you do not set a Print Area, Excel will print all the data on the active worksheet.
 - o **Print Titles:** *Rows to Repeat at Top, Columns to Repeat at Left.* When your printouts run to several pages you may have column and row headings that you would like to print on each new page. Excel allows you to specify any number of rows and columns to repeat when you have a multi-page printout.

Print – Collate

By default, Excel will print one copy of the item you have sent to print. You can print multiple copies by changing the Print dialog settings. When you print multiple copies of a document, Excel lets you choose whether the copies are collated (Excel prints each whole document before it starts on the next copy) or uncollated (Excel prints however many copies you have requested of each page).

Chapter 13: Macros

You can use macros to automate complex and repetitive tasks. A Macro is a series of instructions that execute automatically with a single command.

For example, you can create a macro to format a worksheet or to print a report. You can use the macros already available in Excel or create your own from the Developer Tab. To activate the Developer Tab, Click on Office Button, Excel Option and enable "Show Developer Tab in Ribbon".

A macro is a set of instructions that tells Excel what to do. Macro is a saved sequence of commands that can be stored and then recalled with a single command or keyboard stroke. Macro does what Excel cannot do.

For example: Function to find the reverse of number

D	E	F	G
	Numbers	Reverse	
		14	41
		534	435
		45	54
		75	57
		23	32
		744	=reverse(E12)

Recording a Macro

Just as a Tape Recorder can be used to record sounds which can be played back later, so the Macro Recorder can record your actions into a Macro.

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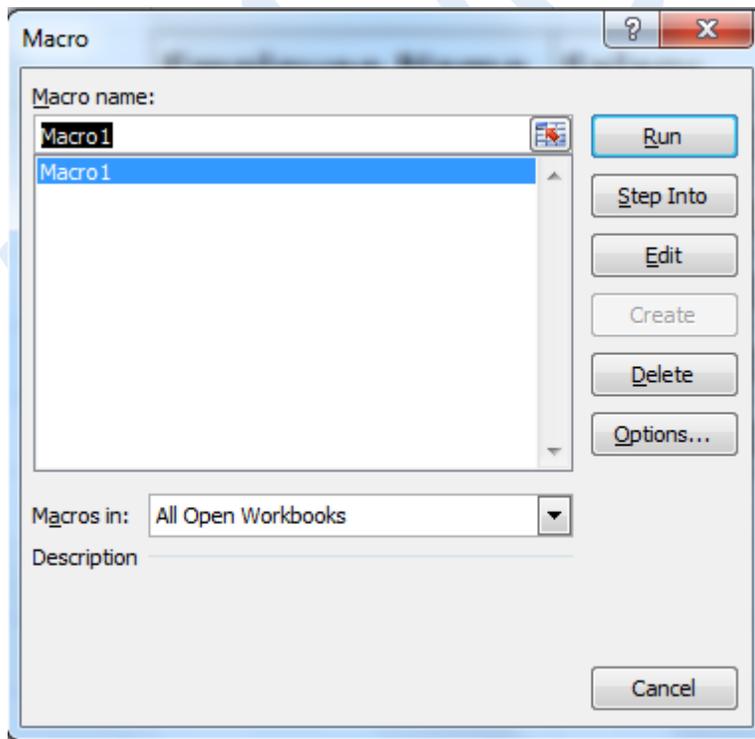
Excel records the sequence of steps.

When you're finished, click the Stop Recording button on the status bar.

- ❑ This Workbook – Records a macro in the current workbook
- ❑ New Workbook – Records a macro in the new workbook. Macros recorded in this workbook are available when new workbook is open.
- ❑ Personal Macro Workbook – Macros are recorded in personal.xlsm. The personal macro workbook is available when you start excel.

Running a Macro Using Menu Commands

To run a macro, click the Play Macro button in the status bar to open the Macro dialog box, as shown in diagram. Select the macro of your choice, and click the Run button



Macros that are contained on all currently open workbooks are displayed in

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the list. To run a macro, select macro from the list and click Run. The Macro dialog box provides several additional capabilities:

Step: Click this button to run the macro step by step. Stepping through a macro is useful for debugging purposes

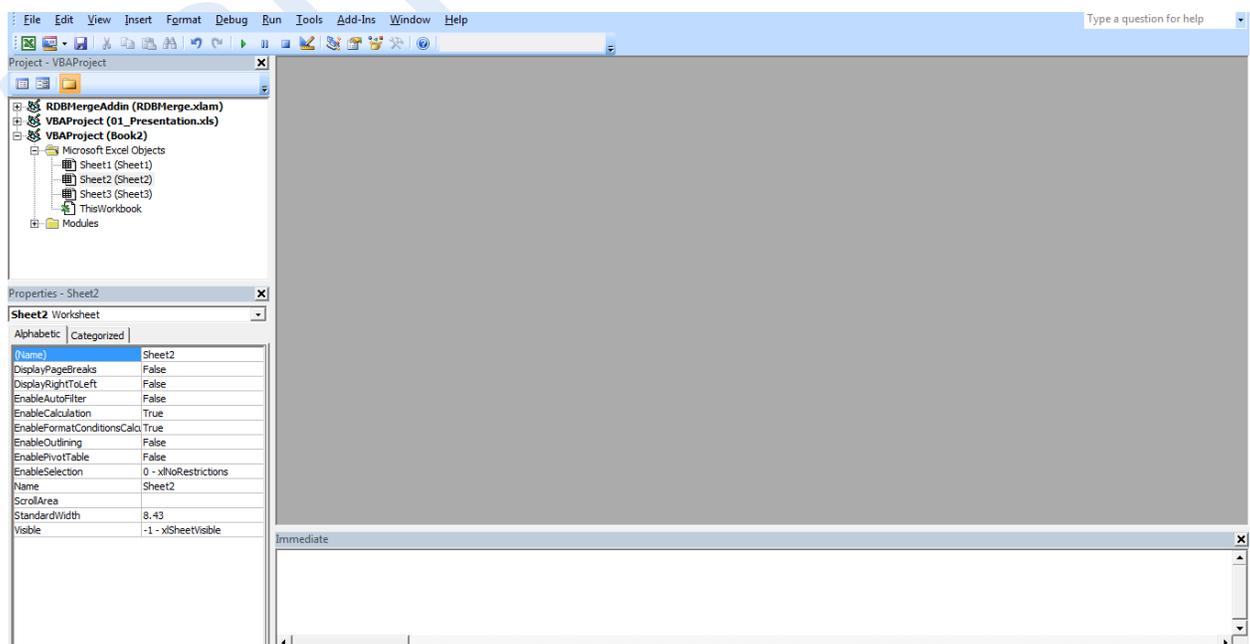
Edit: The module containing the macro is activated, and the macro is displayed in the visual basic editor for editing purposes.

Delete: Deletes the selected macro. (You can also delete macros by activating the module and clearing the macro.)

Options: Lets you assign a shortcut key, add a command to Excel's Tools menu that runs the macro, and change the description of the macro.

Viewing the recorded Macro

As mentioned in the table above, from the macro dialog box, we can edit or step into a macro's code. Clicking on either of these options opens the visual basic editor. The visual basic editor layout is shown in **figure**.



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The above image shows the editor when book1 is open. If you have macros in this workbook, you would see an additional folder in the project explorer called "Modules". All macros in a file are stored in Modules. These modules are by default named as Module1, Module2 etc.

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