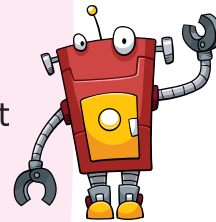# Formulae, Functions and More in Excel

Learning in this chapter

- ❀ Cell, Cell address, Cell Range
- ❀ Formulae in MS Excel
- ❀ Types of cell referencing
- ❀ Functions in MS Excel
- ❀ Entering functions in a worksheet
- ❀ Sorting of Data in MS Excel
- ❀ Filtering Data in MS Excel
- ❀ Conditional Formatting in MS Excel

In the previous class you have learnt to format data and worksheet structure.

In this chapter you will be learning how to perform calculations in Microsoft Excel using formulas and functions.

FORMULAE IN MS EXCEL

Formula in MS Excel Cell, Cell address, Cell Range

Excel Formulae are the expressions that are used for doing calculations on the worksheet data. Excel formula are very much similar to mathematical formulae, but they are written a bit differently.

1. Every Excel formula begins with an equal to sign (=).
2. The '=' sign can be followed by a number, cell address, cell range, mathematical operator or function and so on.

Here, is an example of an Excel formula with some of the basic elements it may contain:

$$= A1 + B1 * 7$$

① ② ③   ④

1. Equal to sing (=)
2. Cell addresses (A1 and B1)
3. Mathematical operators (+ and*)
4. Number (7)

Remember

■ The equal to (=) sign tells Excel that the characters that come next constitute a formula. If you do not enter the equal (=) sign, Excel will treat your entry as text and your calculations will fail.

TEXT FORMULA

Text formula is used to join two on more text values. To create a simple text value, enclose it in double quotes and use the ampersand symbol (&) to link text values to one another. Follow the steps given below:

- Enter two string type values in cell A1 and B1, say Science in A1 and Technology in B1.
- Enter the formula = "Science" & "Technology" in cell C1 and press Enter.
- It will display Science Technology in cell C1.

Remember

- The process of linking text value in a sequence within a formula is called Concatenation.
- If we want a space between the two words, leave a space before the closing quotation mark.
  For example: "Hello "&"Friends"
  Hello Friends

Numeric formula

Numeric formula use operators that are used to do some kind of calculation or comparison. There are three types of operators to be used in formula; (i) Arithmetic (ii) Relational (iii) Logical.

Out of these relational and logical operators are used for comparisons Arithmetic operators are use for mathematical calculations. In this chapter we will study about only Arithmetic operators.

CELLS, CELL ADDRESS AND CELL RANGE

A cell as you know is a rectangular area on a worksheet formed by the intersection of a row and a column.

A cell address identifies the location of the cell in the worksheet. The address of a cell is written using its column letter and row number. For example:

- A cell in column C and Row 3 will have the address C3.
- A cell in column D and Row 11 is addressed as D11.
- A cell in column F and Row 2 is addressed as F2.

A cell address in MS Excel is also called as the cell reference.

A cell range, as you know is a rectangular region on a worksheet consisting of two more cells. The address of a cell range is generally given by the address of the first and the last cell in the range separated by a colon (:). For example, the address A1 : B4 refers to all the cells from A1 to B4.

Activity

Tick (✓) the correct answer in the box :

1. Which of these is not a correct cell reference?

   (a) Al ☐   (b) H16 ☐   (c) 5B ☐

2. How will you address all cells from cell A5 to G5?

(a) A5, G6 ☐   (b) A5:G6 ☐   (c) G6, A5 ☐

3. In Excel, each formula must begin with:

(a) = sign ☐   (b) %sign ☐   (c) <sign ☐

4. Which is not an operator in Ms Excel?

(a) >= ☐   (b) @ ☐   (c) * ☐

Remember

- Each worksheet in MS Excel 2010 holds 1,048,576 rows and 16384 columns.

Arithmetic Operators in MS EXCEL

Arithmetic operators used in the formula help us to perform calculations on worksheet data. Some of the operators that we frequently use for writing formula are listed in the following table along with some examples.

Operator	Example	Purpose
+ (Addition)	=A1+A2	Adds values in cells A1 and A2
– (Subtraction)	=A1–A2	Subtracts values in cells A1 and A2
* (Multiplication)	=B2*B3	Multiplies values in cells B2 and B3
/ (Division)	=D1/D2	Divides D1 by D2 and returns the quotient
^ (Exponent)	=A1^A2	Calculates exponents when the value in A1 is raised to the power A2
( ) (Parenthsis)	=(A1+A2)*2	First adds the values of A1 and A2 and then multiplies the sum by 2.

Apart from these, many other operators are also used in Excel formulae such as colon (:), semicolon (;) percent (%), less than (<), greater than (>), Equal to (=), greater than or equal to (>=) and so on. However, in this chapter we will learn only about the operators listed in the table.

Remember

- Excel formulae can comprise only of numbers. For example the formula '=128*98' calculates the product of 128 an 98 and displays it in the cell.

ORDER OF OPERATORS

When performing calculations in a formula, Excel follows certain rules of precedence.

1. Excel first calculates expressions within parenthesis ( ) in a formula.

2. It then calculates exponentiation (^).
3. Multiplication (*) and Division (/) have the same order of precedence in Excel. When both multiplication and division are present in formula, Excel evaluates the operators from left to right.
4. Addition (+) and Subtraction (–) also have the same precedence order. When both are present in a formula, they are evaluated from left to right.

Remember

- When you are unsure of the order in which Excel calculates, use parenthesis- even if they are not necessary. The use of parenthesis also makes the formula easier to read.

USING THE FORMULAE

We can enter a formula in a cell by either double clicking in the cell and typing the formula directly into it or typing it in the formula bar after selecting the cell. Let us now learn to create a simple formula in a worksheet by using the steps given below:

1. Open the Ms Excel program and type the data in the cells from A1 to F1 as shown. Notice that cell F2 is blank, but it should contain the sum of the marks in the cells B2, C2, D2 and E2.
2. Double click in the cell F2 and type out the formula as shown (=B2+C2+D2+E2). Then click on the Enter button.
    .... The required sum will be displayed in the cell F2.
3. To apply the formula to other cells, point to the fill handle of the cell containing formula (F2) and drag down to enclose cells upto F6.
4. The formula will get copied to all the enclosed cells, and the total will appear in all the cells (F3, F4, F5 and F6).
5. Save the file by clicking on the Save Button and then entering details as required in the Save As dialog box.

SUM	✗ ✓ fx	=B2+C2+D2+E2

	A	B	C	D	E	F	G
1	Name	Maths	Science	English	Hindi	Total	
2	Anu	54	87	66	64	=B2+C2+D2+E2	
3	Rahul	67	56	77	98		
4	Raj	45	45	88	78		
5	Shweta	98	89	99	87		
6	Vivek	90	90	66	76		
7							

F2	fx	=B2+C2+D2+E2

	A	B	C	D	E	F
1	Name	Maths	Science	English	Hindi	Total
2	Anu	54	87	66	64	271
3	Rahul	67	56	77	98	
4	Raj	45	45	88	78	
5	Shweta	98	89	99	87	
6	Vivek	90	90	66	76	
7						

Remember

- The result of a formula is displayed in the cell. Whey you select the cell containing the result, the formula is displayed in the formula bar.

TYPES OF CELL REFERENCING

The cell address in the formula is known as the cell reference. Cell referencing means how a cell address behave in the formula when it is copied from one cell to the other.

There are three types of cell referencing in Ms Excel.

    1. Relative referencing   2. Absolute referencing   3. Mixed referencing

Every cell has a name known as its address which is made up of a column part and s row part. For example A1, B2 etc. where A, B, denotes the column part and 1, 2 denotes the Row Part.

It is called relative when both parts are not fixed. It is called absolute when both parts are fixed. It is called mixed when one of them is fixed.

1. **Relative Referencing :** Relative referencing is the normal way of addressing the cells like A2, B2 C4 and so on. It allows us to change the cell addresses in formula when it is copied to some other row or column. The cell addresses change according to the row or column where the formula is copied.

Relative Referencing

Notice, the change in cell reference changing on each row due to relative reference.

For example, if the formula in D2 is = B2+C2, when the formula is copied vertically down notice that the cell address in the formula had automatically changed.

2. **Absolute Referencing :** Sometimes we may not want Excel to change the cell address when we copy a formula to another cell. In such situations we can use the absolute addressing method.

In absolute addressing, the address of a cell is made fixed by putting a $ sing, before both the column letter and the row number of the address of a cell. For example, D2 is relative address, whereas $D$2 is an absolute address.


Absolute referencing

In the above example, you see that, D2 has the for formula rows, there is no change in the cell address.

3. **Mixed Referencing :** Mixed referencing is when one part of the call address is relative and the other is absolute. So, either the column or the row number should have a $ along with it.

Mixed Referencing

For example, $B2 is a mixed cell reference with absolute column and relative row and C$2 is a mixed cell reference with relative column and absolute row.

DO YOU KNOW?
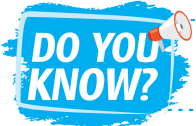
By default, formula use relative referencing.

FUNCTIONS IN MS EXCEL

A Functions in MS Excel is a predefined formula that allows us to perform a particular kind of computations like adding and finding the sum of cell values, finding the average of cell values and so on.

Just like a formula, a function also begins with an equal to (=) sign, and has two main parts- the Function name and the arguments, that are included within a parenthesis ( ). The sum Function given alongside helps us to understand the different parts of a function.

Equal to sign | Beginning parenthesis | Ending parenthesis

= Sum (A2 : E6)

Function name | Arguments
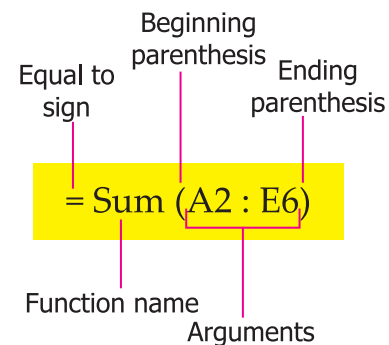
Arguments are the values that are used by the function to perform manipulations and/or calculations.

Arguments can be given to a function in the form of both values (numbers) and cell addresses. For example, Sum(14,144,236), Sum(A1,A2,B6) and Sum(A2:E6) are all perfectly valid arguments, for the sum function.

SOME COMMON EXCEL FUNCTIONS

Excel supports hundreds of functions that can be classified into five main categories, namely Mathematical functions, Statistical functions, Text functions, Date and Time Functions and Logical functions. The following table lists some simple and commonly used Excel functions.

Function/Syntax	Purpose	Example
Sum( )	Finds the sum of values given to it as the argument.	=Sum(5,9) returns 14
Average( )	Finds the average of values given in the argument.	=average(5,7,10, 30) returns 13
Min( )	Returns the smallest value from amongst the arguments.	=min(6,10, 18) returns 6
Max( )	Returns the largest values from amongst the arguments.	= max(6,8,18) returns 18
Count( )	Returns the number of cells in a cell range (given as argument) that contain number values.	=count(A2:A9) may returns 8
Exp(num)	It returns the natural logarithm raised to the power of a number.	=exp(2) returns 7.389056099
Int(number)	It rounds a number to the nearest integer.	=int(19.375) returns 19
Len(text)	It counts the number of characters in the text.	=len(computer) returns 8
Mod(number, division)	It returns the remainder when a number is divided by another number.	MOD(27, 4) returns 3
Power(number power)	It returns the result raised to the power of a number.	Power(2, 3) returns 8
Product(range or numbers)	It multiplies the numbers in a given range of cells.	Product(A1:A5) may returns 120
Quotient(Number, denominator)	It returns the quotient when a number is divided by another number.	Quotient(68, 8) returns 7
Round(number, Num digits)	It rounds a number to the specified number of digits.	Round(19.3754, 2) returns 19.38

ENTERING FUNCTIONS IN A WORKSHEET

We can enter a function in a cell either manually or by using the Auto Sum drop down menu.

Entering a Function Manually

To type a function into a cell manually follow these steps :

1. Select the cell where you want to enter the formula.
2. Click in the formula bar, and type the '=' Sign.
3. Type the name of the function without leaving any spaces.
4. Enter the required arguments (B2 : F2) within parenthesis ( ).
5. Click on the Enter (✓) button.

Enter Button   Function

Calculation for result

.... The value returned by the function will be displayed in the cell.

Using Autosum Menu to Enter Function

We can use the AutoSum function to sum up the values in a range of cells on a worksheet. Let us learn how.

1. Select the cell where you want to enter a formula.
2. Click on the drop down arrowhead button situated besides the AutoSum button.

    ... A drop down menu will appear listing the functions that are commonly used for doing calculations in a worksheet.
3. Click to select a required function from the list.
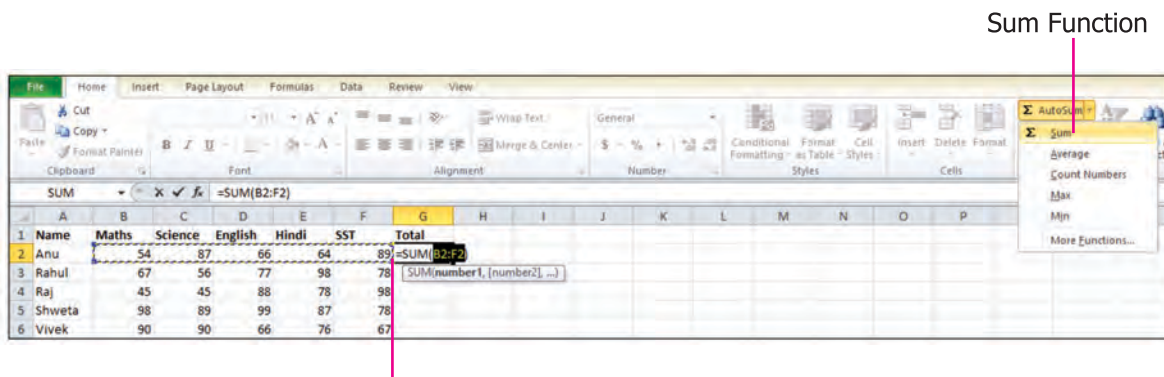
Sum Function

Function and affected range selected

... The function will automatically appear in the selected cell.

4. Press the F2 key to make the cursor appear in the cell if you want to change the arguments given with the function.

5. Change the arguments as per your requirements.

6. Press the Enter key or click on the Enter button.

    ... The result will be displayed in the cell containing the formula.

Calculated Result

SORTING OF DATA IN MS EXCEL

Sorting is the process of arranging data into a meaningful order so that we can analyze it more effectively. Excel allows us to sort data in many ways. Some common ways are given below :

1. Sorting textual data into alphabetical order (from A to Z or from Z to A).
2. Sorting numeric data (from smallest to largest or from largest to smallest).
3. Sorting data date-wise (from oldest to newest or from newest to oldest).
4. Sorting data on the basis of multiple column (or rows) through the Sort dialog box.

Sorting Data in Alphabetical Order

Arranging data in alphabetical order is the most common type of sorting done in Ms Exce.l The steps to sort data in an alphabetical order are as follows:

1. Select a cell in a column you want to sort by. (You can also select the entire column excluding the column heading, if any)
2. Click on the Home tab. In the Editing group click on the Sort & Filter button.
3. From the list that appears select the Sort A to Z option.
   …. The records will get sorted in ascending order.
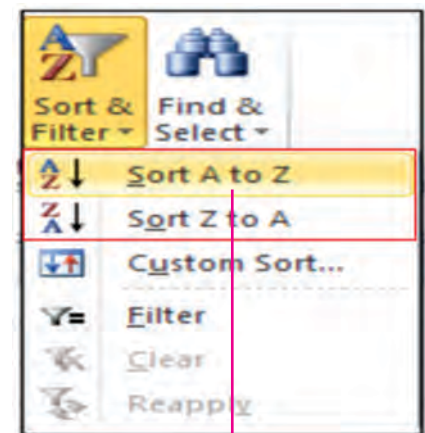
Options to sort data alphabetically

Sorting Data in Numerical Order

We can also sort data in a worksheet on the basis of a field containing numerical data. The data gets sorted in ascending or descending order. The steps are as follows:

1. Select a cell in a column you wan to sort by. (You can also select the entire column excluding the column heading, if any).
2. Click on the Home tab. In the Editing group, click on the Sort & Filter button.
3. From the list that appears select the Sort Smallest to Largest option.
   … The records get sorted in ascending order.
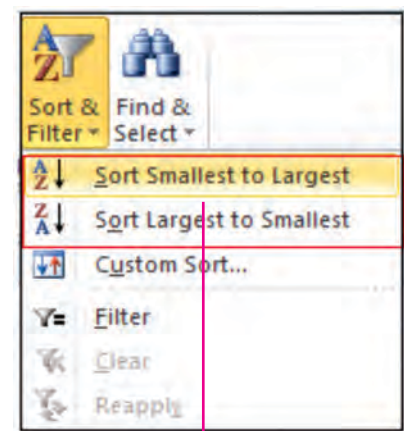
Options to sort numerical data

4. Click on the Sort Largest to Smallest option.

.... The records will be sorted in descending order.

Custom Sorting

We can also sort data in a worksheet in the order we want by creating Custom lists. The steps to created a custom list and use it to sort data are as follows:

1. Select the cell range containing the data that you want to sort.
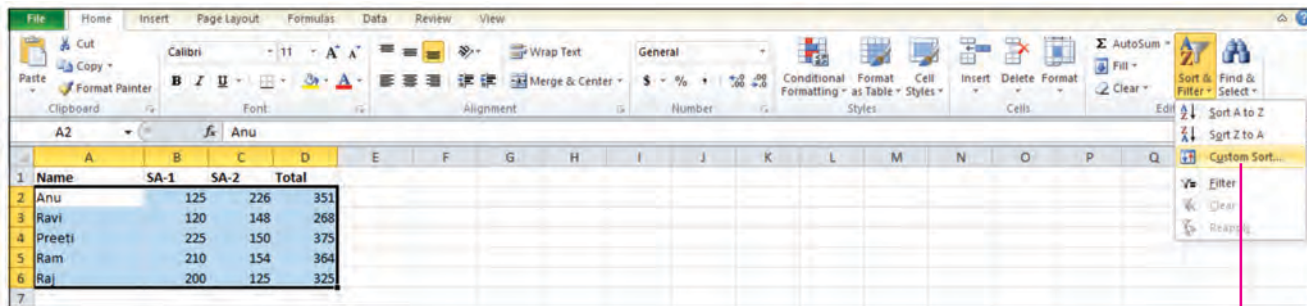
Custom Sort Option

2. Click on the Home tab. In the Editing group, click on the Sort & Filter button.

3. From the drop down menu select the Custom Sort Option.

.... The Sort dialog box will open.
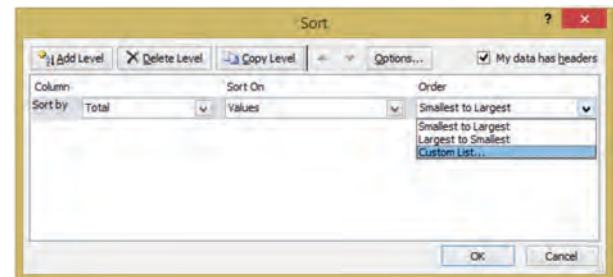
4. Identify the column you want to Sort by, by clicking the dropdown arrow in the 'Column' field. Here, sort by the column Class.

5. Make sure the option Values is selected in the Sort On field.

6. Click the drop down arrow in the 'Order' Field and Select the custom List option from the drop down menu.

Sort Dialog Box

7. In the Custom Lists dialog box that appears, select the New List under the Custom Lists section.

8. Enter the order in which you want to sort the data in the List entries section.

9. Click on the Add button. The sorting order will appear in the Custom lists Section.

10. Click on OK to close the Custom Lists dialog box.
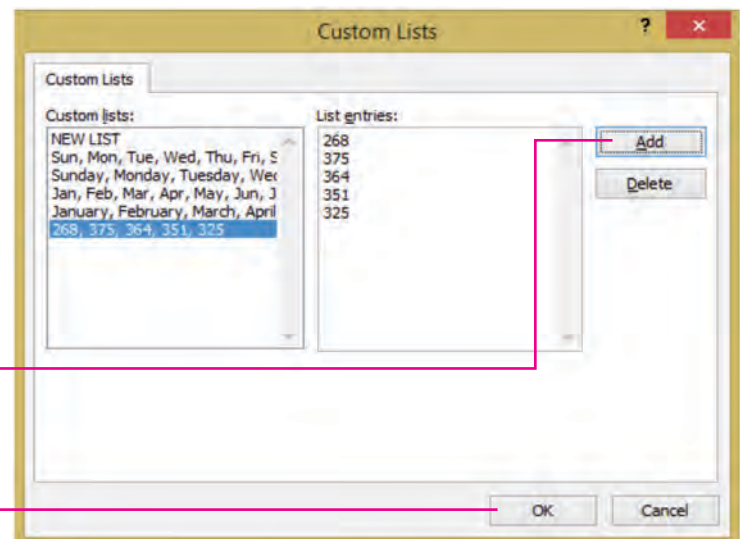
Note : Notice that your Custom Sort order appears in the Order field in Sort dialog box.

11. Click on OK to close the Sort dialog box.

    … The data will get sorted in accordance with your custom list.

Remember

- The Sort On field drop menu also gives you options to sort data based on cell color, font color or cell icon (provided you have these features in your worksheet).

Activity

State whether the following statements are 'True or 'False' :

1. A column of data in a Excel worksheet is also called a Record.   _____

2. Sorting means arranging date in a particular order.   _____

3. Data in a date or time field can be sorted from the oldest to newest.   _____

4. The Sort & Filter button is situated in the Sort group.   _____

FILTERING DATA IN MS EXCEL

A filter can be used to narrow down data in a worksheet to view only selective records. The filter hides away the rest of the data from the view. For example, we can use a filter to view the records of only those students out of a class who have scored 80% or more marks. Remember, filters hide data only temporarily. Once a filter is removed, all the data in the worksheet become visible again.

Applying Data Filters

Filters can be applied to a worksheet in many different ways. We can even apply multiple filters to filter away excess data and see only the data that concerns us at the moment.

Let us now learn to apply filters with the help of an example. Here, we will apply a filter to see th records of only class 7 students.

1. Create a worksheet as shown here.

2. Click in any cell that contains data or select the entire date in the worksheet.

3. Select the Sort & Filter option. Click on the Filter button.
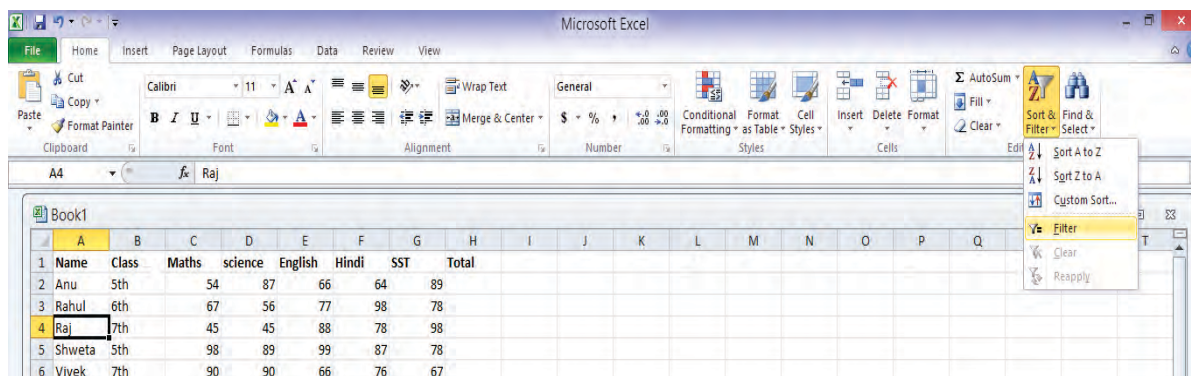
... Drop-down arrows will appear in the header of each column.

4. Click the drop-down arrow for the column you would like to filter. Here, we will filter the 'Class' column to view records of class 7 only.

5. In the Filter menu that appears, uncheck the boxes given before 'Class 5' and 'Class 6', leaving only 'Class 7' box checked.

6. Click on the OK button.

   ... Now the worksheet will show only the data of Class 7 students. All other data is filtered away or hidden temporarily.

Using Multiple Filters

We can apply more than one filter to a worksheet to make selective viewing of data more refined. For example, suppose in the above worksheet we want to display data of the students from Class 7 Section A only. For this we can add another filter to the Section column to hide all the records except for Section A. The steps to do it are as follows :

1. With the worksheet to which you applied a filter in the previous example open, click the drop-down arrow of the 'Section' column.

   ... The Filter menu will appear.

2. Uncheck all the check boxes except for the one placed before A.

3. Click on OK.

   ... Now the worksheet will show only those students who are in Class 7 and Section A.

Removing Filters

It is easy to remove filters from a worksheet. Just follow the step given below :

1. To remove a filter from a particular column, click on the Filter drop down arrow and select Clear Filter from the 'Section' option.

2. To remove all filters form a worksheet, simply click on the Filter button.
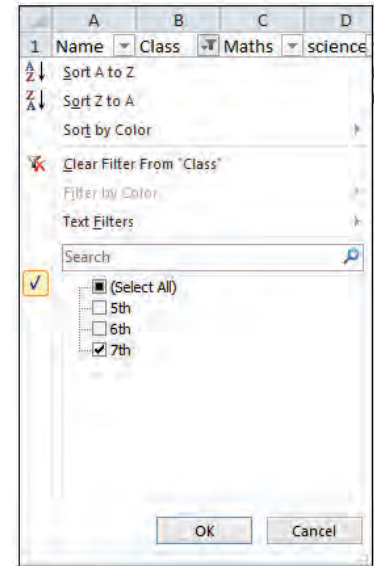
Applying filter on worksheet
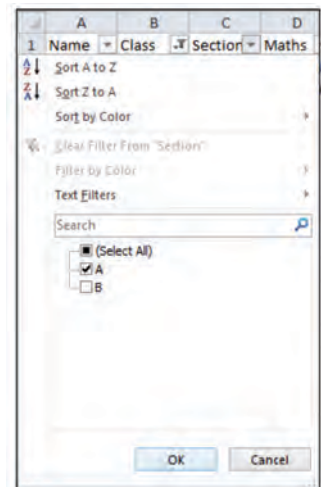
Applying multiple filters
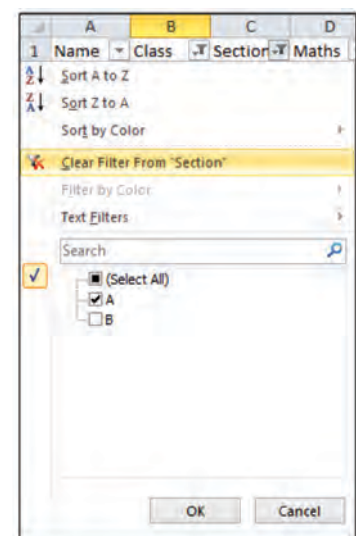
Activity

1. Apply a text filter on the 'Name' Column to display the records of all those students whose names begin with the letter 'a'.

2. Apply a Data filter on the 'Date of Birth' column to display the records of only those students who are born on or after 15 August 2002.

CONDITIONAL FORMATTING IN MS EXCEL

Conditional Formatting allows us to highlight only those cells that contain data that meets a given condition. For example, we can use a condition like 'If the marks obtained is greater than 400, color the cell red' to highlight all the cells in the Marks obtained column.

Creating a Conditional Formatting Rule

The steps to create a conditional formatting rule are follows :

1. Create a worksheet as shown here and select the data that you want to highlight. (Here, we, have selected data in the (Maths column.)
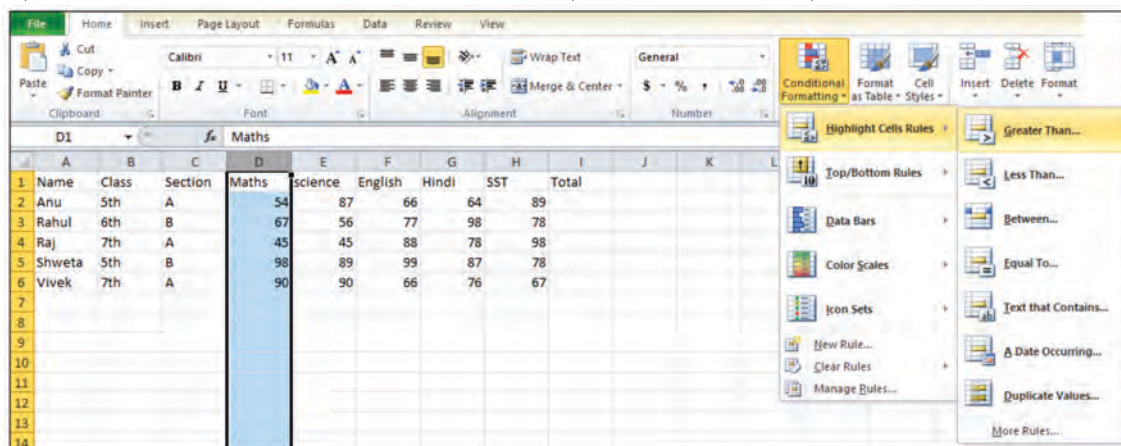
2. In the Home tab, click the Conditional Formatting button.

   ...A drop down menu listing the different rule categories will appear.

Conditional formatting applied to the data

3. Here we have selected Highlight Cells Rules category.

   ....A sub-menu will appear showing the different rules in the category.

4. Select the desired rule (we have selected Greater Than....).

5. In the dialog box that appears, enter a suitable value in the 'Format Cells that are GREATER THAN:' text box.
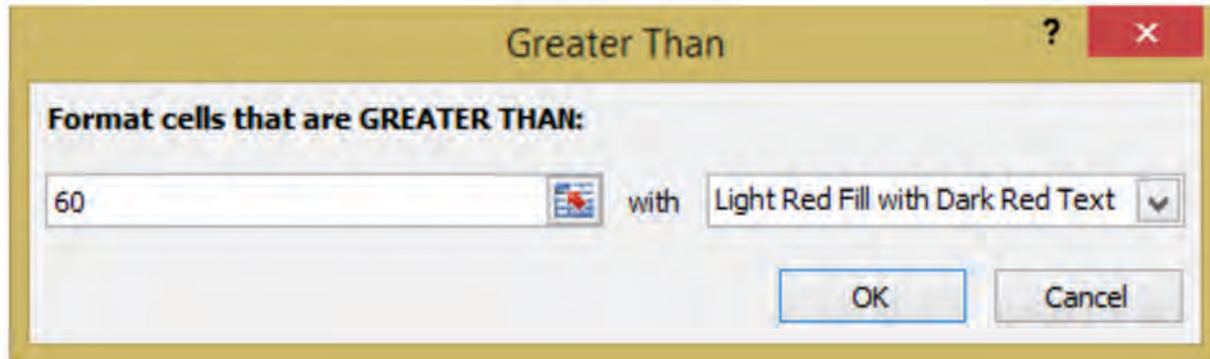
6. Select a required formatting option from the formatting drop down list (Custom Format option if checked, will give the Format Cells dialog box to let you define the formatting for the cells on your own.)

7. Click on OK button. All the cell containing values greater 400 will get highlighted.

TIP! 1. We can apply more than one conditional formatting rules to the selected data.
2. New conditional formatting rules can also be set by clicking on the New Rules option in the Conditional Formatting menu.

Removing Conditional Formatting

It is easy to remove conditional formatting from a worksheet. Just follow the steps given below :

1. Select the cells with conditional formatting.

2. In the Home tab, click the Conditional Formatting command button.

3. In the drop down menu that appears, select the Clear Rules option.

4. In the Clear Rules submenu, select a desired option to clear the rules from the selected cells, entire sheet and so on.

   ...The desired conditional formatting will be removed.
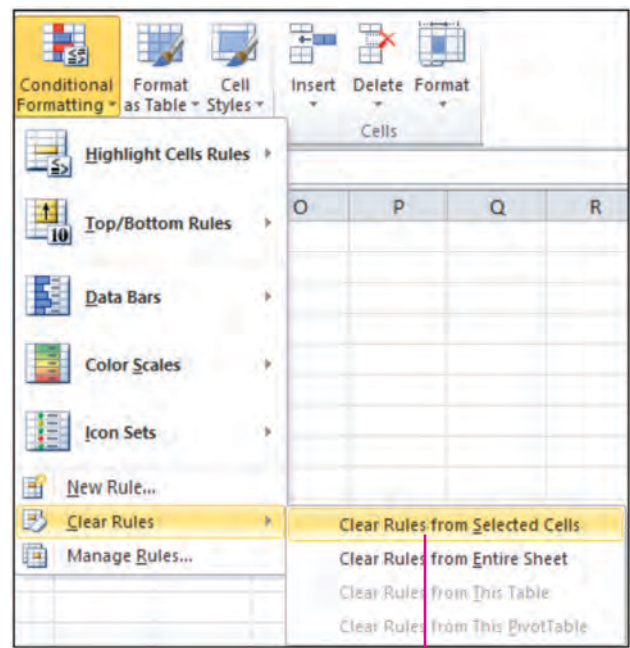
Clear Rules Submenu

Tick (✓) the correct answer in the ☐.

1. Which tab will you click to find the conditional formatting command button?

   (a) View tab ☐   (b) Home tab ☐   (c) Data tab ☐

2. By default conditional formatting is applied to :

   (a) Selected data ☐   (b) Entire worksheet ☐   (c) Only one cell ☐

3. Which option in the conditional formatting list will you click to clear conditional formatting?

   (a) New Rules ☐   (b) Clear Sheets ☐   (c) Clear Rules ☐

POINTS to Recall

- A formula is an expression that is used for doing calculations on worksheet data.

- Formulae may contain mathematical operators (+, −, *, /, etc.) that help you to do addition, subtraction, multiplication and division and so on in a worksheet.

- Functions are ready-made formulae that are built into MS Excel. They also help you to manipulated data in a worksheet.

- Some common functions like Sum, Average, Min, Max and Count can be accessed directly from the Auto Sum button menu.

- Sorting is the process of arranging data in a particular order.

- Filter is a feature in MS-Excel that allows you to see only the data you are interested in at a moment and hides away the rest of the data.

- Conditional Formatting is a feature using which you can highlight selective data in a worksheet by formatting it in such a way that it stands out from the rest of the data.

TERMS to Learn

- **Formula** : An expression that begins with a equal to sign (=) and helps you to manipulate worksheet data.

- **Functions** : Readymade in-built formulae that help you to manipulate data.

- **Sorting** : Arrangement of data in a particular order (increasing or decreasing order and so on).

- **Filter** : A feature in MS-Excel that can be used to temporarily hide unwanted data.

- **Custom Formatting** : A feature in MS-Excel that helps you to format selective data from a worksheet based on a certain condition.

Multiple Choice Questions

A. Tick (✓) the correct answer.

1. Which function finds the sum of the numbers in a selected cell range?

   (a) Auto() ○   (b) Sum() ○   (c) Count() ○

2. Which function finds the average of the numbers in a selected cell range?

   (a) Average() ○   (b) Total() ○   (c) Sum() ○

3. Which of these is an example of the absolute addressing?

   (a) $A4 ○   (b) $A$5 ○   (c) $5 ○

4. Which of these is an example of the relative addressing?

   (a) C5 ○   (b) G$9 ○   (c) $C5 ○

5. Which type of data is sorted from A to Z or from Z to A?

   (a) Textual data ○   (b) Numerical data ○   (c) Date and Time data ○

6. Which type of data is sorted from oldest to newest data or from newest to oldest data?

   (a) Textual data ○   (b) Numerical data ○   (c) Date and Time data ○

B. Fill in the blanks with the help of given hints.

1. The Formulae in Excel must begin with an _____ sign.

2. _____ operator is used for mathematical calculation.

3. The _____ function returns the sum of the numbers in a selected cell range.

4. The _____ function returns the smallest valued number in a selected cell range.

5. When we sort data in _____ order, we arrange it from the smallest to the largest.

6. _____ is the process of arranging data into a meaningful order.

7. _____ can be used to narrow down data in a worksheet to view only selective records.

   HINTS : Equal to (=)   Sum   Min   Arithmetic   Increasing   Filter   Sorting

C. Write 'T' for true statements and 'F' for false statements in the ☐ .

1. The 'Count' function is used to find the largest value in a given range of cells.

2. In the function=Sum(G7:G12), the argument is G7: G12.

3. A range can be used in a formula.

4. The conditional Formatting button lies in the styles group of Home tab.

5. The Sort & Filter button lies on the Editing group in Data tab.

6. You cannot apply multiple filters to a worksheet to view only selective data.

D. Very Short Answer Questions.

1. Write the cell address for all cells in column C.

   _____

2. Which tab contains the AutoSum button in Excel 2010?

   _____

3. Which function will you use to find the average of numbers?

   _____

E. Short Answer Questions.

1. What does the Max() function help you to do?

   _____

2. What is meant by data sorting?

   _____

3. What is Custom Sorting?

   _____

F. Long Answer Questions.

1. What is a 'Formulae' in Ms Excel? Explain with the help of an example.

   _____

   _____

2. What is relative addressing? How is it useful?

   _____

   _____

3. What is absolute addressing? Explain with the help of an example.

   _____

   _____

4. What are Functions in Excel? Name the various components of a function.

   _____

   _____

5. Distinguish between sorting and filtering.

   _____

   _____

6. What is conditional formatting? How is it done in Ms Excel?

   _____

   _____

Practical 1: Understanding the use of absolute addressing.

1. Do these additions to the file 'MARKS'.

2. Click in cell G2 and Enter the formula to calculate the percentage marks of Anu as = F2/ B8*100.

3. Notice that for calculating the percentage, the value of B8 (Max. Marks) should remain the same for all the students. Therefore, make the cell address B8 constant (absolute) by clicking the formula bar and adding a $ sign each, against both B and ($B$8) to change the formula as : = F2/$B$8*100 in cell G2.

4. Click on the Enter button. ...Anu percentage will appear in the cell G2.

5. Drag the fill handle to enclose cells from G3 or G6. ...Percentages will be displayed in these cells.

	A	B	C	D	E	F	G	H
				fx	=F2/$B$8*100			
	Name	Maths	Science	English	Hindi	Total	Percentage	
1								
2	Anu	54	87	66	64	271	=F2/$B$8*100	
3	Rahul	67	56	77	98	298		
4	Raj	45	45	88	78	256		
5	Shweta	98	89	99	87	373		
6	Vivek	90	90	66	76	322		
7								
8	Maximum Marks	500						
9								

Absolute (non-changeable) cell address

	A	B	C	D	E	F	G	H
1	Name	Maths	Science	English	Hindi	Total	Percentage	
2	Anu	54	87	66	64	271	54.2	
3	Rahul	67	56	77	98	298	59.6	
4	Raj	45	45	88	78	256	51.2	
5	Shweta	98	89	99	87	373	74.6	
6	Vivek	90	90	66	76	322	64.4	
7								
8	Maximum Marks	500						
9								

Formula with absolute address copied and applied to other cells

Practical 2:

1. Create a new worksheet in MS Excel. On the sheet enter data as shown below :

	A	B	C	D	E	F	G	H
	J9		fx					
1	Name	Maths	Science	English	Hindi	SST	Total	Average
2	Anu	54	87	66	64	89		
3	Rahul	67	56	77	98	78		
4	Raj	45	45	88	78	98		
5	Shweta	98	89	99	87	78		
6	Vivek	90	90	66	76	67		
7	Neha	89	98	88	99	88		
8								
9	Maximum Marks by Anu							
10	Minimum Marks by Anu							
11								
12	Number of entries in this worksheet							
13								
14								

Icon-X-7

2. Use the Sum function to calculate the sum of the marks of all the students by using the steps :

    a. Click in cell G2 and in the Home tab click on the Auto Sum button drop down arrow.

    b. From the drop down menu select the Sum function.

       … The Sum function will appear in cell G2.

    c. Change the arguments, if required here, is no need to change the arguments.

    d. Press the Enter key.

       … The sum will be displayed in cell G2.

    e. Drag the fill handle to G7 to calculate the sum for all the students.

3. Now select the cells B2 to F2 and open the AutoSum button drop down menu. Select the Average function and press the Enter key. The Average marks for the first student will appear in cell H2.

4. Drag the fill handle to H7 to calculate the average marks for all the students.

5. Now use the Max () function to calculate the maximum marks obtained by Anu in any subject.

    a. Click in cell B9 and type the function = Max(B2:F2).

    b. Press the Enter key.

       … The Maximum marks will be displayed in the cell B9.

6. Use the Min() function to calculate the minimum marks obtained by Anu in any subject.

    a. Click in the cell B10 and type the function = Min(B2 : F2).

    b. Press the Enter key.

       … The Minimum marks will be displayed in the cell B10.

7. Find the number of cells containing the number values in the range B2 to E6 by using the Count() function. The steps to do this are given below :

    a. Click in the cell B12 and insert the Count () function in it from the Sum drop down menu.

    b. Now select the required data in the worksheet and press the Enter key.

       … The count of the number entries in the selected cells will be displayed in the cell B2.

8. Save the workbook by any name.

Practical 3 : Sorting and Filtering data in a Excel worksheet.

1. Create a worksheet in Ms Excel. Apply formula to calculate the Total Marks and Percentage as shown.

2. Sort the data in the worksheet in ascending order of the Percentage of marks.

3. Apply a filter on the data to see the results of only those students whose names start with letter R.

	A	B	C	D	E	F	G	H	I
1	Name	Maths	science	English	Hindi	SST	Total	Max_Marks	Percentage
2	Raj	45	45	88	78	98	354	500	70.8
3	Anu	54	87	66	64	89	360	500	72
4	Rahul	67	56	77	98	78	376	500	75.2
5	Vivek	90	90	66	76	67	389	500	77.8
6	Vaibhav	89	98	58	98	75	418	500	83.6
7	Aarohi	85	58	96	87	98	424	500	84.8
8	Shweta	98	89	99	87	78	451	500	90.2
9	Vishal	89	98	87	98	89	461	500	92.2
10	Sangini	99	98	97	94	98	486	500	97.2

	A	B	C	D	E	F	G	H	I
1	Name	Maths	science	English	Hindi	SST	Total	Max_Ma	Percenta
2	Raj	45	45	88	78	98	354	500	70.8
4	Rahul	67	56	77	98	78	376	500	75.2
11									
12									