Microsoft Excel

- MS Excel is a full featured spreadsheet program, developed by Microsoft company.
- MS excel used to calculate Mathematical and Logical Calculations.
- It has also some feature of word processing packages too.

➢**Workbook**

- An excel document is referred to as workbook.
- Workbook contains one or more worksheets.
- Workbook is a collection of worksheets stored in a single file.

➢ Worksheet

- Worksheet is a collection of cells organized in rows and columns that holds data and formula.
- The columns are named A,B,C ,--Z then AA,AB…….
- The row are numbered from 1 to 10,48576.
- A box (column and row intersection) in a worksheet is called a cell.

Features of Microsoft Excel:

- Data Management
- Formulas and Functions
- Pivot Tables and Charts
- Data Analysis Tools
- Data Validations
- Modeling and Forecasting
- Automation and Macros
- Collaboration and Sharing
- Integration with Other Microsoft Products
- Customization and Personalization

Application of MS Excel

- **Financial Analysis**: Excel is the go-to tool for analyzing financial data, creating budgets, forecasting revenue, and conducting financial modeling in businesses and finance sectors.
- **Data Management**: Excel serves as a versatile platform for organizing, storing, and managing data efficiently, allowing users to perform tasks like data entry, sorting, filtering, and validation.
- **Project Planning**: Excel aids in project management by facilitating tasks such as creating Gantt charts, managing project timelines, tracking resources, and monitoring progress.

- **Statistical Analysis**: Excel provides a suite of statistical functions and tools for analyzing data, conducting hypothesis testing, regression analysis, and other statistical techniques across various fields.
- **Reporting and Dashboards**: Excel is instrumental in creating reports, dashboards, and visualizations, enabling users to present data in a structured and visually appealing format for better insights and decision-making.
- **Inventory Management**: Excel helps in inventory tracking, stock management, and order processing, allowing businesses to monitor inventory levels, track sales, and manage supply chain operations efficiently.

- **Academic and Research**: Excel is widely used in academic research for data analysis, experimental design, and statistical analysis, supporting students, researchers, and academics across diverse disciplines.
- **Human Resources**: Excel aids in HR management tasks such as employee scheduling, payroll processing, performance tracking, and recruitment management, streamlining HR operations effectively.
- **Marketing and Sales**: Excel assists in marketing analytics, sales forecasting, lead tracking, and campaign management, empowering businesses to analyze marketing ROI, track sales performance, and manage customer data efficiently.

- Excel Library Function

Excel library function use to search and select excel function based on categories such as Basic, Financial, logical, Date and Time.

To access the library function , select the formulas tab on the Ribbon. Look for the function Library Group.

Excel Function

A Function is a predefined formula that performs calculations using specific values in a particular order.

- **Basic Function:**

1. SUM : summation adds a range of cells.

=SUM(B1:B10)

2. AVERAGE : Average calculates the average of a range of cells.

=AVERAGE(B1:B10)

3. COUNT : counts the number of chosen data in a range of cells

=COUNT(B1:B10)

4. MAX : find the largest number in a range of cells.

=MAX(B1:B10)

5. MIN : find the smallest number in a range of cells.

=MIN(B1:B10)

➢Math and Trig Functions:

1. product: product function multiplies all the number given as argument and return the product.

Syntax:

=PRODUCT(Number1,Number2…Number50)

2**. SUMIF** : the SUMIF function is used to add up the values in cells in a selected range that meet certain criteria.

=SUMIF(Range,Crieteria,Sum Range)

3. ROUND: the Round Function is used to reduce a given value to a specific number of decimal places.

Syntax:

=ROUND(number,num_digits)

4. RAND: Rand Function returns a random number greater than or equal to 0 and less than 1.

Syntax:

=RAND()

Rand Function takes no argument.

- **Logical Functions**

1. **IF :** The If function returns one value if a given condition match then true value returns otherwise false value return.

Syntax:

=IF(Logical_test, Value_If_true, Value_if_false)

Ex: IF(A2>=45, “PASS”,”FAIL”)

2. AND : The AND function checks whether all arguments are true and returns True or False. Returns True only if all arguments are true.

Syntax:

=AND(Logical_test1, logical_test2,logical_test3)

3. OR

The OR function checks whether any of the arguments are true and returns True or False. Returns False only if all arguments are False.

=OR(Logical_test1, logical_test2,logical_test3)

- **Statistical Functions:**

1.AVERAGEIF

The AVERAGEIF function is used to find the average of values in cells in a selected range that meet certain criteria.

Syntax:

=AVERAGEIF(Range,criteria,sum range)

2. **COUNTIF**

The countif function is used to count up the number of cells in a selected range that meet specified criteria.

=Countif(range,Criteria)

- Financial Function:

1. FV

Returns the value of investment based on periodic ,constant payments and a constant interest rate.

Syntax: =FV (rate, nper,pmt,pv,type)

2. SLV

Returns the straight line depreciation of an asset for one period.

Syntax: =SLN(cost,Salvage,Life)

- Time and Date Function

1. NOW()

It use to display the current time and date.

=Now()

2. NETWORKDAYS

It can be used to count the number of working days between two dates.

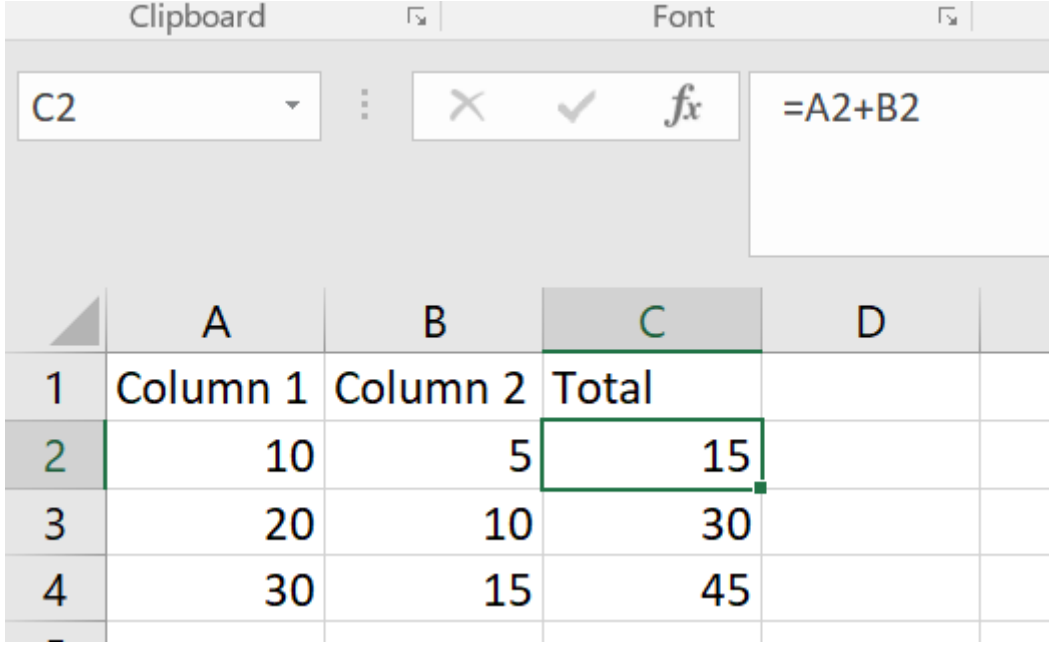
=NETWORKDAYS(start_date,End_date,Holidays)

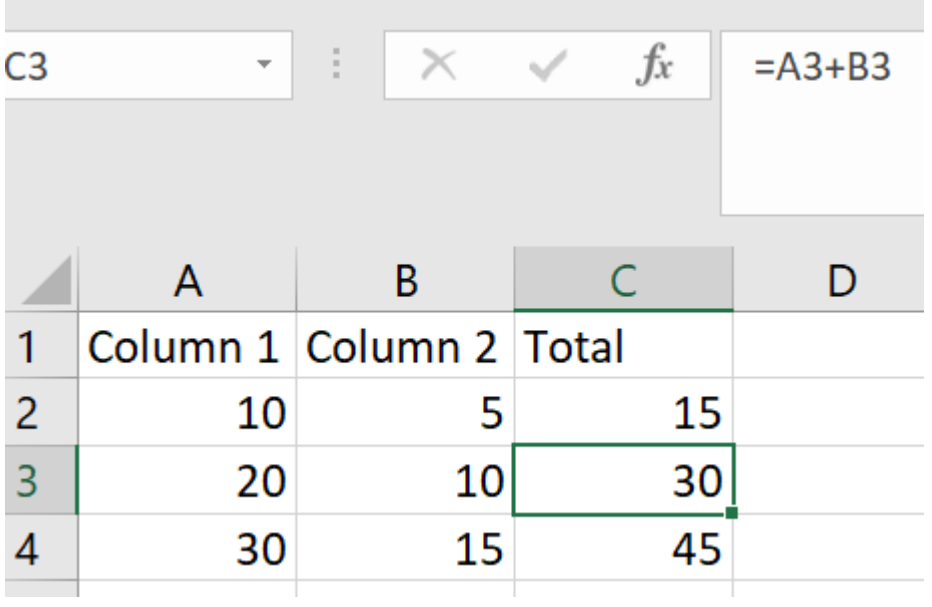
Cell Reference and Its Type

- Cell referencing is the method by which you refer to a cell or series of cells in a formula.
- if in A2 you have =A3, cell A2 is referring to cell A3.
- There are three type of cell referencing:
- Relative
- Absolute
- Mixed

Relative Referencing

- Relative References changes when a formula is copied to another cell.
- By default, all cell reference are relative references.
- When copied across multiple cells , it changed based on the relative position of rows and columns.
- For example, if you copy the formula C2= A2+B2 from row 2 to row 3 the formula will become C3=A3+B3





Absolute Reference:

- It remains constant when a formula is copied to another cell.
- We can use absolute reference to keep a row or column constant.
- In absolute reference $ symbol used in formula.
- $A$2 -> The column and row doesn't changes when copied in another cell
- A$2 -> The Row doesn't changes when copied in another cell
- $A2 -> The column doesn't changes when copied
- For Example:
- If you copy the formula C2=A2from row 2 to row 3 the formula will become C3= =$A$2

Mixed Reference

- Combination of Relative and absolute reference
- For example: if you copy the formula C2=(A2+B2)+$C$2 from row 2 to row 3 , the formula will become

C3=(A3+B3)+$C$2

Conditional Formatting:

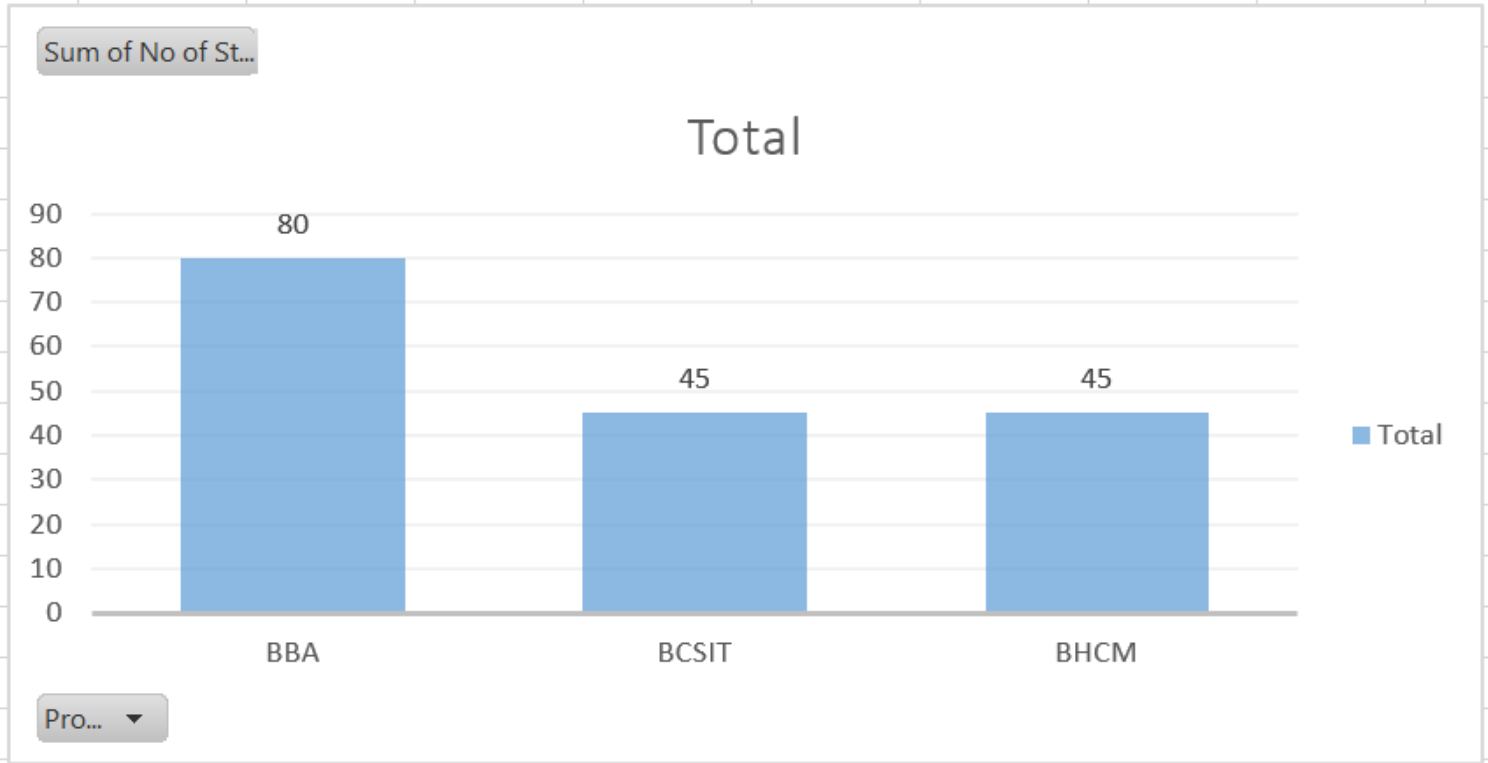
- Conditional formatting is a tool that use to apply different formats to a cell or range of cells and that formatting changes depending on the value of the cell or the value of formula.
- For example: Change the cell value in **Bold** when the value of the cell is greater then 100.
- If the value of the cell match the format condition, the selected format is applied to the cell otherwise default formatting is applied.

Pivot Table and Chart

- Pivot table and chart are interactive way to quickly manage , summarize and present large amount of data in different way.
- Both PivotTables and PivotCharts enable you to make informed decisions about data in your Organization.
- A pivot table summarize the columns of information in a database relationship to each other.
- Pivot table used to present the summarized data in graphs and allow you to easily see comparisons, patterns, and trends.

- It supports to Querying large amount of data in user friendly ways.
- Subtotaling , totaling and aggregating numeric data , summarizing by categories and custom calculation.
- Expanding and collapsing levels of data to focus on result and drill down to details from the summary data.
- Filtering , sorting , grouping and conditionally formatting the data helps us to focus on information that we want.
- Develop attractive summarize and visualize report.

Row Labels	Sum of No of Students
BBA	80
BCSIT	45
BHCM	45
Grand Total	**170**



VLOOKUP Functions:

- VLOOKUP is an Excel function that allows you to search and retrieve a cell's content from another column.
- **Syntax**

The syntax for the VLOOKUP function in Microsoft Excel is:

VLOOKUP(value, table, index_number, [approximate_match]

Value:

The value to search for in the first column of the *table*.

Table

Two or more columns of data that is sorted in ascending order.

index_number

The column number in *table* from which the matching value must be returned. The first column is 1.

approximate_match

Enter FALSE to find an exact match. Enter TRUE to find an approximate match. If this parameter is omitted, TRUE is the default.

Example

Order ID	Product	Unit Price	Quantity		
10247	Apples	14	12		pineaples
10249	Oranges	9	10		
10250	Bananas	8	5		
10251	pineaples	16	9		
10252	Grapes	13	40		

- =VLOOKUP(10251, A1:B6, 2, FALSE) *Result:* "Pineapples" 'Returns value in 2nd column
- =VLOOKUP(10251, A1:C6, 3, FALSE) *Result:* $16 'Returns value in 3rd column
- =VLOOKUP(10251, A1:D6, 4, FALSE) *Result:* 9 'Returns value in 4th column
- =VLOOKUP(10248, A1:B6, 2, FALSE) *Result:* #N/A 'Returns #N/A error (no exact match)
- =VLOOKUP(10248, A1:B6, 2, TRUE) *Result:* "Apples" 'Returns an approximate match

Benefits of Microsoft Excel

- **Data organization**: Excel provides a structured platform to organize and manipulate data efficiently. You can input, store, and manage large volumes of data easily, making it accessible for analysis.
- **Data analysis**: Excel offers a wide range of functions and tools for data analysis, including formulas, pivot tables, and charts. These features allow you to perform various types of analysis, such as trend analysis, forecasting, and variance analysis, to derive insights from the data.

- **Visualization**: Excel enables you to create visual representations of your data using charts and graphs. Visualizations help in understanding trends, patterns, and relationships within the data, making it easier to communicate insights to stakeholders.
- **Modeling**: Excel can be used to build simple to complex models for decision making, such as financial models, cost-benefit analysis, and scenario analysis. These models allow you to simulate different scenarios and assess the potential impact of various decisions.

- **Conditional formatting :**

Excel users can format their spreadsheets using different colour shades, bolds and italics, to differentiate between columns and bring the most important data to the fore. This function could be useful when presenting accounting information, such as the pre-tax profit and the balance being carried forward by the company. Users can select an appropriate coloring scheme via the Quick Analysis button, and then by utilizing the Formatting tab.

- **Automation**: Excel supports automation through macros and Visual Basic for Applications (VBA), allowing you to automate repetitive tasks, streamline processes, and save time. This automation can range from simple tasks like data entry to complex analysis workflows.
- **Collaboration**: Excel offers collaboration features such as shared workbooks and co-authoring, allowing multiple users to work on the same spreadsheet simultaneously. This promotes collaboration and facilitates real-time decision making by ensuring that all stakeholders have access to the latest data and analysis.

Do you benefit from Microsoft Excel for your business analysis role/ Decision Making