Excel

As a **data analyst**, Excel is one of the foundational tools you’ll use for a wide range of tasks. Here’s what you typically do with Excel in a data analytics role:

**1. Data Cleaning**

**2. Data Analysis**

**3. Data Visualization**

**4. Data Importing & Exporting**

**5. Data Transformation with Power Query**

**6. Forecasting & Modeling**

**7. Automation with VBA (Optional)**

**8. Reporting**

**Microsoft Excel** is a **spreadsheet software** developed by Microsoft. It’s part of the **Microsoft Office suite** and is used for **Organizing data** **Performing calculations** **Analyzing information** **Creating charts and reports.** It’s widely used across industries like finance, marketing, operations, research, and data analytics

A **workbook** is the entire Excel file.

A **worksheet** (also called a "sheet") is a **single page/tab** within the workbook

Ctrl+right arrow = for counting maximum rows and columns

A **range of cells** is simply **two or more cells** selected together in Excel. These cells can be next to each other (contiguous) or separated (non-contiguous). A1:A5 → Cells A1, A2, A3, A4, A5 (a vertical range)

### ****Contiguous Range****

A group of **adjacent** cells.

### ****Non-Contiguous Range****

Multiple **separated** cells or ranges selected at the same time using **Ctrl**

Head of cell is that cell from which range of cell is selected.

Page up or page down + ctrl = moving from one page to another in excel

Formula box = box where formulas of cell contents are there

Name box = box where address of cells are given

Functions are the pre-defined formulas

Ctrl+O = open existing workbook

Ctrl+N = open new workbook

Ctrl+W= close current workbook

We can password protect our workbook from tools option in save and worksheet from right click on sheet tab.

Status bar shows us the status of the cell which is pointed

Ctrl + y = redo

Drag drop cells to copy or write serialize numbers

We can add columns and rows in the worksheet

Sum function = for summation of numbers SUM (A3:B5).

Randbetween = generating random numbers Randbetween(2,99)

### Referencing in Excel refers to the way you refer to cells or ranges of cells in formulas. There are three main types of cell referencing: ****Relative Reference****

* **Example:** =A1
* **Behavior:** Changes when copied to another cell.
* **Use case:** When you want the formula to adapt based on its new location.

**Mixed Reference**

* **Example:** =A$1 or =$A1
* **Behavior:** Part of the reference is fixed:
  + A$1 → Row is fixed.
  + $A1 → Column is fixed. **Use case:** When copying across rows or columns, but you only want part of the reference to adjust.

**Fixed referencing in Excel** refers to a way of keeping a specific cell reference **constant** when copying a formula to other cells. This is done using the **dollar sign ($)** to lock either the column, the row, or both

Conditional Formatting

Change currency format using accounting options , number using number format

Advanced conditional formatting using “New Rules “in which we use formulas to apply formatting on rows by selecting whole sheet like $C1 = “Sales “.

MAX function, MIN function, AVERAGE COUNT

Use clear rules option to remove conditional formatting

Syllabus of excel for data analyst :

Data cleaning & Management = removing duplicates , text to columns , data visualization , flash fill

Formula Mastery = sum , count,average,sumifs,countifs,averageifs,vlookup,hlookup,xlookup,index,match,index & match , if, iferror, and ,or , not , nested functions , array formulas , let , sumproduct , indirect , choose , offset , left , right

Data analysis & Reporting = pivot tables & pivot charts , data sorting & filtering , subtotals , data tables , scenarios ( what-if analysis ) , goal seek and solver

Visualization Expertise = Conditional Formatting , Basic to Advanced Charting , Creating Dynamic Dashboard

Efficiency Enhancers = keyboard shortcuts , data consolidation techniques , error checking

Advanced Excel Capabilities = Advanced filters , Slicers and Timelines in Pivot Tables

Formulas:

If = it is used for conditions If (logical test, value if condition is true, value if condition is false)

Ifs = it is used for multiple conditions =IFS(logical\_test1, value\_if\_true1, [logical\_test2, value\_if\_true2], ...)

The LEN function returns the **number of characters** in a cell, including spaces. LEN( cell reference or string ).

Left = extract characters from the left side of a text string

Syntax: =LEFT (text, [num\_chars])

Right = extract characters from the right side of a text string

Syntax: =RIGHT(text, [num\_chars])

you want to **convert a date to text**, you can use the **TEXT function** =TEXT (value, format\_text)

dd day with zero 01-30

dddd full weekday Monday

mm month with zero 01-12

mmmm full month January

yyyy year 2025

In Excel, the TRIM function is used to remove **extra spaces** from text. It keeps only **single spaces between words** and removes all leading and trailing spaces. =TRIM (text)

If cell A1 contains: Hello World

=TRIM(A1)

Will return: Hello World.

The SUBSTITUTE function in Excel replaces specific text within a string.

=SUBSTITUTE (text, old\_text, new\_text, [instance\_num])

**Ampersand (&) =** is used to **combine text from multiple cells or strings** into one.

=A1 & " " & B1 Does the same thing as CONCATENATE.

The SUMIF function in Excel adds up values **based on a single condition**

=SUMIF (range, criteria, [sum\_range])

* =SUMIF (A2:A4, A2, B2:B4) =SUMIF (B2:B10, ">100")

**sum\_range** (optional): The cells to sum if the condition is met. If omitted, Excel sums the range.

The SUMIFS function in Excel allows you to sum values **based on multiple conditions** — much more powerful than SUMIF.

=SUMIFS(sum\_range, criteria\_range1, criteria1, [criteria\_range2, criteria2], ...)

Example =SUMIFS(C2:C5, A2:A5, "Apple", B2:B5, "East")

Countif = count with a single condition =COUNTIF(range, criteria)

Conutifs = count with multiple conditions =COUNTIFS(range1, criteria1, [range2, criteria2])

Days = calculate **days between dates =DAYS(B1, A1)**

**Click on the corner of cell when we have to drag and drop while copying cells**

NETWORKDAYS = used to **calculate the number of working days** (excluding weekends and optionally holidays) between two dates **=NETWORKDAYS (start \_date, end \_date, [holidays])**

Data Management and Cleaning:

We can auto-fit rows and columns using options given in Format options by selecting whole cols and rows.

We can remove blank rows by using go to option which is under Find & Select Option to select the blank rows and Delete option to delete them.

We can remove blank cells by using go to option under Find & Select Option to select the blank cells and Ctrl+ Enter +zero to place zeros in the blank cells.

We can clear formatting which is unnecessary using the clear option under Home tab.

We can remove duplicates by using Remove Duplicates option under Data Tab.

For converting text to number which is in number, we would write “1” in blank cell copy it select the row which has to be converted then using Paste option we would multiply “1” with whole content of the row to convert it into number.

We can reduce decimal places by using Decrease Decimal Option.

Number Formatting = Through Format cells dialog box which is in Number we use accounting and currency where difference is that in accounting we incline digits and put dollar signs whereas in other we does not incline digits.

Date Formatting = In this we format by using Dates option.

Country Formatting = We would create a new col beside it use proper function to standardize the format trim function to remove extra spaces clean function is used to **remove non-printable characters from text. To delete the original col which is full of errors we’ll copy the whole col then using paste option we would paste values so that its formula is removed**

**Using replace option we can replace under Find & Select option.**

**We can check the spell by Spelling Option under the review Tab.**

**To convert your excel data into table, we would do this by Table Option under Insert Tab.**

**Table Auto-Expand**

A **Pivot Table** in Excel is a powerful tool that lets you **summarize, analyze, explore, and present** large amounts of data quickly—without formulas. It’s especially useful in data cleaning and reporting

Convert table into pivot table by using Summarize with Table Option under Design Tab.

Pivot Chart = First change the format of currency values by using Value Field Setting Option by right clicking. Remove the grand total by using Grand total under Design Tab. Create Pivot Chart using Pivot Chart Option.

Gross Sales = Remove the side measuring scale and put it on every data series.

Format Data Series = Right click on the data series and use Format Data Series Option.

Custom Number Formatting = Using Value Field Setting.

Format Data Labels

We would import text file which has data to excel and use delimiter to draw rows and columns in the data using Text Import Wizard dialog box.

**Flash Fill** helps you automatically fill in values based on patterns **without writing formulas**. It's ideal for tasks like splitting names, combining fields, extracting parts of text.

**Data** tab → Click **Flash Fill.**

**Under Data Tab in Get Data option to get the data. We can combine two almost similar files to one so that the file get updated.**

**Power Query** is Excel’s built-in tool for **importing, cleaning, transforming, and reshaping data** without formulas or VBA. It’s extremely useful for repetitive data-cleaning tasks and can handle large datasets with ease.

Power Query Editor – From here we would combine the files.

Split Columns, Trim Columns

We can convert Power Query into Pivot Table using Close & Load Option. Refresh Option