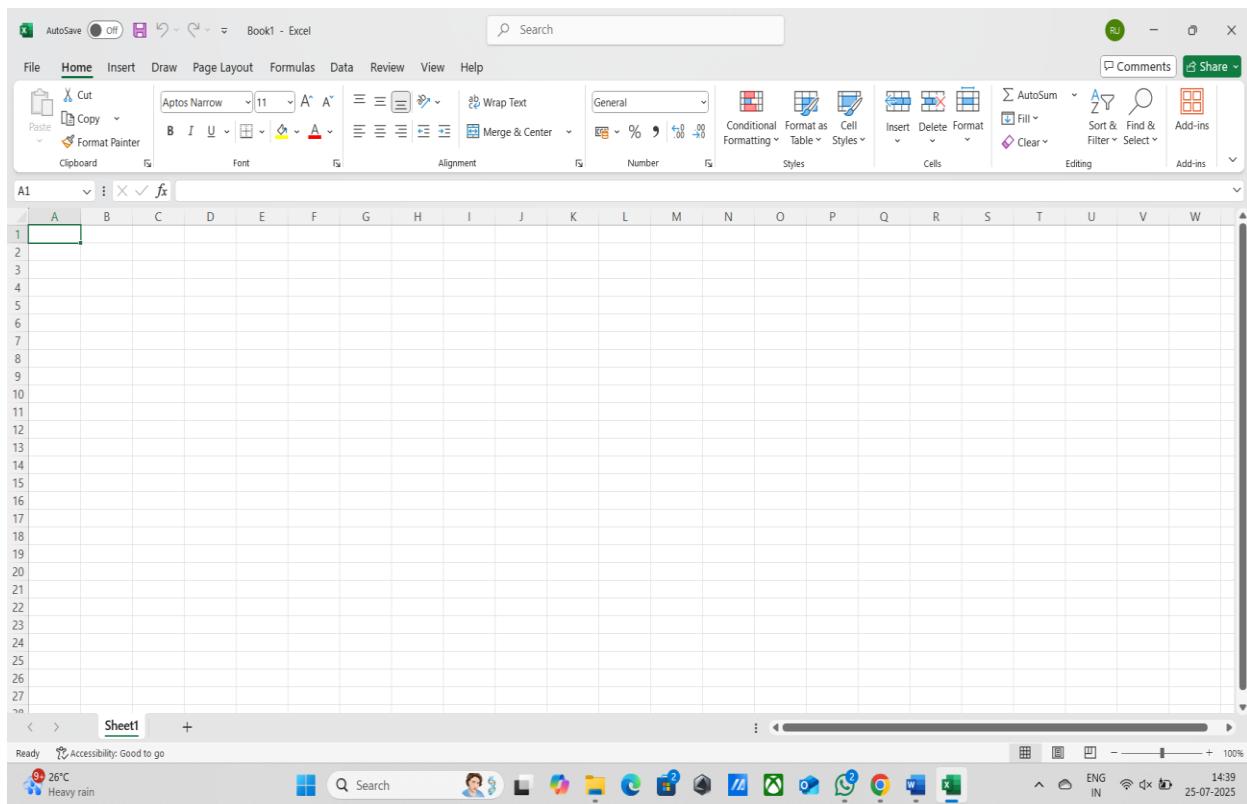


Getting Started with Excel



What is Excel?

- Definition: A spreadsheet tool used for data organization, calculation, and analysis.
- Real-life applications:
 - Tracking student attendance
 - Sales registers
 - Budget planning
 - Inventory management

Excel Structure:

- **Workbook:** The entire Excel file (.xlsx)
- **Worksheet:** Individual sheets (Sheet1, Sheet2, etc.)
- **Cell:** Single box in the sheet (e.g., A1)
- **Rows and Columns:**
 - Columns: A, B, C...
 - Rows: 1, 2, 3...
- **Cell Address:** Intersection of row and column (e.g., B3)

Data Types in Excel:

- **Text:** Names, labels (e.g., “John”, “Total”)
- **Numbers:** Quantities, marks, prices (e.g., 85, 1200)
- **Dates:** Entered as dd/mm/yyyy or mm/dd/yyyy

Basic Formatting:

- **Font formatting:** Bold, Italic, Font Size, Color
- **Cell Borders:** Outline table-like data
- **Number formatting:**
 - Currency (₹, \$, etc.)
 - Percentage (%)
 - Date format
- **Wrap Text:** Fit long text inside a cell
- **Merge & Center:** Combine multiple cells into one (e.g., A1 to C1) to create a centered heading or title.

Cell Reference in Excel:

A **cell reference** tells Excel where to find the data to use in a formula.

1. Absolute Reference

- **Does not change** when copied or dragged.
- The \$ before column and row locks them.

2. Relative Reference

- **Changes** when you copy or drag the formula to another cell.
- Excel automatically adjusts the reference based on the new location.

Data Cleaning

1. Remove Duplicates

- Helps eliminate repeated records (e.g., duplicate customer names, IDs).
- **How to use:**

Select data → Go to **Data tab** → Click **Remove Duplicates**

- Choose one or more columns to check for duplicates.

2. Split Text into Columns

- Breaks one column (e.g., full name or address) into multiple columns.
- Go to **Data → Text to Columns**
 - Choose **Delimited** (comma, space, etc.) or **Fixed width**
 - Example: Split “John Smith” into two columns: “John” | “Smith”

3. Flash Fill (Excel 2013+)

- Automatically fills values based on a pattern you enter.
 - Example: If you type first names in one column, Excel fills the rest.
- Shortcut: Ctrl + E

4. Find and Replace (Ctrl + H)

Purpose:

Quickly **replace** incorrect text, update values, or standardize formatting across large datasets.

How to Use:

1. Press **Ctrl + H** to open the **Find and Replace** dialog.
2. In **Find what:** type the word or value to change.
3. In **Replace with:** type the new value.
4. Click:
 - **Replace** → to update one at a time
 - **Replace All** → to update all at once

Data Validation & Drop-downs

1. Create Drop-down Lists

- Use **Data Validation** → **List** to restrict entries to pre-defined options.
- **Use case:** Gender, Department, Yes/No fields
- **Steps:**
 - **Select** cells B2:B4 (Gender column)
 - Go to **Data tab** → **Data Validation**

- In the Data Validation dialog:
 - Under **Allow**, choose: List
 - In **Source**, type: Male,Female,Other
 - Click **OK**
-

◆ 2. Restrict Data Types

◆ Whole Numbers Only

- **Use Case:**
Restrict user to enter only numbers between 18 and 60 — useful for **Age**, **Score**, or **Quantity** fields.
- **How to Set It:**
 - Select the target cells (e.g., C2:C10)
 - Go to **Data tab** → **Data Validation**
 - In the dialog:
 - **Allow:** Whole number
 - **Data:** Between
 - **Minimum:** 18
 - **Maximum:** 60

• Now only numbers **18 to 60** are accepted — anything else shows an error.

◆ Dates Only

- Restrict valid date entries (e.g., joining date not in future)
Example: Only allow dates before **=TODAY()**
-

◆ 3. Show Error Messages for Invalid Input

- Use **Error Alert tab** in Data Validation:

- Set a **custom title** (e.g., “Invalid Entry”)
- Set a **message** (e.g., “Please select from the dropdown only.”)
- Optionally use **Input Message** to guide users before they type.

Basic Functions in Excel

1. Logical Function:

➤ **IF()**

- Checks a condition and returns one value if TRUE, another if FALSE.

- **Syntax:**

=IF(condition, value_if_true, value_if_false)

- **Example:**

=IF(B2>=50, "Pass", "Fail")

➤ **Nested IF()**

- A Nested IF means putting one IF() function inside another, to check multiple conditions in a step-by-step manner.

- **Syntax:**

=IF(condition1, value1, IF(condition2, value2, IF(condition3, value3, value_if_all_false)))

- **Example:**

=IF(J4>89%,"A+",IF(J4>79%,"A",IF(J4>69%,"B+",IF(J4>59%,"B",IF(J4>49%,"C","FAIL")))))

➤ AND & OR Functions

• AND Function

Returns TRUE only if ALL conditions are true.

Example:

=IF(AND(B4>19,C4>19,D4>19),5%*E4,0)

• OR Function

Returns TRUE if any one condition is true.

Example:

=IF(OR(B4>15,C4>15,D4>15),2.5%*E4,0)

2. Statistical Functions:

<i>Function</i>	<i>Description</i>	<i>Example</i>
COUNT()	Counts numeric cells only	=COUNT(A1:A10)
COUNTA()	Counts non-empty cells (numbers + text)	=COUNTA(A1:A10)
COUNTBLANK()	Counts empty (blank) cells	=COUNTBLANK(A1:A10)
COUNTIF()	Counts cells that meet one condition	=COUNTIF(A1:A10, ">50")
COUNTIFS()	Counts cells that meet multiple conditions	=COUNTIFS(A1:A10, ">50", B1:B10, "East")
MAX()	Returns the largest value	=MAX(A1:A10)

Function	Description	Example
MIN()	Returns the smallest value	=MIN(A1:A10)
AVERAGE()	Returns the mean (average)	=AVERAGE(A1:A10)

3. Math Functions:

Function	Description	Example
SUM()	Adds values	=SUM(A1:A10)
SUMIF()	Adds values that meet a single condition	=SUMIF(B1:B10, ">100")
SUMIFS()	Adds values that meet multiple conditions	=SUMIFS(C1:C10, A1:A10, "East", B1:B10, ">100")
MOD()	Returns the remainder of a division	=MOD(10,3) → returns 1
FACT()	Returns factorial of a number	=FACT(5) → returns 120
PRODUCT()	Multiplies all given numbers	=PRODUCT(2,3,4) → 24
POWER()	Raises a number to a power	=POWER(2,3) → 8
SQRT()	Returns square root	=SQRT(25) → 5

4. Date & Time Functions:

Function	Description	Example
NOW()	Current date & time	=NOW()
TODAY()	Current date only	=TODAY()
YEAR()	Extracts year from date	=YEAR(A1)
MONTH()	Extracts month from date	=MONTH(A1)
DAY()	Extracts day from date	=DAY(A1)
YEARFRAC()	Fractional years between two dates	=YEARFRAC(A1, B1)
WEEKDAY()	Day of the week as a number (1=Sunday to 7=Saturday)	=WEEKDAY(A1)
TEXT()	Converts a date/time to custom format	=TEXT(A1, "dd-mmm-yyyy")

5. Text Functions:

Function	Description	Example
LEN()	Counts number of characters	=LEN("Excel") → 5
LEFT()	Returns characters from start	=LEFT("Excel", 2) → Ex
RIGHT()	Returns characters from end	=RIGHT("Excel", 3) → cel

Function	Description	Example
MID()	Extracts from middle	=MID("Excel", 2, 3) → xce
UPPER()	Converts text to uppercase	=UPPER("excel") → EXCEL
LOWER()	Converts text to lowercase	=LOWER("EXCEL") → excel
CONCATENATE()	Joins multiple text items (older versions)	=CONCATENATE(A1, B1)
CONCAT()	Joins text from multiple cells (modern version)	=CONCAT(A1:B1)
PROPER()	Capitalizes each word	=PROPER("john smith") → John Smith

Practical Excel Questions (with Real-life Scenarios)

1. Sales Report Analysis

You have a dataset:

Name	Region	Sales	Date
John	East	1200	01-Jan-2024
Meena	West	800	10-Feb-2024
Ravi	East	1500	28-Mar-2024
Sara	East		15-Apr-2024
Priya	North	2000	10-May-2024

Q1. Count how many employees belong to the East region.

👉 Use: COUNTIF()

Q2. Count how many sales values are blank.

👉 Use: COUNTBLANK()

Q3. Calculate the total sales for the East region only.

👉 Use: SUMIF()

Q4. Calculate the total sales where region is East and sales > 1000.

👉 Use: SUMIFS()

Q5. What is the maximum and minimum sale?

👉 Use: MAX(), MIN()

2. HR Records – Joining Date & Age Check

Name	Joining Date	Salary	Age
Ramesh	01-Feb-2023	45000	25
Swati	01-Jun-2024	55000	29
Anand	15-Dec-2022	47000	45
Krithi	30-Jan-2025	62000	17

Q6. Calculate how many employees joined before today.

👉 Use: TODAY(), COUNTIF()

Q7. Calculate the average salary.

👉 Use: AVERAGE()

Q8. How many years has Anand been working?

👉 Use: YEARFRAC()

Q9. Extract the weekday each person joined.

👉 Use: TEXT(date, "dddd") or WEEKDAY()

3. Employee Contact Info – Text Manipulation

First Name	Last Name	Email
Raj	kumar	raj.k@example.com
meena	das	meena.d@example.com

Q10. Combine first and last names with proper case (e.g., Raj Kumar).

👉 Use: PROPER(), CONCATENATE() or CONCAT()

Q11. Extract the first 3 letters of the first name.

👉 Use: LEFT()

Q12. Extract the domain name from the email (e.g., example.com).

👉 Use: MID() or RIGHT()

Q13. Count the number of characters in the email.

👉 Use: LEN()

Lookups

In Excel, lookup functions are used to search for values in a table or range and return corresponding data. These are crucial for data analysis, automation, and reporting.

Types of Lookup Functions in Excel:

I. VLOOKUP (Vertical Lookup)

- **Purpose:** Searches for a value in the **first column** of a range and returns a value in the **same row** from a specified column.
- **Syntax:** =VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])
- **Example:** =VLOOKUP(101, A2:D10, 2, FALSE) → Finds 101 in column A and returns the value from column 2 of the same row.

II. HLOOKUP (Horizontal Lookup)

- **Purpose:** Searches for a value in the **first row** of a range and returns a value in the **same column** from a specified row.
- **Syntax:** =HLOOKUP(lookup_value, table_array, row_index_num, [range_lookup])
- **Example:** =HLOOKUP("Math", A1:F2, 2, FALSE) → Finds “Math” in row 1 and returns value from row 2.

III. XLOOKUP (Excel 365 and 2021+)

- **Purpose:** A modern replacement for VLOOKUP and HLOOKUP, works both vertically and horizontally.

IV. INDEX + MATCH (Alternative to VLOOKUP)

- **Purpose:** More flexible and powerful than VLOOKUP.
- **Example:**
=MATCH(101, A2:A10, 0) → Returns position of 101.
=INDEX(B2:B10, MATCH(101, A2:A10, 0)) → Returns value from column B for ID 101.

Sorting, Filtering & Conditional Formatting

1. Sorting

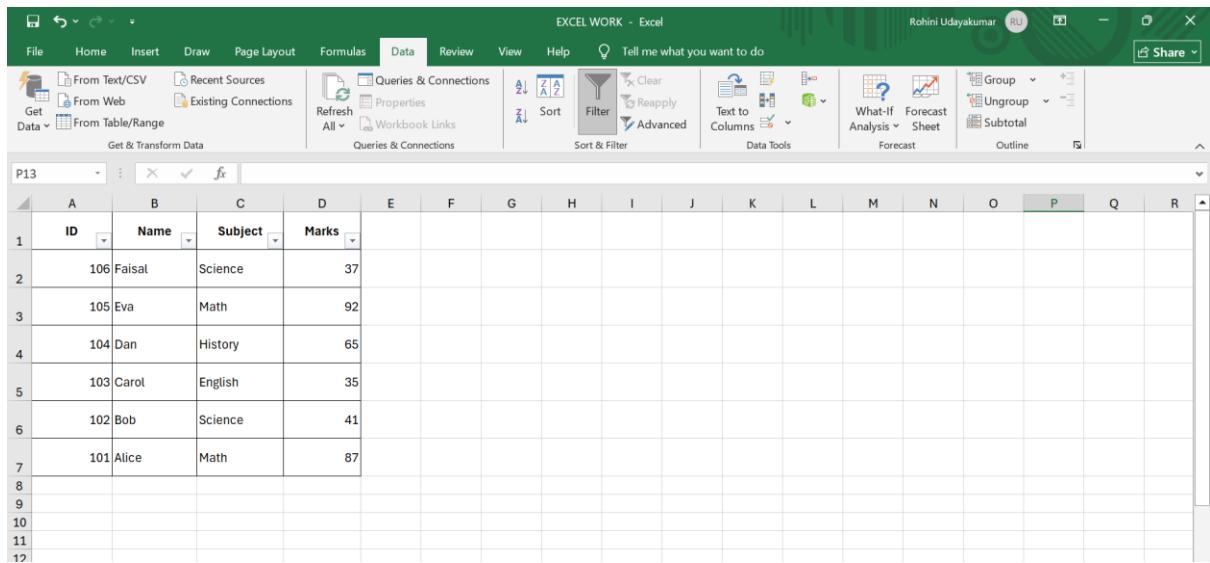
Data → Sort

Sorting arranges your data in a specific order:

- Alphabetically (A–Z or Z–A)
- Numerically (Smallest to Largest or vice versa)

- Chronologically (Oldest to Newest)

2. Filtering



The screenshot shows an Excel spreadsheet titled "EXCEL WORK - Excel". The Data tab is selected. In the ribbon, under the Data tab, there is a "Sort & Filter" section with a "Filter" button highlighted. The spreadsheet contains the following data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	ID	Name	Subject	Marks														
2	106	Faisal	Science	37														
3	105	Eva	Math	92														
4	104	Dan	History	65														
5	103	Carol	English	35														
6	102	Bob	Science	41														
7	101	Alice	Math	87														
8																		
9																		
10																		
11																		
12																		

Data → Sort

Filtering lets you temporarily hide rows that don't meet certain criteria so you can focus on specific data.

3. Conditional formatting

Conditional Formatting highlights cells based on their values using colors, icons, or data bars, helping you spot trends, outliers, or patterns instantly.

Feature	Default Formatting	Custom Formatting
Style Applied	You choose from prebuilt formats like:	You define your own using formatting settings:
- Red fill	- Specific font color, style, number format	
- Yellow text		- Format like ₹#,##0.00, "High:" 0, or [Red]0
How to Apply	Select a rule → Choose a ready-made format	Select a rule → Click "Custom Format..."
Example	Highlight >80 with red fill	Highlight >80 with bold blue text + custom number format

PivotTables & Charts

Row Label	Sum of Total	Row Label	Sum of Units	Sum of To Column Labels	Desk	Pen	Pen Set	Pencil	Grand Total	
		Binder	749	Row Label	Binder	Desk	Pen	Pen Set	Pencil	Grand Total
Andrews	438.37	Central	424	Central	5762.63	875	539.73	2421.4	1540.3	11139.07
Gill	1336.33	East	202	East	2247.98		1354.3	1748.5	363.7	5714.41
Howard	57.71	West	123	West	2458.77	825	151.24	231.12	3666.13	
Jardine	2812.19	Desk	10	Grand Tot.	10469.38	1700	2045	4170	2135	20519.6
JGHHUG	413.54	Central	7							
Jones	2075.36	West	3							
Kivell	3109.44	Pen	278							
Morgan	1387.77	Central	27							
Parent	3102.3	East	175							
Smith	2120.47	West	76							
Sorvino	2702.9	Pen Set	395							
Thompson	963.23	Central	243							
	Grand Tot.	East	152							
	20519.61	West	88							
		Pencil	716	Grand Tot.	2148					
		Central	498							
		East	130							
		West	88							

1. Create a Simple PivotTable

- Insert PivotTable from raw data
- Drag & drop fields to Rows, Columns, Values, and Filters
- Change summary function (e.g., from Sum to Average or Count)

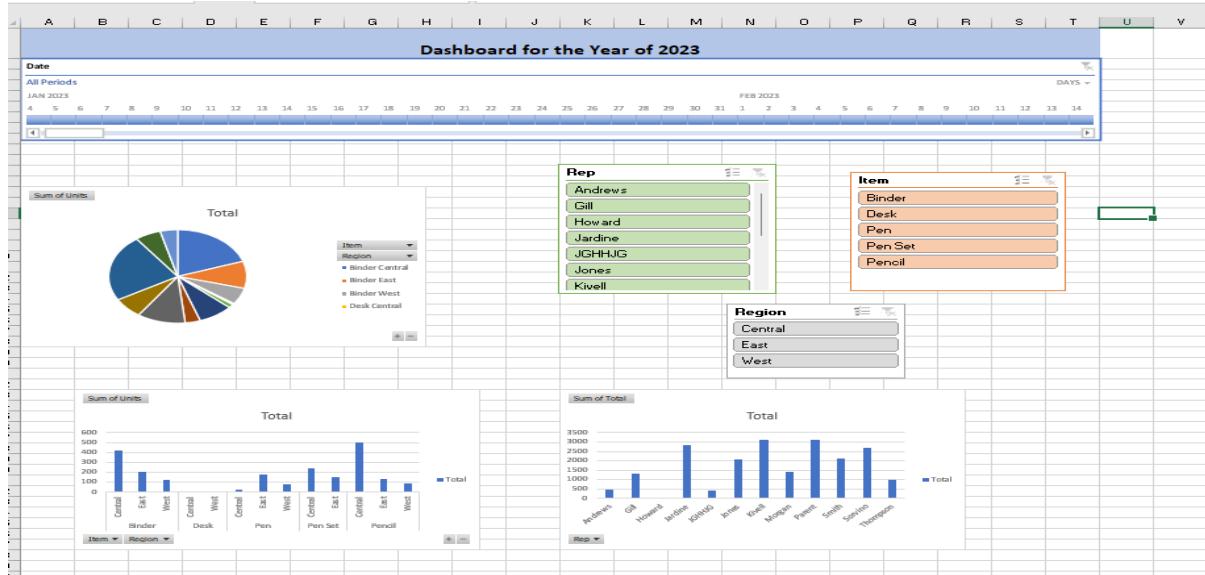
2. Summarize Totals by Category

- Group sales data by:
 - Product
 - Region
 - Salesperson
- Add Value Filters (e.g., Top 5 products)

3. Create Charts

- Use:
 - Column Chart: Compare values across categories
 - Pie Chart: Show proportions
 - Line Chart: Show trends over time

Mini Dashboard Project



Step 1: Insert a PivotTable

- Select the entire dataset
- Go to **Insert > PivotTable**
- Place it in a **new worksheet**

PivotTable Setup:

- **Rows:** Salesperson
- **Columns:** Region (optional)
- **Values:** Sum of Amount

Step 2: Insert a Pivot Chart

- Click inside PivotTable
- Go to **PivotTable Analyze > PivotChart**
- Choose a **Column Chart** or **Bar Chart**

Rename chart title to:

"Total Sales by Salesperson and Region"

Step 3: Add Slicers

- Click PivotTable → Go to **PivotTable Analyze > Insert Slicer**

- Add slicers for:
 - Region
 - Date
- Move slicers to the side and resize if needed

Step 4: Format for Dashboard Feel

- Remove gridlines: **View > Uncheck Gridlines**
- Add:
 - Chart Title
 - Data Labels (Chart > Add Chart Elements > Data Labels)
 - Slicer Styles (Format slicers for better look)

◊ Additional Excel Topics for Better Understanding

1. Useful Keyboard Shortcuts

Shortcut	Description
Ctrl + Arrow	Jump to the end of a data region
Ctrl + Shift + L	Add/Remove filters
Ctrl + Shift + ↓	Select all data in a column
Alt + =	AutoSum
Ctrl + T	Convert range into a Table
F4	Repeat last action

2. Excel Tables vs. Normal Ranges

Use Ctrl + T to convert data into an Excel Table. Benefits include:

- Auto-expansion of rows/columns
- Structured references (e.g., =Table1[Sales])
- Easier filtering/sorting

3. Additional Chart Types & Use Cases

Chart Type	Use Case

Bar Chart	Compare quantities between categories
Combo Chart	Show line + bar (e.g., Revenue + Growth %)
Scatter Plot	Correlation between two numeric variables
Histogram	Data distribution (Excel 2016+)
Sparklines	Mini-charts inside cells

4. Dynamic Named Ranges

Use OFFSET for ranges that grow automatically:

```
=OFFSET(Sheet1!$A$2, 0, 0, COUNTA(Sheet1!$A:$A)-1)
```

5. IFERROR Function

Handle errors using IFERROR:

```
=IFERROR(A1/B1, "Error")
```

6. Data Consolidation

Combine data from multiple sheets using: Data > Consolidate.

Choose summary method like Sum, Average, etc.

7. Power Query (Intermediate)

Automates data cleaning/transformation. Found under Data > Get & Transform Data.

8. Worksheet Protection

- Protect Sheet: Prevent edits (Review tab)
- Lock Specific Cells: Format Cells > Protection > Lock

9. Named Ranges

Use named ranges like =SalesData for cleaner formulas.

10. Real-World Excel Use Cases

Role	Excel Use
Business Analyst	Dashboards, Data Cleaning, Reports
HR Executive	Employee Data, Leave Trackers

Sales/Marketing	Reports, Lead Tracking, Region Sales
Finance Executive	Budgeting, P&L, Forecasting

Excel Learning Path (Level-wise)

Level	Topics
Beginner	Basics, Formatting, Formulas
Intermediate	Data Cleaning, Validation, Charts
Advanced	PivotTables, Dashboards, Power Query