Advanced Excel| Assignment

Question 1 : Explain the difference between Absolute, Relative, and Mixed Cell Referencing in Excel with examples.

Answer : **Relative Cell Referencing:**

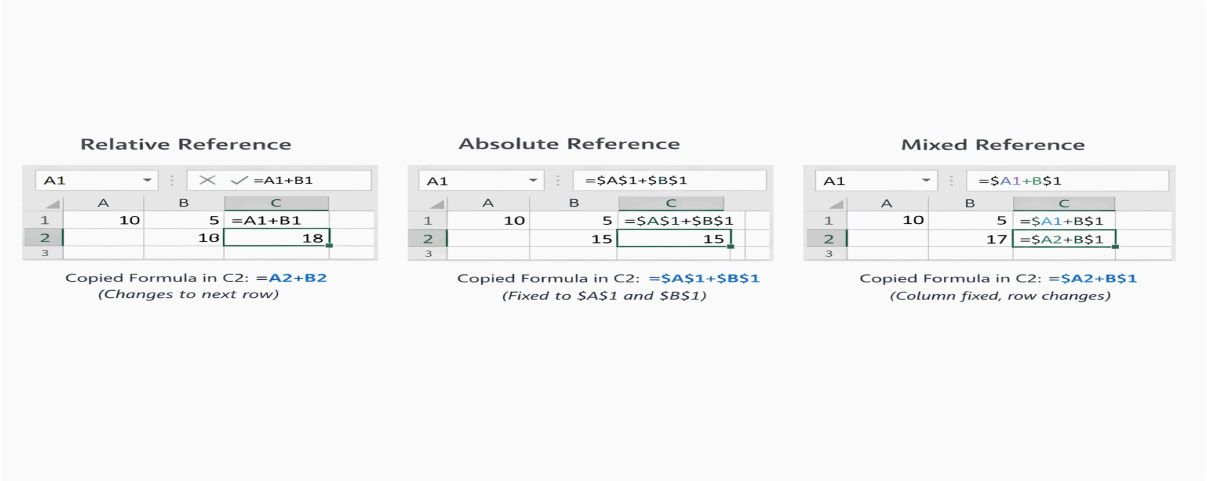
Relative referencing is the default cell reference in Excel. When a formula is copied from one cell to another, the cell references automatically adjust according to the new position.

Absolute Cell Referencing:

Absolute referencing keeps the cell reference fixed even when the formula is copied to other cells. It uses the dollar sign ($) to lock both the row and column.

Mixed Cell Referencing:

Mixed referencing fixes either the row or the column while allowing the other to change when the formula is copied. It is useful when working with tables where only one part of the reference should remain constant.



Question 2 : What is a Macro in Excel? How does it help in automation?

Answer : A **Macro in Excel** is a recorded sequence of actions that automates repetitive tasks using VBA (Visual Basic for Applications). Macros help users perform tasks automatically that would otherwise need to be done manually.

Macros improve efficiency by saving time, reducing errors, and increasing productivity. They are commonly used for formatting data, performing calculations, and generating reports automatically.

Question 3: What are Text Functions in Excel? Mention any five with examples.

Answer:Text Functions in Excel are used to **manipulate, format, and analyze text data**. These functions help users clean and organize textual information like names, addresses, and codes.

Five Text Functions with Examples:

1. **UPPER()**
   Converts text into uppercase letters.
   Example:
   `=UPPER("excel")` → **EXCEL**

2. **LOWER()**
   Converts text into lowercase letters.
   Example:
   `=LOWER("EXCEL")` → **excel**

3. **PROPER()**
   Converts the first letter of each word into uppercase.
   Example:
   `=PROPER("priyanka sharma")` → **Priyanka Sharma**

4. **LEFT()**
   Extracts a specified number of characters from the left side of a text.
   Example:
   `=LEFT("Excel", 2)` → **Ex**

5. **LEN()**
   Counts the total number of characters in a text.
   Example:
   `=LEN("Excel")` → **5**

Question 4: What is the use of Scenario Manager in decision making?

Answer:

Scenario Manager is a tool in Excel that allows users to **compare different possible outcomes** by changing input values. It helps in **decision making** by showing how different scenarios affect the final result.

Use in Decision Making:

- Analyze **best-case, worst-case, and most-likely** situations
- Compare multiple possibilities without changing original data
- Helpful in **financial planning, budgeting, and forecasting**

Example:

A company can use Scenario Manager to see how **profit changes** with different values of sales, cost, or interest rates.

Conclusion:

Scenario Manager helps users make **better and informed decisions** by analyzing multiple scenarios easily

Question 5: Define the purpose of VLOOKUP and HLOOKUP. How are they different from XLOOKUP? Which among XLOOKUP and INDEX-MATCH is best while usage?

Answer:

Purpose of VLOOKUP:

VLOOKUP (Vertical Lookup) is used to search for a value in the **first column** of a table and return a corresponding value from another column in the same row.

Example (theory):
Used to find a student's marks using roll number.

Purpose of HLOOKUP:

HLOOKUP (Horizontal Lookup) searches for a value in the **first row** of a table and returns a value from a specified row.

Example (theory):

Used when data is arranged horizontally, such as monthly sales across columns.

Difference between VLOOKUP/HLOOKUP and XLOOKUP:

XLOOKUP is a modern and advanced lookup function that replaces both VLOOKUP and HLOOKUP.

Key differences:

- VLOOKUP works only **vertically**, HLOOKUP works only **horizontally**
- XLOOKUP works in **both directions**

- VLOOKUP requires the lookup value to be in the **first column**, but XLOOKUP has **no such limitation**
- XLOOKUP is more **flexible and accurate**

XLOOKUP vs INDEX-MATCH: Which is better?

XLOOKUP is generally **better and easier to use** because:

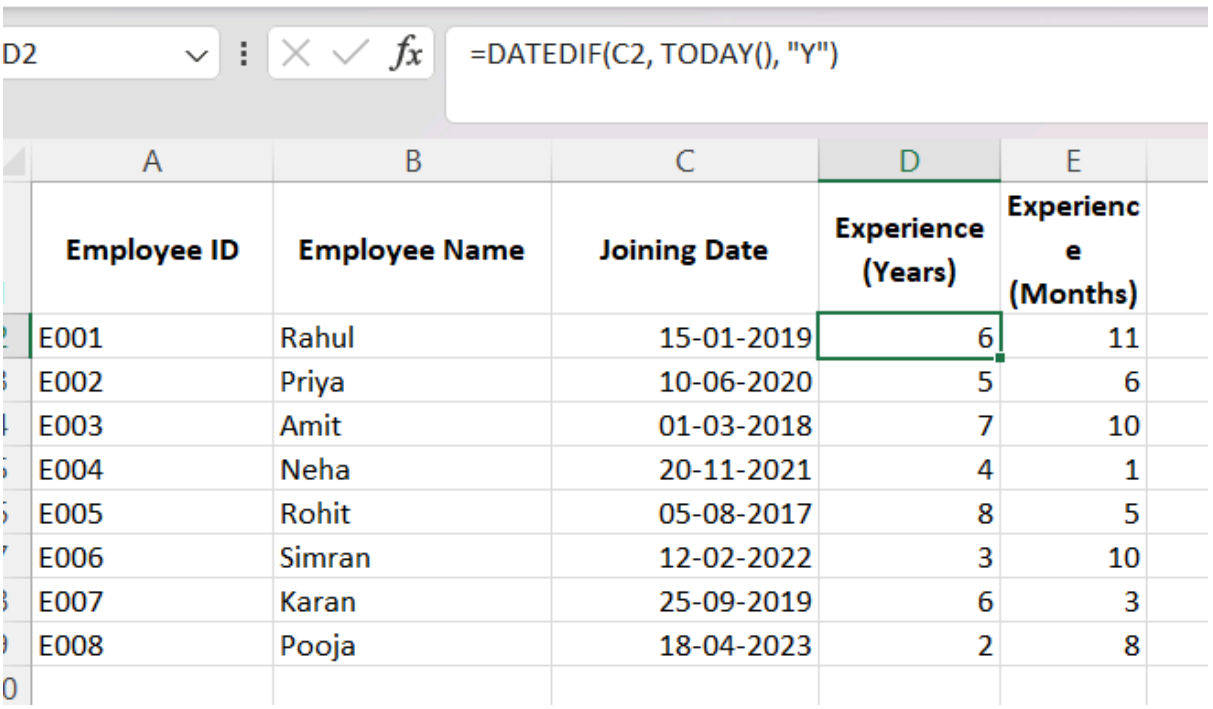
- Simple syntax
- Works in all directions
- Handles missing values properly
- No need to combine two functions

INDEX-MATCH is powerful but more **complex** and mainly used in older Excel versions.

Conclusion:

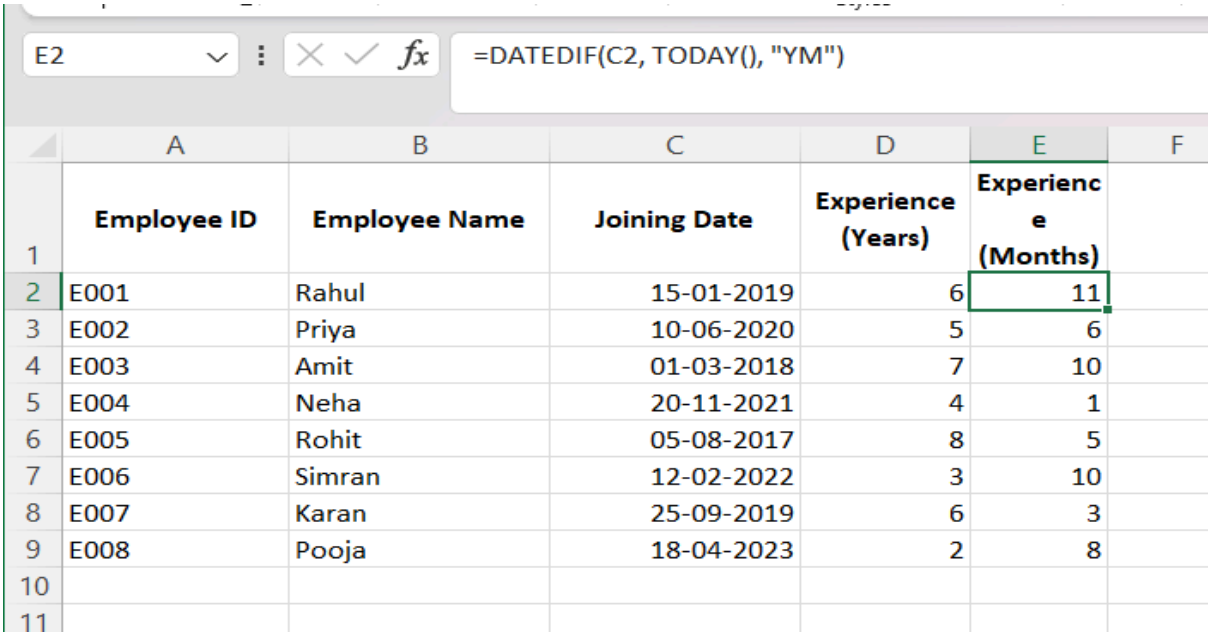
- **VLOOKUP and HLOOKUP** are basic lookup functions
- **XLOOKUP** is more advanced and flexible
- **XLOOKUP is the best choice** for modern Excel usage, while **INDEX-MATCH** is useful for backward compatibility

Question 6 : Create a dataset of 8 employees with joining dates. Use the dummy dataset to calculate their experience in years and months.



D2 | =DATEDIF(C2, TODAY(), "Y")

	A	B	C	D	E
	Employee ID	Employee Name	Joining Date	Experience (Years)	Experience (Months)
2	E001	Rahul	15-01-2019	6	11
3	E002	Priya	10-06-2020	5	6
4	E003	Amit	01-03-2018	7	10
5	E004	Neha	20-11-2021	4	1
6	E005	Rohit	05-08-2017	8	5
7	E006	Simran	12-02-2022	3	10
8	E007	Karan	25-09-2019	6	3
9	E008	Pooja	18-04-2023	2	8
10					



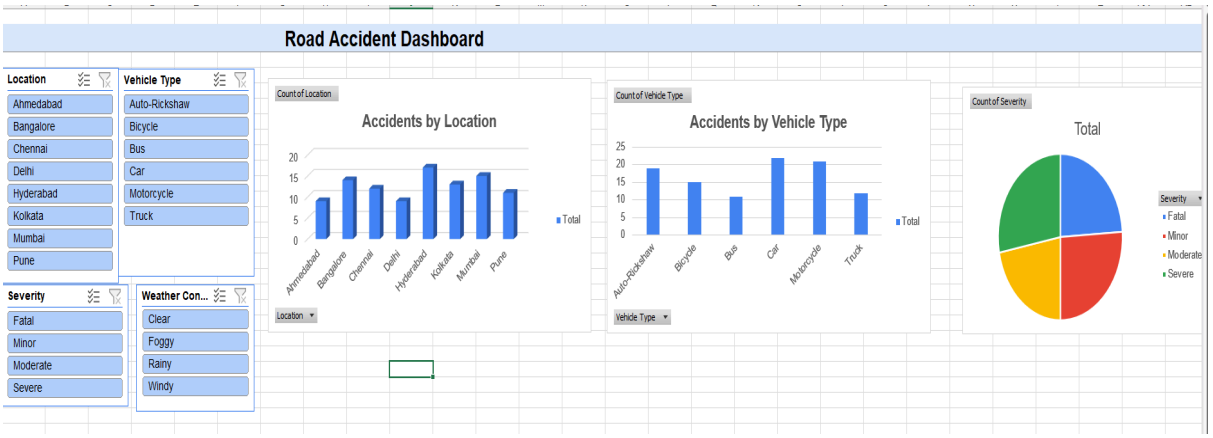
E2 | =DATEDIF(C2, TODAY(), "YM")

	A	B	C	D	E	F
1	Employee ID	Employee Name	Joining Date	Experience (Years)	Experience (Months)	
2	E001	Rahul	15-01-2019	6	11	
3	E002	Priya	10-06-2020	5	6	
4	E003	Amit	01-03-2018	7	10	
5	E004	Neha	20-11-2021	4	1	
6	E005	Rohit	05-08-2017	8	5	
7	E006	Simran	12-02-2022	3	10	
8	E007	Karan	25-09-2019	6	3	
9	E008	Pooja	18-04-2023	2	8	
10						
11						

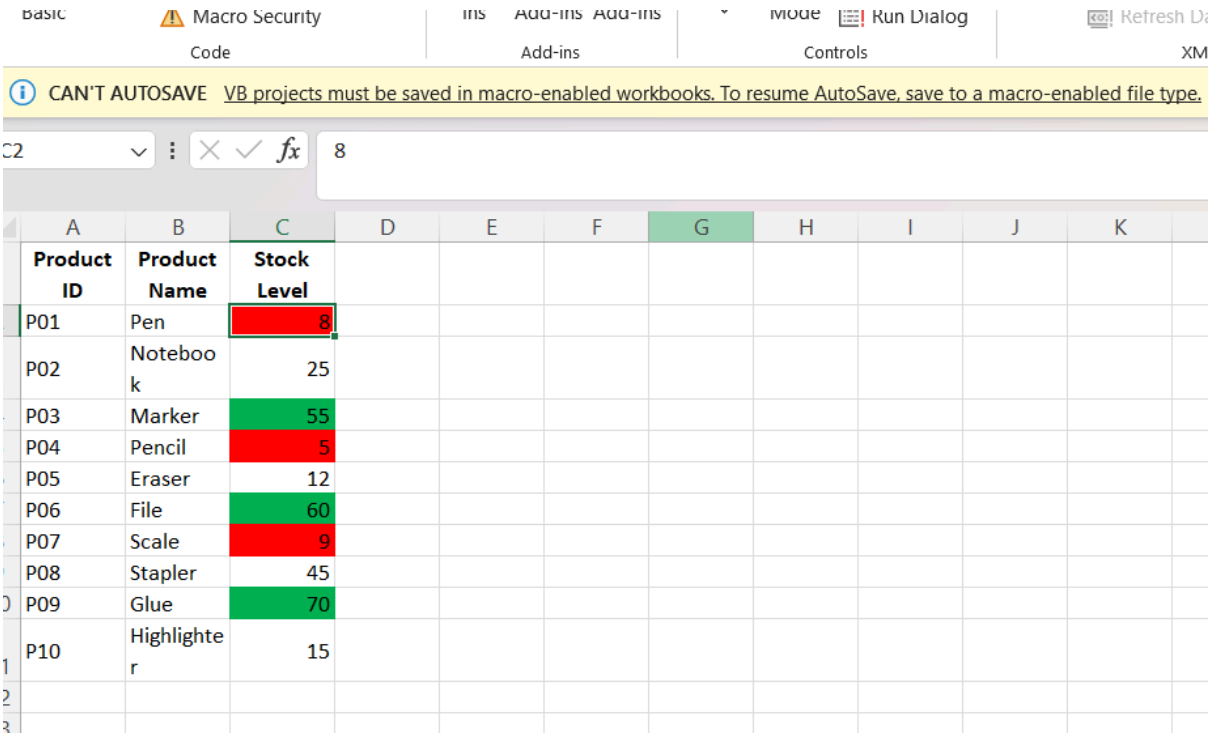
Question 7 : You are provided with a dataset containing details of 100 road accidents.Design a Road Accident Analysis Dashboard using Pivot Tables and Slicers in Excel.

Answer : Dashboard

- The Road Accident Analysis Dashboard is created using Pivot Tables and Slicers in Excel to analyze accident patterns by severity, city, vehicle type, and weather conditions.



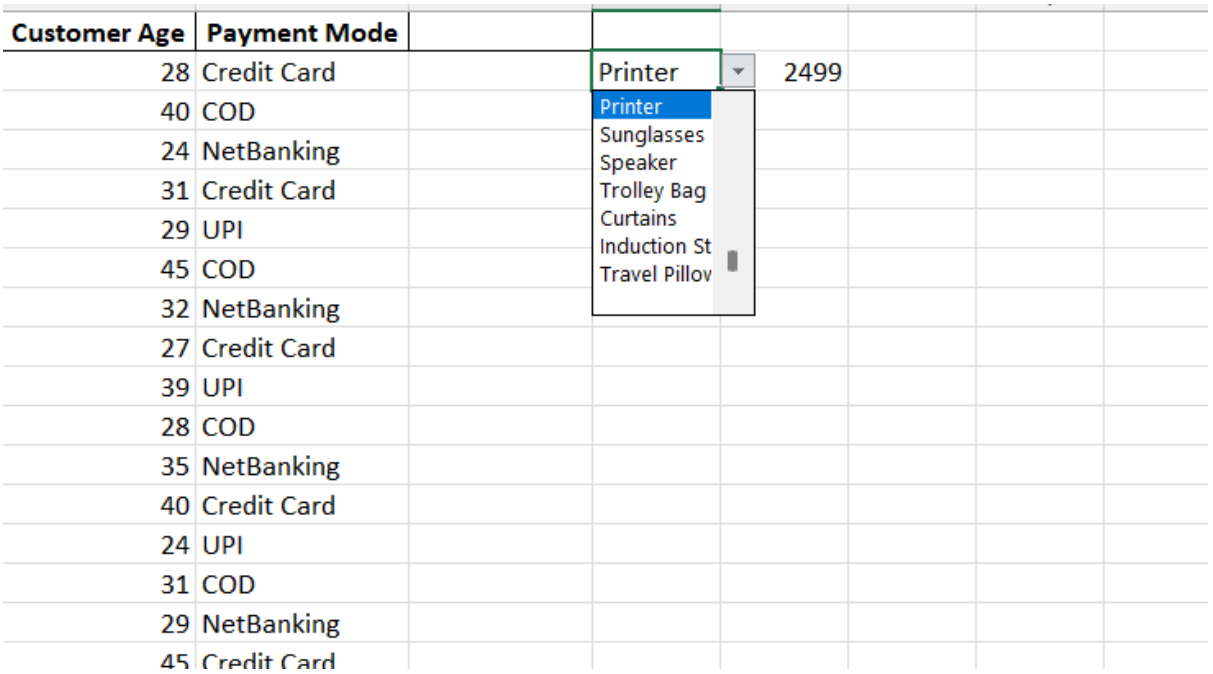
Question 8 : Create a table of 10 products with stock levels. Use Macros to highlight: ● Low stock (less than 10 units) in red ● Overstock (more than 50 units) in green.



Product ID	Product Name	Stock Level
P01	Pen	8
P02	Notebook	25
P03	Marker	55
P04	Pencil	5
P05	Eraser	12
P06	File	60
P07	Scale	9
P08	Stapler	45
P09	Glue	70
P10	Highlighter	15

Question 9 : You are given a dataset : Create a drop-down list of product names in a separate cell using Data Validation, and write a formula in the adjacent cell so that when a product is selected from the drop-down, its corresponding price is automatically displayed.

Answer :A drop-down list of product names is created using Data Validation. VLOOKUP function is used to fetch and display the corresponding unit price automatically when a product is selected from the drop-down list.



Question 10 : You are a data analyst working for a retail firm. You've received a sales dataset that includes customer transactions from various regions and product categories. Your job is to analyze this data, clean inconsistencies, extract insights, and build visual reports. Task : 1. Apply data validation in the Units Sold column to ensure only values between 1 and 20 are allowed. 2. Highlight rows where Profit > ₹5000 3. Highlight any phone number that is not exactly 10 digits 4. Find the Revenue generated by each product and also label according to revenue generated as "High", "Medium", "Low". 5. Find the profit percentage up to two decimal places. 6. Show Total Revenue and Total Profit by Region. 7. Show Average Units Sold per Product Category.

Answer:

In this task, I worked as a data analyst on a retail sales dataset containing customer transactions across different regions and product categories. The dataset was analyzed, cleaned, and visualized using various Excel features to extract meaningful insights.

1. Data Validation on Units Sold

Data Validation was applied on the *Units Sold* column to ensure that only values between 1 and 20 are allowed. This helped in restricting incorrect or unrealistic data entries and improved data accuracy.

2. Highlighting High Profit Rows

Conditional Formatting was used to highlight entire rows where the Profit value is greater than ₹5000. This helped in quickly identifying high-profit transactions.

3. Validation of Phone Numbers

Phone numbers that were not exactly 10 digits long were identified using conditional formatting. Invalid phone numbers were highlighted to ensure data consistency and correctness.

4. Revenue Calculation and Categorization

Revenue was calculated for each transaction by multiplying Units Sold with Unit Price. Based on the revenue generated, products were categorized into:

- **High Revenue**
- **Medium Revenue**
- **Low Revenue**

This classification helped in analyzing product performance based on revenue contribution.

5. Profit Percentage Calculation

Profit percentage was calculated using the formula:

Profit Percentage = (Profit / Revenue) × 100

The values were formatted to display up to two decimal places for better readability.

6. Total Revenue and Profit by Region

Pivot Tables were used to calculate Total Revenue and Total Profit for each Region. This provided a region-wise performance overview and supported comparison across regions.

7. Average Units Sold per Product Category

Another Pivot Table was created to calculate the Average Units Sold for each Product Category, helping to understand customer demand patterns across categories.

Conclusion

Through data validation, conditional formatting, formula-based calculations, and pivot table analysis, the dataset was cleaned and analyzed effectively. The insights generated from this analysis support better business decision-making and performance evaluation.

Dataset link