SUMMARY: INTRODUCTION TO MS EXCEL-III

SESSION OVERVIEW:

By the end of this session, the students will be able to:
- Perform different **statistical, logical operator, string, and date functions** in Ms Excel.
- Understand different **data AI tools** in MS Excel.

KEY TOPICS AND EXAMPLES:

1. **Perform different functions in MS Excel:**

    Reference datasets: (dataset-1) and (dataset-2)

    - **Mathematical Calculations**: Functions like SUM, AVERAGE, MAX, and MIN are used for basic arithmetic operations and statistical calculations.
    - **Statistical Analysis:** Functions like COUNT, COUNTA, COUNTIF, and SUMIF are used for counting and summing data based on specified conditions, as well as other statistical calculations.
    - **Logical Operations:** Functions like IF, AND, OR, and NOT are used to perform logical operations and make decisions based on specified criteria.
    - **Text Manipulation:** Functions like CONCATENATE, LEFT, RIGHT, and MID are used to manipulate and concatenate text strings. These operations are majorly used in data cleaning before the data analysis.
    - **Date and Time Operations**: Functions like TODAY, NOW, DATE, and TIME are used to work with date and time values and perform calculations based on them.

    a. **Statistical functions:**
        i. **COUNT:** Counts the number of cells containing numbers in a range.
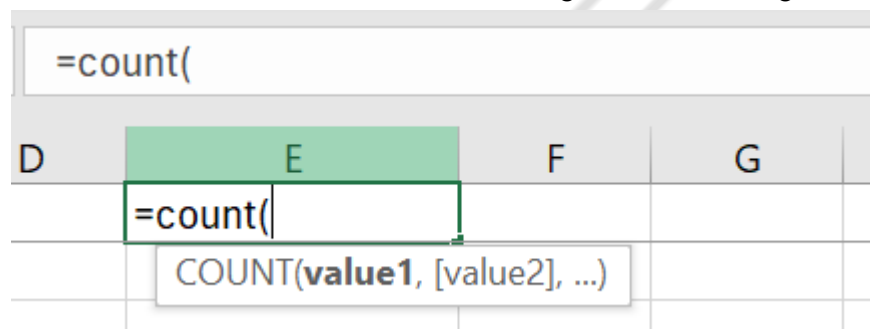

Figure 21: Representation of COUNT in Excel

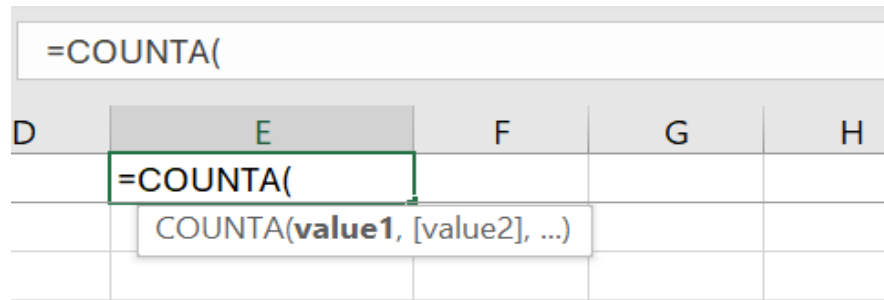   ii. **COUNTA:** Counts the number of non-empty cells in a range.

Figure 22: Representation of COUNTA in Excel

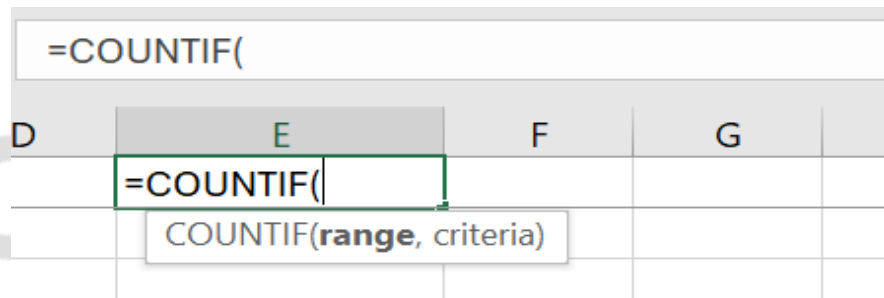**iii.** **COUNTIF:** Counts the number of cells that meet a specific condition.

Figure 23: *Representation of COUNTIF in Excel*

iv. **SUMIF:** Adds up the numbers in a range that meets a specific condition.
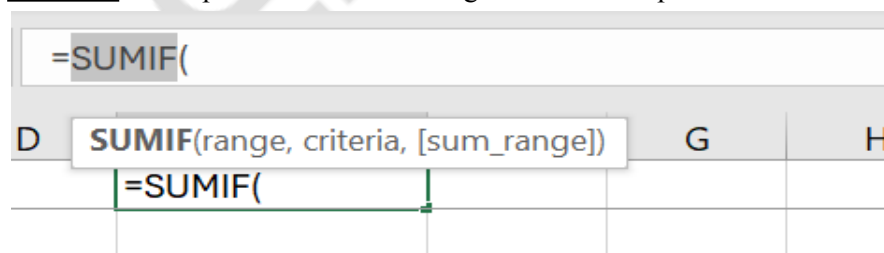

Figure 24: *Representation of SUMIF in Excel*

b. **Logical operator functions: (dataset)**

Steps:
- Click on the cell where you want the result of the logical function to appear.
- Start typing the name of the logical function you want to use (e.g., IF, AND, OR).
- After typing the function name, open parentheses "(" to begin entering arguments.
- Enter the conditions or values you want to evaluate. Separate multiple arguments with commas.
- Close parentheses ")" to indicate the end of the function's arguments.
- Press Enter to complete the function. Excel will calculate the result based on the specified function and arguments.

i. **IF**: Returns one value if a condition is true and another value if it's false.
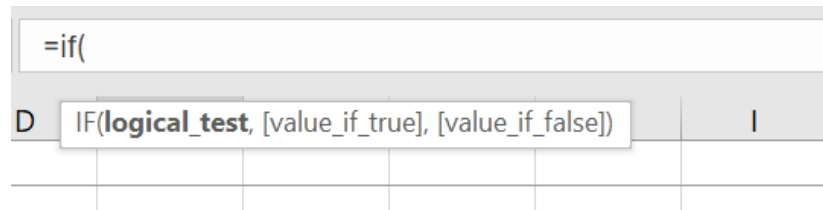
Figure 7: Representation of IF function in Excel

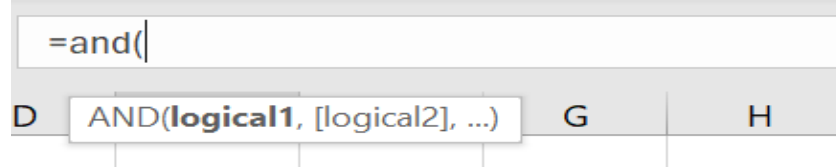ii. **AND**: Returns TRUE if all arguments are true, otherwise returns FALSE.

Figure 8: Representation of AND function in Excel

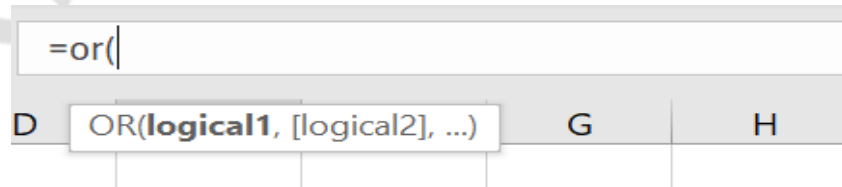iii. **OR**: Returns TRUE if any argument is true, otherwise returns FALSE.

Figure 9: Representation of OR function in Excel

iv. **NOT**: Reverses the logical value of its argument (TRUE becomes FALSE, and FALSE becomes TRUE).

Figure 10: Representation of NOT function in Excel

c. **Text functions: (Dataset)**

Steps:
- Click on the cell where you want the result of the text function to appear.
- Start typing the name of the text function you want to use (e.g., LEFT, RIGHT, CONCATENATE).
- After typing the function name, open parentheses "(" to begin entering arguments.
- Enter the text or cell reference you want to manipulate. Additional arguments may be required depending on the function.
- Close parentheses ")" to indicate the end of the function's arguments.
- Press Enter to complete the function. Excel will calculate the result based on the specified text function and arguments.

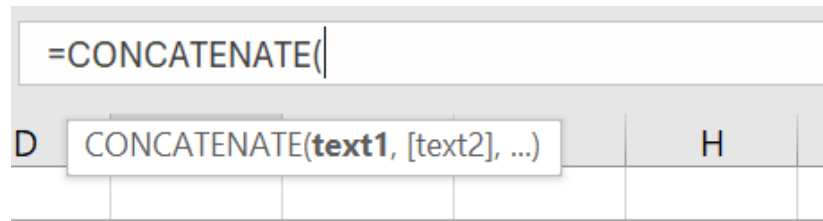i. **CONCATENATE**: Combines multiple text strings into one.

Figure 11: Representation of CONCATENATE function in Excel

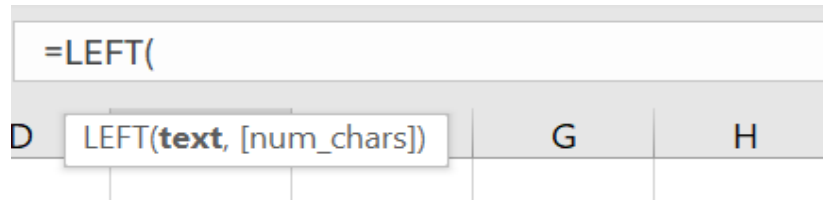ii. **LEFT:** Returns the leftmost characters from a text string.

Figure 12: Representation of LEFT function in Excel

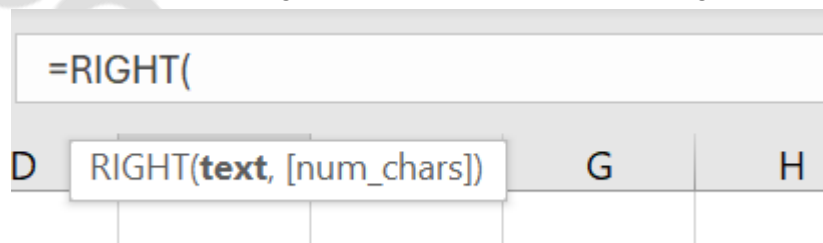iii. **RIGHT:** Returns the rightmost characters from a text string.

Figure 13: Representation of the RIGHT function in Excel

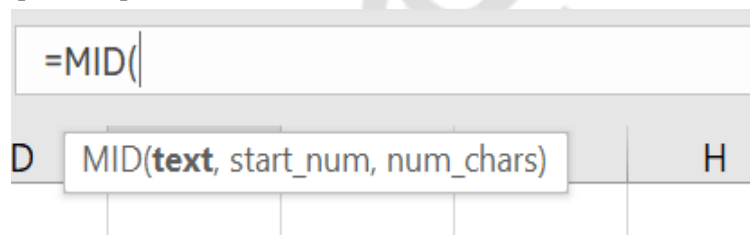iv. **MID:** Returns a specific number of characters from a text string, starting at a specified position.

Figure 14: Representation of MID function in Excel

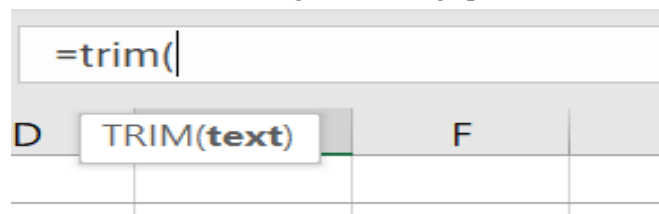v. **TRIM:** Removes leading and trailing spaces from a text string.

Figure 15: Representation of TRIM text function in Excel

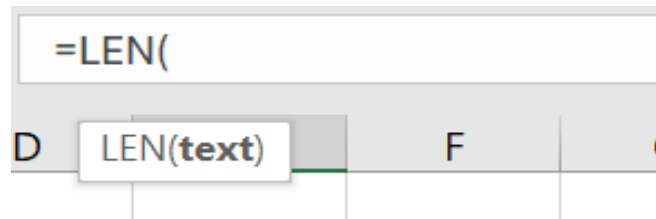vi. **LEN**: Returns the length of a text string (number of characters).

Figure 16: Representation of LENGTH of string function in Excel

d. Date functions: (Dataset)

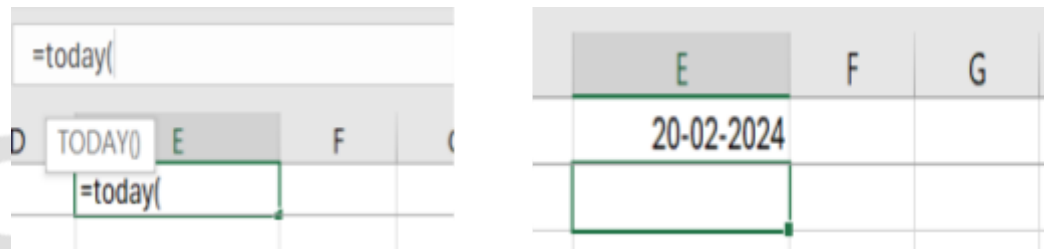   i.   **TODAY:** Returns the current date.

Figure 17: Representation of TODAY function in Excel

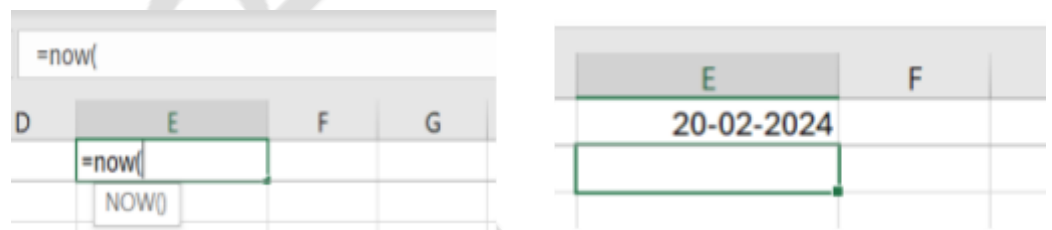   ii.   **NOW:** Returns the current date and time.

Figure 18: Representation of NOW in Excel

    iii.   **DATE**: Creates a date based on the specified year, month, and day.

Figure 19: Representation of DATE in Excel

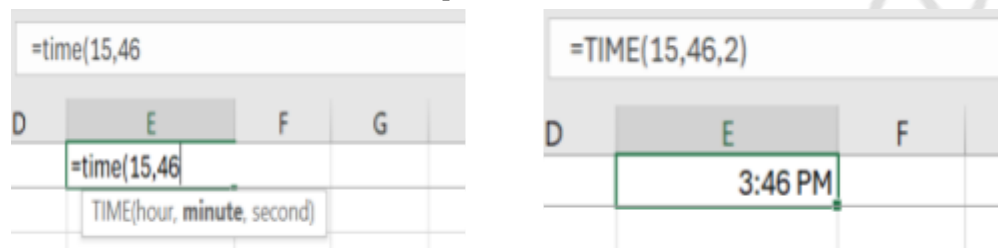   iv.   **TIME:** Creates a time based on the specified hour, minute, and second.

Figure 20: Representation of TIME in Excel

AI FEATURES IN EXCEL: (Dataset)

1. ### Analyze data:

   This feature in Excel gives insights into the data based on the prompt. This is an AI feature. This feature can help us identify outliers in the data just by asking questions.
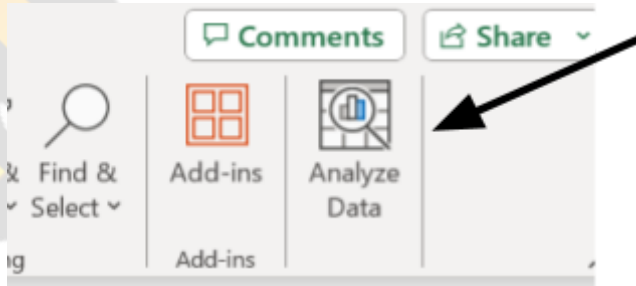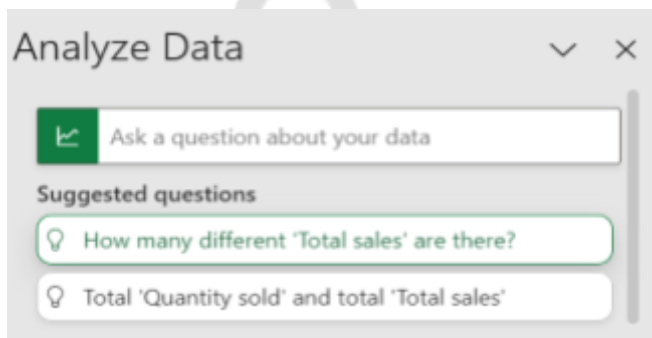
Figure 27: Represents Analyze data AI feature

Figure 28: Representation of the questions it asks and accordingly provides insights

Creates pivot table to provide insights

Creates charts to provide insights

Figure 29: Representation of how to analyze data feature provides insights

2. **Flash fill:**

Flash Fill is a powerful feature in Microsoft Excel that allows users to automatically fill data based on patterns recognized in adjacent cells. It's particularly useful for quickly extracting or formatting data without the need for complex formulas or manual entry.

- **Recognizing Patterns:** Excel's Flash Fill feature analyzes the data entered in a column or row and identifies patterns based on the content of adjacent cells.
- **Automatic Fill:** Once a pattern is recognized, Flash Fill automatically fills in the remaining cells in the column or row with data that follows the same pattern.
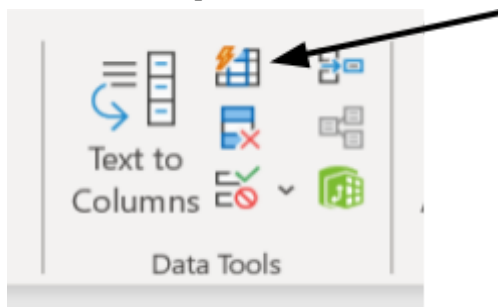

Figure 30: Representation of flash fill icon

3. Recommended charts:

The "Recommended Charts" feature in Excel suggests the most suitable chart types based on the selected data.
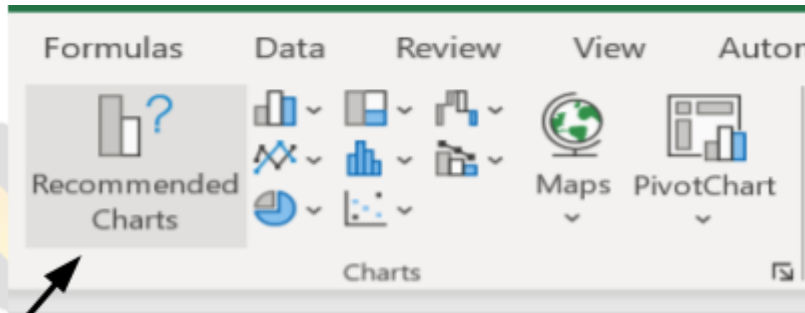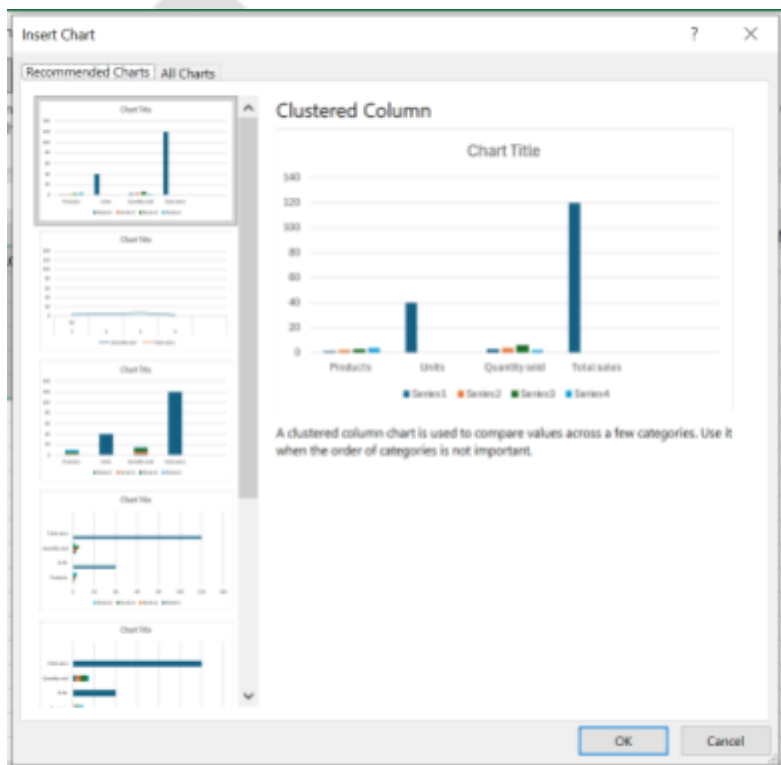

Figure 31: Representation of recommended charts icon

Figure 32: Representation of recommended charts