



DATA ANALYSIS WITH EXCEL

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COURSE OVERVIEW

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- 01** CREATE TABLES
 - 02** MANAGE TABLES
 - 03** MANAGE TABLE STYLES AND OPTIONS
 - 04** IF FUNCTIONS
 - 05** STATISTICAL OPERATIONS

CREATE TABLES

- A table refers to a structured range of data organized into rows and columns.
- Tables in Excel provide a convenient and efficient way to manage and analyze data, offering a range of features that streamline data entry, analysis, and visualization tasks.

CREATE AND MANAGE TABLES

Steps to Create and Manage Tables:

1. Highlight the range of cells that you want to include in your table and Insert a Table by clicking the "Insert" tab on the ribbon.
2. Excel will intuitively detect the range of cells you've selected.
3. Excel will apply default formatting to your table. You can customize it further by adding or removing columns, or renaming headers.
4. With the table selected, the "Table Design" tab appears on the ribbon. You can further modify the selected table style by clicking the "More" arrow in the Table Styles group.

PERFORM OPERATIONS WITH FORMULAS

Summarise Data with Functions

References

- References are used to identify and locate specific cells or ranges of cells within a worksheet.
- They are used to perform calculations, create formulas, and link data across different parts of a workbook.
- References can be either relative, absolute, or mixed.

Overview of References

- Cell References: These refer to individual cells within a worksheet and are represented by a combination of the column letter and row number, such as A1, B2, and C3

PERFORM OPERATIONS WITH FORMULAS

Summarise Data with Functions

- **Range Reference** is a group of cells within a worksheet represented by the starting cell reference followed by a colon and the ending cell reference, such as A1:B10.
- **Relative Reference** adjusts its position based on its location relative to the cell containing the formula.
- When you copy a formula containing relative references to another location, the references adjust relative to the new location.

PERFORM OPERATIONS WITH FORMULAS

Summarise Data with Functions

- Absolute references remain fixed despite of where the formula is copied. They are represented by placing a dollar sign (\$) before the column letter, row number, or both in the reference. For example, \$A\$1 or \$A1.
- Mixed references contain a combination of relative and absolute references. You can anchor either the row or the column while allowing the other to adjust when the formula is copied.

IF FUNCTIONS

- IF function is a logical function that evaluates a specified condition and returns one value if the condition is true and another value if the condition is false.
- The basic syntax of the IF function is as follows:

`=IF(logical_test, value_if_true, value_if_false)`

IF FUNCTIONS

Breakdown of the syntax:

- **logical_test**: This is the condition that you want to assess. For instance comparison between values
- **value_if_true**: This is the value that will be returned if the **logical_test** results in TRUE.
- **value_if_false**: This is the value that will be returned if the **logical_test** results in FALSE.

TYPES OF IF FUNCTIONS

Nested IF functions:

- You can nest IF functions within each other to create more complex conditions that allow you to check multiple conditions and return different values based on the results.

=IF(AND(condition1,condition2),value_if_true2,
value_if_false2))

IFERROR Function:

- Allows you to handle errors that may occur in a formula. It checks if an expression results in an error and returns a specified value if it does. =IFERROR(condition,
value_if_error)

TYPES OF IF FUNCTIONS

Logical operations with IF functions

SUMIF Function:

- The SUMIF function adds the values in a range that meet/qualify a set of criteria.

Syntax:=SUMIF(range, criteria, [sum_range])

AVERAGEIF Function:

- The AVERAGEIF function averages the values in a range that meets a set of criteria.

Syntax:=AVERAGEIF(range, criteria, [average_range])

ADVANCE IF FUNCTIONS

COUNTIF Function:

- The COUNTIF function counts the number of cells in a range that meet a condition.
- Syntax: =COUNTIF(range, criteria)

Statistical operations

SUMIFS Function:

- The SUMIFS function adds the values in a range that meet multiple specified conditions.
- Syntax:=SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2])

ADVANCE IF FUNCTIONS

AVERAGEIFS Function:

- The AVERAGEIFS function calculates the average of the values in a range that meets multiple specified conditions.
- Syntax:=AVERAGEIFS(average_range, criteria_range1, criteria1, [criteria_range2, criteria2],,,)

Statistical operations

SUMIFS Function:

- The SUMIFS function adds the values in a range that meet multiple specified conditions.
- Syntax:=SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2],,,)

STATISTICAL OPERATIONS

- COUNTIFS Function:
 - The COUNTIF function **counts** the values in a range that meets multiple specified conditions.
 - Syntax:=COUNTIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2],,,)
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