**Advance Excel Assignment 2**

**1.Ans:** In Microsoft Excel, the dollar sign ($) is used to create absolute cell references or absolute ranges within formulas and functions. The dollar sign serves as a locking mechanism for cell references, making them "fixed" or "absolute" when entered into a formula.

**2.Ans**: In Excel, you can change a cell reference from relative to absolute or mixed by manually adding or removing dollar signs ($) in the formula. Here's how to do it:

Changing a Relative Reference to Absolute Reference: To change a relative cell reference to an absolute reference, follow these steps:

1. Click on the cell where you have a formula containing a relative reference that you want to make absolute.
2. In the formula bar, locate the relative reference you want to change. It will not have any dollar signs.
3. Place a dollar sign ($) in front of both the column letter and the row number for that reference. For example, change A1 to $A$1.
4. Press Enter to apply the change. The reference is now absolute, and it will not adjust when you copy or fill the formula to other cells.

**3.Ans:** In Microsoft Excel, the order of operations, also known as the precedence of operators, determines the sequence in which Excel evaluates and calculates formulas. Understanding the order of operations is crucial for creating accurate and effective Excel formulas. Excel follows the following order of operations:

1. Parentheses ( ): Excel evaluates expressions within parentheses first. You can use parentheses to force a specific order of calculation within a formula. For example, if you have (A1 + B1) \* C1, Excel will first calculate the sum of A1 and B1, and then multiply the result by C1.
2. Exponents (^): Excel evaluates expressions involving exponentiation next. For example, if you have A1^2, Excel will calculate A1 squared.
3. Multiplication (\*) and Division (/): Excel performs multiplication and division operations from left to right. These operators have equal precedence, so they are evaluated in the order they appear in the formula. For example, in the formula A1 \* B1 / C1, Excel will calculate the multiplication of A1 and B1 first and then divide the result by C1.
4. Addition (+) and Subtraction (-): Like multiplication and division, addition and subtraction operators are also evaluated from left to right. They have equal precedence, so they are evaluated in the order they appear in the formula. For example, in the formula A1 + B1 - C1, Excel will calculate the addition of A1 and B1 first and then subtract C1 from the result.
5. Concatenation (&): The ampersand (&) operator is used for text concatenation. It joins two or more text strings together. Excel evaluates the concatenation operator after performing arithmetic operations.
6. Comparison Operators (e.g., =, <>, <, >, <=, >=): These operators are used for comparing values in Excel formulas. Comparisons are evaluated after arithmetic and concatenation operations.
7. Logical Operators (e.g., AND, OR): Logical operators are used for evaluating logical conditions. They are typically used in functions like IF, AND, and OR. Excel evaluates logical operators after comparison operations.
8. Functions: Excel evaluates functions after all of the above operations. Functions are predefined operations that perform specific tasks, such as SUM, AVERAGE, VLOOKUP, and more. Functions can take arguments and return results based on the values provided as input.
9. References to Cells or Ranges: Finally, Excel evaluates references to cells or ranges. This includes cell references (e.g., A1) and range references (e.g., A1:B5). Excel fetches the values from the referenced cells or ranges and incorporates them into the formula.

**4.Ans:** Excel offers a wide range of functions for various tasks, and the choice of the "top" functions can vary depending on your specific needs. However, some of the most commonly used Excel functions that many users find essential include:

1. SUM Function: The SUM function is used to add up a range of numbers.

Basic Syntax: =SUM(number1, number2, ...)

For example, to sum the numbers in cells A1 to A5, you can use the following formula: =SUM(A1:A5)

1. VLOOKUP Function: The VLOOKUP function is used to search for a value in the first column of a table and retrieve a corresponding value from another column.

Basic Syntax: =VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])

For example, to look up the price of a product with a specific code in a table, you can use the following formula: =VLOOKUP(A1, B1:C10, 2, FALSE)

1. IF Function: The IF function is used for conditional calculations. It allows you to perform different calculations or return different values based on a specified condition.

Basic Syntax: =IF(logical\_test, value\_if\_true, value\_if\_false)

For example, to check if a student's score is greater than or equal to 60 and return "Pass" or "Fail" accordingly, you can use the following formula: =IF(A1 >= 60, "Pass", "Fail")

1. AVERAGE Function: The AVERAGE function calculates the average of a range of numbers.

Basic Syntax: =AVERAGE(number1, number2, ...)

For example, to find the average of a series of test scores in cells A1 to A10, you can use the following formula: =AVERAGE(A1:A10)

1. COUNT Function: The COUNT function is used to count the number of cells that contain numbers within a given range.

Basic Syntax: =COUNT(value1, value2, ...)

For example, to count the number of students who scored above 80 in a test (assuming scores are in cells A1 to A10), you can use the following formula: =COUNTIF(A1:A10, ">80")

These are just a few of the many powerful functions available in Excel. The choice of which functions are most important to you will depend on your specific tasks and data analysis needs.

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**5.Ans:** The SUBTOTAL function in Excel is used for performing calculations on a range of data while allowing you to control how hidden rows or filtered data are included in those calculations. You would use the SUBTOTAL function in the following situations:

1. When Working with Filtered Data: SUBTOTAL is particularly useful when you have filtered your data using Excel's filtering feature. By default, functions like SUM, AVERAGE, COUNT, etc., include both visible and hidden (filtered out) rows in their calculations. However, using SUBTOTAL with specific function numbers allows you to calculate values only for the visible (filtered) rows.
2. Subtotaling Groups of Data: If you have data that is organized into groups or categories, you can use SUBTOTAL to calculate subtotals for each group while ignoring other rows in the dataset. This is helpful for creating summary reports or analyzing data grouped by specific criteria.
3. When You Want to Exclude Hidden Rows: In certain cases, you may have hidden rows within your dataset that you don't want to include in calculations. SUBTOTAL allows you to exclude these hidden rows from your calculations, ensuring that only visible rows are considered.

The basic syntax of the SUBTOTAL function is:

=SUBTOTAL(function\_num, range1, [range2], ...)

* ‘function\_num’ is a number that specifies the function to be used for calculation (e.g., 1 for SUM, 2 for AVERAGE, 3 for COUNT, etc.).
* ‘range1’, ‘range2’, etc., are the ranges or references that you want to include in the calculation.

Here are some common uses of the SUBTOTAL function:

* ‘SUBTOTAL(9, A1:A10)’ calculates the sum of visible (filtered) cells in the range A1:A10.
* ‘SUBTOTAL(101, B1:B10)’ calculates the average of visible cells in the range B1:B10, ignoring hidden rows.
* ‘SUBTOTAL(103, C1:C10, D1:D10)’ calculates the count of visible cells in the ranges C1:C10 and D1:D10.

The ‘function\_num’ argument determines the type of calculation you want to perform, and it also specifies whether hidden rows should be included in the calculation (with a function number less than 100) or excluded (with a function number greater than or equal to 100).

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**6.Ans:** The VLOOKUP function in Excel (Vertical Lookup) is used to search for a specific value in the leftmost column of a table (known as the "lookup table") and retrieve a corresponding value from a specified column in the same table. It is a powerful tool for performing lookups and data retrieval tasks in Excel. The VLOOKUP function has the following syntax:

=VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])

Let's break down the terms used in the VLOOKUP function:

1. lookup\_value: This is the value you want to look up or search for within the leftmost column of the table. It's the value you're trying to find in the data.
2. table\_array: This is the table or range of cells where you want to perform the lookup. The leftmost column of this table should contain the values you're searching for (the lookup values), and the data you want to retrieve should be in columns to the right of the lookup column.
3. col\_index\_num: This is the column number from which you want to retrieve data. It specifies which column in the table\_array contains the data you want to return. The first column in the table\_array is considered column 1, the second column is column 2, and so on.
4. [range\_lookup]: This is an optional argument enclosed in square brackets. It controls whether you want an approximate match (TRUE or omitted) or an exact match (FALSE). If you set it to TRUE or omit it, VLOOKUP will search for an approximate match and return the closest match it finds. If you set it to FALSE, VLOOKUP will only return an exact match.

Here's a step-by-step explanation of how the VLOOKUP function works:

1. VLOOKUP searches for the lookup\_value in the leftmost column of the table\_array.
2. When a match is found in the leftmost column, it retrieves the corresponding value from the specified column indicated by col\_index\_num in the same row as the match.
3. The retrieved value is returned as the result of the VLOOKUP function.

Here's an example of how to use the VLOOKUP function:

Suppose you have a table with product codes in column A, product names in column B, and prices in column C. You want to find the price of a product with a specific product code. You can use VLOOKUP as follows:

=VLOOKUP(A2, $A$1:$C$100, 3, FALSE)

* ‘A2’ is the lookup\_value (the product code you want to find).
* ‘$A$1:$C$100’ is the table\_array (the range containing product codes, names, and prices).
* ‘3’ is the col\_index\_num (to retrieve the price from the third column, which is column C).
* FALSE specifies an exact match.

The function will return the price of the product with the specified code.

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