**ASSIGNMENT 2**

**1. What does the dollar($) sign do?**

In Microsoft Excel, the dollar sign ($) is used to create an absolute reference in a cell formula. An absolute reference is a cell reference that does not change when the formula is copied or moved to a different cell.

When you use a dollar sign in an Excel formula, it locks the row or column reference, depending on where you place it. If you put a dollar sign in front of the column letter, the column reference will be locked. If you put a dollar sign in front of the row number, the row reference will be locked. If you put dollar signs in front of both the row and column references, both will be locked.

For example, if you have a formula in cell B2 that refers to cell A1, and you copy that formula to cell C3, the formula in C3 will refer to cell B2 instead of A1, because the references are relative. However, if you use absolute references with dollar signs, such as $A$1, the formula will always refer to cell A1, regardless of where it is copied or moved.

**2. How to Change the Reference from Relative to Absolute (or Mixed)?**

To change a cell reference from relative to absolute or mixed in Excel, you need to use the dollar sign ($) symbol.

Here are the steps to change a reference:

1. Select the cell that contains the formula with the reference you want to change.
2. Click on the cell reference within the formula that you want to change. The reference will be highlighted in the formula bar.
3. Insert a dollar sign ($) before the column letter or row number, or both, depending on whether you want the reference to be absolute or mixed. Here are the different options:
4. Absolute reference: Put a dollar sign in front of both the column letter and the row number, like $A$1.
5. Mixed reference with absolute column: Put a dollar sign in front of the column letter but not the row number, like $A1.
6. Mixed reference with absolute row: Put a dollar sign in front of the row number but not the column letter, like A$1.
7. Press Enter to save the changes.

Alternatively, you can use the F4 key on your keyboard to toggle between different reference types for the selected cell reference. For example, if you have a relative reference like A1 selected, you can press F4 to cycle through the following reference types: A$1, $A1, $A$1, and back to A1 again.

**3. Explain the order of operations in excel?**

The order of operations in Excel refers to the sequence in which calculations are performed in a formula. Excel follows a specific set of rules for calculating the result of a formula, known as the order of operations. These rules determine which operations should be performed first, second, third, and so on, in a formula that contains multiple mathematical operators.

The order of operations in Excel is as follows:

1. Parentheses: Excel calculates expressions inside parentheses first. If there are nested parentheses, the innermost parentheses are calculated first.
2. Exponents: Excel calculates exponents (values raised to a power) next.
3. Multiplication and Division: Excel calculates multiplication and division operations next, from left to right.
4. Addition and Subtraction: Excel calculates addition and subtraction operations last, from left to right.

It is important to note that if a formula contains multiple operations of the same level of precedence, Excel will evaluate them from left to right. To override this default order of operations, you can use parentheses to group parts of the formula that should be calculated together.

For example, consider the following formula: =(2+3)\*4^2/8+1

Using the order of operations, Excel will first calculate the expression inside the parentheses, then the exponent, followed by the multiplication and division, and finally the addition and subtraction. The calculation would proceed as follows:

=(2+3)*4^2/8+1 =5*16/8+1 =10+1 =11

So the result of the formula would be 11.

**4. What, according to you, are the top 5 functions in excel and write a basic syntax for any of two?**

The top 5 functions in Excel are:

1. **SUM:** Adds up a range of cells. Syntax: =SUM(cell range)
2. **IF:** Checks whether a condition is true or false, and returns one value if the condition is true and another value if it is false. Syntax: =IF(logical\_test, [value\_if\_true], [value\_if\_false])
3. **VLOOKUP:** Searches for a value in the first column of a table, and returns a value in the same row from a specified column. Syntax: =VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])
4. **COUNT:** Counts the number of cells in a range that contain numeric values. Syntax: =COUNT(cell range)
5. **AVERAGE:** Calculates the average (mean) of a range of cells. Syntax: =AVERAGE(cell range)

Here are the basic syntaxes for the IF and VLOOKUP functions:

Syntax for IF function: =IF(logical\_test, [value\_if\_true], [value\_if\_false])

* logical\_test: The condition that you want to test. This can be a comparison, such as A1>B1, or a logical function, such as ISBLANK(A1).
* value\_if\_true: The value that should be returned if the logical\_test evaluates to TRUE.
* value\_if\_false: The value that should be returned if the logical\_test evaluates to FALSE.

**Example:** Suppose you have a list of exam scores in column A, and you want to assign a grade of "Pass" to scores of 70 or above, and a grade of "Fail" to scores below 70. You could use the following IF formula in cell B2: =IF(A2>=70, "Pass", "Fail")

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

* lookup\_value: The value you want to look up in the first column of the table.
* table\_array: The range of cells that contains the table. This should include the lookup column and the column(s) that contain the values you want to retrieve.
* col\_index\_num: The column number of the table that contains the value you want to retrieve. This number should be relative to the first column in the table\_array range.
* range\_lookup: Optional. This argument specifies whether you want an exact match or an approximate match. If omitted, the default is TRUE, which means that Excel will search for an approximate match.

Example: Suppose you have a table that contains product prices in column A and product names in column B, and you want to look up the price of a product based on its name. You could use the following VLOOKUP formula in cell C2: =VLOOKUP("Product X", A1:B10, 2, FALSE) This would search for "Product X" in column A of the range A1:B10, and return the corresponding value from column B (the second column in the range). The FALSE argument means that Excel will only return an exact match**.**

**5. When would you use the subtotal function?**

The SUBTOTAL function in Excel is used to calculate a subtotal for a range of data, and it can be used to perform various functions such as sum, count, average, max, min, etc.

You would use the SUBTOTAL function in situations where you need to calculate subtotals within a larger dataset. This is often helpful when working with large tables or lists of data, where you may want to calculate subtotals for specific categories, regions, products, or other groups within the data.

The advantage of using the SUBTOTAL function over other functions such as SUM, COUNT, or AVERAGE is that it can include or exclude hidden or filtered data in the calculation, depending on the function number used as the first argument. This makes it especially useful for filtering and analyzing data in Excel.

For example, if you have a table of sales data with columns for date, region, product, and sales amount, and you want to calculate the total sales for each region, you could use the following formula:

=SUBTOTAL(9, sales\_amount\_range)

The first argument (9) specifies that you want to use the SUM function to calculate the subtotal. The second argument (sales\_amount\_range) is the range of cells that contains the sales amounts for the region you want to calculate the subtotal for. This formula would calculate the sum of all the sales amounts in the range, including any hidden or filtered cells.

You can also use the SUBTOTAL function to perform other functions such as COUNT, AVERAGE, MAX, MIN, etc., by using the appropriate function number as the first argument. This makes the SUBTOTAL function a versatile and powerful tool for analyzing and summarizing data in Excel.

**6. What is the syntax of the vlookup function? Explain the terms in it?**

The VLOOKUP function in Excel is used to search for a value in the left-most column of a table and then return a value in the same row from a column that you specify. The basic syntax of the VLOOKUP function is as follows:

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

Here is an explanation of each term in the syntax:

1. lookup\_value: This is the value that you want to find in the first column of the table. It can be a value, reference, or text string.
2. table\_array: This is the range of cells that makes up the table that you want to search. The first column of the range must contain the lookup\_value, and the values you want to return must be in columns to the right of the lookup column.
3. col\_index\_num: This is the column number in the table\_array that contains the value you want to return. The column number is relative to the left-most column in the table\_array. For example, if you want to return the value from the third column of the table\_array, you would use a col\_index\_num of 3.
4. range\_lookup: This is an optional argument that specifies whether you want an exact match or an approximate match. If this argument is omitted or set to TRUE, Excel will look for an approximate match and return the closest match that is less than or equal to the lookup\_value. If this argument is set to FALSE, Excel will look for an exact match and return an error value (#N/A) if it cannot find an exact match.

Here is an example of the VLOOKUP function in action:

Suppose you have a table that lists the prices of different products, and you want to find the price of a specific product based on its name. You can use the VLOOKUP function to do this. Suppose the product name you are looking for is in cell A1, and the table of prices is in the range A2:B10. You can use the following formula:

=VLOOKUP(A1, A2:B10, 2, FALSE)

In this formula, A1 is the lookup\_value, A2:B10 is the table\_array, 2 is the col\_index\_num (since the price is in the second column of the table), and FALSE specifies that you want an exact match. The VLOOKUP function will search the first column of the table for the value in A1, and return the corresponding value from the second column of the table. If there is no exact match, the function will return an error value (#N/A).