EXCEL ASSIGNMENT 2

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

In Excel, the dollar sign ($) is used to create an absolute cell reference or an absolute range reference. Absolute references do not change when you copy a formula to other cells; they remain fixed, always pointing to the same cell or range, regardless of where the formula is copied. This can be particularly useful in certain situations when you want to maintain a consistent reference to a specific cell or range. There are two ways to use the dollar sign in Excel:

Absolute Cell Reference: You can make a single cell reference absolute by placing a dollar sign before both the column letter and the row number, like this: $A$1. When you use this reference in a formula and copy it to other cells, the reference to A1 will not change; it will always point to cell A1. For example, if you have a formula **=$A$1*B2**, and you copy this formula to cell C3, it will still reference cell A1, not A2 or any other cell.

Absolute Range Reference: You can make a range reference (a group of cells) absolute by placing a dollar sign before the column letters and the row numbers for both the starting cell and the ending cell of the range, like this: $A$1:$C$5. When you use this reference in a formula and copy it to other cells, both the starting and ending cell references remain fixed. For example, if you have a formula **=SUM($A$1:$C$5)** and you copy it to another cell, it will always sum the values in the range A1 to C5, even if you copy it to a different location.

The absence of dollar signs (e.g., A1 or A1:C5) denotes a relative cell or range reference, which adjusts as you copy the formula to other cells. Dollar signs allow you to create stable references that do not change when formulas are copied, making them valuable for scenarios where you need to consistently refer to specific cells or ranges in your worksheets.

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

Click on the cell containing the formula with the reference you want to change.

In the formula bar (just above the worksheet grid), locate the reference you want to modify.

To make a reference absolute, place a dollar sign ($) before both the column letter and the row number, like this: **$A$1**. To make it mixed (either row or column is absolute, but not both), place a dollar sign before either the column letter or the row number, like this: **$A1** or **A$1**.

Press Enter to save the changes.

3. Explain the order of operations in excel?

In Excel, as in many other programming and mathematical contexts, there is a specific order of operations that determines how formulas and calculations are evaluated. This order of operations helps ensure that Excel performs calculations in a consistent and predictable manner.

Here's a more detailed explanation of each step:

- **Parentheses:** Excel evaluates expressions inside parentheses first. If a formula contains nested parentheses, it starts with the innermost set and works outward. For example, in the formula `=(A1+B1)*(C1-D1)`, Excel first calculates the results of `A1+B1` and `C1-D1`, and then multiplies the results.
- **Exponents:** Excel calculates exponentiation next. You can use the caret (^) operator to raise a number to a power. For example, in the formula `=2^3`, Excel calculates 2 raised to the power of 3, which is 8.
- **Multiplication and Division (left to right):** Excel performs multiplication and division operations from left to right in the order they appear in the formula. For example, in the formula `=5*3/2`, Excel multiplies 5 by 3 to get 15 and then divides 15 by 2 to get 7.5.
- **Addition and Subtraction (left to right):** Finally, Excel performs addition and subtraction operations from left to right in the order they appear in the formula. For example, in the formula `=10+5-3`, Excel adds 10 and 5 to get 15 and then subtracts 3 to get the final result of 12.

It's important to note that you can use parentheses to override the default order of operations and specify the order in which calculations should be performed. For example, if you want Excel to add two numbers before multiplying the result by a third number, you can use parentheses to make your intent clear, like this: `=(A1+B1)*C1`.

By following the order of operations and using parentheses when necessary, you can create complex formulas in Excel and ensure that they yield the correct results.

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

The "top" Excel functions can vary depending on the specific needs and tasks of the user, but some functions are widely considered essential and highly valuable due to their versatility and frequent use. Here are five important Excel functions, along with basic syntax for two of them:

SUM Function:

- Syntax: **=SUM(number1, [number2], ...)**
- Description: Adds up a range of numbers or cells.
- Example: **=SUM(A1:A5)** adds the values in cells A1 through A5.

AVERAGE Function:

- Syntax: **=AVERAGE(number1, [number2], ...)**
- Description: Calculates the average of a range of numbers or cells.
- Example: **=AVERAGE(B1:B4)** calculates the average of the values in cells B1 through B4.

IF Function:

- Syntax: **=IF(logical_test, value_if_true, [value_if_false])**
- Description: Performs a conditional test and returns one value if the condition is true and another if it's false.

- Example: **=IF(A1>10, "Yes", "No")** checks if the value in cell A1 is greater than 10 and returns "Yes" if true and "No" if false.

VLOOKUP Function:

- Syntax: **=VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])**
- Description: Searches for a value in the first column of a table and returns a corresponding value from another column.
- Example: **=VLOOKUP(D1, A1:B10, 2, FALSE)** looks up the value in cell D1 within the range A1:A10, and if found, returns the corresponding value from the second column (column B).

COUNTIF Function:

- Syntax: **=COUNTIF(range, criteria)**
- Description: Counts the number of cells within a range that meet a specified condition.
- Example: **=COUNTIF(C1:C10, ">50")** counts the number of cells in the range C1:C10 that contain values greater than 50.

These functions are just a starting point, and Excel offers a wide range of functions to perform various calculations and data manipulations. The choice of which functions are most important can vary depending on your specific tasks and needs. However, mastering these five functions can significantly enhance your ability to work with data and perform common calculations in Excel.

5. When would you use the subtotal function?

You would use the SUBTOTAL function in Excel when you want to calculate various summary statistics or perform aggregation operations on a range of data, particularly when dealing with filtered data or subtotaling within groups. The SUBTOTAL function is designed to work with functions like SUM, AVERAGE, COUNT, MAX, MIN, and others to provide flexible and dynamic subtotals and summary calculations.

Here are some common scenarios in which you might use the SUBTOTAL function:

Subtotaling within Filtered Data: When you have a large dataset and you've applied filters to it, you can use SUBTOTAL to calculate totals or other summary statistics for the visible (filtered) rows only. This ensures that your calculations reflect the currently visible data, which is especially useful in data analysis.

Grouped Data: If you've grouped your data using Excel's grouping feature (Data > Group), you can use SUBTOTAL to calculate summary statistics for each group or subgroup. This is handy for creating collapsible outlines in your worksheet.

Nested Subtotals: SUBTOTAL can be used within other SUBTOTAL functions to calculate nested subtotals or multiple levels of aggregation. For instance, you can calculate subtotals for each region and then calculate a grand total for all regions.

Dynamic Reports: When you're building dynamic reports or dashboards where users can change filter criteria or groupings, SUBTOTAL ensures that your summary calculations adjust automatically based on user selections.

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 first column of a table (or a specified range), and then return a corresponding value from a specified column in the same row. Its syntax is as follows :

=VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])

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

lookup_value: This is the value you want to find in the first column of your table. It's the value you're searching for. For example, if you're looking up a product name, this could be the name of the product you're searching for.

table_array: This is the range of cells that contains both the data you're searching in (the first column) and the data you want to retrieve (the column where you want to find a matching value and return a corresponding value). The first column of this range is where Excel will look for the **lookup_value**.

col_index_num: This is the column number within the **table_array** from which you want to retrieve data. If you want to get data from the first column after the **lookup_value** column, you would enter **2**. If you want to get data from the second column, you would enter **3**, and so on.

[range_lookup] (optional): This argument determines whether you want an exact match or an approximate match for the **lookup_value**. It can be one of two values:

- **TRUE** or **1** (approximate match, which is the default if omitted): Excel will search for the closest match to the **lookup_value** within the first column of the table. This is often used with sorted lists, such as numerical data, where you want to find the closest match below the lookup value.
- **FALSE** or **0** (exact match): Excel will search for an exact match of the **lookup_value** within the first column of the table. Use this option when you want an exact match, especially with text data.

Here's a basic example to illustrate how VLOOKUP works:

Suppose you have a table of products with their respective prices, and you want to find the price of a specific product (e.g., "Widget"):

lookup_value: "Widget" (the product you're looking for)

table_array: The range that contains both the product names (in the first column) and their corresponding prices (in the second column), e.g., A1:B10.

col_index_num: 2 (since you want to retrieve data from the second column, which contains prices).

[range_lookup]: **FALSE** (exact match).