**Advance Excel Assignment 2**

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

Ans- In Excel formulas, the dollar sign ($) is used to create absolute cell references. It's placed before the column letter, row number, or both to lock the reference to a specific cell when copying the formula to other cells.  
  
$A$1: Represents an absolute reference to cell A1. Both the column and row are locked.  
$A1: Represents a mixed reference where only the column is locked. When copied across columns, the column remains constant, but the row adjusts.  
A$1: Represents a mixed reference where only the row is locked. When copied across rows, the row remains constant, but the column adjusts.  
Using the dollar sign ($) allows you to maintain fixed references when copying formulas, which is essential for calculations involving constants or references to specific cells.

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

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$A1: Represents a mixed reference where only the column is locked. When copied across columns, the column remains constant, but the row adjusts.  
A$1: Represents a mixed reference where only the row is locked. When copied across rows, the row remains constant, but the column adjusts.  
Using the dollar sign ($) allows you to maintain fixed references when copying formulas, which is essential for calculations involving constants or references to specific cells.

1. Explain the order of operations in excel?

Ans- The order of operations in Excel, also known as precedence, determines the sequence in which mathematical operations are performed in formulas. Excel follows the standard mathematical order of operations, which is commonly abbreviated as PEMDAS:  
  
Parentheses: Operations inside parentheses are calculated first. If there are nested parentheses, the innermost set is evaluated first.  
Exponents: Operations involving exponentiation (raising a number to a power) are performed next. Excel uses the caret (^) operator to denote exponentiation.  
Multiplication and Division: Multiplication (\*) and division (/) operations are performed next. These operations are evaluated from left to right as they appear in the formula.  
Addition and Subtraction: Addition (+) and subtraction (-) operations are performed last. Like multiplication and division, these operations are evaluated from left to right.  
When multiple operations of the same precedence level are present in a formula, Excel follows a left-to-right order to perform the calculations.  
  
For example, consider the formula =5 + 3 \* 2. According to the order of operations, Excel first performs the multiplication (3 \* 2 = 6) and then the addition (5 + 6 = 11), resulting in the final answer of 11.

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

Ans- Determining the "top" functions in Excel can vary depending on the context and specific needs of the user. However, some commonly used functions that are considered fundamental and versatile include:  
  
**a) SUM:** Adds up all the numbers in a range of cells.

**Basic Syntax**: =SUM(number1, [number2], ...)

Example: =SUM(A1:A10)

**b) VLOOKUP:** Searches for a value in the first column of a table and returns a value in the same row from a specified column.

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

Example: =VLOOKUP(A2, $B$2:$C$10, 2, FALSE)

**c) IF:** Evaluates a condition and returns one value if the condition is TRUE and another value if the condition is FALSE.

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

Example: =IF(A1>10, "Greater than 10", "Less than or equal to 10")

**d) AVERAGE:** Calculates the average (arithmetic mean) of the numbers in a range of cells.

**Basic Syntax:** =AVERAGE(number1, [number2], ...)

Example: =AVERAGE(A1:A10)

**e) INDEX-MATCH:** A combination of the INDEX and MATCH functions used together to look up a value in a range and return a corresponding value from another range.

**Basic Syntax**: =INDEX(array, MATCH(lookup\_value, lookup\_array, [match\_type]))

Example: =INDEX($B$2:$B$10, MATCH(A2, $A$2:$A$10, 0))

These functions are widely used across various industries and scenarios in Excel for data analysis, lookup operations, and calculation purposes.

1. When would you use the subtotal function?

Ans- The SUBTOTAL function in Excel is typically used when you want to perform calculations on a range of data while excluding other calculations, such as subtotals or totals, that are already present in the range. It's particularly useful when dealing with structured data that contains subtotal or total rows, such as in financial reports or data summaries.  
  
Here are some common scenarios when you might use the SUBTOTAL function:  
  
**a) Creating Aggregated Reports:** When you have a dataset with subtotal rows already inserted (e.g., subtotals for each category or group), you can use SUBTOTAL to calculate additional aggregates (e.g., average, sum) for specific columns while ignoring the subtotal rows.

**b) Dynamic Filtering:** If you're using Excel's filtering feature to display specific subsets of data, SUBTOTAL can be used to calculate aggregates based on the visible rows after filtering, excluding any rows that are hidden by the filter.

**c) Avoiding Double Counting:** SUBTOTAL can help prevent double counting of subtotals or totals when performing calculations on ranges that already contain subtotal or total rows.

**d) Consistent Aggregation:** SUBTOTAL ensures that the results of your calculations remain consistent, even if subtotal or total rows are added or removed from the dataset.

In summary, the SUBTOTAL function is handy when you need to perform calculations on a range of data while excluding subtotals or totals that are already present within that range, ensuring accurate and consistent results in your Excel analysis.

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

Ans- The syntax of the VLOOKUP function in Excel is as follows:  
VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])  
  
Let's explain each term in the syntax:  
  
**a) lookup\_value:** This is the value you want to search for in the first column of the table\_array. It can be a value, a reference, or a text string.  
**b) table\_array:** This is the table of data in which you want to perform the lookup. It must contain the column in which you are searching for the lookup\_value and the column from which you want to retrieve the result. The lookup column must be the first column in the table\_array.  
**c) col\_index\_num:** This is the column number in the table\_array from which you want to retrieve the value. For example, if you want to return a value from the third column of the table\_array, col\_index\_num would be 3.

**d) range\_lookup:** This is an optional argument that specifies whether you want an exact match or an approximate match when searching for the lookup\_value in the table\_array. It can be either TRUE or FALSE (or 1 or 0). If TRUE or omitted, an approximate match is used, and if FALSE, an exact match is required.

