Advance Excel Assignment 2

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

One of the things that make Excel such a powerful tool is the ability to refer to cells/ranges and use these in formulas.
And when you copy these formulas, these cell references can adjust automatically (or should I say automatically).
Below is an example where I copy the cell C2 (which has a formula) and paste it in C3.
You can see that the formula adjusts the references when I copy and paste it. While in the formula in cell C2 refers to A2 and B2, the one in C3 refers to A3 and B3.
This is called relative reference where the references adjust based on the cell in which it has been applied.
But what if you don't want some cells to adjust the reference?
What if you want to copy the formula, but don't want the cell reference to change?
…. introducing the $ sign.
When you use a $ sign before the cell reference (such as C2), you're telling Excel to keep referring to cell C3 even when you copy and paste the formula.
Now you can use the dollar ($) sign in three different ways, which means that there are three types of references on Excel.
Shortcut to add $ Sign to Cell References
There are two ways you can add the $ sign to a cell reference in Excel.
You can either do it manually (i.e., go into the edit mode in a cell by double-clicking on it or using F2, placing the cursor where you want the $ sign and then typing it manually).
Or you can use the keyboard shortcut
F4
To use this shortcut, simply place the cursor on the cell reference where you want to add the dollar sign and press is once. You will notice that it will change the reference by adding/removing the $ sign (based on what's the original reference).
For example, suppose you have the reference C2 in a cell. Here is how the F4 shortcut would work:

- Press F4 one time – C2 will change to C2
- Press F4 two times – C2 will change to C$2
- Press F4 three times – C2 will change to $C2
- Press F4 four times – C2 will change back to C2

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

To change the reference from relative to absolute, you need to add the dollar sign before the column notation and the row number.
For example, A1 is a relative cell reference, and it would become absolute when you make it A1.

If you only have a couple of references to change, you may find it easy to change these references manually. So you can go to the formula bar and edit the formula (or select the cell, press F2, and then change it).
However, a faster way to do this is by using the keyboard shortcut – F4.
When you select a cell reference (in the formula bar or in the cell in edit mode) and press F4, it changes the reference.
Suppose you have the reference =A1 in a cell.
Here is what happens when you select the reference and press the F4 key.

- **Press F4 key once:** The cell reference changes from A1 to A1 (becomes 'absolute' from 'relative').
- **Press F4 key two times:** The cell reference changes from A1 to A$1 (changes to mixed reference where the row is locked).
- **Press F4 key three times:** The cell reference changes from A1 to $A1 (changes to mixed reference where the column is locked).
- **Press F4 key four times:** The cell reference becomes A1 again.

3. Explain the order of operations in excel?

It's especially important to follow the order of operations when creating a formula. Otherwise, **Excel won't calculate the results accurately**. In our example, if the parentheses are not included, the multiplication is calculated first and the result is incorrect.

The order of operations

Excel calculates formulas based on the following **order of operations**:

1. Operations enclosed in **parentheses**
2. **Exponential** calculations (3^2, for example)
3. **Multiplication** and **division**, whichever comes first
4. **Addition** and **subtraction**, whichever comes first

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

Here are 5 important Excel functions:

1. The SUM Function
The *sum* function is the most used function when it comes to computing data on Excel. This function works to sum a group of numbers in a specific set of cells. This means you don't need to type a long cumbrous formula just to calculate the sum of all the data you need. Because of its popularity, newer versions of Microsoft Excel have a button specifically for this function.

This function is performed by typing the formula on the function bar and highlighting the cells you want summed before clicking "Enter". You also need to be careful in highlighting cells, as Excel will sum everything you include. If this happens, you can easily click the "Undo" button to reset the values back to its original state.
The syntax formula for *sum* function is "=SUM" (number1, number2, etc.).
In this image, the *sum* function for the cells C2 through C7 is obtained through the formula "=SUM(C2:C7)", giving you the result of 33161.

2. The TEXT Function
Text function is a useful tool that helps convert a date (or number) into a text string in a particular format. It falls in the category of string formulas that converts numerical values to a string. It is handy when users need to view numeric data in a readable format. Take note that the "TEXT" formula only works to convert numeric values to text. Therefore, its results cannot be calculated.
The syntax formula for *text* function is "=TEXT" (value, format_text).

- "Value" refers to the particular number you wish to convert to text.
- "Format_text" defines the format of the conversion.

In this example, the user uses a text formula to find the abbreviated day for the date "=TEXT (B2, "ddd")".

3. The VLOOKUP Function
VLookup is powerful Excel function that is often overlooked. Users will find it useful when they need to find specific data on a large table. You can also use *VLookup* to search for names, phone number, or specific data on your sheet. Instead of manually looking for the names and wasting time scrolling through hundreds of data, the *VLookup* function makes this process faster and more efficient.
The *VLookup* formula is "=VLOOKUP" (lookup_value, table_array, col_index_num, *range_lookup*).

- "lookup_value" is the data you want to find.
- "table_array" is the data column where you want to limit your search.
- "col_index_num" is the column number within the table that you want to return a value from.
- "range_lookup" is an optional argument that allows you to search for the exact match of your lookup value without sorting the table.

4. The AVERAGE Function
The *average* function is an extremely useful tool for getting the average value in a range of cells. Like the *sum* function, it is frequently used in computing and analyzing data on spreadsheet. Basically, the *average* function works to find the "arithmetic mean" for a group of cells. Aside from the *average* function, Excel also has the *median* and *mode* function.
The syntax formula for the *average* function is "AVERAGE" (number1, number2, etc.).

- "Number 1" refers to the first number in the range where you want the average.
- "Number 2" is the additional reference of the average range. You can get an average of up to a maximum of 255 cells.

Additional Examples:
"=AVERAGE (A2:A10)" – computes the average of numbers in cells A2 through A10.
"=AVERAGE (B2: B10, 7)" – computes the average of the numbers in cells B2 through B10 and the number 7.

5. The CONCATENATE Function
This function is a good time saver when you need to combine data from 2 or more cells. Unlike the merge tool which physically merges two or more cells into a single cell, the *concatenate* function only combines the contents of the combined cells. In the latest version of Excel (2016), the *concatenate* function has been replaced with *concat* function and will be incorporated in more future versions of Excel.
The syntax formula for the *concatenate* function is "CONCATENATE" (text1, [text2…text_n]),

- "Text1, Text2…text_n" are the data you want to combine.

5. When would you use the subtotal function?

The SUBTOTAL function is used when you display a Total row in an Excel Table. Excel inserts the SUBTOTAL function automatically, and you can use a drop-down menu to switch behavior and show max, min, average, etc. Excel uses SUBTOTAL for calculations in the Total row of an Excel Table because SUBTOTAL *automatically* excludes rows hidden by the filter controls at the top of the table. That is, as you filter rows in a table with a Total row, calculations automatically respect the filter.

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

VLOOKUP Function:
The **VLOOKUP** function is a premade function in Excel, which allows searches across columns. It is typed =VLOOKUP and has the following parts:
=VLOOKUP(**lookup_value**, **table_array**, **col_index_num**, [**range_lookup**])
Lookup_value: Select the cell where search values will be entered.
Table_array: The table range, including all cells in the table.
Col_index_num: The data which is being looked up. The input is the number of the column, counted from the left:
Range_lookup: TRUE if numbers (1) or FALSE if text (0).

How to use the **VLOOKUP** function.

1. Select a cell
2. Type =VLOOKUP
3. Double click the VLOOKUP command
4. Select the cell where search value will be entered

5. Type (,)
6. Mark table range
7. Type (,)
8. Type the number of the column, counted from the left
9. Type True (1) or False (0)
10. Hit enter
11. Enter a value in the cell selected for the Lookup_value