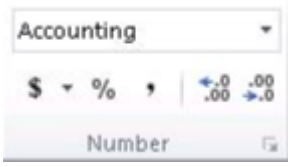
Advance Excel Assignment 2

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

In Excel, a dollar sign can denote a currency format, but it has another common use: indicating absolute cell references in formulas.
If you want to display numbers as monetary values, you must format those numbers as currency. To do this, you apply either the Currency or Accounting number format to the cells that you want to format. The number formatting options are available on the Home tab, in the Number group.



Dollar signs are also used to indicate absolute references.
You probably know that a formula can refer to cells. That's one reason Excel formulas are so powerful — the results can change based on changes made in other cells. When a formula refers to a cell, it uses a cell reference. In the "A1" reference style (the default), there are three kinds of cell references: absolute, relative, and mixed.

Absolute cell references
When a formula contains an absolute reference, no matter which cell the formula occupies the cell reference does not change: if you copy or move the formula, it refers to the same cell as it did in its original location. In an absolute reference, each part of the reference (the letter that refers to the row and the number that refers to the column) is preceded by a "$". Wherever the formula is copied or moved, it always refers to cell A1.
When we need to make a single cell an absolute cell, we must insert a dollar sign before the column name and row number. This will change the relative reference into an absolute reference.
For example, an absolute reference to cell A1 will be as below:
=A1

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

We should include the dollar sign ($) before the column name and row number for desired cell reference to make it absolute. Depending upon the use-cases, we may need either to fix an individual cell or an entire range.
When a formula contains an absolute reference, no matter which cell the formula occupies the cell reference does not change: if you copy or move the formula, it refers to the same cell as it did in its original location. In an absolute reference, each part of the reference (the letter that refers to the row and the number that refers to the column) is preceded by a "$" – for example, A1 is an absolute reference to cell A1. Wherever the formula is copied or moved, it always refers to cell A1.
A mixed reference uses a dollar sign either in front of the row letter or in front of the column number, but not both – for example, A$1 is a mixed reference in which the row

adjusts, but the column does not. So if you move a formula containing that reference one cell down and one cell to the right, it becomes B$1.

3. Explain the order of operations in excel?

In some cases, the order in which a calculation is performed can affect the return value of the formula, so it's important to understand how the order is determined and how you can change the order to obtain the results you want.

Calculation order
Formulas calculate values in a specific order. A formula in Excel always begins with an equal sign (=). Excel interprets the characters that follow the equal sign as a formula. Following the equal sign are the elements to be calculated (the operands), such as constants or cell references. These are separated by calculation operators. Excel calculates the formula from left to right, according to a specific order for each operator in the formula.

Operator precedence in Excel formulas
If you combine several operators in a single formula, Excel performs the operations in the order shown in the following table. If a formula contains operators with the same precedence—for example, if a formula contains both a multiplication and division operator—Excel evaluates the operators from left to right.

Operator	Description
: (colon) (single space) , (comma)	Reference operators
–	Negation (as in –1)
%	Percent
^	Exponentiation
* and /	Multiplication and division
+ and –	Addition and subtraction
&	Connects two strings of text (concatenation)
= < > <= >= <>	Comparison

Using parentheses in Excel formulas
To change the order of evaluation, enclose in parentheses the part of the formula to be calculated first. For example, the following formula produces 11 because Excel performs multiplication before addition. The formula multiplies 2 by 3 and then adds 5 to the

result.
=5+2*3
In contrast, if you use parentheses to change the syntax, Excel adds 5 and 2 together and then multiplies the result by 3 to produce 21.
=(5+2)*3
In the following example, the parentheses that enclose the first part of the formula force Excel to calculate B4+25 first and then divide the result by the sum of the values in cells D5, E5, and F5.
=(B4+25)/SUM(D5:F5)

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

Top 5 functions in excel according to me are:

- AutoSum;
- IF function;
- VLOOKUP function;
- MATCH function;
- DATE function;

Basic syntax for:

IF function is: **=IF(A1>B2; "TRUE"; "FALSE")**

MATCH function is: **MATCH(lookup_value; lookup_array; [match_type])**

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

The SUBTOTAL Function in Excel allows users to create groups and then perform various other Excel functions such as SUM, COUNT, AVERAGE, PRODUCT, MAX, etc. Thus, the SUBTOTAL function in Excel helps in analyzing the data provided.
Formula:
SUBTOTAL = (method, range1, [range2 ...range_n])

where, method is the type of subtotal you wish to obtain
Range1,range2...range_n is the range of cells you wish to subtotal

Sometimes, we need data based on different categories. SUBTOTALS help us to get the totals of several columns of data broken down into various categories.

For example, let's consider garment products of different sizes manufactured. The SUBTOTAL function will help you to get a count of different sizes in your warehouse.

There are two steps to follow when we wish to use the SUBTOTAL function. These are:

- Formatting and sorting of the provided Excel data.
- Applying SUBTOTAL to the table.

Let's understand this Excel function with the help of an example. We use data provided by a garment manufacturer. He manufactures T-shirts of five different colors, i.e., White, Black, Pink, Green, and Beige. He produces these T-shirts in seven different sizes, i.e. 2, 4, 6, 8, 10, 12, 14. The relevant data are below:

Color	Size	Number of Units in warehouse I	Number of Units in warehouse II
White	2	20	20
Black	4	90	90
Pink	6	180	180
Green	8	90	90
Beige	10	100	100
Black	12	120	120
Pink	14	60	60
Beige	10	60	60
Green	12	40	40
White	14	50	50
Pink	2	180	180
Black	8	20	20
Green	6	40	40
White	10	50	120
Beige	12	70	100
White	14	24	120
Pink	4	20	60
Green	6	90	60
Beige	8	180	40
Black	10	90	50
White	2	100	180
Black	4	120	20
Pink	6	60	60
Beige	8	60	60
Green	14	40	40
White	10	50	50
Pink	12	180	180
White	8	20	60
Pink	6	40	60
Green	10	120	40
Beige	4	60	50
White	6	60	180
Black	8	40	24
Green	2	50	20
White	8	180	90
Pink	6	70	100
Black	10	24	40
Beige	2	20	50
Green	4	90	180
White	2	180	70

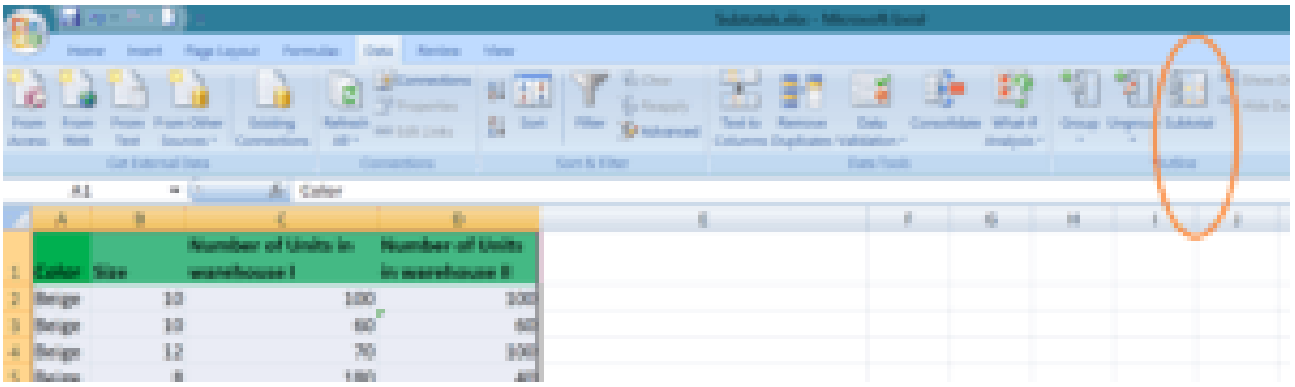
The warehouse manager provides random data. Now for the analysis, we need to get the total number of T-shirts of each color lying in the warehouse.

Step 1

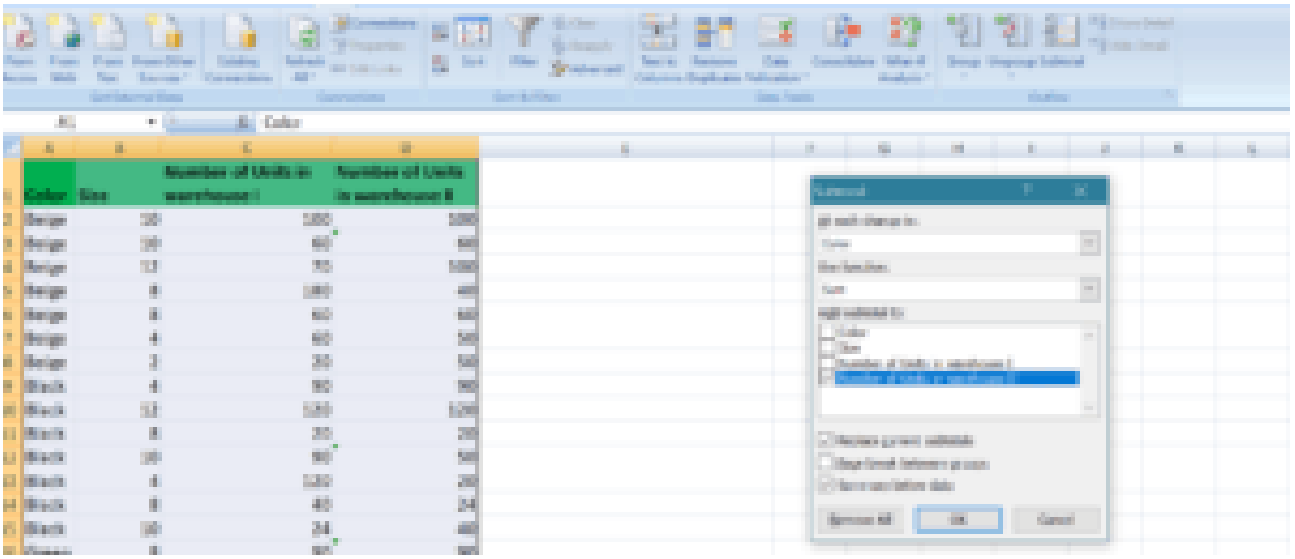
First, we need to sort the worksheet on the basis of data we need to subtotal. As we need to get the subtotals of T-shirts by colors, we will sort it accordingly.
To do that, we can use the SORT function under the Data tab.

Color	Size	Number of Units in warehouse I	Number of Units in warehouse II
Beige	10	100	100
Beige	10	60	60
Beige	12	70	100
Beige	8	180	40
Beige	8	60	60
Beige	4	60	50
Beige	2	20	50
Black	4	90	90
Black	12	120	120
Black	8	20	20
Black	10	90	50
Black	4	120	20
Black	8	40	24
Black	10	24	40
Green	8	90	90
Green	12	40	40
Green	6	40	40
Green	6	90	60
Green	14	40	40
Green	10	120	40
Green	2	50	20
Green	4	90	180
Pink	6	180	180
Pink	14	60	60
Pink	2	180	180
Pink	4	20	60
Pink	6	60	60
Pink	12	180	180
Pink	6	40	60
Pink	6	70	100
White	2	20	20
White	14	50	50
White	10	50	120
White	14	24	120
White	2	100	180
White	10	50	50
White	8	20	60
White	6	60	180
White	8	180	90
White	2	180	70

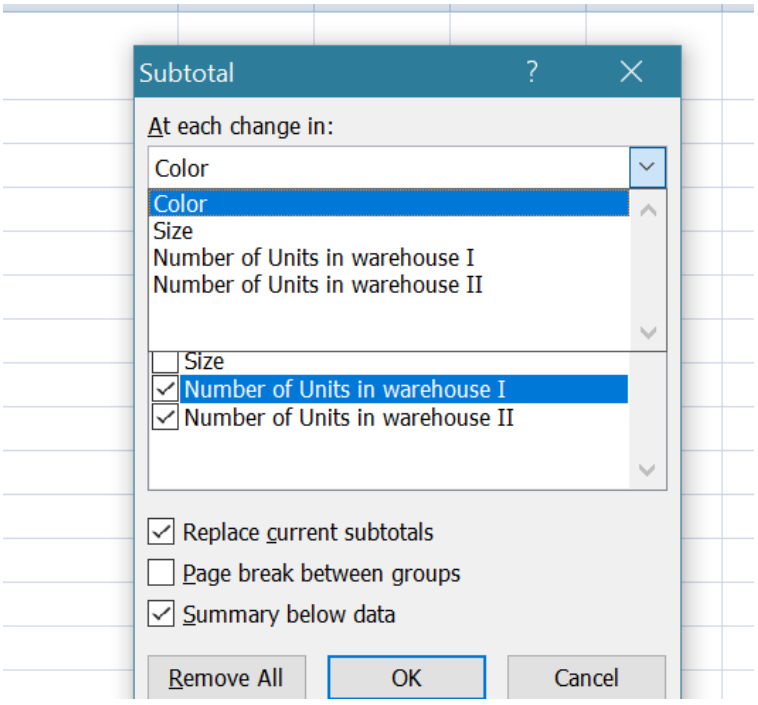
Step 2
The next step would be to apply the SUBTOTAL function. This can be done as shown below:
Select the Data tab, and click on SUBTOTAL.



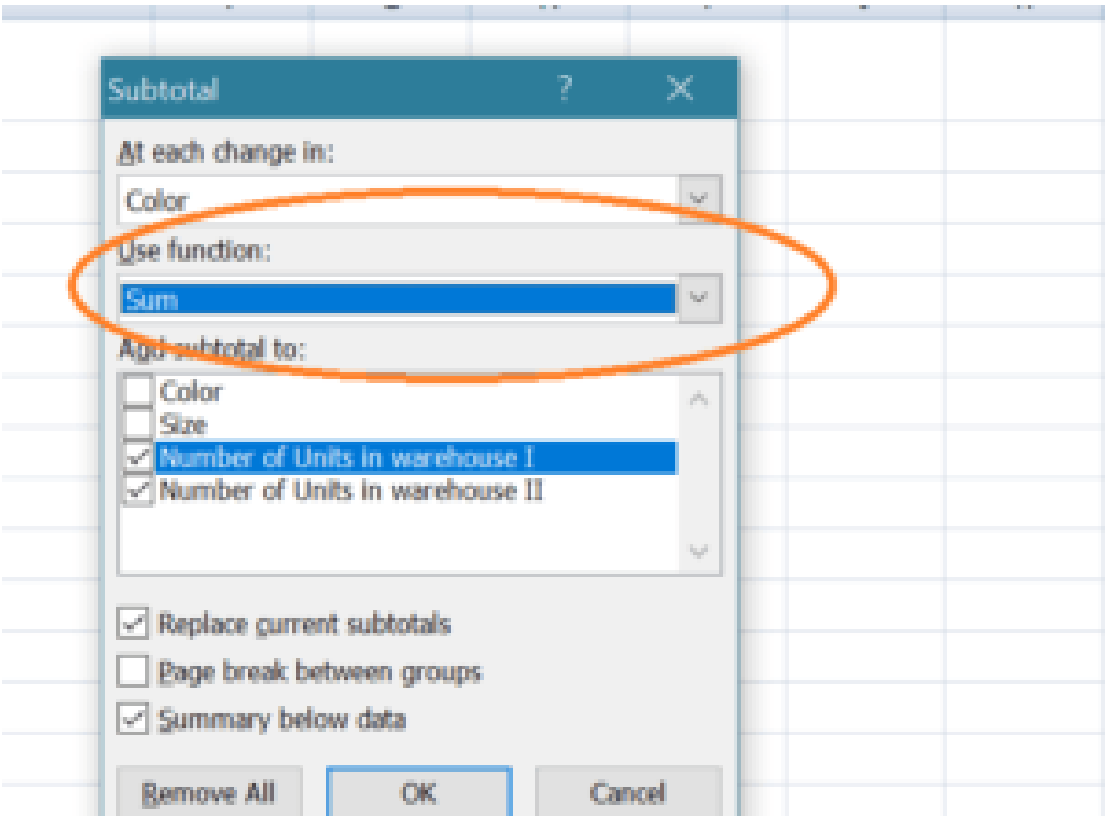
When we click on it, the Subtotal dialogue box will appear as shown below:



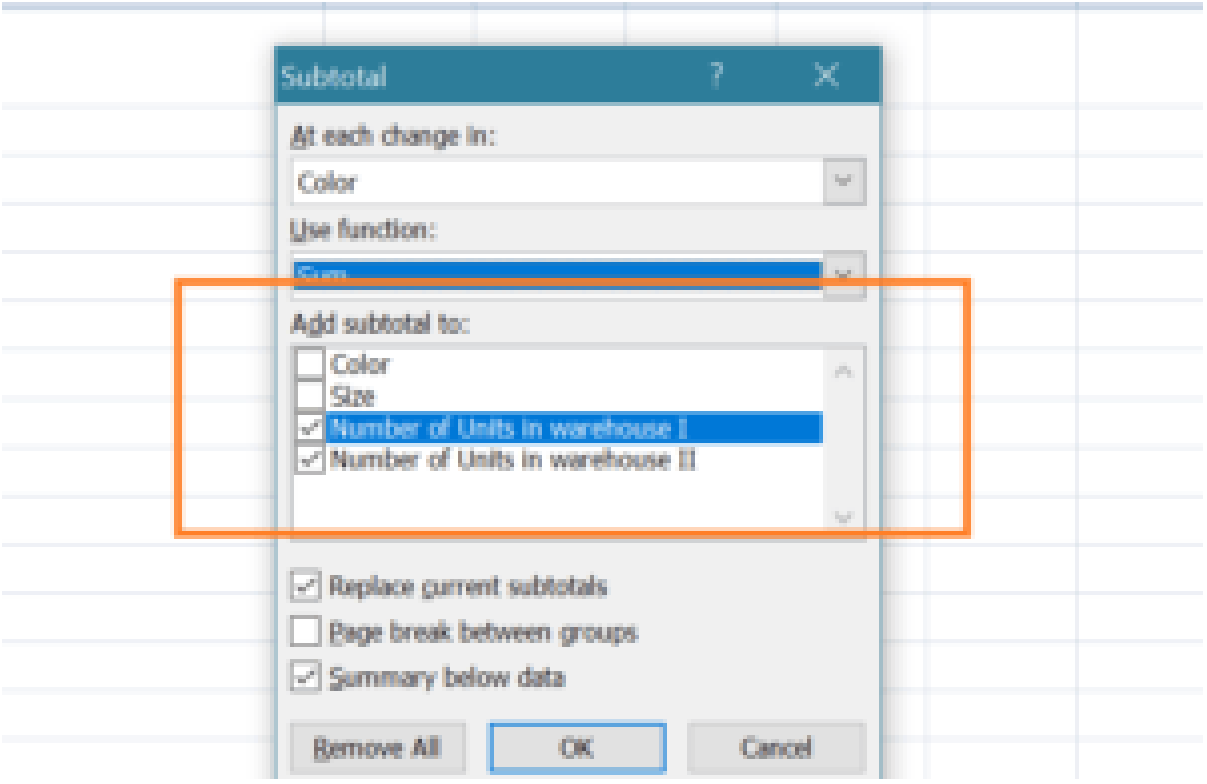
Now, click the drop-down arrow for the “At each change in: field.” We can now select the column we wish to subtotal. In our example, we’ll select Color.



Next, we need to click the drop-down arrow for the “Use function: field.” This will help us select the function we wish to use. There are 11 available functions. We need to choose depending on our requirements. In our example, we’ll select SUM to find out the total number of T-shirts lying in each warehouse.



Next, we move to “Add subtotal to: field.” Here we need to select the column where we require the calculated subtotal to appear. In our example, we’ll select the Number of Units in Warehouse I and Warehouse II.



After that, we need to click OK and we will get the following results:

	A	B	C	D
1	Color	Size	Number of Units in warehouse I	Number of Units in warehouse II
2	Beige	10	100	100
3	Beige	10	60	60
4	Beige	12	70	100
5	Beige	8	180	40
6	Beige	8	60	60
7	Beige	4	60	50
8	Beige	2	20	50
9	**Beige Total**		**550**	**460**
10	Black	4	90	90
11	Black	12	120	120
12	Black	8	20	20
13	Black	10	90	50
14	Black	4	120	20
15	Black	8	40	24
16	Black	10	24	40
17	**Black Total**		**504**	**364**
18	Green	8	90	90
19	Green	12	40	40

As we can see in the screenshot above, the subtotals are inserted as new rows below each Group. When we create subtotals, our worksheet is divided into different levels. Depending on the information you wish to display in the worksheet, you can switch between these levels.
The level buttons in our example are images of buttons for Levels 1, 2, 3, which can be seen on the left side of the worksheet. Now suppose I just want to see the total T-shirts lying in the warehouse of different colors, we can click on Level 2.

	A	B	C	D
1	Color	Size	Number of Units in warehouse I	Number of Units in warehouse II
9	Beige Total		550	460
17	Black Total		504	364
26	Green Total		560	530
35	Pink Total		790	880
46	White Total		734	940
47	Grand Total		3138	3154

If we click on the highest level (Level 3), we will get all the details.

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

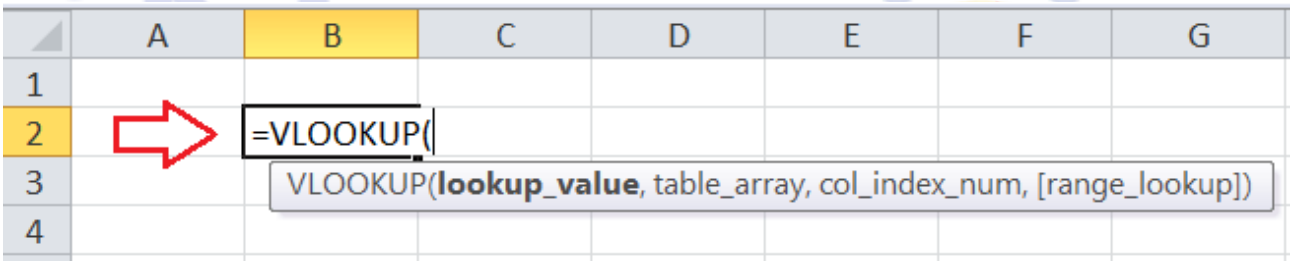
In Excel, VLOOKUP stands for 'Vertical Lookup', meaning the function only works vertically for the organized or structured table to be searched for the desired value. It is a built-in Excel function that searches for a specific value in the desired column to retrieve the respective value from a different column but on the same row. In simple words, the VLOOKUP function enables us to search for any specific piece of information within our worksheet while working with the large data sets.

To enter a VLOOKUP formula in the desired cell (s), we need to type =VLOOKUP and select the function from the list by pressing the TAB key on the keyboard. After that, we can supply the respective arguments based on the syntax of the VLOOKUP.

Syntax of VLOOKUP
The syntax of the VLOOKUP function is defined as below:

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

where, -lookup_value," -table_array," -col_index_num," and -range_lookup" are the arguments of the VLOOKUP function.



The VLOOKUP function requires the following arguments in which the first three arguments are mandatory while the last argument (range_lookup) is optional:

Lookup_value
It is a required argument to specify the value we need to search for in the first column of the supplied table array or range. A lookup value can be in the form of any value like text, number, and date or the value obtained by any other function in the sheet. Unlike the numeric values or cell references, we must always enclose the text values within the straight double-quotes.

Table_array
It is another required argument used to specify the data array or a range of cells where the function will search for the lookup value. The function always looks up in the table array's leftmost column (first column) and retrieves a corresponding match. The table array may contain multiple numeric values, text values, dates, and/ or logical values.

Col_index_num
Like the above two arguments, the col_index_num is also a required argument. It is specified as an integer to represent the number of a specific column from which we want

to obtain the desired value. It must be selected from the supplied table array or a range only.

Range_lookup
It is an optional argument of the VLOOKUP function used to define what the function must return when it does not find an exact match to the lookup table. We can specify this argument as either TRUE or FALSE.

- TRUE: When the argument is set as TRUE, the function tries to find the approximate match in the event if no exact match is found. The function then finds the closest match below the lookup_table. We can also use '1' to specify the argument as TRUE.
- FALSE: The function only tries to find the exact match when the argument is set as FALSE. The function returns an error if no exact match is found below the lookup_table. We can also use '0' to specify the argument as FALSE.