Lab No 05:Exploring and implementation of Functions in Microsoft Excel

Objective:

- To understand how to work in MS Excel.

CLOs

- CLO: 01, 04, 05

Rubric for Excel Lab (Lab 4+ Lab 5)

Task	0	1	2	3	4
Creating academic record of student MS Excel(Lab 4 Tasks)	Student not able to create or save new work book.	Student able to insert data in columns and can insert pictures.	Student can merge or split columns and manipulate data.	Student able to insert formula but not properly.	Student able to insert formulas correctly .
Pie and bar chart creation (Lab 4 Tasks)	Student able to insert data in columns and can insert pictures.	Student can merge or split columns and manipulate data.	Student can insert pie and bar charts	Student able to enter data for charts and cannot set legends, axis information	Student able to insert charts and data correctly
Using Functions on sheets (Lab 5 Tasks)	Student not able to create or save new work book.	Student able to insert data in columns and can insert pictures.	Student can merge or split columns and manipulate data.	Student able to insert function at specific place but not properly.	Student able to insert functions correctly .
Cell Addressing (Lab 5)	Student has no idea about	Student has little understan	Student know about the	The task is partially correct	Output is accordi

	cell addressing	ding about the concept	concept but do not know where we can apply the concept.		n g to query.

Functions:

Microsoft Excel has a set of prewritten formulas called *functions*. Functions differ from regular formulas in that you supply the value but not the operators, such as +, -, *, or /. For example, you can use the SUM function to add. When using a function, remember the following:

- Use an equal sign to begin a formula.
- Specify the function name.
- Enclose arguments within parentheses.
- Use a comma to separate arguments.

CELL REFERENCES	REFER TO VALUES IN
A10	the cell in column A and row 10
A10,A20	cell A10 and cell A20
A10:A20	the range of cells in column A and rows 10 through 20
B15:E15	the range of cells in row 15 and columns B through E
A10:E20	the range of cells in columns A through E and rows 10 through 20

Here is an example of a function: =**SUM (2, 13, A1, B27)** in this function:

- The equal sign begins the function.
- SUM is the name of the function.
- 2, 13, A1, and B27 are the arguments.
- Parenthesis enclose the arguments.
- A comma separates the arguments.

Typing a Function:

1. **Open** Microsoft Excel.
2. Type **12** in cell B1.
3. Press Enter.
4. Type **27** in cell B2.
5. Press Enter.
6. Type **24** in cell B3.
7. Press Enter.
8. Type **=SUM (B1:B3)** in cell A4.

9. Press Enter. Microsoft Excel sums cells B1 to B3

Alternate Method: Entering a Function by Using the Menu:

1. Type **150** in cell C1.
2. Press Enter.
3. Type **85** in cell C2.
4. Press Enter.
5. Type **65** in cell C3.
6. Press Enter. Your cursor should be in cell C4.
7. Choose *Formulas* from the menu.
8. Click Sum in the Select A Function box.
9. Click OK. The Functions Arguments dialog box opens.
10. Type **C1:C3** in the Number1 field, if it does not automatically appear.
11. Click OK. Microsoft Excel sums cells C1 to C3.
12. Move to cell A4.
13. Type the word **Sum**.
14. Press Enter.

Calculating an Average:

You can use the AVERAGE function to calculate the average of a series of numbers.

1. Move your cursor to cell A6.
2. Type **Average**. Press the right arrow key to move to cell B6.
3. Type =AVERAGE (B1:B3).
4. Press Enter. The average of cells B1 to B3, which is 21, will appear.

Calculating Min:

You can use the MIN function to find the lowest number in a series of numbers.

1. Move your cursor to cell A7.
2. Type **Min**.
3. Press the right arrow key to move to cell B7.
4. Type = MIN(B1:B3).
5. Press Enter. The lowest number in the series, which is 12 appears.

Calculating Max:

You can use the MAX function to find the highest number in a series of numbers.

1. Move your cursor to cell A8.
2. Type **Max**.
3. Press the right arrow key to move to cell B8.
4. Type = MAX(B1:B3).
5. Press Enter. The highest number in the series, which is 27, appears.

Note: *You can also use the drop-down menu next to the Sum icon to calculate minimums and maximums.*

Calculating Count:

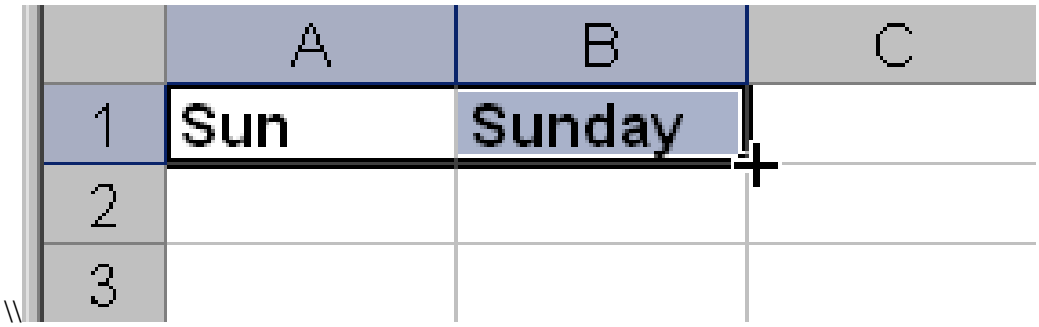
You can use the count function to count the number of items in a series.

1. Move your cursor to cell A9.
2. Type **Count**
3. Press the right arrow key to move to cell B9.
4. Click the down arrow next to the Sum icon.
5. Click Count.
6. Highlight B1 to B3.
7. Press Enter. The number of items in the series, which is 3 appears.

Filling Cells Automatically:

You can use Microsoft Excel to fill cells automatically with a series. For example, you can have Excel automatically fill in times, the days of the week or months of the year, years, and other types of series. Days of the week and months of the year fill in a similar fashion. The following demonstrates filling the days of the week:

1. Move to Sheet2.
2. Move to cell A1.
3. Type **Sun**.
4. Move to cell B1.
5. Type **Sunday**.
6. Highlight cells A1 to B1.
7. Bold cells A1 to B1.
8. Find the small black square in the lower right corner of the highlighted area. This is called the Fill Handle.
9. Grab the Fill Handle and drag with your mouse to fill cell A1 to B24. Note how the days of the week fill the cells in a series. Also, note that the Auto Fill Options icon appears in the bottom right side of the cell.



10. Click the Auto Fill Options icon.
11. Choose the Copy Cells radio button. The entry in cells A1 and B1 are copied to all the cells highlighted.
12. Click the Auto Fill Options icon again.
13. Choose the Fill Series radio button. The cells fill as a series from Sunday to Saturday again.
14. Click the Auto Fill Options icon again.
15. Choose the Fill without Formatting radio button. The cells fill as a series from Sunday to Saturday, but the entries are not bolded.
16. Click the Auto Fill Options icon again.
17. Choose the Auto Fill Weekdays radio button. The cells fill as a series from Monday to Friday.

Cell Addressing:

Microsoft Excel records cell addresses in formulas in three different ways, called ***absolute, relative,*** **and** ***mixed***. The way a formula is recorded is important when you copy it.

1. Relative cell addressing

When you copy a formula from one area of the worksheet to another, Microsoft Excel records the position of the cell relative to the cell that originally contained the formula. The following exercises demonstrate:

1. Go to cell A7.
2. Type **1**. Press Enter.
3. Type **2**. Press Enter.
4. Type **3**. Press Enter.
5. Go to cell B7.
6. Type **7**. Press Enter.
7. Type **8**. Press Enter.
8. Type **9**. Press Enter.
9. Go to cell A10.

Now you can enter a formula via following exercise

1. You should be in cell A10.
2. Type =.
3. Use the up-arrow key to move to cell A7.
4. Type +.
5. Use the up-arrow key to move to cell A8.
6. Type +.
7. Use the up-arrow key to move to cell A9.
8. Press Enter.
9. Look at the Formula bar while in cell A10. Note that the formula you entered is recorded in cell A10.

Copying by Using the Menu:

You can copy entries from one cell to another cell. To copy the formula you just entered, follow these steps:

1. You should be in cell A10.
2. *Copy* the contents of cell. Moving dotted lines appear around cell A10, indicating the cells to be copied.
3. Press the Right Arrow key once to move to cell B10.
4. *Paste* here. The formula in cell A10 is copied to cell B10.
5. Press Esc to exit the Copy mode.

Compare the formula in cell A10 with the formula in cell B10 (while in the respective cell, look at the Formula bar). The formulas are the same except that the formula in cell A10 sums the entries in column A and the formula in cell B10 sums the entries in column B. The formula was copied in a *relative* fashion.

2. Absolute Cell Addressing

An *absolute* cell address refers to the same cell, no matter where you copy the formula. You make a cell address an absolute cell address by placing a dollar sign in front of both the row and column identifiers. You can do this automatically by using the F4 key. To illustrate:

1. Move the cursor to cell C10.
2. Type =.
3. Use the up-arrow key to move to cell C7.
4. Press F4. Dollar signs should appear before the C and before the 7.
5. Type +.
6. Use the up-arrow key to move to cell C8.
7. Press F4.
8. Type +.
9. Use the up-arrow key to move to cell C9.
10. Press F4.
11. Press Enter. The formula is recorded in cell C10.

Copying by Using the Keyboard Shortcut:

Now copy the formula from C10 to D10

Compare the formula in cell C10 with the formula in cell D10. They are the same. The formula was copied in an *absolute* fashion. Both formulas sum column C.

3. Mixed Cell Addressing

You use mixed cell addressing to reference a cell that is part absolute and part relative. You can use the F4 key.

1. Move the cursor to cell E1.
2. Type =.
3. Press the up-arrow key once.
4. Press F4.
5. Press F4 again. Note that the column is relative and the row is absolute.
6. Press F4 again. Note that the column is absolute and the row is relative.

Create conditional formulas:

- Create a conditional formula that results in a logical value (TRUE or FALSE)
- Create a conditional formula that results in another calculation or in values other than TRUE or FALSE

Formula	Description (Result)
=IF(A2=15, "OK", "Not OK")	If the value in cell A2 equals 15, then return "OK". (OK)
=IF(A2<>15, "OK", "Not OK")	If the value in cell A2 is not equal to 15, then return "OK". (Not OK)
=IF(NOT(A2<=15), "OK", "Not OK")	If the value in cell A2 is not less than or equal to 15, then return "OK". (Not OK)
=IF(A5<>"S", "OK", "Not OK")	If the value in cell A5 is not equal to "S", then return "OK". (Not OK)
=IF(AND(A2>A3, A2<A4), "OK", "Not OK")	If 15 is greater than 9 and less than 8, then return "OK". (Not OK)
=IF(AND(A2<>A3, A2<>A4), "OK", "Not OK")	If 15 is not equal to 9 and 15 is not equal to 8, then return "OK". (OK)
=IF(OR(A2>A3, A2<A4), "OK", "Not OK")	If 15 is greater than 9 or less than 8, then return "OK". (OK)
=IF(OR(A5<>"S", A6<>"W"), "OK", "Not OK")	If the value in cell A5 is not equal to "S" or "W", then return "OK". (Not OK)
=IF(OR(A2<>A3, A2<>A4), "OK", "Not OK")	If 15 is not equal to 9 or 15 is not equal to 8, then return "OK". (OK)

Lab Task:

1. Implement the count function to count values between 200 and 1000 in sheet.
2. Implement all the formulas in your work sheet.
3. Use auto-complete to fill in cells A3 to A8. Display even and odd number autofill.
4. Design a ***TEMPERATURE CONVERTER*** from Celsius to Fahrenheit and Fahrenheit to Celsius. Present the Converter with appropriate design. Formulas for conversion are as follows:

$$[°C] = ([°F] - 32) \cdot 5/9$$
$$[°F] = [°C] \cdot 9/5 + 32$$

Also report the weather conditions as HOT if the temperature exceeds 35°C, WARM if the temperature is between 20°C to 35°C and COLD if the entered temperature is below 20°C.