IDC101-Introduction to computers (Python programming)

Lab tasks – **Session 07** January 02-03 2023

- Name your Colab sheet as rollNo-WS-No.ipynb (for example, if you are making colab sheet for WS6 then it should be named as: rollNo-WS-07.ipynb)

Learn to use:

- Practice functions
- Dealing with datatype **list and list methods**

```
exList=[2,3,'to',101,'idc101',89,91,'welcome']
print(exList[2],exList[4][2:])
print(exList[7],exList[2],exList[4])
print(len(exList))
```

LIST Methods

```
exList.append(98) ## adds ONE element to the end of list
print(exList.index('idc101')) # returns Index of element
exList.extend([12,14]) ## add a list of items to another list
exList.pop() ## removes the last element of a list
exList.pop(2) ## removes the 2nd indexed element of the list
```

Finish all previous python Lab tasks

Q 1. Make a **list** of at least five prime numbers. Do the following without using in-built functions:

a. Write a program to reverse list.

b. Sum the elements of list.

Q 2. Write a program to sort a list of numbers using bubble sort algorithm given below:

START
INPUT vector (list of numbers)
N = count of elements in list
FOR i from 0 to N,
FOR j in 0 to (N-i)-1,
IF vector[j] > vector[j+1],
SWAP (vector[j] with vector[j+1))
STOP

Change the program to sort numbers in ASCENDING or DESENDING order.

Q 3. Write a function *f (a, x)* that accepts two numbers *a* and *x*, and returns $(a^x - 1)/x$. Calculate f (a, 1), f (a, 0.1), f (a, 0.01), f (a, 0.001), f (a, 0.0001) for a = 2, 3. For what value of **a** do we have f (a, 0.01), f (a, 0.001), f (a, 0.0001) very close to 1?

Q 4. Write one or multiple functions to perform arithmetic operations 'addition', 'subtraction', 'multiplication', and 'division'. The function should take three inputs, two numbers and mathematical operation. Use these functions to write a calculator program.