**PYTHON ACTIVITY 2:**

**LIST PROBLEMS:**

• write a function that returns a list containing every possible sublist of a list. For example, the sublists of [1, 2, 3] are [], [1], [2], [3], [1, 2], [2, 3] and [1, 2, 3]. Note that your func-tion will always return a list containing at least the empty list because the empty list is a sublist of every list. Include a main program that demonstrate your function by displaying all of the sublists of several different lists.

2)Python’s standard library includes a method named count that determines how many times a specific value occurs in a list. In this exercise, you will create a new function named countRange which determines and returns the number of elements within a list that are greater than or equal to some minimum value and less than some maximum value. Your function will take three parameters: the list, the minimum value and the maximum value. It will return an integer result greater than or equal to 0. Include a main program that demonstrates your function for several different lists, minimum values and maximum values. Ensure that your program works correctly for both lists of integers and lists of floating point numbers.

3)Write a function that determines whether or not a list of values is in sorted order (either ascending or descending). The function should return True if the list is already sorted. Otherwise it should return False. Write a main program that reads a list of numbers from the user and then uses your function to report whether or not the list is sorted.

4)

A proper divisor of a positive integer, n, is a positive integer less than n which divides evenly into n. Write a function that computes all of the proper divisors of a positive integer. The integer will be passed to the function as its only parameter. The function will return a list containing all of the proper divisors as its only result. Complete this exercise by writing a main program that demonstrates the function by reading a value from the user and displaying the list of its proper divisors. Ensure that your main program only runs when your solution has not been imported into another file.

5)

An integer, n, is said to be perfect when the sum of all of the proper divisors of n is equal to n. For example, 28 is a perfect number because its proper divisors are 1, 2, 4, 7 and 14, and 1 + 2 + 4 + 7 + 14 = 28.

Write a function that determines whether or not a positive integer is perfect. Your function will take one parameter. If that parameter is a perfect number then your func-tion will return true. Otherwise it will return false. In addition, write a main program that uses your function to identify and display all of the perfect numbers between 1 and 10,000.

6)

Write a Python program to multiplies all the items in a list.

7)

Write a Python program to remove duplicates from a list.

eg: 10,20,30,20,10,50,60,40,80,50,40

8)

Write a Python function that takes two lists and returns True if they have at least one common member.

• Write a Python program access the index of a list.

eg: 5,15,38,8,98

• Write a Python program to append a list to the second list.You can take one list as numbers and the other list as string.