Programming Exercise

Question#01

Suppose you have been given a list of **sorted** integers. You must write a function that inserts a value in the list at its **proper position (index)** such that after inserting the value the list is still sorted. The list can either be in ascending or descending order, your function should work for both types. You can write a separate function to which would tell you in which order the list is sorted (**Hint:** You only have to check the first two numbers to determine in which order the list is sorted). Name the function that inserts the value as **insert**, it must have **two parameters**: first the **value** you want to insert and second the **list** in which you want to insert the value. (You are not allowed to use the sort function of lists)

Example: Given a list [1, 3, 5, 9, 22]

If we try to insert 4 in this list the correct **index** for it would be 2, if we insert it at any other location the resultant list will not be sorted.

Question#02

Write a function that calculates the sum of all the elements of a given list. Name the function **sum_list** and the list should be passed to the function as a parameter. Assuming the list either contains integers or floats or both.

Question#03

Write a function that takes a list as a parameter and calculates the number of prime numbers present in the list. This function also must find the index of each prime number. Name the function appropriately

Example:

[3, 6, 4, 7, 11, 22]

In the list given above there are 3 prime numbers and their indexes are 0, 3, 4

Question#04

Write a function that takes two parameters, one is a **list** and the other is a **number**. The function finds the divisors of the **number** in the **list** and prints them. Your function should print “No divisors found” for number if its divisors are found in the list.

Question#05

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

Question#06

Write a function that takes an integer as a parameter and returns the sum of digits in that integer.

Example:

The sum of 972 should be 9 + 7 + 2 = 18

Question#07

Write a function that takes an integer as a parameter. The function finds the number of even, odd and zero digits in the integer.

Example:

6550 has one even number (6), two odd digits (5) and one zero.

Your output should be in the following form:

Evens: 1

Odds: 2

Zeros: 1

Question#08

Write a function that takes a list as a parameter and reverses the list without using the built-in reverse function.

Question#09

Write a function that takes a list as a parameter and returns the elements on odd positions in that list.

Question#10

Write a function that takes a list as a parameter and returns the second maximum in the list. Assuming the list consists of only integers.

Example:

[22, 5, 7, 35, 1, 100, 15]

The second maximum in the above list is 35