19I210 Python Programming Laboratory

11.5.2022 **Exercise -5**

Functions

1. Write a function called sum_digits that is given an integer num and returns the sum of the digits of num.

2. Write a function called first_diff that is given two strings and returns the first location in which the strings differ. If the strings are identical, it should return -1.

3. Write a function called closest that takes a list of numbers L and a number n and returns the largest element in L that is not larger than n. For instance, if L=[1,6,3,9,11] and n=8, then the function should return 6, because 6 is the closest thing in L to 8 that is not larger than 8.

4. Write a function which accepts a list of numbers and return histogram. The frequency of every unique element in the list.
   Input: [3 3 3 3 5 7 8 9]
   Output: 3-4, 5-1, 7-1, 8-1, 9-1

5. Write a function lettersum which accepts a string of lowercase letters and find the sum of values of the letters in the string. Assume the lowercase letters 'a' to 'z' be assigned with values from 1 to 26.
   Ex: lettersum("cab") => 6

   Change the function with a keyword argument start with default value of 0. If the value is changed during function call then the values assigned to letters will change as start to start+26
   Ex: lettersum("cab", start=5) => 21

6. Write a function called is_sorted that is given a list and returns True if the list is sorted and False otherwise.

7. Write a function to validate the input password based on the given rules:
   a) A minimum of 8 characters
   b) It should contain at least one digit, one uppercase letter and one special symbol.

   Extend the program to indicate the strength of the password. Classify the password as 'weak' if it contains the following substrings {'password',''computer','1234'}

8. Write a function called merge that takes two already sorted lists of possibly different lengths, and merges them into a single sorted list.

9. Write a function called matches that takes two strings as arguments and returns how many matches there are between the strings. A match is where the two strings have the same character at the same index. For instance, 'python' and 'path' match in the first, third, and fourth characters, so the function should return 3.

10. Write a function called factors that takes an integer and returns a list of its factors.