

**EXERCISE 5: STRINGS AND LISTS**

1. Suppose that `s1`, `s2` are two strings, given as follows:

```
1 s1 = "Introduction to programming"
2 s2 = "ro"
```

What are the results of the following expressions?

- |                               |                                    |
|-------------------------------|------------------------------------|
| a) <code>s2.count('o')</code> | g) <code>s1[-4: -8]</code>         |
| b) <code>s1.upper()</code>    | h) <code>s1.startswith("o")</code> |
| c) <code>s1.find(s2)</code>   | i) <code>s1.endswith("o")</code>   |
| d) <code>s1[4]</code>         | j) <code>s1.isalpha()</code>       |
| e) <code>s1[4 : 8]</code>     | k) <code>s1 + s1</code>            |
| f) <code>s1[-4]</code>        | l) <code>'J' + s1[1:]</code>       |
2. What is the output of the following code?

```
1. list1 = list(range(1,10,2))
2. list2 = list1
3. list1[0]= 111
4. print(list1)
5. print(list2)
```

3. Write a program that prompts the user to enter two strings `s1`, `s2` and sorts them in increasing order.
4. Write a program that prompts the user to enter a string and tests whether the string is a palindrome or not.
5. Write a Python program to get a string made of the first 2 and the last 2 chars from a given a string. If the string length is less than 2, return instead of the empty string.
6. Write a function named **mismatch** that accepts two strings as input arguments and returns:
- 0 if the two strings match exactly.
  - 1 if the two strings have the same length and mismatch in only one character.
  - 2 if the two strings do not have the same length or mismatch in two or more characters.

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Capital letters are considered the same as lower case letters. Here are some examples:

S1 = "Python", S2 = "Java" → return 2

S1 = "Hello There", S2 = "helloothere" → return 1

S1 = "dog", S2 = "Dog" → return 0

7. Write a program that prompts the user to enter a Social Security number in the format **ddd-dd-dddd**, where d is a digit. The program displays Valid SSN for a correct Social Security number or Invalid SSN otherwise.
8. Write a function that checks whether a string is a valid password. Suppose the password rules are as follows:
  - A password must have at least eight characters.
  - A password must consist of only letters and digits.
  - A password must contain at least two digits.

Write a program that prompts the user to enter a password and displays valid password if the rules are followed or invalid password otherwise.

9. Write a program that prompts the user to enter a list of integers:
  - a. Sum all elements in the list
  - b. Find minimum and maximum element in the list
  - c. Search an X element in the list
  - d. Count occurrences of an element X in the list
  - e. Print index of the first occurrence of element X in the list.
10. Given list of numbers  $a_0, a_1, \dots, a_{n-1}$ . Write a program to:
  - a. Print all the negative elements in the list
  - b. Find sum of all the negative elements in the list
  - c. Check whether all elements in the list are positive or NOT
  - d. Sort the List in ascending /descending order.
11. Write a program that prompts the user to enter two lists of integers and find common numbers from two lists (using list comprehension / for loop).