Lab: Strings

This lab session is on string manipulation in Python. At the end of this session, you will apply various string manipulation functions/methods to solve some string-related problems.

Activity 1: Refresher

Take a moment to recap the lecture material on strings.

- Are strings mutable or immutable? Why? Demonstrate on your system.
- List some of the string-related methods and take a moment to see in action what each achieves.
- String formatting in Python?

Activity 2: Problem solving

1. Write a program that takes a string as input and displays the number of characters in it. Try both with and without any built-in string function.
2. How about the number of words in the above string?
3. Modify the above program so that the program displays the string in upper case if the number of words in the string is even, and in lower case otherwise.
4. Display the index of each character of a string. E.g. For the string "Bhutan", the expected output is:
   `The index of 'B' is 0.`
   `The index of 'h' is 1` and so on

5. Given a string, display the total number of **vowels** in it. How about the number of spaces?
6. Display the first half of a given string. How about the second half?
7. Display the first N characters of a given string. N is a user-supplied number.
8. Exchange the first and last characters of a given string. E.g. `"Hello"` → `"oellH"`
9. Given two strings Str1 and Str2, insert Str1 in the middle of Str2.
10. Reverse a user-supplied string. E.g. `"I love Bhutan"` → `"natuhB evol I"`
11. Write a program to check if a given string is **palindrome** or not. A string is called palindrome if it reads the same when reversed. E.g. "Mom", "Madam", "pop", etc.
12. Define a function named **Eureka()** that takes a character and a string (both user-supplied) as argument and returns True if the character is found in the string, False otherwise. E.g. `Eureka("a", "Bhutan")` → `True`, `Eureka("x", "Ethiopia")` → `False` .
13. Create a new string by removing all occurrences of vowels from a given string.

14. Practice **string formatting** with the above questions (using any of the approaches we discussed).