Strings

Learning Objectives

Upon completion of this exercise, the student shall be able to:

- Explain the key concepts covered in the ninth chapter *Strings*.

Evaluation

Your Python solution shall be evaluated and graded. The instructor will be looking at the following:

- Does the code adhere to separation of concerns, design for reuse, and design only what is needed?
- Does each function, with the exception of `main()`, have comments (i.e., purpose, assumptions, inputs, and post-conditions)?
- Does the code produce the correct results?

Description

The class will discuss and attempt to solve the following problem, in a single class session.

1. Create one Python source code file that contains functions that do the following.
    a. Create a `main()` function that will call the functions to perform the processing described in step 1.b & 1.c.
    b. Write a function called "`index_fnrc(s)`" that accepts a string as a parameter and returns the *index* of the first character in s which appears only once in s. Some test cases follow:
        i. index_fnrc("level") = 2 #the "l" and "e" appear at the end of the string, only the "v", in position 2, appears only once.
        ii. index_fnrc("swiss") = 1 #the "s" appears 3 times, the "w", at position 1, appears only once
        iii. index_fnrc("flat") = 0 #all non-repeated characters
        iv. index_fnrc("abcabc") = -1 #no non-repeated characters (you may return None in this case if you like)
    c. Write a function called "`isvaliddate`" that takes a date value and validates the date value entered, you **do not need to consider leap years**. The format of the date value should be: "mm/dd/yyyy".
        i. The yyyy value must be four digits and greater than 1999.
        ii. The mm value must be two digits and be in the range [1,12].
        iii. The dd value must be two digits and be in the range [0, 31].
        iv. When the date value is valid, return True, otherwise return False.
        v. for example, 02/30/2005 is a valid date but 5/37/20500 is not.
    d. In your main function, prompt the user for a string, then use (call) the "`index_fnrc(s)` and Print out the result.
    e. In your main function, prompt the user for a date, then use (call) the "`isvaliddate`" function to determine if the data is valid or not. Print out the result.