Monsoon 2019

CSE602 : Computer Problem Solving

lab – 03

Date: 1/10/2019

Instructions

1. Create a folder named <rollno_lab3>, and save all the python programs as per the question numbers in this folder. For example: 1.py, 2.py, 3.py, etc.
2. The <rollno_lab3>.tar.gz or .zip of the above folder should be uploaded on Moodle.
3. File and folder names should be followed strictly as mentioned in the questions below (including case sensitivity).
4. Read all the questions carefully before you start answering them.
5. Post doubts if any in doubts forum on moodle

Questions:

1. Write a python code to perform certain operations on a given string.
    a. Print the length of the string.
    b. Concatenate the string with "Ilovepython" again print the length.
    c. Take a number as a user input and concatenate number 5 times.
    d. Make a separate list of all even indices from the updated string
    e. Print the reverse of the string created in a step 4
    f. Replace all the numbers in a string created in step 4 with "a"
    g. Replace all letters in a string to uppercase in an updated string.

    Example output:

    name="Ilovepython"

    (a) Length : 11

    (b) Str2: "IlovepythonIlovepython ", Length:22.

    (c) Str3: "IlovepythonIlovepython22222"

    (d) l1: ['I', 'o', 'e', 'y', 'h', 'n', 'l', 'v', 'p', 't', 'o', '2', '2', '2']

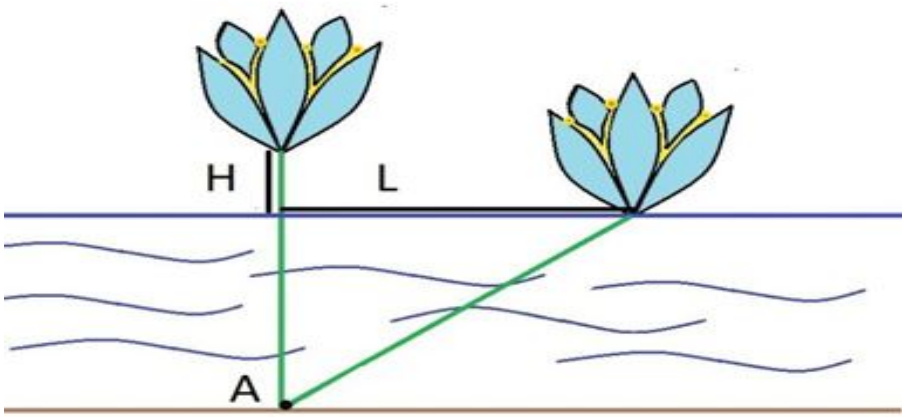
(e) 222otpvlnhyeoI

(f) aaaotpvlnhyeoI

(g) AAAOTPVLNHYEOI

2. While sailing on a boat, Rose noticed a beautiful water lily flower above the lake's surface. She came closer and it turned out that the lily was exactly H centimeters above the water surface. Rose grabbed the flower and sailed the distance of L centimeters. Exactly at this point the flower touched the water surface.

   Suppose that the lily grows at some point A on the lake bottom, and its stem is always a straight segment with one endpoint at point A. Also suppose that initially the flower was exactly above the point A, i.e. its stem was vertical. Can you determine the depth of the lake at point A?



Input :

H and L (1<=H<L)

Output:

Depth of Lake at Point A

Input:

1 2

Output:

1.5

3. Print the pattern G using stars and white-spaces in Python.

Input: 7

Output:

```
   ***
 *
 *
 * ***
 *    *
 *    *
   ***
```