Progress Academy Sofia Exam Tasks
11.02.2018

1. Write a Python program which asks the user to enter their name and their age. Print out a message addressed to them that tells them in how many years they will turn 100.

Sample input: Bobby
32

Sample output: Bobby you will turn 100 in 68 years.

2. Write a Python program which outputs only the unique characters of a list.

Sample input: [3, 3, 6, 8 ,6, 9]

Sample output: [3,6,8.9]

3. Write a Python program which shifts a letter to the previous one in the alphabet.

Sample input: b

Sample output: a

Hint: z should be shifted to a

Bonus: implement the algorithm not for single letter inputs but for whole strings

4. Write a Python program which requires the user to guess a number in 5 tries. Generate randomly the number to be guessed at each program execution.

Bonus: Implement an error(exception handling) strategy if the user inputs not a number.

5. Write a Python program which finds the number of words in a snake case variable name.

Sample input: “i_am_snake_case_variable”

Sample output: 5

6. Create a Python generator which generates random float numbers in the range between 1.0 and 1.5.

7. Write a Python program to print next 5 days starting from today.

8. Implement an arbitrary sorting algorithm for a list of numbers (in an ascending order).

Sample input: [3,9,5,8,1]

Sample output: [1,3,5,8,9]

9. You have sample data of movies released by a big Hollywood studio. Choose a suitable for the job Matplotlib chart and plot it.

Adventure	941
Action	854
Drama	4595
Comedy	2125
Thriller	943
Horror	509
Romantic Comedy	548
Musical	149
Documentary	1952
Western	161
Concert	64
Multiple Genres	35
Reality	5

Bonus tasks

1. Write a Python program which concatenates two text files and saves the result in a new file having the current date for a name. In the resulting file separate each input file's content by distinctive separator line (e.g. "----------").

    Sample files: a.txt b.txt.

    Sample resulting file: 10022018.txt

2. Use the requests library to send a get request to https://www.google.com. Save the response content(text) to a text file.

3. Create a simple Django/ Flask website which has a landing page displaying just "Hello World!"

8. Write a Python program which exports the included *party_full.csv* file to a SQLite database. You can use pandas and sqlalchemy just as we did in the lecture. You may get a warning about mixed types in some columns but don't fret about it.

4. You are given a Python expression in a line. Read that line as a string variable, such as *var*, and print the result using *eval(var)*.

5. Write a Python program which asks the user how many Fibonacci numbers to generate and then generates them.

    Sample input: 7

    Sample output: 0, 1, 1, 2, 3, 5, 8