

Progress Academy Sofia Practice Exam Tasks
10.02.2018

1. Write a Python program which takes a floating point number as an input and outputs it rounded to three places after the decimal.

Sample input: 3.1415926

Sample output: 3.141

What if you wanted to round the number to 3 digits after the decimal?

Would the result be different? Do this, too.

Sample input: 3.1415926

Sample output: 3.142

2. How would you:

- a. check the type of a variable in Python;
- b. convert a variable from one type to another;
- c. handle any errors(exceptions) raised in the conversion?

Create a practical example.

3. Write a Python function to check whether a number is in a given range.

Sample number: 3

Sample range: 0, 12

Sample output: Yes

4. Write a Python function to multiply all the numbers in a list.

Sample list: [3,2,6]

Sample output: 36

5. Write a Python program which multiplies two numbers without using the * operator.

Sample input for first number: 3

Sample input for second number: 6

Sample output: 18

6. Write a Python program which sums the digits of an integer taken from user input until the result is a single digit integer.

Sample input: 438

Step 1: $4+3+8 = 15$

Step 2: $1+5 = 6$

Sample output: 6

7. Write a Python program to find the single element which appears once in a list where every element appears two times except for one.

Sample list: [4,4,3,2,3]

Sample output: 2

8. Write a Python program which keeps a list of people and their corresponding age (e.g. Mike Johnson: 3, Jacob Maloney: 56.....). Choose the proper data structure. When you run your program it should ask the user to enter a name, and return the age of that person if he is in the list.

Sample input: 'Mike Johnson'

Sample output: "Mike Johnson is 3 years old."

Sample input: 'Maria Dimitrova'

Sample output: 'I don't know the age of Maria Dimitrova'

9. Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle.

10. 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.

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

12. Write a Python program which concatenates three 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. c.txt

Sample resulting file: 10022018.txt

13. 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]

14. 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

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

16. Create a simple Django/ Flask website which has a landing page displaying just “Hello World!”

17. 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)*.

Also do not forget:

18. 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

19. Write a Python program which checks if a string is a palindrome.

Sample input: "car"

Sample output: "No"

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