Practical

Arguments and user input

1. Create the script **problem1.py**, which gets some arguments from user using the sys module and prints the name of the script, the number of arguments and the values of the arguments in the following format:

   "Script name: problem1.py"
   "Number of arguments: 3"
   "Argument values: 1 "asd" True

2. Create the script **problem2.py,** create a variable **user_name** and assign it a value using the input() function to get the user input.
   Print the following text using the value of the variable **user_name** instead of **X:**

   "Welcome, **X**!"

3. Create the script **problem3.py,** which gets **name** as a positional argument and prints the text "Welcome, **X**!", using the value of the variable **name** instead of **X.**

4. Create the script **problem4.py,** which gets **age** as an optional argument and prints the text "Happy Birthday, you are already **X** years old!", using the value of the variable **age** instead of **X**.

5. Create the script **problem5.py,** which gets **text** as a positional argument and prints all-lowercase and all-uppercase versions of the **text** in the following format:

   "The given string: **A sAmpLe stRING.**"
   "All lowercase: **a sample string**."
   "All uppercase: **A SAMPLE STRING**."

Working with Strings

6. Create the script **problem6.py,** get some text of type String as a user input (using the function input()) and store the text in the variable **text1**. Count how many times the letters a, b, c, d, and e appear in **text1** and print the results in the following format:

The given text: **abbbbbaaaaaaaeaa**
# of a: 10
# of b: 5
# of c: 0
# of d: 0
# of e: 1

7. Create the script **problem7.py,** create a variable **str1** of type String and assign it the value “How are you John?”. Then create a variable **name** of type String and assign it your name as a value.
   Create a new variable **str2** of type String and do some String manipulations to give it a value “How are you **name**?”, using the value of the variable **name.** Create the variable **str2** in 2 different ways:
   1) Using a substring of the string **str1** and connecting it to the variable **name**
   2) Replacing the value John in **str1** with the value of the variable **name** using the appropriate function

8. Create the script **problem8.py,** create a variable **country** of type String and assign it the value “Armenia”. Then create a variable **years** of type Int and assign it 10 as a value. Print the following text using the values of the variables **country** and **years:**

   “Hi, where are you from?”
   “I’m from **country**”
   “How long have you lived here?”
   “For **years** years”

9. Create the script **problem9.py,** which gets a positional argument **text** of type String and 2 positional arguments **start_index** and **end_index** of type int as command line arguments. Print the substring of the string **text** between the indexes **start_index** and **end_index** in the following format**:**

   “The given text: Thisisasampletext. ”
   “Start index: 3”
   “End index: 11”
   “Output string: sisasamp”

Date and time

10. Create the script **problem10.py**,
    1) Import **datetime, time** and **calendar** modules
    2) Print on separate lines:
        a) Current date and time (example: 2014-09-26 16:34:40.278298)
        b) The value of the current year (example: 2014)
        c) The value of the current month (example: 9)
        d) The value of the current day of the week (example: 4 or 5 i.e. Friday)
    3) Subtract 5 days from the current date and time and print the result (example: 2014-09-21 16:34:40.278298)
    4) Add 5 days from the current date and time and print the result (example: 2014-10-01 16:34:40.278298)

Homework

(optional) Problem 1. (argparse module)

Create the script **problem1.py,** which gets 2 optional command line arguments **num_y** (the number of years) of type int and **num_d** (the number of years) of type int. Print current date and time + **num_y** + **num_d** (using the timedelta function), taking into consideration that both of the variables are optional and if one or both are not given by the user they shouldn't be included in the resulting sum. Example of the output:

"Current date: 2019-08-17 13:57:28.13050"
"Given years: 2"
"Given days: not given"
"Final date: 2021-08-17 13:57:28.13050"

(optional) Problem 2.

Create the script **problem2.py,** which gets a positional argument **text** of type String, which is 7 or more characters long and has an odd number of characters. Print the middle 3 characters of the string, as well as create and print the new version of the string **text**, where the middle 3 characters are uppercase, in the following format:

"The old string: abcdefghijk"
"Middle 3 characters: efg"
"The new string: abcdEFGhijk"

Problem 3.

Create the script **problem3.py,** which gets 3 positional command line arguments of type String: **text, first_word, second_word.** Print the new version of the given **text,** replacing all the occurrences of the **first_word** in **text** with the **second_word** in the following format:

“The given text: This text is a sample text. ”
“First word: text”
“Second word: image”
“Output string: This image is a sample image. ”

Problem 4.

Create the script **problem4.py**, which gets a positional argument **text** of type String and finds the number of accurances of the words “USA” or “usa” in the text, as well as replaces all the accurances of the words with the word “Armenia”. Print the results in the following format:

“The given string: Welcome to USA. usa is awesome, isn’t it?”
“The USA/usa count is: 2”
“The new string: Welcome to Armenia. Armenia is awesome, isn’t it?”

(optional) Problem 5.

Create the script **problem5.py**,

1) Import **datetime, time** and **calendar** modules
2) Print on separate lines`:
    a) The date of your birthday
    b) The year of your birthday (using the appropriate function on the date of your birthday)
    c) The month of your birthday (using the appropriate function on the date of your birthday)
    d) The day of your birthday (using the appropriate function on the date of your birthday)
    e) Find and print the weekday of your birthday
    f) Find and print how many days are left till your upcoming birthday
3) Print the calendar of May 2017
4) Print yesterday’s date and time

a) Add 2 days to yesterday's date and time and print the result
b) Subtract 3 days from yesterday's date and time and print the result