Lab 3: Functions

Background

A function is a block of code that does a specific task after calling it. You can pass data as parameters to it, and it can return a value.

Instructions

Use Python IDE to create a solution for the scenario presented in each question.

1. **Functions for circumference and area of a circle**
   Write a program that takes a circle with radius as input from the user and then computes the circumference and area of the circle. Implement the computations of circumference and area as two separate functions that each takes radius as input parameter. Print **circumference** and **area** to the screen along with an appropriate text. Run the program with **radius = 1** and confirm that you get the right answer.

2. **Function for area of a rectangle**
   Write a program that computes the area of a rectangle. The values of **length** and **width** should be user input to the program. Also, write the area computation as a function that takes **length** and **width** as input parameters and returns the computed area. Let the program print the result to screen along with an appropriate text. Run the program with **length = 2** and **width = 3** to confirm correct program behavior.

3. **Average of integers**
   Write a program that gets an integer **n > 1** from the user and computes the average of all integers ***i* = 1, . . . , *n***. The computation should be done in a function that takes **n** as input parameter. Print the result to the screen with an appropriate text. Run the program with n = 5 and confirm that you get the correct answer.

4. **Simple calculator**
   Create a simple calculator that can add, subtract, multiply or divide depending upon the input from the user. The user should enter two numbers and a word that can be “add”, “subtract”, “multiply” or “divide”. Your program should test the word and then do the operation accordingly. Create a function for every operation in this program.

Submission:

Please submit two files:

1- A PDF file containing screenshots of the code of each program along with their respective outputs.

2- All Python files should be placed in one folder and zipped into a single file for submission.

Reference: This lab is adapted from S. Linge and H. P. Langtangen (2020). Licensed under the terms of the Creative Commons Attribution 4.0 International License (https://creativecommons.org/licenses/by/4.0/deed.en).