

Laboratory 4

Objective

Familiarize with the concept of programs modularity.

Problem 1

- a) Create a module called `shapes` in which you define functions related to shapes area computation

Shape	Area	Comments
square	a^2	a is the length of the side
rectangle	$a \times b$	a and b are the lengths of the rectangle's sides
triangle	Use Heron's formula: $A = \sqrt{s(s-a)(s-b)(s-c)}$ Where s is the semiperimeter of the triangle's sides $s = \frac{a+b+c}{2}$	a , b , c are the sides of the triangle To compute the square root of that expression, use the python's math module like: <pre>import math ... area = math.sqrt(x)</pre>

- b) Create a top-level file containing the corresponding functions that will ask user for the following info (note that the text below should appear at the console)

Enter the shape for which you want to compute the area:

1. Square
2. Rectangle
3. Triangle

Then, based on the number provided by the user (1, 2 or 3) create a function that:

If 1 was provided, ask user for the side of the square

Enter the side of the square:

If 2 was provided, ask user for the sides of the rectangle:

Enter the first side of the rectangle:
Enter the second side of the rectangle:

If 3 was provided, ask user for the sides of the triangle:

Enter the first side of the triangle:
Enter the second side of the triangle:
Enter the third side of the triangle:

Then, do the computation and display the result at `stdout` like:

- 1) If a square was provided:
The area of the square is XX
- 2) If a rectangle was provided:
The area of the rectangle is XX
- 3) If a triangle was provided:
The area of the triangle is XX

SUGGESTION:

Try to leverage the power of python function. Decompose the main program in as many distinct functions as needed. For example

- A function for displaying the main menu
- A function to retrieve the side of a square
- A function to retrieve the sides of a rectangle
- A function to retrieve the sides of a triangle
- A function that computes the areas based on the chosen shape
- etc...