

## PRACTICE 0: Firsts Programs (Classroom Exercises)

DURATION: 2 Hours

### THEORIC CONTENTS

- **Lesson 3.** Data Types.
- **Lesson 4.** Operators and Expressions.

### LEARNING OBJECTIVES

- **LO-02.1.** Identify the Variables that are required in algorithm design.
- **LO-02.2.** Identify the Constants that are required in algorithm design.
- **LO-03.1.** Choose correctly the data type of a variable according to the values that it could store in algorithm design.
- **LO-03.2.** Choose correctly the data type of a constant according to the values that it could store in algorithm design.
- **LO-05.1.** Implement variables in C language in function of the type and range of values that is needed in the design of a given algorithm.
- **LO-05.2.** Implement variables in C language in function of the type and range of values that is needed in the design of a given algorithm.
- **LO-06.1.** Implement basic input operations in C language to collect and show data through variables.
- **LO-06.2.** Implement basic output operations in C language to collect and show data through variables.
- **LO-07.1.** Implement basic input operations in C language to collect and show data through variables.
- **LO-07.2.** Implement basic output operations in C language to collect and show data through variables.
- **LO-10.1.** Define and Evaluate expressions, considering values, variables, constants and precedence rules and order of evaluation of each operator.
- **LO-11.1.** Implement in C Language expressions using arithmetic and assignment operators.

### GITHUB CLASSROOM ASSIGNMENT

<https://classroom.github.com/a/DKg3t3D>

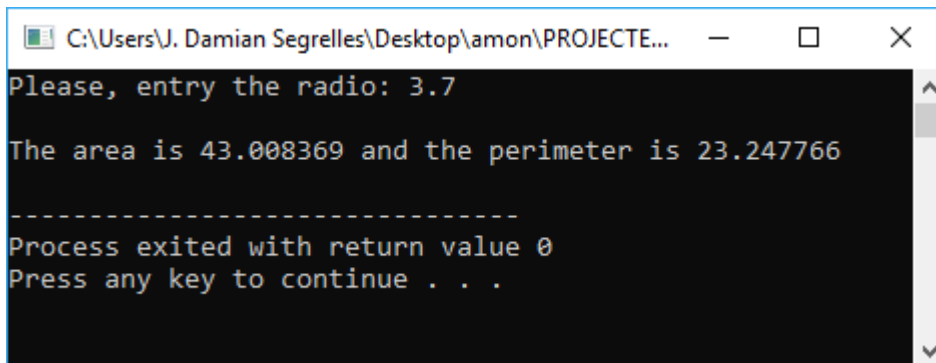
## PROPOSED EXERCISES

**Exercise 1.** Design and implement a C program that calculates the area and perimeter of a circle based on a radius given by the user.

**NOTE:** PI number should be considered as the fixed value 3.14159 and the radius have to be a real number.

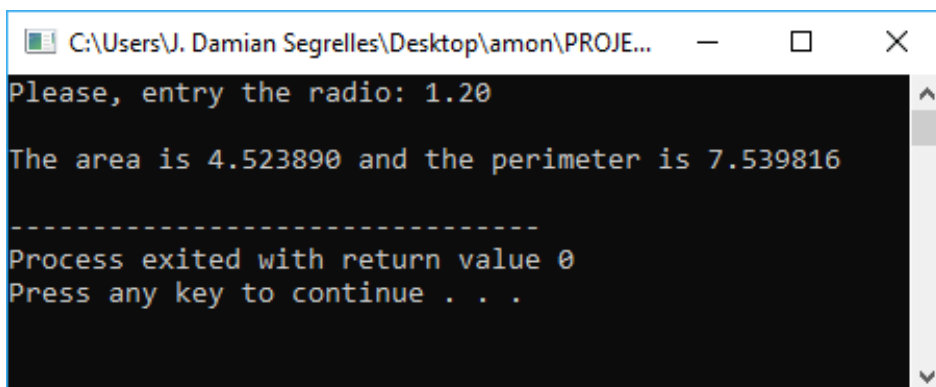
Examples of expected output:

Example 1:



```
C:\Users\J. Damian Segrelles\Desktop\amon\PROJEC...  
Please, entry the radio: 3.7  
The area is 43.008369 and the perimeter is 23.247766  
-----  
Process exited with return value 0  
Press any key to continue . . .
```

Example 2:



```
C:\Users\J. Damian Segrelles\Desktop\amon\PROJE...  
Please, entry the radio: 1.20  
The area is 4.523890 and the perimeter is 7.539816  
-----  
Process exited with return value 0  
Press any key to continue . . .
```

**Exercise 4.** Design and implement a C program that solves the next problem definition:

A car parts company needs a program that computes and displays the selling price (Euros) of its products. In this sense, the program should apply the following formula:

$$\text{profit} = \text{cost\_price} * \frac{\text{profit\_margin}}{100}$$

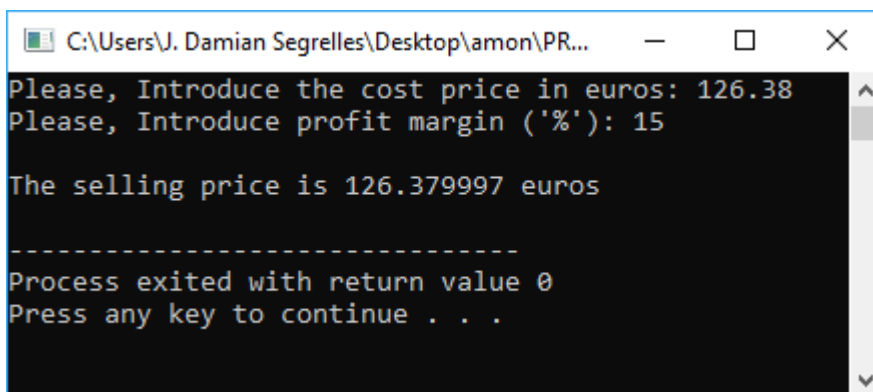
$$\text{selling\_price} = \text{cost\_price} + \text{profit}$$

The cost price and the profit margin are specified by the user. The program should read such values from keyboard and then, it should compute the selling price. The result should be displayed on the screen.

**NOTE:** The cost price has to be composed by a number that corresponds to euros and cents, and the profit margin the percentage without decimal part.

Examples of expected output:

Example 1:

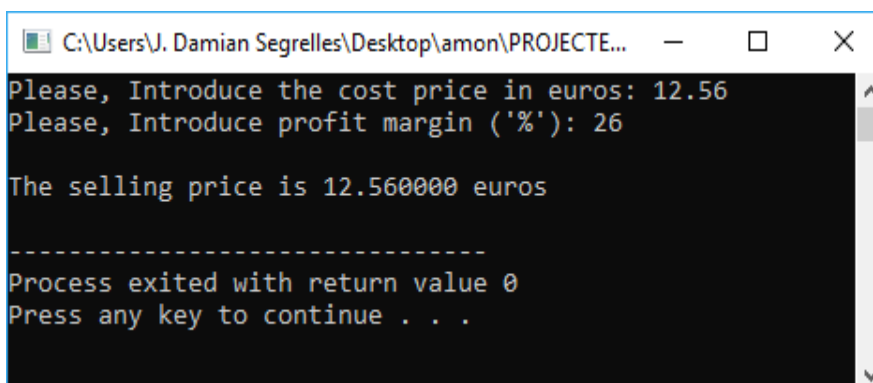


```
C:\Users\J. Damian Segrelles\Desktop\amon\PR...
Please, Introduce the cost price in euros: 126.38
Please, Introduce profit margin (%): 15

The selling price is 126.379997 euros

-----
Process exited with return value 0
Press any key to continue . . .
```

Example 2:



```
C:\Users\J. Damian Segrelles\Desktop\amon\PROYECTE...
Please, Introduce the cost price in euros: 12.56
Please, Introduce profit margin (%): 26

The selling price is 12.560000 euros

-----
Process exited with return value 0
Press any key to continue . . .
```