



Lab 03: Variables and arithmetic operators

Programming

2025 - 2026

Exercises

Exercise 1. Variable declaration

Declare a variable for each of the data types we know and print their values. What is the name of the Python feature that allows declaring variables without specifying their type?

Exercise 2. Using non-initialized variables

Declare a variable of any type without initializing it (do not give an initial value to it). What is the result? Why?

Exercise 3. Changing the value of a variable

Declare and initialize a variable. Then, in a new statement, assign a new value to the variable. Is it possible to change the value of a variable? Does the type of the variable make any difference? Display both the old and new values of the variable on the screen.

Exercise 4. Changing the type of a variable

Declare and initialize an integer variable. On the next line, change its content to store 'hello'. Is this possible? What is the name of the Python feature that allows this?

Exercise 5. Float precision

Declare two `float` variables. Initialize the first variable with the value `12345678901234567.0` and the second one with `12345678901234568.0`. Print the result of their subtraction. What is the result? Repeat the same procedure with two `integer` variables (removing the decimal part). What is the result? Why? Print the result of the operation `0.3 - 0.2`. What happens?

Exercise 6. Multiple declarations (I)

Declare and initialize three variables of different types in a single line. Is this possible?

Exercise 7. Copy of variables

Create two variables of any type, assign a value to the first one, and then assign the value of the first variable to the second variable. Print the second variable on the screen. Extend the program with a new instruction that changes the value of the first variable, and add another instruction to print the second variable again. Does the second variable change its value? Why?

Exercise 8. Multiple declarations (II)

Type the following program:

```
var1, var2 = 4, 6
var1, var2 = 8, var1
```

Which is the final value of each variable? Why?

Exercise 9. Division by zero

Declare three `int` variables. Assign 5 to the first one and 0 to the second one. Assign to the third variable the result of dividing the first variable by the second one. Print the result on the screen. Is there an error? Why? Does the result change if the variables are declared as `float` instead?

Exercise 10. String concatenation

Declare three `string` variables, assigning any value to the first two and making the third variable equal to the first one + second one. Print the third variable. What happens? What if you set the third variable = first – second?

Exercise 11. Multiple line strings

Write a Python program to store into a pair of variables the string: Twinkle, twinkle, little star, how I wonder what you are! Up above the world so high, like a diamond in the sky. Twinkle, twinkle, little star, how I wonder what you are. In the first variable use triple quotes to do it, in the second one use regular quotes and escape sequences. It must be stored in a way that when printing it we obtain the following specific format:

```
Twinkle, twinkle, little star,  
    how I wonder what you are!  
        Up above the world so high,  
        like a diamond in the sky.  
Twinkle, twinkle, little star,  
    how I wonder what you are.
```

Exercise 12. Slicing strings

Using the previously declared variable and String slicing operators, create three variables: the first one will contain Twinkle, twinkle, little star, the second one Up above the world so high and the third one how I wonder what you are. Print these variables.

Exercise 13. Printing with format

Copy the following program:

```
name = 'Johnny Depp'  
age = 55  
height = 1.78  
weight = 65.8  
eyes = 'brown'  
hair = 'brown'  
print("Let's talk about %s." %name)  
print("He's %i years old" %age)  
print("He's %.2f meters tall." %height)  
print("He's %.0f kilograms heavy." %weight)  
print("Actually that's not too heavy.")  
print("He has %s eyes and %s hair." % (eyes, hair))
```

Execute it and check that you get the following outcome:

```
Let's talk about Johnny Depp.  
He's 1.78 meters tall.  
He's 66 kilograms heavy.  
Actually that's not too heavy.  
He's got brown eyes and brown hair.
```

In class, we saw a different use of the print function, such as `print("Let's talk about", name)`. Copy the same program but rewrite the print statements using this format. Is there any difference in the output between the two methods?

Exercise 14. Out of range operations

Create a float variable with a value out of range by multiplying two large numbers. What is the result? Now, generate the out-of-range value using the power operator (`**`). What is the result?

Delivery rules

The solutions to the previous exercises must be uploaded to Aula Global. Upload a zip containing a file for each exercise (name them `exercise1.py`, `exercise2.py`, etc). The name of the zip file must be “lab03-name-initials.zip” (Lucía Pérez Gómez will name the file `lab03-lpg.zip`).