

# Fundamentos de Programação

## Project – Assignment 1

2023/2024

The goal of the FP Project, divided in three assignments, is that students practice the subjects that they learn in classes.

In this first assignment, students will practice the following subjects already lectured: variables, expressions, conditionals, loops, sequences (strings, lists, tuples), and functions.

### What is your task in this 1st assignment?

Your mission, should you choose to accept it, is to develop a Python program that allows several users to fill a single bottle, trying to be the first one that fills it in an exact way. The game ends either when one of the players fills the bottle (reaching its capacity), or when all players have lost (because their plays all exceeded the capacity of the bottle).

You are given a skeleton of the program, where the implementation of all functions is missing. All functions are documented in the given program skeleton, so that you know what to implement.

You have two options:

- Either you use this skeleton and implement all the functions (and, eventually, others that you may need) in order to obtain a program that behaves exactly as exemplified (ahead in this text), or
- You create a complete new program, as long as it behaves exactly as exemplified.

### Examples of interacting with the program (user inputs are represented in bold, italic):

#### Example 1:

```
Minimum volume of bottle? 2
Maximum volume of bottle? 50
How many players? 3
Name of player 1? George Gershwin
Name of player 2? Johan Sebastian Bach
Name of player 3? Wolfgang Amadeus Mozart
The bottle is between 16.00% and 24.60% full
```

```
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```



[illegible][illegible][illegible][illegible]

3

The bottle is finally full. Game over!!  
Johan Sebastian Bach won the game in 4 plays

FINAL SCORES:

NAME	SCORE	BONUS
George Gershwin	Lost	
Johan Sebastian Bach	12	50
Wolfgang Amadeus Mozart	Lost	

### Example 2:

Minimum volume of bottle? **5**  
Maximum volume of bottle? **75**  
How many players? **2**  
Name of player 1? ***Maria Carola***  
Name of player 2? ***Manuel Silva***  
The bottle is between 23.47% and 36.08% full

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===== ROUND NUMBER 1 =====  
 Player Maria Carola: how much liquid? **30**  
 The bottle is between 55.47% and 85.28% full

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Player Manuel Silva: how much liquid? **10**  
The bottle is between 66.13% and 100.00% full

[illegible]

===== ROUND NUMBER 2 =====  
 Player Maria Carola: how much liquid? **12**  
 The bottle is between 78.93% and 100.00% full

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```
Player Manuel Silva: how much liquid? 10
Oops! You tried to overfill the bottle! The game is over for you!

===== ROUND NUMBER 3 =====
Player Maria Carola: how much liquid? 8
Oops! You tried to overfill the bottle! The game is over for you!

***** GAME OVER *****
All players lost! The game is over
```