

# Exercises - 2

November 23, 2020

## 1 Exercise 1

Write a function that converts a time in 24 hours notation (17:00) to 12 hour notation (05:00 PM). The function can take as arguments two integers, one for hours and another for minutes. The function can either print the converted time or return it as a string.

## 2 Exercise 2

Write a program using functions that prints a Christmas tree on the console. The user can choose how tall the tree should be. Here is an example for a tree of size 3:

```
  *
 * *
* * *
 |
```

## 3 Exercise 3

Write a function that takes as arguments two positive integers,  $a$  and  $b$ . The function must verify if  $a$  is equal to the last digits of  $b$ , that is, if  $a$  fits in  $b$  and return a Boolean. For example, 45 fits in 12345.

## 4 Exercise 4

Write a program where the user can choose a value to withdraw from a cash machine. The cash machine must calculate how many notes are necessary of each value, and should use the smallest possible number of notes. Consider the cash machine has notes with values of 20, 50, 100, 200, 500 and 1,000.

## 5 Exercise 5

Write a function that evaluates if the current test subject is taking steroids or not. The function takes two integers as input parameters, one for testosterone concentration and another for epitestosterone concentration. If the ratio between testosterone and epitestosterone is larger than 4:1, the function show point that this is a suspicious athlete and needs further analysis. If the ratio is larger than 10:1, the program should print that this is a conclusive positive test, and the athlete should be disqualified.