Homework

# Task 1:

## Description

You are in a country X and travelling to Germany next week. You have 100 dollars and you want to convert them to euros. You go to a currency exchange center and they tell you that they cannot convert it directly: they have first to convert the 100 dollars to currency X, and then convert it from currency X to euros.

Write a program which asks an amount to the user, makes a conversion of 100 dollars to euro and prints the result, given that:

1. exchange rate from dollars to currency X is 15 (1 dollar become 15X)
2. exchange rate from currency X to euros is 0.05 (1 X become 0.05 Euros)

## Hints:

1. Create a variable storing the amount of dollars you have
2. Create two variables for conversion rates
3. Multiply the amount of dollars by conversion rate from dollars to currency X and then multiply the result by conversion rate from currency X to euros
4. Output the result using function **print**

# Task 2:

## Description

Create a program which asks the user for a radius of a circle, and outputs the area and circumference of that circle.

## Hints

1. Ask the user for a radius using **input** function and save the user’s input into a variable. Don’t forget that **input** function returns strings that should be converted to numbers (floating-point in this case) for arithmetic operations.
2. Calculate the area using the formula: S = 3.14 \* radius \* radius and store the result in a variable.
3. Calculate the circumference using the formula: L = 2 \* 3.14 \* radius and store the result in a variable.
4. Output both results using function **print**. You can try to print the answer in a form: “The area is X, the circumference is Y”, where is X is the calculated area and Y is the calculated circumference - function **print** can output as many values as you want.

# Task 3:

## Description

Create a program which asks the user for two integer numbers and prints the bigger one.

## Hints

1. Ask the user for a first number using **input** function and save the user’s input into a variable. Don’t forget that **input** function returns strings that should be converted to numbers (integer in this case).
2. Ask the user for a second number using **input** function and save the user’s input into a variable. Don’t forget that **input** function returns strings that should be converted to numbers (integer in this case).
3. Using the conditionals (**if-else** construction) output either first or second variable depending on which one is bigger. To define a condition use comparison operators (operator **>** in this case)

# Task 4:

## Description

Create a program which asks the user for the current hour (a number from 0 to 23). Depending on the user’s input, the program should print:

* “It’s breakfast time” if the hour is between 7 and 11
* “It’s lunch time” if the hour is between 12 and 16
* “It’s dinner time” if the hour is between 17 and 22
* “It’s sleeping time” if the hour is between 23 and 6

What if user enters a negative number like -1 or big number like 53? Try to handle this situation in your program

## Hints

1. Ask the user for a hour using **input** function and save the user’s input into a variable. Don’t forget that **input** function returns strings that should be converted to numbers (integer in this case).
2. Using the conditionals (**if-elif-else** construction) output either of four lines depending on the result of comparison of the number given by the user to the given numbers (7, 11, 16, 22)
3. To ensure that the user input is correct (the number is between 0 and 23) you can use another conditional right after user’s input: if the number is within the given interval - program continues, otherwise - prints the error message and finishes.

# Bonus 1

Fix the last program from Lesson2 (see file code/lesson2/nested\_conditions.py) so that it works correctly if the hour input is 1. For example, if the hour is bigger than 22 or smaller than 7, the program should consider it to be late and so young users should sleep and older users still can watch a movie.

# Bonus 2

Reimplement the last program from Lesson2 (see file code/lesson2/nested\_conditions.py) so that it doesn’t contain nested conditions, e.g. there is no **if** conditional inside another **if** conditional. It’s possible to do using **if-elif-else** construction and logical operators: **or**, **and**, **not**