Exercises Iterations extra

Exercise 1

The series of Fibonacci was first described around 1200 by Leonardo of Pisa.
This row is mathematically described as follows: fn = f(n-1) + f(n-2) with n > 1.
This row starts with the values 0 and 1. Each next number is the sum of the 2 previous numbers in the sequence
The result is shown below:
              0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, …

Write a program that calculates the sequence as long as the result is less than a user-defined limit.

```
Up to which limit would you like to print the sequence of Fibonacci? 75
0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55
```

```
Up to which limit would you like to print the sequence of Fibonacci? 0
0
```

Exercise 2

A police officer has to count the number of strikers.
Create the following program to help him:
- if the agent presses Enter, one striker will be added.
- if the agent presses 1, 2 , …, 9, the specified number is added.
- if the agent enters S, this means he wants to quit. He gets the question if he really wants to stop Y/N? If the answer is N or n, continue counting.
  If the answer is Y or y, then the number of counted strikers is printed.

```
Press Enter for each new striker you see.
If you want to pass a group, enter the number of strikers
If you want to stop, typ S and press Enter
>>
>>
>>
>> 3
>> 5
>>
>> 6
>> S
Do you really want to stop Y/N? y
Total number of strikers = 18
```

Exercise 3

To solve this exercise, you will need to use the possibilities Python offers to generate a random number. Therefore, please first check how the randint method works.
https://www.pythonforbeginners.com/random/how-to-use-the-random-module-in-python

In this small game the computer makes 2 tiles of any number of matches, but at least 20 and a maximum of 40 per tile. The player doesn't know how many matches are in each pile.

The game goes as follows: alternately, the player and the computer take a number (minimum 3, maximum 8) of matches from either pile. Whoever takes the last match from a pile wins the game.

The player will have to tell each time how many matches he takes and from which pile. He has to do this without knowing how big the piles are.

The computer does the same thing afterwards, but it makes its choice randomly.

In the end you print:

- "I win," if the computer wins the game.
- "Congratulations, you win," if the player wins the game.

```
From which tile do you take? 1
How many matches (between 3 and 8) do you take? 5
From which tile do you take? 1
How many matches (between 3 and 8) do you take? 7
From which tile do you take? 2
How many matches (between 3 and 8) do you take? 8
From which tile do you take? 1
How many matches (between 3 and 8) do you take? 5
I win
```

```
From which tile do you take? 1
How many matches (between 3 and 8) do you take? 8
From which tile do you take? 2
How many matches (between 3 and 8) do you take? 6
From which tile do you take? 2
How many matches (between 3 and 8) do you take? 5
From which tile do you take? 1
How many matches (between 3 and 8) do you take? 6
Congratulations, you win
```

Tip: print the size of the tiles as long as your program is not yet fully functional. That way you can check if everything is going well.