Exercise Day 6

Calculate and print the runtime for every single exercise!

Exercise 1)

Write a script with a for loop, that prints out the even numbers between 1 and 30.

Optional: Research how to generate a random number. Use this number as the start of the loop, so that the loop goes from random number to random number + 30.

Exercise 2)

Write a program that calculates the sum of all numbers between 1 and 100. Use a while loop for this exercise and print the sum at the end.

After this, put in a control statement, that breaks the loop, when the sum gets bigger than 1000. The printed sum should be then under 1000 and print the last added number.

Exercise 3)

Write a script, that prints the Fibonacci series. The script should have a control, that you do not print values above a value of your choosing.

The Fibonacci series starts as follows: 0,1,1,2,3,5,8,13,…

Exercise 4)

Write a loop, that calculates the prime numbers for a range of numbers. Remember for this exercise what prime numbers are.

Save the prime numbers in a list.

Exercise 5)

Check if a given password is correct. For this there should be a string as input. This string needs to be compared with the actual password. As output generate a message whether the password was correct or not.

Exercise 6)

Create a list, where every element is a list with 2 elements. In these sub-lists at index 0 should be the length of the run parameter of the loop from exercise 1 (range 1 to 30 -> 29) and at index 1 should be the runtime of the loop.

Take the loop of exercise 1 and expand it, to that the length of the run parameter increases. Save the length of the increased run parameter and save it together with the runtime of the loop in the list.

Create a graph where you visualize the runtime and the number of repeats of the loop.

Tipp: For the creating the graph you can use the matlibplot.pyplot package.