Lab 11 – Functions and Modules

Objectives:

- practice reading data from a file and writing data to the file
- practice using random library
- creating functions and saving them in modules
- calling functions and evaluation of return values

Write a program that

- asks the user to enter the amount of numbers to be written to a file
- creates a new file **test.txt** and writes to it a predetermined amount of random numbers (use the constant sequence created by using the **random.seed()** function)
- determines how many of the entered numbers are primes
- writes primes number in the file **prime.txt**
- displays (in the shell window)
    - all numbers in the file
    - the list of prime numbers
    - the total quantity of prime numbers

1. The program should work with a text file of any length if it contains one number per line. The file should have no empty (blank) lines, including at the very end of the file.
2. The program should include error handling for entering numbers and working with files.

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Example for testing [I used **random.seed(1)** for those numbers]:

How many numbers are needed to write to the file: 15

18 73 98 9 33 16 64 98 58 61 84 49 27 13 63

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73 61 13

3 prime numbers found in this file
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Extra Assignment 1 (10 more points)

1. Create a new function which calculates the sum of digits of any integer number and write this function to a separate module.
2. Call this function and determine which number in the file **test.txt** has a biggest sum of digits.

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Example for testing [I used **random.seed(2)** for those numbers]:

How many numbers are needed to write to the file: 15

8 12 11 47 22 95 86 40 33 78 28 78 5 75 88

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11 47 5

3 prime numbers found in this file

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88 has a maximum sum of digits = 16