Review and Challenges!

February 6, 2020

What we will be doing

A load of challenges and some review

If there is something you want clarification on or some questions: ask us now!

Challenge no. 1

Write a program that plays "rock, paper, scissors" with the user. Also implement checking for a win and output who won.

Challenge no. 2

If we list all the natural numbers below 10 that are multiples of 3 or 5, we get 3, 5, 6 and 9. The sum of these multiples is 23.

Find the sum of all the multiples of 3 or 5 below 1000.

(Taken from Project Euler)

Challenge no. 3

You are given a file with 'masses' on each row. Lets imagine that these masses are a part of a rocket that is about to fly and we need to figure our how much "fuel" we need to launch the rocket. The equation to get how much fuel we need for a mass is

$$\text{floor}(\frac{m}{3}) - 2$$

What is the sum of the fuel needed to launch the masses given in the file?

See the github repo for the input file.

(Taken from Advent Of Code 2019)

Challenge no. 4

The sum of the squares of the first ten natural numbers is,

$$1^2 + 2^2 + ... + 10^2 = 385$$

The square of the sum of the first ten natural numbers is,

$$(1 + 2 + ... + 10)^2 = 55^2 = 3025$$

Hence the difference between the sum of the squares of the first ten natural numbers and the square of the sum is 3025 - 385 = 2640.

Find the difference between the sum of the squares of the first one hundred natural numbers and the square of the sum.

Challenge no. 5

Given an array of some lenght with numbers, sort that array.

Answers

Here are the answers so you can check if your program runs correctly

Challenge 2: 233168

Challenge 3: 3464458

Challenge 4: 25164150