VG101 — Introduction to Computer and Programming

Assignment 1 (30/09/2016)

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- Write each exercise in a different file
- Include simple comments in the code
- If applicable, split the implementation over several functions
- Write a single README file per assignment
- Archive all the files in a `zip` file and upload it onto Sakai

Ex. 1 — *Writing proper documentation*

Search online what a README file is and what it should contain.

Note: this exercise is to be answered in a README file.

Ex. 2 — *Basic scripting*

The length of a competitive running track is 400 m. Write a MATLAB script which converts a distance into a number of laps. When the number of laps is not an integer also return the number of meters remaining in order to complete one more lap.

e.g. For 1100m the script should return: 2 and 100 (2 laps and 100 m to complete 3 laps).

Ex. 3 — *Algorithms*

Around 240 BC Eratosthenes calculated the circumference of the Earth using basic mathematics and without leaving Egypt.

1. In the README file explain his method, and write a clear algorithm describing it
2. Write a MATLAB script to calculate:
   a) The circumference of the Earth
   b) The radius of the Earth

Ex. 4 — *Vectors*

In Great Britain and Ireland human body weight is often measured in stones. A stone is defined as 14 pounds or 6.35 kg. Write a MATLAB script converting from stones to pounds, from pounds to kg and from kg to stones.

Ex. 5 — *Compact coding*

For each question use a single command line in MATLAB to determine:

1. The number of primes between 1 and 100000.
2. The product of 5 random numbers in the range 1 to 10.