

VG101 — Introduction to Computer and Programming

Assignment 1

Manuel — UM-JI (Fall 2017)

- MATLAB: write each exercise in a different file
- C/C++: use the provided assignment template
- Include simple comments in the code
- If applicable, split the code over several functions
- Extensively test your code and improve it
- Write a single README file per assignment
- Zip all the files and upload the archive on Canvas

Ex. 1 — Writing proper documentation

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

Specifications.

- Answer in the README file
- Provide clear explanations

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).

Specifications.

- The script should display the result
- E.g. for 1100m show 2 and 100, meaning 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 which calculates and displays:
 - 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 and print:

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