VG101 — Introduction to Computer and Programming

Assignment 3 (27/10/2016)

Manuel — UM-JI (Fall 2016)

- 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 — *Accurate calculations*

When an ancient Indian Brahmin invented the game of Chess he showed it to his king who was really impressed. He was so pleased that he allowed him to chose his own reward. The inventor replied that he wanted one grain of wheat on the first square of the chess board, two on the second, four on the third, eight on the fourth, and so forth... It took more than a week to the treasurer to calculate the amount a wheat required. Write a MATLAB script to help him determine how many grains of wheat had to be exactly given to the creator of Chess. The story ends with the creator of Chess becoming the new king.

Ex. 2 — *Structures*

The following table summarizes a wardrobe inventory. Create an appropriate MATLAB structure to represent the data, and write a script to determine (i) which item (Type+Color) is in the largest quantity and (ii) how old are the items in average – age in years, rounded down.

Type	Color	Quantity	Bought
Jumpers	Blue	2	04/2005
	Brown	3	02/2013
	Green	5	01/2015
Trousers	Black	3	06/2012
	Grey	2	04/2011
	White	1	12/2013
T-shirts	Blue	1	05/2010
	Green	2	09/2014
	Red	3	01/2012
	White	2	03/2008
	Yellow	1	11/2012

Ex. 3 — *Input and output*

Write a MATLAB function which takes as input an integer n and dumps in a file all the multiples $n \times i$, $0 \leq i \leq 10$. Respect the following format (do not output the dots, and the line numbers):

```
1 23 x 0 = 0
2 23 x 1 = 23
3 23 x 2 = 46
4 ...
```

Ex. 4 — *Ploting*

Plot a simple house and a car using basic geometric shapes such as rectangles, trapeziums, circles, and triangles.