Computer Lab 9 – Week 10

Multidimensional Arrays

Part 1

Create two multi-dimensional arrays:

- 10 x 10 x 10 numerical array (3-D) and
- *5* x *5* x *5* x *5* numerical array (4-D)

Where each value in each array corresponds to the multiplication of its indices. (Consider using nested **for**-loops).

Part 2

Create an array of structures corresponding to a list of students in the class. Each student structure must contain the following fields:

Student:

- First Name
- Surname
- Student Number
- Engineering major
- Test Mark

Create a structure array of at least *5* imaginary students in the class – choose names, numbers and marks randomly – they do not have to relate to real students in your class. Show how you would output just the test marks *(Hint: use for loop)*

Part 3:

Create a 100 x 100 x 100 numerical array (3-D) multi-dimensional array where each value in each array corresponds to the multiplication of its indices multiplied by 0.0001. (Consider using nested **for**-loops). Create a MATLAB GUI that asks the user from a pop-up menu, which of the three dimensions he or she would like to display. This refers to the third axes of the array *(the user can choose from 1, 2, 3; referring to Array(:,:,X), where X is the chosen number)*.

Display the array in an Axes as a grayscale image. Refer to the figure below to have a clearer overview of the exercise objective: