Objectives: This laboratory aims to practice using arrays in C on Arduino.

Learning outcomes: Declare and initialize arrays and access array elements

Lab instructions

1. The lab is for individuals working alone and must be completed during the lab session
2. Create a new sketch for each major section in the lab.
3. Before you leave the lab, call the lab demonstrator to check what you have done for all the sections (this is why separate sketches are important). *Anything not checked by the demonstrator during lab will have to be assigned zero marks.*
4. Create a single plain text submission file (.txt) for the lab using a plain text editor (e.g. NotePad++). Copy all the sketches you write and any other answers required for the lab into the submission text file. *Name the file "108_Lab5_firstname_surname.txt", using your actual name. Include your name and lab number at the top of the submission file also and clearly label everything in the file. Unclear submissions will have to be marked down or (in the worst case) not marked at all.*

Marking for lab/assignment

Most of the lab and assignment will be marked during lab sessions. It is essential that you get the demonstrator to confirm your progress during the lab (for the lab portion) and at the start of the next lab (for the assignment portion).

For all code sections, marks will be deducted for bad communication and style (e.g. missing or mismatching comments, poor variable names, bad indentation, inappropriate use of global variables, unnecessary code repetition, etc.) and incorrect behaviour, or failure to follow the requirements of the question.

General marks will also be lost if the submission document instructions are not followed.

1 Basic arrays – save sketch as "Lab5_BasicArrays"

Background: review notes 2.10 Arrays.

The objective of this first exercise is to practice declaring an array with initial values, iterating over an array to get the value of each element, and iterating over and array to set the value of each element.

You do not need to write your own helper functions for this first sketch – everything can be in the loop function.

Review in particular slides 7-14 of notes 2.10. Also review the downloadable examples.

See complete lab for full problem details…

2 arrays and functions – save sketch as "Lab5_ArraysAndFunctions"

Background: The objective of the second exercise is to practice using arrays with functions. We can achieve this by moving some of the code that operated on the array out of the loop function and into their own functions. You will pass the array (and length) as arguments into those functions when you call them.

Review in particular slides 15-16 of notes 2.10. Also review the downloadable examples.

See complete lab for full problem details…