School of Electrical Engineering and Computer Science
The University of Newcastle
SENG1110/SENG6110 Object Oriented Programming

Lab Session – week 8

1. Download the program `ArrayExample.java` from Blackboard. Create a project and compile and run the code using BlueJ. Listen the **first video**. Do the following modifications:

    a. The user will choose the size of both arrays (it will be the same size for both).

    b. The user will choose the size of each array (so, maybe the arrays will have different sizes). Which method maybe will have problems because of this modification? Give a solution for the problem.

    (you need to complete this exercise and show to your demonstrator using BlueJ)

    c. Listen the **second video**.

    d. Implement a method that finds the lowest number. The parameter will be an array.

    e. Implement a method that will invert the elements of an array. The parameter will be an array.

    f. Implement a method that count the quantity of numbers between a and b in an array (the array, a and b will be parameters of the method).

    g. Try to split this code in two different classes: Array.java and ArrayInterface.java. Discuss with demonstrators different ways to do this.

    h. Implement a method that calculates how many numbers two arrays have in common.

    i. Implement a method that calculates the Euclidean distance of two arrays. The result is a number. This can be calculated using:

$$\sqrt{(\text{array1}[0]-\text{array2}[0])^2+(\text{array1}[1]-\text{array2}[1])^2+(\text{array1}[2]-\text{array2}[2])^2+\ldots}$$

    j. Modify the code such that you can work with logical size of the arrays. Implement the methods addElement, delElement and resizeArray.

2. Download the program `InterestTable.java` from Blackboard. Create a project and compile and run the code using BlueJ. Listen the **third video**. Implement the following methods:
    a. The parameter is row (a integer number representing a row) and the method will return the average of the values on the row.
    b. The parameter is column (a integer number representing a row) and the method will return the average of the values on the column.

MIT students

3. Implement a sorting algorithm. You can implement Bubble sort or try different algorithms that you can find in

    http://www.cs.ubc.ca/spider/harrison/Java/sorting-demo.html

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