

**ECU178 Computer Science:  
210CT - Programming, Algorithms and Data  
Structures Portfolio**

Due on Monday, December 15th, 2014

*Dr James Shuttleworth*

**Robert Rigler : 4939377**

## Contents

<b>Item 1: Week 3 - Linear Search and Duplicate Finder</b>	<b>3</b>
Pre-Homework 1: Write a Program that displays your name 10 times . . . . .	3
Pre-Homework 2: Write a function that draws a square of stars given as a parameter . . . . .	4
Pre-Homework 3: Write a program to open a file and display it's contents in capitals . . . . .	5
<b>Item 2: Week 4 - Big-O of Linear Search and Duplicate Finder Additional work</b>	<b>6</b>
<b>Item 3: Week 6 - Harmonic Series or Pivot Selection</b>	<b>7</b>
<b>Item 4: Week 7 - Heapworksheet or RPN Calculator</b>	<b>8</b>
<b>Item 5: Week 8 - Linked List Delete function or Linked List Sortings</b>	<b>8</b>

## Item 1: Week 3 - Linear Search and Duplicate Finder

### Pre-Homework 1: Write a Program that displays your name 10 times

Listing 1: NameRepeat class JAVA code

```
/**
 * Created by Rob on 23/10/2014.
 */
public class NameRepeat {

    public static void main(String[] args){

        NameRepeat myObject = new NameRepeat(); /*Create Object*/
        myObject.PrintName("Rob"); /*Use object to call PrintName() method*/

    }

    public void PrintName(String _name){


        for (int i = 0; i<10;i++){ /* Loop 10 times*/
            System.out.println((i+1) + " " + _name);
            /*, print the number && _name parameter each time.*/

        }

    }

}
```

### Evidence



The screenshot shows a terminal window with the following content:

```
bash - "riglerr-univer x" +
riglerr@university-work:~/workspace/210CT_Programming/Portfolio/Item_1/con.Pre-Homework/src (master) $ java NameRepeat
1 Rob
2 Rob
3 Rob
4 Rob
5 Rob
6 Rob
7 Rob
8 Rob
9 Rob
10 Rob
riglerr@university-work:~/workspace/210CT_Programming/Portfolio/Item_1/con.Pre-Homework/src (master) $
```

The terminal output shows the program successfully executed, printing the name "Rob" 10 times, each preceded by a line number from 1 to 10. The terminal window title is "bash - 'riglerr-univer x' +".

**Pre-Homework 2: Write a function that draws a square of stars given as a parameter**

Listing 2: StarSquare class JAVA code

```
/**
 * Created by Rob on 23/10/2014.
 */
public class StarSquare {
5
    public char ast = '*'; //Create variable to hold asterisk character.
    public static void main(String[] args){

        StarSquare sSquare = new StarSquare(); /*Create Object*/
10    sSquare.writeSquare(10); /*Use object to call writeSquare() method*/

    }

    public void writeSquare(int size){
15
        for(int i =0; i<size;i++){ /*OuterLoop 'size' times*/
            for(int j = 0;j<size;j++){ /*InnerLoop 'size' times*/

20                System.out.print(ast); /*Print line of asterisks*/

            }
            System.out.println(); /* Start new line when inner loop finishes*/
        }
25    }
}
```

### Pre-Homework 3: Write a program to open a file and display it's contents in capitals

Listing 3: RtoCaps class JAVA code

```
/**
 * Created by Rob on 23/10/2014.
 */
import java.io.File;
5 import java.io.FileNotFoundException;
import java.util.Scanner;

public class RtoCaps {

10     public static void main(String[] args) throws FileNotFoundException {
        File inFile = new File("C:\\Users\\Rob\\Documents\\2nd Year\\210CT\\" +
            "Week 3 linear search\\com.Pre-Homework\\input.txt");
        RtoCaps obj = new RtoCaps();
        obj.rInput(inFile);
15     }

    public void rInput(File inFile) throws FileNotFoundException{

20         Scanner in = new Scanner(inFile);

        while(in.hasNextLine())
        {
            String line = in.nextLine();
25             System.out.println(line.toUpperCase());
        }

    }

30 }
}
```

## **Item 2: Week 4 - Big-O of Linear Search and Duplicate Finder**

### **Additional work**

## **Item 3: Week 6 - Harmonic Series or Pivot Selection**

**Item 4: Week 7 - Heapworksheet or RPN Calculator**

**Item 5: Week 8 - Linked List Delete function or Linked List Sortings**