Lab Exercise (Chapter 7 – Array & ArrayList)

Exercise 1.

Description of the Problem

Use a one-dimensional array to solve the following problem: Write an application that inputs five numbers, each of which is between 10 and 100, inclusive. As each number is read, store it in the array only if it is not a duplicate of a number already read, else display an error message. Display the complete set of unique values input after the user inputs each new value. Allow user to enter numbers until the array is full.

Sample Output:

```
Enter number:11
11
Enter number:85
11 85
Enter number:26
11 85 26
Enter number:11
11 has already been entered
11 85 26
Enter number:41
11 85 26 41
Enter number:50
11 85 26 41 50
```

Follow-Up Questions and Activities

1. Modify your solution to allow the user to enter the size of the array as the application begins execution. For example: ask the user how many number he/she want to input.

Exercise 2.

Description of the Problem

Create a programme SortStudents.java that reads the name of a few students and outputs the name in Alphabetical order.

Hints:

- You can use an ArrayList to hold the students name.
  For example: ArrayList<String> names = new ArrayList<String>();
- You can use java.util.Collections.sort to sort the ArrayList

Sample Output:

```
Enter name (-1 to end loop): Whitaker
Enter name (-1 to end loop): Douglas
Enter name (-1 to end loop): Marie
Enter name (-1 to end loop): Kate
Enter name (-1 to end loop): Olivia
Enter name (-1 to end loop): Robert
Enter name (-1 to end loop): Michael
Enter name (-1 to end loop): -1

The name you entered are:
Douglas, Kate, Marie, Michael, Olivia, Robert, Whitaker
```

Follow-Up Questions and Activities

1. Modify the program to alert user if duplicate name is entered. (Hints: use the arraylist contains method)
2. Modify the program to allow user to enter a name to be deleted. (Hints: use the arraylist remove method)
3. Modify the program to let user search for the name (Hints: use the java.util.Collections.binarySearch method)