Assignment#3 - ArrayList

1. Generate an integer random array to perform the following operations and write a main method to test it.

a) Insert 50 random numbers. // Random values in the Range of 0 -100

public void insert();

b) Remove duplicate from array and print the list without duplicates.

public void removeDuplicates()

c) Remove all the elements from the array. Delete all the entries from the list

public void clear()

d) Find the size of the array. Size means how many elements hold by the array.

public int size()

e) get the value by passing index. Return the integer value in the given index, throw ArrayIndexOutof BoundsException if **index < 0** and **index >=size**

public int get(int index)

f) get the sublist by passing start and end index. Return the array with the specified range of value, include both start and end index. Throw ArrayIndexOutof BoundsException **if index < 0** and **index >=size**

public int[] subList(int start, int end)

g) set the new value using index. Modify the new value with the specified index and return the old value. Throw ArrayIndexOutof BoundsException if **index < 0** and **index >=size**

public int set(int index, int newValue)

2. Complete the given skeleton for the class Student to perform the array operations to store the objects.

```
class Student { private int
        id; private String
        name;
        private int mark;
 //-------------------------------------------------------------
  public Student(int id, String name, int mark) // constructor to initialize the values
    {
    }
//-------------------------------------------------------------
public void displayStudent()    {

 }
//-------------------------------------------------------------
public int getId()          // get the Id
    {
    }   // end class Student
}
////////////////////////////////////////////////////////////// class
StudentArray
  {
  private Student[] a;             // reference to array
private int nElems;             // number of data items

  public StudentArray(int max)    // constructor max  is a  capacity/length
    {
    }
//-------------------------------------------------------------
public Student find(int id)
    {
    }  // end find()
//-------------------------------------------------------------    // put student into array at last
public void insert(int id, String name, int mark) // Duplicates of id not allowed. Make a
check before inserting values
    {
    }
//-------------------------------------------------------------
  public boolean delete(int id) {                        // delete student from array
       }  //-------------------------------------------------------------
public void displayAll()     {     // displays array contents
         }
```

```
//-------------------------------------------------------------
}  // end class StudentArray
//////////////////////////////////////////////////////////////
  public static void main(String[] args)
    {
     // Create an object for StudentArray and invoke all the methods

     // Find the student who got Maximum and Minimum Mark

}  // end main()
  }  // end class Studentarray
```

3. Create a class called Marketing with fields of employeename, productname, and salesamount. Create an Arraylist for the class Marketing. Implement the following methods in the main class. (Usage of ArrayList class from Java API) Refer Program.java and ProgramArrayList.java from the InClassDemo, TallySales.java from w1l2.arraylist.api

    a. add() // adding objects to the Marketing
    b. remove() // delete objects from Marketing
    c. set() // Modify some objects using set() method
    d. Override toString() method to display the contents in the list.
    e. Get the size of the list.
    f. Calculate the total salesamount and print the same to the console
    g. Use get() method
    h. Use clear() method