Lab 21

Create a new Eclipse project named **YourStudentId_Lab21** and create classes based on following instructions.

1. Modify the selection sort algorithm(**SelectionSorter.java**) to sort an array of integers in descending order.

Tester:

```
import java.util.Arrays;
public class SelectionSorterTester
{
   public static void main(String[] args)
   {
      int[] a = new int[10];
      for (int i = 0; i < 10; i++)
         a[i] = 100 - (i - 5) * (i - 5);
      SelectionSorter s = new SelectionSorter(a);
      s.sort();
      System.out.println(Arrays.toString(a));
      System.out.println("Expected: [100, 99, 99, 96, 96, 91, 91, 84, 84, 75]");
   }
}
```

2. Modify the selection sort algorithm(**SelectionSorter.java**) to sort an array of coins by their value(**CoinSorter.java**).

Coin:

```
/**
   A coin with a monetary value.
*/
public class Coin
{
   private double value;
   private String name;

   /**
      Constructs a coin.
      @param aValue the monetary value of the coin.
      @param aName the name of the coin
   */
   public Coin(double aValue, String aName)
   {
      value = aValue;
      name = aName;
   }

   /**
      Gets the coin value.
      @return the value
   */
   public double getValue()
   {
```

```
      return value;
   }

   /**
      Gets the coin name.
      @return the name
   */
   public String getName()
   {
      return name;
   }

   /**
      Returns a string representation of the object.
      @return name and value of coin
   */
   public String toString()
   {
      return "Coin[value=" + value + ",name=" + name + "]";
   }
}
```

CoinSorterTester

```
import java.util.Arrays;
public class CoinSorterTester
{
   public static void main(String[] args)
   {
      Coin[] a =
         {
            new Coin(0.05, "Nickel"),
            new Coin(0.05, "Nickel"),
            new Coin(0.25, "Quarter"),
            new Coin(0.01, "Penny"),
            new Coin(0.1, "Dime")
         };

      CoinSorter s = new CoinSorter(a);
      s.sort();
      System.out.println(Arrays.toString(a));
      System.out.println("Expected: [Coin[value=0.01,name=Penny],
Coin[value=0.05,name=Nickel], Coin[value=0.05,name=Nickel],
Coin[value=0.1,name=Dime], Coin[value=0.25,name=Quarter]]");
   }
}
```

Submission: Submit your project as "zip (or rar) file" via WM5. No other submissions will be graded.

Reminder: Please zip the whole project.

Deadline: Tomorrow's midnight (for both Mon56 and Tue23)