**Linked Lists Project Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**You are going to create a project called Links. Your project will require three different files. The first is the Link class, second in the LinkedList class and finally a Main class.**

**Link class:**

1 private final int field to store the value for each Link

1 public Link field to store the “next” Link

1 constructor to initialize the value and set the next Link to null

1 public method:

getValue() – which returns the value for that Link

**LinkedList class:**

1 private Link to keep track of the first Link in the LinkList

1 constructor to initialize the list and set the first Link to null

4 methods:

insertFirst( int a) – adds a new Link with the given value to the beginning of the LinkList.

deleteFirst() – removes and returns the first Link in the LinkList

sort() – Sorts the LinkList in numerical order based on the value each Link holds

This should NOT create any new Links or change the value assigned to the links, just rearrange them

display() – prints out the values for each Link in the order they appear in the LinkList

**Main class:**

The main class is provided on the back of this sheet. You must use the main class exactly as it is written.

**Example Run:**

51, 39, 81, 74, 29, 62, 19, 47, 10, 66, 29, 91, 14, 85, 23, 54, 17, 55, 68, 12,

10, 12, 14, 17, 19, 23, 29, 29, 39, 47, 51, 54, 55, 62, 66, 68, 74, 81, 85, 91,

10

12

14

17

19

23, 29, 29, 39, 47, 51, 54, 55, 62, 66, 68, 74, 81, 85, 91,

*public class Main {*

/\*\*

\* The main method creates a new LinkList and then adds 20 new Links

\* containing random numbers to the List. It then displays the values, sorts

\* the list and displays the values again. Finally, it removes and displays

\* the first 5 values in the LinkList and displays the remaining LinkList again.

\*/

*public static void main(String[] args) {*

*LinkList list=new LinkList();*

*for(int i=0;i<20;i++){*

*list.insertFirst((int)(Math.random()\*100));*

*}*

*list.display();*

*list.sort();*

*list.display();*

*for(int i=0;i<5;i++){*

*System.out.println(list.deleteFirst().getValue());*

*}*

*list.display();*

*}*

*}*