

## **Adding:**

Press 1: ADD CONTACT  
Press 2: INSERT CONTACT  
Press 3: DELETE CONTACT  
Press 4: MODIFY CONTACT  
Press 5: VIEW ALL  
Press 6: SEARCH SPECIFIC  
Press 7: SORT (Alphabatically! (A-Z)  
Press 8: TO EXIT!

1

Please enter the following!

Name:

Dani

Phone:

1234

City:

Islamabad

Country:

Pakistan

Website:

www.flex

Mobile:

1122

Company:

AIMS

Date of birth!:

13-02-2001

---

Name: Dani

Phone: 1234

UserId:1001

City: Islamabad

Country: Pakistan

Website: www.flex

Mobile: 1122

Company: AIMS

Date of birth!: 13-02-2001

---

```
City: Islamabad
Country: Pakistan
Website: www.flex
Mobile: 1122
Company: AIMS
Date of birth!: 13-02-2001
```

---

```
Press 1: ADD CONTACT
Press 2: INSERT CONTACT
Press 3: DELETE CONTACT
Press 4: MODIFY CONTACT
Press 5: VIEW ALL
Press 6: SEARCH SPECIFIC
Press 7: SORT (Alphabatically! (A-Z)
Press 8: TO EXIT!
```

1

Please enter the following!

Name:

Ayesha

Phone:

1122

City:

Lights

Country:

Paki

Website:

www.flexteacher

Mobile:

1234

Company:

AIMS

Date of birth!:

12-02-2000

---

Name: Ayesha

Phone: 1122

UserId:1002

City: Lights

Country: Paki

Website: www.flexteacher

Mobile: 1234

Company: AIMS

Date of birth!: 12-02-2000

---

## Displaying:

Press 5: VIEW ALL  
Press 6: SEARCH SPECIFIC  
Press 7: SORT (Alphabetically! (A-Z)  
Press 8: TO EXIT!

5

This is Ordered List:

---

Name: Dani  
Phone: 12345  
UserId:1004  
City: ISLA  
Country: IS  
Website: IS  
Mobile: 112233  
Company: AIMS  
Date of birth!: 20-20-2001

---

---

Name: Dkay  
Phone: 1021  
UserId:1003  
City: ISLO  
Country: islo  
Website: www.www  
Mobile: 0220  
Company: IMS  
Date of birth!: 20-20-1212

---

---

Name: Dani  
Phone: 1234  
UserId:1001  
City: Islamabad  
Country: Pakistan  
Website: www.flex  
Mobile: 1122  
Company: AIMS  
Date of birth!: 13-02-2001

---

---

Name: Ayesha  
Phone: 1122  
UserId:1002  
City: lights

---

## Inserting:

Press 1: ADD CONTACT  
Press 2: INSERT CONTACT  
Press 3: DELETE CONTACT  
Press 4: MODIFY CONTACT  
Press 5: VIEW ALL  
Press 6: SEARCH SPECIFIC  
Press 7: SORT (Alphabatically! (A-Z)  
Press 8: TO EXIT!

2

This is Ordered List:

Name: Dani  
Phone: 12345  
UserId:1004  
City: ISLA  
Country: IS  
Website: IS  
Mobile: 112233  
Company: AIMS  
Date of birth!: 20-20-2001

Name: Dkay  
Phone: 1021  
UserId:1003  
City: ISLO  
Country: islo  
Website: www.www  
Mobile: 0220  
Company: IMS  
Date of birth!: 20-20-1212

Name: Dani  
Phone: 1234  
UserId:1001  
City: Islamabad  
Country: Pakistan  
Website: www.flex  
Mobile: 1122  
Company: AIMS  
Date of birth!: 13-02-2001

Name: Ayesha  
Phone: 1122  
UserId:1002  
City: Lights  
Country: Paki  
Website: www.flexteacher  
Mobile: 1234  
Company: AIMS  
Date of birth!: 12-02-2000

Please enter the following!  
Insert After (enter ID):

Please enter the following!

Insert After (enter ID):

1001

Name:

beeje

Phone:

11

City:

ISk

Country:

assa

Website:

aa.aa

Mobile:

1213

Company:

we

Date of birth!:

10-10-2001

>

This is Ordered List:

Name: Dani

Phone: 12345

UserId:1004

City: ISLA

Country: IS

Website: IS

Mobile: 112233

Company: AIMS

Date of birth!: 20-20-2001

Name: beeje

Phone: 11

UserId:1005

City: ISk

Country: assa

Website: aa.aa

Mobile: 1213

Company: we

Date of birth!: 10-10-2001

## Searching:

```
boolean search_by_Id(int id) {
    int index = id - 1000;
    Node<T> current = head;
    if (head == null) {
        System.out.println("List is empty");
        return false;
    }
    if (index < 0 || index > size) {
        System.err.println("Exception: Invalid input");
        return false;
    }
    int tmp = 0;
    while (tmp < size) {
        if (current.getData().getUserID() == id) {
            current.getData().display(current);

            return true;
        } else
            current = current.getNext();
        tmp++;
    }

    /*
     * for(int i=0;i<size;i++) {
     *     current = current.getNext(); }
     */
    System.err.println("Exception: Integer not found!");
    return false;
}
```

```

boolean search_by_name(String name) {
    Node<T> current = head;
    if (head == null) {
        System.out.println("List is empty");
        return false;
    }

    int tmp = 0;
    while (tmp < size) {
        if (current.getData().getName().equalsIgnoreCase(name)) {
            current.getData().display(current);

            return true;
        } else
            current = current.getNext();
        tmp++;
    }

    System.err.println("Exception: String not found!");
    return false;
}

```

---

Name: Dani  
 Phone: 12345  
 UserId:1004  
 City: ISLA  
 Country: IS  
 Website: IS  
 Mobile: 112233  
 Company: AIMS  
 Date of birth!: 20-20-2001

---



---

Name: beeje  
 Phone: 11  
 UserId:1005  
 City: ISk  
 Country: assa  
 Website: aa.aa  
 Mobile: 1213  
 Company: we  
 Date of birth!: 10-10-2001

---



---

Name: Dkay  
 Phone: 1021  
 UserId:1003  
 City: ISLO  
 Country: islo  
 Website: www.www  
 Mobile: 0220  
 Company: IMS  
 Date of birth!: 20-20-1212

---

## File naming:

Contact.java

LinkedList.java X

Main.java


Node.java

179

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


Your work

Turned in



CS2001\_P\_20i-1847.zip  
Compressed Archive

Unsubmit

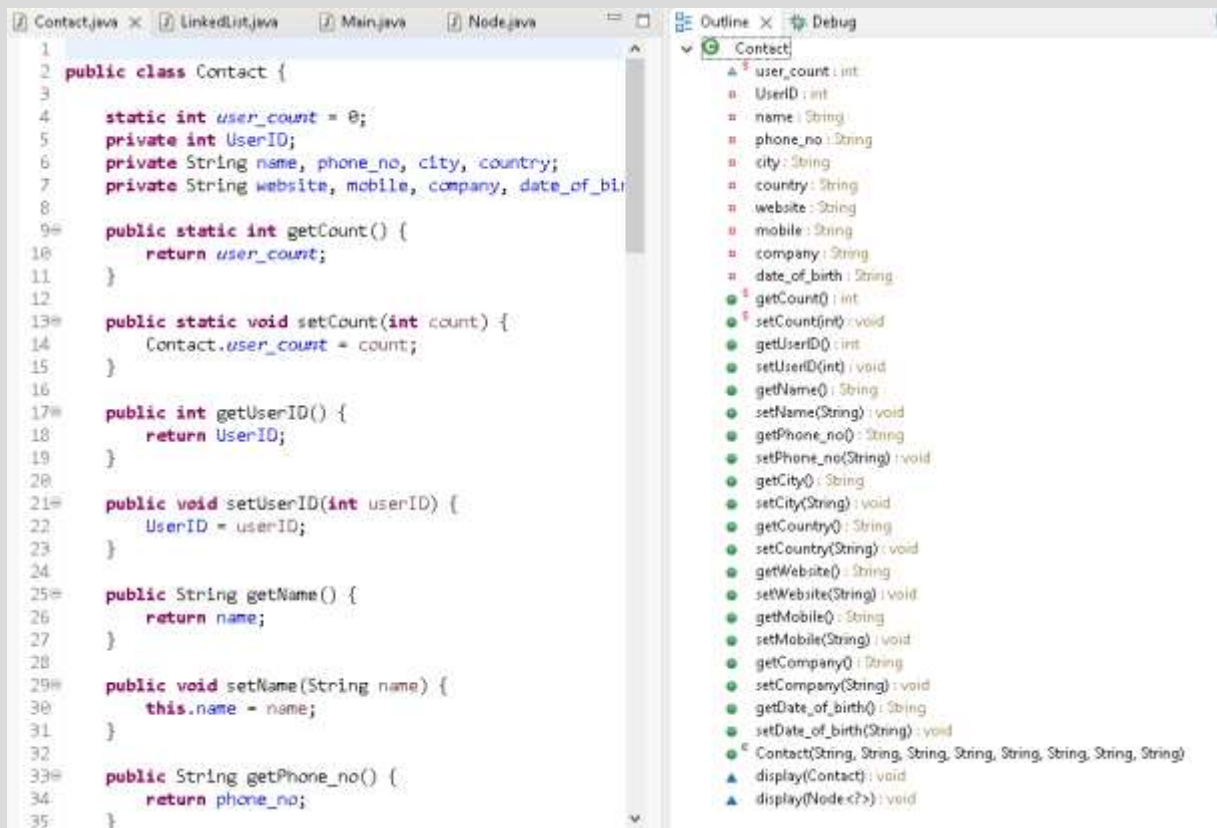


Private comments

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## Contact Module:





```

void display(Contact c) {
    System.out.println("_____");
    System.out.println(" Name: "+c.getName());
    System.out.println(" Phone: " +c.getPhone_no());
    System.out.println(" UserId:"+c.getUserID());
    System.out.println(" City: "+c.getCity());
    System.out.println(" Country: "+c.getCountry());
    System.out.println(" Website: "+c.getWebsite());
    System.out.println(" Mobile: "+c.getMobile());
    System.out.println(" Company: "+c.getCompany());
    System.out.println(" Date of birth!: "+c.getDate_of_birth());
    System.out.println("_____");
}

```

## LinkedList Class:

The screenshot shows an IDE with four tabs: Contact.java, LinkedList.java, Main.java, and Node.java. The LinkedList.java tab is active, displaying the following code:

```
28 public void setTail(Node<T> tail) {
29     this.tail = tail;
30 }
31
32 public void add(T data) {
33     Node<T> newNode = new Node<T>(data);
34     size++;
35
36     if (head == null) {
37         head = newNode;
38         tail = newNode;
39     } else {
40         tail.setNext(newNode);
41         tail = newNode;
42     }
43     tail.setNext(null);
44 }
45
46
47 public void modify(int id, T data) {
48     Node<T> newNode = new Node<T>(data);
49     Node<T> node = head;
50     int index = id - 1000;
51     if (index <= 0 || index > size) {
52         System.err.println("Exception: Invalid input");
53         return;
54     }
55     int tmp = 0;
56     while (tmp < size) {
57         if (node.getData().getUserID() == id) {
58             newNode.setNext(node.getNext());
59             node = newNode;
60             return;
61         } else {
62             node = node.getNext();
63             tmp++;
64         }
65     }
66     // ---
67     /*
68     * for (int i = 0; i < index - 2; i++) { node = node.getNext(); }
69     * newNode.setNext(node.getNext().getNext()); node.setNext(newNode);
70     */
71 }
```

The Outline pane on the right shows the structure of the LinkedList class, which extends Contact. The methods listed are:

- size : int
- head : Node<T>
- tail : Node<T>
- getSize() : int
- setSize(int) : void
- getHead() : Node<T>
- setHead(Node<T>) : void
- getTail() : Node<T>
- setTail(Node<T>) : void
- add(T) : void
- modify(int, T) : void
- insertAt(int, T) : void
- remove(int) : void
- iterate(int) : boolean
- getIndex(int) : int
- displayAll() : void
- sort(T) : void
- search\_by\_Id(int) : boolean
- search\_by\_name(String) : boolean
- sort\_by\_name() : void
- sort\_by\_Id() : void

```

3
4 public void remove(int id) {
5     Node<T> node = head;
6     int index=getIndex(id);
7     if(node.getData().getUserID()==id) {
8         head=node.getNext();
9         return;
10    }
11
12
13    if (index <= 0) { System.err.println("Invalid ID"); return; }if(index==1) {
14    head=head.getNext(); size--;return; }
15
16
17    for (int i = 0; i < index - 1; i++) { node = node.getNext(); }
18    node.setNext(node.getNext().getNext());
19
20 }
21
22
23 boolean iterate(int id) {
24     int tmp = 0;
25     Node<T> current = head;
26     while (tmp < size) {
27         if (id == current.getData().getUserID()) {
28             return true;
29         } else
30             current = current.getNext();
31     }
32     System.err.println("Exception: Invalid input");
33     return false;
34 }
35
36 int getIndex(int id) {
37     int tmp = 0;
38     Node<T> current = head;
39     while (tmp < size) {
40         if (id == current.getData().getUserID()) {
41             System.out.println(tmp);
42             return tmp;
43         } else
44             current = current.getNext();
45         tmp++;
46     }
47     System.err.println("Exception: Invalid input");
48     return -1;

```

## Modification:

```
public void modify(int id, T data) {
    Node<T> newNode = new Node<T>(data);
    Node<T> node = head;
    int index = id - 1000;
    if (index <= 0 || index > size) {
        System.err.println("Invalid index");
        return;
    }
    int tmp = 0;
    while (tmp < size) {
        if (node.getData() == id) {
            newNode.setNext(node.getNext());
            node = newNode;
            return;
        } else {
            node = node.getNext();
            tmp++;
        }
    }
    // ---
    /*
     * for (int i = 0; i < index - 2; i++) { node = node.getNext(); }
     * newNode.setNext(node.getNext().getNext()); node.setNext(newNode);
     */
}
```

## Sorting:

### Unsorted:

---

Name: Dani  
Phone: 12345  
UserId:1004  
City: ISLA  
Country: IS  
Website: IS  
Mobile: 112233  
Company: AIMS  
Date of birth!: 20-20-2001

---

---

Name: beeje  
Phone: 11  
UserId:1005  
City: ISk  
Country: assa  
Website: aa.aa  
Mobile: 1213  
Company: we  
Date of birth!: 10-10-2001

---

---

Name: Dkay  
Phone: 1021  
UserId:1003  
City: ISLO  
Country: islo  
Website: www.www  
Mobile: 0220  
Company: IMS  
Date of birth!: 20-20-1212

---

## **Sorted:**

This is Ordered List:

---

Name: Ayesha  
Phone: 1122  
UserId:1007  
City: Lights  
Country: Paki  
Website: www.flexTeacher  
Mobile: 1234  
Company: AIMS  
Date of birth!: 12-02-2000

---

---

Name: beeje  
Phone: 11  
UserId:1008  
City: ISk  
Country: assa  
Website: aa.aa  
Mobile: 1213  
Company: we  
Date of birth!: 10-10-2001

---

---

Name: Dani  
Phone: 12345  
UserId:1004  
City: ISLA  
Country: IS  
Website: IS  
Mobile: 112233  
Company: AIMS

---