

Lab Data

```
*MyArrayList.java TestArrayList.java
1 import java.util.Scanner;
2 public class MyArrayList {
3     private String[] list;
4     private int count = 0;
5     private int size;
6
7     public void shiftLeft(int index) {
8         //for delete
9         int i = 0;
10        for (i = index; i < count-1; i++) {
11            list[i] = list[i+1];
12        }
13        list[i] = null;
14    }
15    public void shiftRight(int index) {
16        //for insert
17        for (int i = count-1; i >= index; i--) {
18            list[i+1] = list[i];
19        }
20    }
21
22    public void createlist() {
23        System.out.println("Please Enter list size : ");
24        Scanner sc = new Scanner(System.in);
25        size = sc.nextInt();
26        list = new String[size];
27        System.out.println("List Created!!");
28    }
29    public void insertFront(String data) {
30        if (isFull()) {
31            System.out.println("List is full.");
32        } else if (isEmpty()) {
33            list[0] = data;
34            count++;
35        } else {
36            shiftRight(0);
37            list[0] = data;
38            count++;
39        }
40    }
41    public void insertBefore(String data, String before) {
42        if (!isFull()) {
43            int beforeIndex = -1;
```

```
128    public boolean isFull() {
129        if (count == size) {
130            return true;
131        } else {
132            return false;
133        }
134    }
135
136 }
137 }
```

```
*MyArrayList.java TestArrayList.java
44        for(int i=0;i<list.length;i++) {
45            if(before.equals(list[i])) {
46                beforeIndex = i;
47                break;
48            }
49        }
50
51    }
52
53    if(beforeIndex != -1) {
54        String[] temp = new String[list.length-beforeIndex];
55        int index=0;
56        for(int i=beforeIndex;i< list.length;i++) {
57            temp[index] = list[i];
58            index++;
59        }
60
61        list[beforeIndex] = data;
62        index = 0;
63        for(int i=beforeIndex+1;i<list.length;i++) {
64            list[i] = temp[index];
65            index++;
66        }
67        count++;
68        System.out.println("Successfully insert "+ data+ " before "+ before+"!");
69    }
70
71    } else {
72        System.out.println("Before not found");
73    }
74    } else {
75        System.out.println("list is full");
76    }
77    }
78    public void insertLast(String data) {
79        if (isFull()) {
80            System.out.println("List is full.");
81        } else {
82            list[count] = data;
83            count++;
84        }
85    }
86
87    public void delete(String data) {
88        int deleteIndex = -1;
89        for(int i=0 ;i< list.length;i++) {
90            if(list[i].equals(data)) {
91                deleteIndex = i;
92                break;
93            }
94        }
95        if(deleteIndex != -1) {
96            String[] temp = new String[size];
97            System.arraycopy(list, 0, temp, 0, size);
98            int index = 0;
99            list = new String[size];
100            for(int i=0;i<temp.length;i++) {
101                if(i == deleteIndex) {
102                    continue;
103                } else {
104                    list[index] = temp[i];
105                    index++;
106                }
107            }
108            System.out.println("Successfully delete! "+ data);
109            count--;
110        } else {
111            System.out.println("Delete node not found");
112        }
113    }
114    public void traverse() {
115        System.out.println("Traverse data : ");
116        for (int i = 0; i < count; i++) {
117            System.out.print(list[i]+" ");
118        }
119        System.out.println("");
120    }
121    public boolean isEmpty() {
122        if (count == 0) {
123            return true;
124        } else {
125            return false;
126        }
127    }
```

```

1 import java.util.Scanner;
2 public class TestArrayList {
3     private MyArrayList mylist;
4     Scanner sc1;
5
6     public void printMenu(){
7         System.out.println("-----");
8         System.out.println("List Menu");
9         System.out.println("-----");
10        System.out.println("1. Create List\n" +
11            "2. Insert At Front\n" +
12            "3. Insert Before Node\n" +
13            "4. Insert At Last\n" +
14            "5. Delete Node\n" +
15            "6. Traverse\n" +
16            "7. Quit");
17        System.out.println("=====");
18    }
19    public void showMenu() {
20        while (true) {
21            printMenu();
22            Scanner sc = new Scanner(System.in);
23            System.out.print("Please enter menu number : ");
24            int menu = sc.nextInt();
25            switch (menu) {
26                case 1:
27                    System.out.print("Create List");
28                    mylist = new MyArrayList();
29                    mylist.createList();
30                    break;
31                case 2:
32                    System.out.print("Insert At Front:");
33                    sc1 = new Scanner(System.in);
34                    System.out.println("Enter data : ");
35                    mylist.insertFront(sc1.nextLine());
36                    break;
37                case 3:
38                    System.out.print("Insert Before Node:");
39                    mylist.insertBefore((sc1.next()), sc1.next());
40                    break;
41                case 4:
42                    System.out.print("Insert At Last:");
43                    sc1 = new Scanner(System.in);

```

```

44        System.out.print("Enter data : ");
45        mylist.insertLast(sc1.nextLine());
46        break;
47    case 5:
48        System.out.print("Delete Node:");
49        mylist.delete((sc1.next()));
50        break;
51    case 6:
52        System.out.print("Traverse:");
53        mylist.traverse();
54        break;
55    case 7:
56        System.out.println("done");
57        sc1.close();
58        return;
59    default:
60    }
61 }
62 }
63 public static void main(String[] args) {
64     // TODO Auto-generated method stub
65     TestArrayList tal = new TestArrayList();
66     tal.showMenu();
67 }
68 }

```