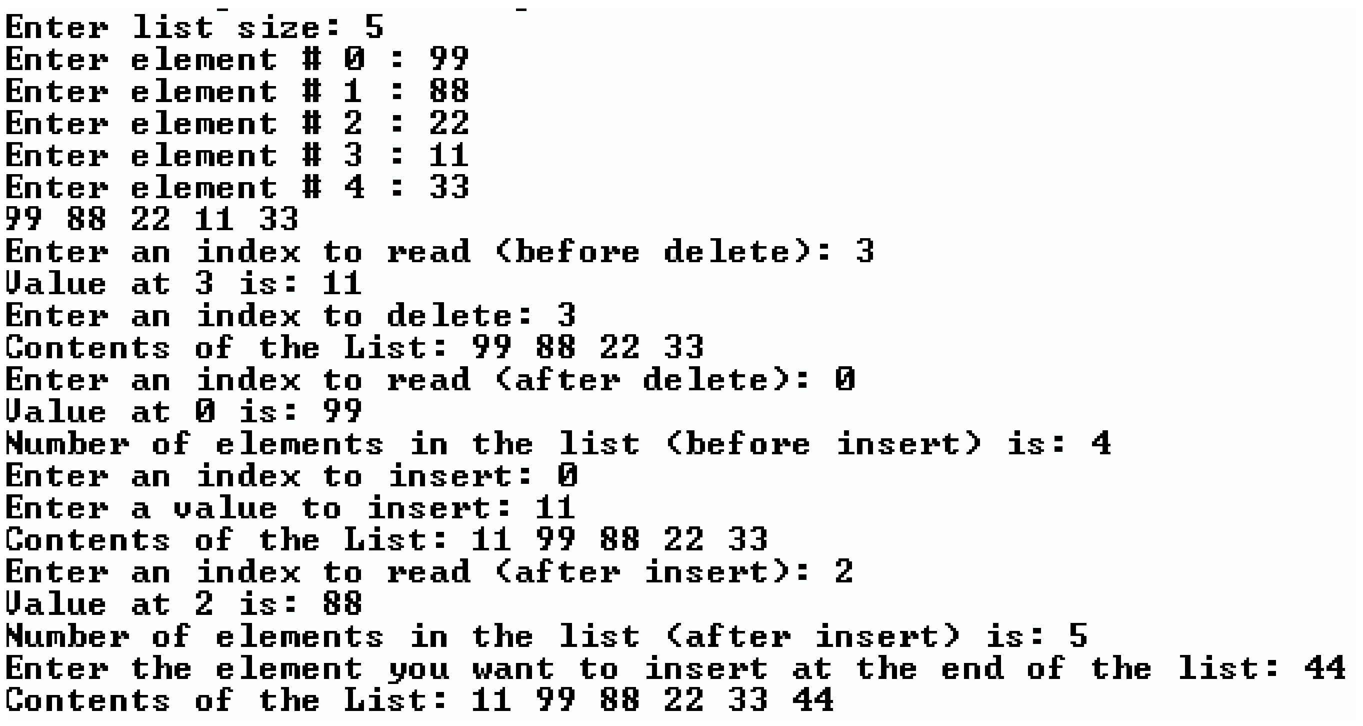
```java
import java.util.*;// to use Scanner

// implementing the dynamic List ADT using array
// operations to be implemented: read, Modify, delete, isEmpty, insert, countElements

class List{

    private int array[];
    private int maxSize;
    private int endOfArray;


    public  List(int size){
        maxSize = size;
        array = new int[maxSize];
        endOfArray = -1;
    }

    public  boolean isEmpty(){

            if (endOfArray == -1)
                return true;

            return false;
    }

    public  void resize(int s){

            int tempArray[] = array;

            array = new int[s];

            for (int index = 0; index < Math.min(s, endOfArray+1); index++){
                array[index] = tempArray[index];
            }

            maxSize = s;

    }


    public void insert(int data){

        if (endOfArray == maxSize-1)
            resize(2*maxSize);

        array[++endOfArray] = data;

    }

    public  void insertAtIndex(int insertIndex, int data){

            // if the user enters an invalid insertIndex, the element is
            // appended to the array, after the current last element
            if (insertIndex > endOfArray+1)
                insertIndex = endOfArray+1;

            if (endOfArray == maxSize-1)
                resize(2*maxSize);

            for (int index = endOfArray; index >= insertIndex; index--)
                array[index+1] = array[index];

            array[insertIndex] = data;
            endOfArray++;

    }


    public  int read(int index){
            return array[index];
    }

    public  void modifyElement(int index, int data){
            array[index] = data;
    }


    public  void deleteElement(int deleteIndex){

            // shift elements one cell to the left starting from deleteIndex+1 to endOfArray-1
            // i.e., move element at deleteIndex + 1 to deleteIndex and so on

            for (int index = deleteIndex; index < endOfArray; index++)
                array[index] = array[index+1];

            endOfArray--;

    }

    public  int countList(){

        int count = 0;
        for (int index = 0; index <= endOfArray; index++)
            count++;

        return count;
    }


    public void print(){

        for (int index = 0; index <= endOfArray; index++)
            System.out.print(array[index]+" ");

        System.out.println();

    }

}

class DynamicListArray{

    public static void main(String[] args){

    int listSize;

    Scanner input = new Scanner(System.in);

    System.out.print("Enter list size: ");
    listSize = input.nextInt();

    List integerList = new List(1); // we will set the maxSize to 1 and double it as and when needed

    for (int i = 0; i < listSize; i++){

        int value;

        System.out.print("Enter element # " + i + " : ");
        value = input.nextInt();

        integerList.insertAtIndex(i, value);
    }

    System.out.print("Contents of the list: ");
    integerList.print();


    // to read an element at a particular index (before delete)

    int readIndex;
    System.out.print("Enter an index to read (before delete): ");
    readIndex = input.nextInt();
    System.out.println("Value at " + readIndex + " is: " + integerList.read(readIndex) );

    // to delete an element at a particular index

    int deleteIndex;
    System.out.print("Enter an index to delete: ");
    deleteIndex = input.nextInt();
    integerList.deleteElement(deleteIndex);

    System.out.print("Contents of the list: ");
    integerList.print();


    // to read an element at a particular index (after delete)

    System.out.print("Enter an index to read (after delete): ");
    readIndex = input.nextInt();
    System.out.println("Value at " + readIndex + " is: " + integerList.read(readIndex) );

    System.out.println("Number of elements in the list (before insert) is: " + integerList.countList() );


    // to insert an element at a particular index
    int insertIndex, insertValue;
    System.out.print("Enter an index to insert: ");
    insertIndex = input.nextInt();
    System.out.print("Enter a value to insert: ");
    insertValue = input.nextInt();
    integerList.insertAtIndex(insertIndex, insertValue);

    System.out.print("Contents of the list: ");
    integerList.print();


    // to read an element at a particular index (after insert)

    System.out.print("Enter an index to read (after insert): ");
    readIndex = input.nextInt();
    System.out.println("Value at " + readIndex + " is: " + integerList.read(readIndex) );

    System.out.println("Number of elements in the list (after insert) is: " + integerList.countList() );


```

```java
        // to insert at the end of the list
        System.out.print("Enter the element you want to insert at the end of the list: ");
        insertValue = input.nextInt();
        integerList.insert(insertValue);

        System.out.print("Contents of the list: ");
        integerList.print();


        }

    }
```



```
Enter list size: 5
Enter element # 0 : 99
Enter element # 1 : 88
Enter element # 2 : 22
Enter element # 3 : 11
Enter element # 4 : 33
99 88 22 11 33
Enter an index to read (before delete): 3
Value at 3 is: 11
Enter an index to delete: 3
Contents of the List: 99 88 22 33
Enter an index to read (after delete): 0
Value at 0 is: 99
Number of elements in the list (before insert) is: 4
Enter an index to insert: 0
Enter a value to insert: 11
Contents of the List: 11 99 88 22 33
Enter an index to read (after insert): 2
Value at 2 is: 88
Number of elements in the list (after insert) is: 5
Enter the element you want to insert at the end of the list: 44
Contents of the List: 11 99 88 22 33 44
```