1)

```
package Assignment16_12_21;

import java.util.LinkedList;

public class displayonebyone {

 public static void main(String[] args) {
  LinkedList<String> linkedlist = new LinkedList<>();

  linkedlist.add("red");
  linkedlist.add("blue");
  linkedlist.add("green");
  linkedlist.add("white");

  System.out.println("The Linked list is: "+linkedlist);

  linkedlist.add(2,"redish");
  System.out.println("the list after: "+linkedlist);

  for(String m:linkedlist) {
   System.out.println(m);
  }

 }

}
```

output

```
red
blue
redish
green
white
```

2)

```
package Assignment16_12_21;

public class linearserch {
    public static int binarySearch(int[] nums, int flag) {
        int hi_num = nums.length - 1;
        int lo_num = 0;
        while (hi_num >= lo_num) {
            int guess = (lo_num + hi_num) >>> 1;
            if (nums[guess] > flag) {
                hi_num = guess - 1;
            } else if (nums[guess] < flag) {
                lo_num = guess + 1;
            } else {
                return guess;
            }
        }
        return -1;
    }

    public static void main(String[] args) {
        int[] nums = {1, 5, 6, 7, 8, 11};
```

```
        int search_num = 7;
        int index = binarySearch(nums, search_num);
        if (index == -1) {
            System.out.println(search_num + " is not in the array");
        } else {
            System.out.println(search_num + " is at index " + index);
        }
    }
}
```

output
7 is at index 3

3)

```
package Assignment16_12_21;

import java.util.LinkedList;

public class Remove {
public static void main (String[] args) {

        // Creating an LinkedList
        LinkedList<String> list = new LinkedList<String>();

        //add elements in the list
        list.add("good");
        list.add("achieve");
        list.add("goals");
        list.add("2020");
        list.add("2021");

        // Displaying the list
        System.out.println("LinkedList:" + list);

        System.out.println("The last element is removed:" + list.removeLast());

        System.out.println("Final LinkedList: "+ list);

        System.out.println("The first element is removed:" + list.removeFirst());

        System.out.println("Final LinkedList:\t" + list);
 }
}
```

output
LinkedList:[good, achieve, goals, 2020, 2021]
The last element is removed:2021
Final LinkedList: [good, achieve, goals, 2020]
The first element is removed:good
Final LinkedList: [achieve, goals, 2020]

4)

```
package Assignment16_12_21;

import java.util.LinkedList;

public class display {
```

```
public static void main(String[]args) {
 LinkedList<String> linklist=new LinkedList<String>();
 linklist.add("mayuri");
 linklist.add("tambe");
 linklist.add("dog");
 System.out.println("linklist is: "+linklist);
 for(int i=0; i<linklist.size();i++) {
  System.out.println("position of elements: "+i+" "+linklist.get(i));
 }
}
}
```

output
linklist is: [mayuri, tambe, dog]
position of elements: 0 mayuri
position of elements: 1 tambe
position of elements: 2 dog

5)

```
package Assignment16_12_21;
public class specificlist {
    public static int binarySearch(int[] nums, int flag) {
        int hi_num = nums.length - 1;
        int lo_num = 0;
        while (hi_num >= lo_num) {
            int guess = (lo_num + hi_num) >>> 1;
            if (nums[guess] > flag) {
                hi_num = guess - 1;
            } else if (nums[guess] < flag) {
                lo_num = guess + 1;
            } else {
                return guess;
            }
        }
        return -1;
    }

    public static void main(String[] args) {
        int[] nums = {1, 5, 6, 7, 8, 11};
        int search_num = 7;
        int index = binarySearch(nums, search_num);
        if (index == -1) {
            System.out.println(search_num + " is not in the array");
        } else {
            System.out.println(search_num + " is at index " + index);
        }
}
}
```

output
7 is at index 3

6)

```
package Assignment16_12_21;

public class binarysearch {
 static int [] nums;
```

```
 public static void main(String[] args) {
  nums = new int[]{3,2,4,5,6,6,7,8,9,9,0,9};
  int result = Linear_Search(nums, 6);
  if(result == -1)
  {
   System.out.print("Not present in the array!");
  }
  else
  System.out.print("Number found at index "+result);
 }

 private static int Linear_Search(int [] nums,int search)
 {
  for(int i=0;i<nums.length;i++)
  {
   if(nums[i]==search)
   {
    return i;

   }
  }
  return -1;

 }
}
```

output
Number found at index 4

7)

```
package Assignment16_12_21;

import java.util.LinkedList;

public class insert {

 public static void main(String[] args) {
  LinkedList<String> linkedList = new LinkedList<>();

  //add elements
  linkedList.add("a");
  linkedList.add("y");
  linkedList.add("u");
  linkedList.add("r");

  //print linkedList
  System.out.println("LinkedList is: "+linkedList);

  //insert elements in first and last position
  linkedList.addFirst("M");
  linkedList.addLast("i");

  //print updated list
  System.out.println("list after adding last and last elements: "+linkedList);
```

```
 }

}
```

output
LinkedList is: [a, y, u, r]
list after adding last and last elements: [M, a, y, u, r, i]

8)

```
package Assignment16_12_21;

import java.util.LinkedList;

public class Indexing {

 public static void main(String[] args) {
    LinkedList<String> linklist=new LinkedList<String>();
    linklist.add("Mayuri");
    linklist.add("Tambe");
    linklist.add("1011");
    System.out.println("linklist is: "+linklist);
    for(int i=0; i<linklist.size();i++) {
     System.out.println("position of elements: "+i+" "+linklist.get(i));
    }

 }

}
```

output
linklist is: [Mayuri, Tambe, 1011]
position of elements: 0 Mayuri
position of elements: 1 Tambe
position of elements: 2 1011