

// Longest Increasing Subsequence.

import java.util.\*;

class sequence {

int find\_seq(int ar[], int n)

{

int lst[] = new int[n];

int i, j, max = 0;

for (i = 0; i < n; i++)

lst[i] = 1;

for (i = 1; i < n; i++)

for (j = 0; j < i; j++)

if (ar[i] > ar[j] && lst[i] < lst[j] + 1)

lst[i] = lst[j] + 1;

int max\_index=-1;

for (i = 0; i < n; i++)

if (max < lst[i]){

max = lst[i];

max\_index=i;

}

int sq[]=new int[max];

sq[0]=ar[max\_index];

int ptos=1;

for (i = max\_index; i >=0; i--)

if (lst[max\_index]-lst[i]==1){

//System.out.println(" "+ar[i]);

sq[ptos]=ar[i];

ptos++;

max\_index=i;

}

```

        for( i = 0; i < sq.length / 2; i++)
        {
            int temp = sq[i];
            sq[i] = sq[sq.length - i - 1];
            sq[sq.length - i - 1] = temp;
        }
        System.out.println("Longest Subsequence is "+Arrays.toString(sq));

        return max;

    }

    public static void main(String args[])
    {
        sequence ob =new sequence();
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter No. of elements");
        int n=sc.nextInt();
        System.out.println("Enter elements");

        int arr[]=new int[n];
        for(int i=0;i<n;i++){
            arr[i]=sc.nextInt();
        }

        System.out.println("Length of lis is " + ob.find_seq(arr, n) + "\n");
    }
}

// By Ashwani Sharma

```