import java.util.Scanner;

public class LongestIS

{

public int[] lis(int[] X)

{

int n = X.length - 1;

int[] M = new int[n + 1];

int[] P = new int[n + 1];

int L = 0;

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

{

int j = 0;

for (int pos = L ; pos >= 1; pos--)

{

if (X[M[pos]] < X[i])

{

j = pos;

break;

}

}

P[i] = M[j];

if (j == L || X[i] < X[M[j + 1]])

{

M[j + 1] = i;

L = Math.max(L,j + 1);

}

}

int[] result = new int[L];

int pos = M[L];

for (int i = L - 1; i >= 0; i--)

{

result[i] = X[pos];

pos = P[pos];

}

return result;

}

public static void main(String[] args)

{

Scanner scan = new Scanner(System.in);

System.out.println("Enter number of elements");

int n = scan.nextInt();

int[] arr = new int[n + 1];

System.out.println("\nEnter "+ n +" elements");

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

arr[i] = scan.nextInt();

LongestIS obj = new LongestIS();

int[] result = obj.lis(arr);

System.out.print("Length of Longest Increasing Subsequence is :");

System.out.println(result.length);

System.out.print("\nLongest Increasing Subsequence : ");

for (int i = 0; i < result.length; i++)

System.out.print(result[i] +" ");

}

}