

```

1 package Project;
2
3 public class LongestIncreasingSubsequent {
4
5     public static int LIS(int[] arr, int i, int n, int prev)
6     {
7         //base case : nothing is remaining
8         if (i ==n)
9         {
10             return 0;
11
12         }
13         //case1: exclude the current element and process the remaining element
14         int excl = LIS(arr, i + 1, n, prev);
15
16         //case2: include the current element if it is greater than the previous element is LIS
17         int incl = 0;
18         if (arr[i]> prev)
19         {
20             incl = 1 + LIS(arr, i +1, n, arr[i]);
21
22         }
23         //return the maximum of the above two choices
24         return Integer.max(incl, excl);
25     }
26     public static void main(String[] args) {
27         int[] arr = {1, 4 ,9 ,20, 14, 43, 65 ,13, 34, 22, 55, 12};
28         System.out.println("The Lenght of the LIS is " + LIS(arr, 0, arr.length, Integer.MIN_VALUE));
29
30     }
31
32 }
33

```