**Algorithm:**

1. Import java.util.scanner
2. Class main
3. Static int inc\_subseq(int my\_arr[], intlen)
4. Int seq[]=new int[len];
5. Int i,j,max=0
6. for (i=0; i<len; i++)
7. Seq[i]=1
8. for (i=0; i<len; i++)
9. for (j=0; j<i; j++)
10. if (my\_arr[i] > my\_arr[j] && seq[i] < seq[j] + 1)
11. seq[i] = seq[j] + 1
12. for (i = 0; i < len; i++)
13. if (max < seq[i]
14. max = seq[i]
15. return max
16. void main
17. scanner=sc
18. print enter the size of array
19. int size =sc
20. int arr[]=new int[size]
21. start for (int i=0; i<arr.length; i++)
22. print enter the array index value of i
23. arr[i]=sc
24. end for
25. int arr\_len =arr.length
26. print the length of the longest increasing subsequence is + inc\_subseq (arr, arr\_len)

**Core Concepts:**

* Object: A Java object is a member (also called an instance) of a Java class. Each object has an identity, a behaviour, and a state.
* Class: Class is a template used to create objects and to define object data types and methods.
* Method: A method is a block of code which only runs when it is called. You can pass data, known as parameters, into a method. Methods are used to perform certain actions, and they are also known as functions.
* Package: Package in Java is a mechanism to encapsulate a group of classes, sub packages and interfaces. Packages are used for: Preventing naming conflicts.
* Loops: The Java for loop is a control flow statement that iterates a part of the program’s multiple times. The Java while loop is a control flow statement that executes a part of the programs repeatedly based on given Boolean condition
* Array: Normally, an array is a collection of similar type of elements which has contiguous memory location. **Java array** is an object which contains elements of a similar data type. Additionally, the elements of an array are stored in a contiguous memory location. It is a data structure where we store similar elements. We can store only a fixed set of elements in a Java array.