Lets understand it with an example

Below is an array of integers

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 7 | 1 | 16 | 22 | 2 | 8 | 11 | 3 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |

Longest subsequence: 1 2 3 4

Here we can see that the maximum increasing subsequence goes up to 4 in the given array.

So the logic for the program has to be to count max increasing subsequence.

We will create HashSet object and insert all the values in it.

To add all the values we will create a for loop with limit of array length.

First we need to create a loop so that it can check all the integers in the array and start the count from 1.

When we start from the first value, we have to check if the hashset contains (current value-1).

If yes, then we have to traverse to the next value.

Now we have next value as the current value.

Then we check that if the hashset has a value=(current value-1).

If no then we will check that hashset has any value=current value+1. If yes, count will increase by 1.

Similarly, the procedure will continue untill we reach to min value of the array.

At that value we will check hashset has value+current value+1.

Similarly, we will carry on and we will get the value. In the example above, we have 4 values in increasing sequence.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

