

Day 1: Longest Increasing sequence (LIS)

Given an integer array, find the length of its longest increasing sequence.

The prototype of the function is as below:

public static void longestIncreasingSeq(int input1, int[] input2);

The function takes as input an integer **input1** and an integer array **input2**, containing **input1** number of integers, and sets the **output1** variable to the length of its LIS (longest increasing sequence).

Example 1:

input1 = 9

input2[] = {11,3,4,7,8,12,2,3,7}

output1 should be 5.

Explanation:

In the given array **input2**, the two increasing sequences are “3,4,7,8,12” and “2,3,7”. The first sequence i.e. “3,4,7,8,12” is the longer one containing five items. So, the longest increasing sequence = 5.

Example 2:

input1 = 4

input2[] = {1,3,2,1}

output1 should be 2

Explanation:

In the given array **input2**, the increasing sequence is “1,3” containing two items. So, the longest increasing sequence = 2.

Example 3:

input1 = 12

input2[] = {12,17,21,3,7,9,10,11,33,100,4,8}

output1 should be 7

Explanation:

In the given array **input2**, the increasing sequences are “12,17,21” containing three items, “3,7,9,10,11,33,100” containing seven items and “4,8” containing two items. So, the longest increasing sequence = 7

Example 4:

input1 = 6

input2[] = {12,11,10,9,8,7}

output1 should be 0

Explanation:

In the given array **input2**, there is NO increasing sequence. All the items are in decreasing order, hence the longest increasing sequence = 0