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CS23331-DAA-2024-CSE / 4-DP-Longest non-decreasing Subsequence



4-DP-Longest non-decreasing Subsequence

Started on Wednesday, 8 October 2025, 9:03 AM**State** Finished**Completed on** Wednesday, 8 October 2025, 9:06 AM**Time taken** 3 mins 28 secs**Marks** 1.00/1.00**Grade** 10.00 out of 10.00 (100%)**Question 1** | Correct Mark 1.00 out of 1.00  [Flag question](#)

Problem statement:

Find the length of the Longest Non-decreasing Subsequence in a given Sequence.

Eg:

Input:9

Sequence:[-1,3,4,5,2,2,2,2,3]

the subsequence is [-1,2,2,2,2,3]

Output:6

Answer: (penalty regime: 0 %)

```
1 #include <stdio.h>
2
3 #define MAX 1000
4
5 int max(int a, int b) {
6     return (a > b) ? a : b;
7 }
8
9 int longestNonDecreasingSubsequence(int arr[], int n) {
10     int dp[MAX];
11     int maxLength = 1;
12
13     // Initialize all dp[i] to 1
14     for (int i = 0; i < n; i++)
15         dp[i] = 1;
16
17     // Build the dp array
18     for (int i = 1; i < n; i++) {
19         for (int j = 0; j < i; j++) {
20             if (arr[j] <= arr[i])
21                 dp[i] = max(dp[i], dp[j] + 1);
22         }
23         maxLength = max(maxLength, dp[i]);
24     }
25
26     return maxLength;
27 }
28
29 int main() {
30     int n;
31     int arr[MAX];
32
33     // Input size
34     scanf("%d", &n);
35
36     // Input sequence
37     for (int i = 0; i < n; i++)
38         scanf("%d", &arr[i]);
39
40     // Output result
41     printf("%d\n", longestNonDecreasingSubsequence(arr, n));
42
43     return 0;
44 }
```

	Input	Expected	Got	
✓	9 -1 3 4 5 2 2 2 2 3	6	6	✓
✓	7 1 2 2 4 5 7 6	6	6	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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