**DYNAMMIC PROGRAMMING**

**PROBLEM 4:**LONGEST NON-DECREASING SUBSEQUENCE

AIM:

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

CODE:  
#include <stdio.h>

#define MAX 1000

int longestNonDecreasingSubsequence(int arr[], int n) {

int dp[MAX];

int maxLength = 1;

for (int i = 0; i < n; i++) dp[i] = 1;

for (int i = 1; i < n; i++) {

for (int j = 0; j < i; j++) {

if (arr[i] >= arr[j] && dp[i] < dp[j] + 1) {

dp[i] = dp[j] + 1;

}

}

if (dp[i] > maxLength) maxLength = dp[i];

}

return maxLength;

}

int main() {

int n;

int arr[MAX];

scanf("%d", &n);

for (int i = 0; i < n; i++) scanf("%d", &arr[i]);

printf("%d\n", longestNonDecreasingSubsequence(arr, n));

return 0;

}

INPUT AND OUTPUT:  
