

Smart Dolphin

Filename: dolphin

Everyone knows that dolphins are smart. But recently, Dynamo Dolphin at Marine World has even flabbergasted all zoologists with her new trick. While she jumps in the air, her trainers will throw her food pellets in succession at various altitudes. Because Dynamo loves her food pellets, she determined a method by which she could maximize the amount she ate in each jump. Of course, she has some constraints. In a single jump, she moves up and then down, so any sequence of pellets she actually catches can be broken into two contiguous subsequences where the first contiguous subsequence is non-decreasing and the second contiguous subsequence is non-increasing. In plain English, at first, each subsequent pellet that Dynamo eats must be at an altitude at least as great as the previous pellet. Then, after eating the "highest" pellet, all subsequent pellets must be at a altitude less than or equal to the altitude of the previous pellet. For example, it's possible for Dynamo to grab a pellets at the following altitudes in this order: 6, 6, 8, 9, 5, 5, 2, since the first set 6, 6, 8, 9 is a non-decreasing sequence, while what follows, 9, 5, 5, 2 is a non-increasing sequence. (Of course, the 9 counts for only one pellet, the one at the apex of Dynamo's jump.)

The Problem:

Given a sequence of altitudes of food pellets in the order that they are thrown, determine the length of the longest subsequence of that sequence representing the maximal number of food pellets Dynamo can eat.

The Input:

The first line of the input file will contain a single integer n , ($1 \leq n \leq 1000$), the number of test cases in the file. Each test cases follows. The first line in each test case contains a single positive integer m ($1 \leq m \leq 1000$), the number of food pellets for that particular case. The following m lines contain one integer each, representing the altitudes of each food pellet thrown, in the order that they were thrown.

The Output:

The first line of output for the k^{th} test case will be

Case k :

The second line of output for each case will be of the following format:

Dynamo ate p food pellet(s).

where p is replaced with the maximum number of food pellets Dynamo could have eaten for that test case.

Sample Input:

2
5
12
11
13
12
11
6
10
20
30
20
40
20

Sample Output:

Case 1:
Dynamo ate 4 food pellet(s).

Case 2:
Dynamo ate 5 food pellet(s).