

Round 2 2012

[A. Swinging Wild](#)[B. Aerobics](#)**C. Mountain View**[D. Descending in the Dark](#)[Contest Analysis](#)[Questions asked](#)

Submissions

Swinging Wild

5pt	Not attempted 2006/2307 users correct (87%)
9pt	Not attempted 1587/1995 users correct (80%)

Aerobics

6pt	Not attempted 1124/1509 users correct (74%)
15pt	Not attempted 741/1067 users correct (69%)

Mountain View

13pt	Not attempted 435/888 users correct (49%)
14pt	Not attempted 196/375 users correct (52%)

Descending in the Dark

8pt	Not attempted 106/170 users correct (62%)
30pt	Not attempted 0/79 users correct (0%)

Top Scores

hos.lyric	70
LayCurse	70
eatmore	70
Gennady.Korotkevich	70
ACRushTC	70
mikhailOK	70
dolphinigle	70
Chmel.Tolstiy	70
EgorKulikov	70
Eryx	70

Problem C. Mountain View

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input
13 points

Solve C-small

Large input
14 points

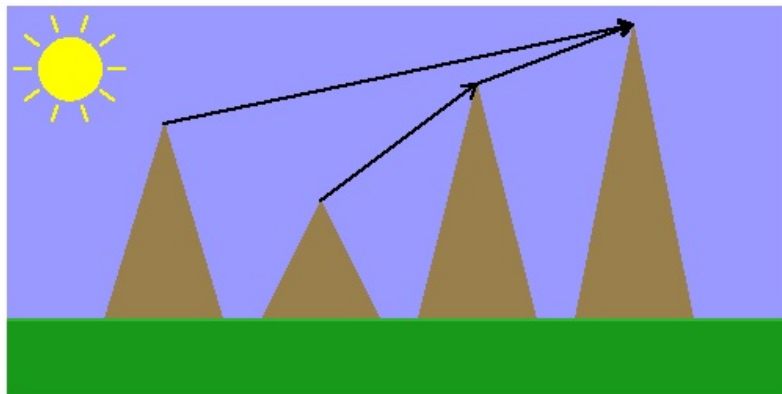
Solve C-large

Problem

You are walking through the mountains. It turns out that in this mountain range there is a peak every kilometer, and there are no intermediate peaks. On every peak, you lie down for a rest, look forward, and perceive one of the peaks in front of you to be the highest one. The peak that looks like it's the highest might not **really** be the highest, for two reasons: there could be a higher peak that is obscured by another peak that's closer to you, and not as high; or you could be looking down, and a faraway peak could look higher than a nearby one.

To be precise, when we say that *peak B looks like it's the highest from peak A* we mean that **B** is further down the road than **A**; all peaks between **A** and **B** are below the line connecting the peaks **A** and **B**; and all the peaks that are further than **B** are below or on this line.

You don't know how high each peak is, but you have a very good memory; you've been on all the peaks; and you remember which peak looks like it's the highest from each of them. You would like to invent a set of heights for the peaks that is consistent with that information. Note that you were lying down when looking, so we assume you always looked from the ground level on each peak.



In this example, the fourth peak looks like it's the highest from the first and third peaks. When you're lying on the second peak, you can't see the fourth peak; the third one obscures it, and looks like it's the highest.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case consists of two lines. The first contains one number, **N**, the number of peaks in the range. You began your trip on peak 1 and went forward to peak **N**. The next line contains **N-1** numbers x_i . The i -th number denotes the index of the peak that appeared to be the highest from peak i (note that peak **N** is the last peak, so there are no other peaks to see from there).

Output

For each test case, output one line containing "Case #n: $y_1 y_2 \dots y_N$ ", where n is the case number (starting from 1) and y_i is the height of the i -th peak. You can output any solution agreeing with the input data, except that all the heights you output have to be integers between 0 and 10^9 , inclusive.

If no solution is possible, output "Case #n: Impossible" instead.

Limits

$1 \leq T \leq 30$.
 $i < x_i \leq N$.

Small dataset

$2 \leq N \leq 10$.

Large dataset

$2 \leq N \leq 2000$.

Sample

Input	Output
4	Case #1: 10 10 10 10 10 2
6	Case #2: 10 20 40 80
2 3 4 5 6	Case #3: Impossible
4	Case #4: 5 3 6 8
4 4 4	
4	
3 4 4	
4	
4 3 4	

All problem statements, input data and contest analyses are licensed under the [Creative Commons Attribution License](#).

© 2008-2017 Google [Google Home](#) - [Terms and Conditions](#) - [Privacy Policies and Principles](#)

Powered by



Google Cloud Platform