

World Finals 2017

A. Dice Straight

B. Operation

C. Spanning Planning

D. Omnicircumnavigation

E. Stack Management

F. Teleporters

Contest Analysis

Questions asked 2

Submissions

Dice Straight

10pt Not attempted
23/24 users correct
(96%)

15pt Not attempted
18/21 users correct
(86%)

Operation

10pt Not attempted
15/17 users correct
(88%)

20pt Not attempted
12/12 users correct
(100%)

Spanning Planning

30pt Not attempted
13/16 users correct
(81%)

Omnicircumnavigation

15pt Not attempted
16/20 users correct
(80%)

20pt Not attempted
6/12 users correct
(50%)

Stack Management

10pt Not attempted
15/16 users correct
(94%)

30pt Not attempted
0/1 users correct
(0%)

Teleporters

10pt Not attempted
6/8 users correct
(75%)

30pt Not attempted

Top Scores

| | |
|---------------------|-----|
| Gennady.Korotkevich | 120 |
| zemen | 110 |
| vepifanov | 110 |
| SnapDragon | 110 |
| eatmore | 100 |
| apiapiapiad | 95 |
| simonlindholm | 95 |
| Zlobober | 90 |
| Endagorion | 85 |
| kevinsogo | 80 |

Problem A. Dice Straight

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
10 points

Solve A-small

Large input
15 points

Solve A-large

Problem

You have a special set of N six-sided dice, each of which has six different positive integers on its faces. Different dice may have different numberings.

You want to arrange some or all of the dice in a row such that the faces on top form a *straight* (that is, they show consecutive integers). For each die, you can choose which face is on top.

How long is the longest straight that can be formed in this way?

Input

The first line of the input gives the number of test cases, T . T test cases follow. Each test case begins with one line with N , the number of dice. Then, N more lines follow; each of them has six positive integers D_{ij} . The j -th number on the i -th of these lines gives the number on the j -th face of the i -th die.

Output

For each test case, output one line containing Case # x : y , where x is the test case number (starting from 1) and y is the length of the longest straight that can be formed.

Limits

$1 \leq T \leq 100$.
 $1 \leq D_{ij} \leq 10^6$ for all i, j .

Small dataset

$1 \leq N \leq 100$.

Large dataset

$1 \leq N \leq 50000$.
The sum of N across all test cases ≤ 200000 .

Sample

| Input | Output |
|-------------------|------------|
| 3 | Case #1: 4 |
| 4 | Case #2: 1 |
| 4 8 15 16 23 42 | Case #3: 3 |
| 8 6 7 5 30 9 | |
| 1 2 3 4 55 6 | |
| 2 10 18 36 54 86 | |
| 2 | |
| 1 2 3 4 5 6 | |
| 60 50 40 30 20 10 | |
| 3 | |
| 1 2 3 4 5 6 | |
| 1 2 3 4 5 6 | |
| 1 4 2 6 5 3 | |

In sample case #1, a straight of length 4 can be formed by taking the 2 from the fourth die, the 3 from the third die, the 4 from the first die, and the 5 from the second die.

In sample case #2, there is no way to form a straight larger than the trivial straight of length 1.

In sample case #3, you can take a 1 from one die, a 2 from another, and a 3 from the remaining unused die. Notice that this case demonstrates that there can be multiple dice with the same set of values on their faces.

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