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 $\mathbf{D_{ij}}$. 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

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

Small dataset

$1 \le \mathbf{N} \le 100$.

Large dataset

$1 \le \mathbf{N} \le 50000$.
The sum of **N** across all test cases ≤ 200000.

Sample

Input	Output
3 4 4 8 15 16 23 42 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	Case #1: 4 Case #2: 1 Case #3: 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.