Travel Trouble

Recently, Lea realised that she hadn't seen her uncle, who lives in Chaosville, in a long time, so she decided to visit him right away. The Chaotics (thats what the inhabitants of Chaosville are called) are very simple people who all live alone and far apart from each other in their houses. On earlier visits to Chaosville Lea just drove through the wild to reach her uncle's house. However, in the meantime, the Chaotics invented streets!

Excited with their new discovery, every inhabitant, with the exception of Lea's uncle, built a street from his house to some other house in Chaosville. Despite their chaos, they somehow managed to form a network in which it is possible to reach every house in Chaosville from every other house.

Lea was happy for a moment, until she noticed: The Chaotics had also forbidden off-road driving and she had no idea how to get to her uncle. She only found one piece of help: A printed sheet on which for every two houses in Chaosville, the length of the shortest possible route (in the new road network) between those two houses is listed. Can you help her find the way to her uncle?

Input

The first line of the input contains an integer t. t test cases follow.

Each test case begins with a line containing an integer n, the number of houses in Chaosville, n lines follow. The i-th line consists of n integers $m_{i,j}$ where $m_{i,j}$ is the distance of house i to house j. Note that $m_{i,j} = k$ does not neccesarily mean that there is an edge of length k between i and j, but it means that there is a path from i to j of total length k.
It is always the case that $m_{i,i} = 0$ and $m_{i,j} = m_{j,i}$.

Lea always starts at house 1, her uncle lives in house n.

Output

For each test case, print a line containing "Case #i: x" where i is its number, starting at 1, and x is the sequence of house numbers h_1 h_2 ... h_k separated by spaces such that $h_1 = 1$, $h_k = n$ and for each pair h_i, h_{i+1} a road exists between house h_i and house h_{i+1}. Furthermore, no house should appear twice in that list.

Constraints

- $1 \leq t \leq 20$.
- $1 \leq n \leq 150$.
- $1 \leq m_{i,j} \leq 150000$.

Sample Input 1

```
2
5
0 12 12 5 9
12 0 14 7 11
12 14 0 7 3
5 7 7 0 4
9 11 3 4 0

6
0 15 4 19 10 9
15 0 11 4 5 16
4 11 0 15 6 5
19 4 15 0 9 20
10 5 6 9 0 11
9 16 5 20 11 0
```

Sample Output 1

```
Case #1: 1 4 5
Case #2: 1 3 6
```

Sample Input 2

```
6
4
0 4 13 3
4 0 9 7
13 9 0 16
3 7 16 0

5
0 6 22 13 28
6 0 16 7 22
22 16 0 9 6
13 7 9 0 15
28 22 6 15 0

6
0 12 3 8 17 21
12 0 15 4 5 9
3 15 0 11 20 24
8 4 11 0 9 13
17 5 20 9 0 4
21 9 24 13 4 0

4
0 5 10 14
5 0 5 9
10 5 0 14
14 9 14 0

5
0 5 7 8 12
5 0 12 13 7
7 12 0 15 19
8 13 15 0 20
12 7 19 20 0

4
0 16 8 12
16 0 8 4
8 8 0 4
12 4 4 0
```

Sample Output 2

```
Case #1: 1 4
Case #2: 1 2 4 3 5
Case #3: 1 4 2 5 6
Case #4: 1 2 4
Case #5: 1 2 5
Case #6: 1 3 4
```