Rumours

Rumours are a strong force. With their help one can achieve many things, good and bad. The minds of the masses can sometimes be steered in a profitable direction so that society may either bloom or collapse, depending on the message. Lea knows this well – and she intends to use it.

For now, Lea is interested in social experiments. She wants to see how quick and how far rumours will spread. So she starts to spread some rumour, waits a week, and then asks all people around her to rate their *information trust value* for this particular rumour, i.e. how strongly they believe the rumour to be a well-known fact.

Naturally, the information trust value has nothing to do with the actual truth of the rumour. Rather, it is based on who a person hears the rumour from – if it is someone they trust, they are more likely to believe it. Thus, the information trust value will always be the maximum *trustworthiness value* among the people they heard it from. Trustworthiness values range from 0 ("I would not even care if he/she died last week.") to 10 ("If he/she told me pigs fly, I would probably believe it.") and do not have to be symmetric. People will spread a rumour that they have heard if they believe it with some information trust value greater than 0.

So Lea went around and asked people for their trustworthiness values of all the other people around her. Then she started spreading the rumour that eating spaghetti after 1 a.m. would increase the risk of catching "Tomato Fever", where your head would take on the color of a tomato for a day or two.

A week later, she will ask all people for the information trust value for that particular rumour. Until then, she suspects that everybody will have had enough time to hear and spread the rumour. Alas, only a day has passed and Lea is already giddy for the results. Can you help her predict the total influence her rumour will have – i.e. the sum of all information trust values of all people?

Input

The first line of the input contains an integer t. t test cases follow, each of them separated by a blank line.

Each test case starts with a line containing n, the number of people Lea knows the trustworthiness values of. n lines follow, with the i-th line containing n integers denoting the trustworthiness values $trust_{i,1}, \ldots, trust_{i,n}$ where $trust_{i,j}$ is the information trust value person i has in information heard from person j. Lea is person 1 and started spreading the rumour.

Output

For each test case, print a line containing "Case #i: x" where i is its number, starting at 1 and x is the sum of all information trust values of all people. Lea started the rumour, so her information trust value for the rumour is 0. Each line of the output should end with a line break.

Constraints

- $1 \leq t \leq 20$
- $1 \leq n \leq 400$
- $0 \leq trust_{i,j} \leq 10$ for all $1 \leq i, j \leq n$
- $trust_{i,i} = 0$ for all $1 \leq i \leq n$

Sample Input 1

```
2
4
0 0 0 1
5 0 0 0
1 5 0 5
1 10 5 0

5
0 3 4 3 0
3 0 3 0 0
4 3 0 10 0
0 0 0 0 0
0 2 3 5 0
```

Sample Output 1

```
Case #1: 20
Case #2: 10
```

Sample Input 2

```
5
6
0 0 0 7 0 5
1 0 4 8 0 6
0 5 0 2 0 4
9 1 7 0 3 7
0 5 0 0 0 0
3 6 2 0 0 0

5
0 0 1 6 0
0 0 10 9 0
0 9 0 0 0
0 2 0 0 0
4 0 0 0 0

6
0 0 2 5 3 8
0 0 5 0 3 5
0 8 0 0 3 0
0 0 10 0 10 0
3 10 1 9 0 5
0 0 1 3 8 0

7
0 8 0 0 0 0 4
7 0 5 4 3 0 0
6 4 0 0 0 6 3
0 4 0 0 7 0 9
0 9 1 1 0 0 2
0 0 0 0 8 0 0
8 0 0 1 10 2 0

8
0 8 0 3 0 0 8 1
1 0 0 8 0 0 0 10
0 7 0 0 6 0 4 0
0 0 7 0 9 0 0 7
0 0 0 0 0 0 2 0
10 4 6 0 0 0 10 0
0 7 1 4 0 0 0 4
0 10 1 10 7 0 0 0
```

Sample Output 2

```
Case #1: 33
Case #2: 4
Case #3: 41
Case #4: 49
Case #5: 55
```