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Facebook Hacker Cup 2014 Qualification Round

> In the "Basketball Game" problem the constraint for number of players is 2 * P <= N not 12 <= N as originally stated. The problem statement has been updated

> The example explanation in the "Basketball Game" problem has been clarified.

Square Detector   **20 points**

Last valid submission time: November 24, 2013 at 1:33pm [details]

    Download Input

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You want to write an image detection system that is able to recognize different geometric shapes. In the first version of the system you settled with just being able to detect filled squares on a grid.

You are given a grid of **N×N** square cells. Each cell is either white or black. Your task is to detect whether all the black cells form a square shape.

Input

The first line of the input consists of a single number **T**, the number of test cases.

Each test case starts with a line containing a single integer **N**. Each of the subsequent **N** lines contain **N** characters. Each character is either "." symbolizing a white cell, or "#" symbolizing a black cell. Every test case contains at least one black cell.
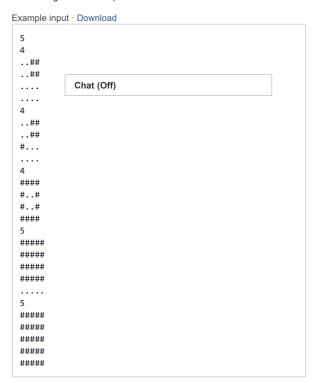
Output

For each test case **i** numbered from 1 to **T**, output "Case #**i**: ", followed by YES or NO depending on whether or not all the black cells form a completely filled square with edges parallel to the grid of cells.

Constraints

1 ≤ **T** ≤ 20
1 ≤ **N** ≤ 20

Example

Test cases 1 and 5 represent valid squares. Case 2 has an extra cell that is outside of the square. Case 3 shows a square not filled inside. And case 4 is a rectangle but not a square.

Example input · Download

```
5
4
..##
..##
....
....
4
..##
..##
#...
....
4
####
#..#
#..#
####
5
#####
#####
#####
#####
.....
5
#####
#####
#####
#####
#####
```

Chat (Off)

Example output · Download

```
Case #1: YES
Case #2: NO
Case #3: NO
Case #4: NO
Case #5: YES
```

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