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Ends in 2h 57m 49s

Score: 0 / 100 points

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PROBLEMS

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Problem A2: Ready, Go (Part 2)

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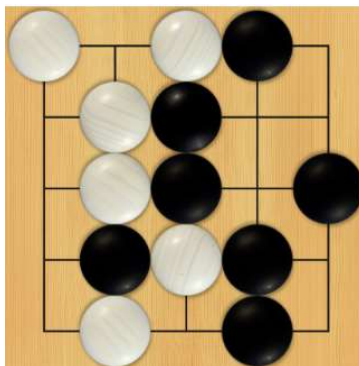
9 points

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This problem shares some similarities with A1, with key differences in bold.

Atari 2600? More like Atari 2600 BCE!

The classic board game Go is a two-player game played on an $R \times C$ board. One player places white stones while the other places black stones. On a player's turn, they may place a stone in any empty space. A curiosity of Go is that stones are placed on the intersections of grid lines rather than between the lines, so an in-progress 5×5 game looks like this:



An orthogonally contiguous set of stones of the same color is called a *group*. A group of stones is captured (and removed from the board) once no stones in the group has an adjacent empty space.

You're playing as Black and it's your turn. Given a valid board (i.e. no groups have 0 adjacent empty spaces), **what's the maximum number of white stones you can capture** with a single black stone?

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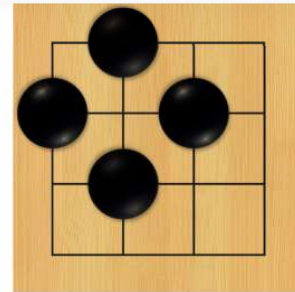
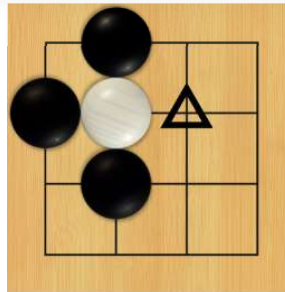
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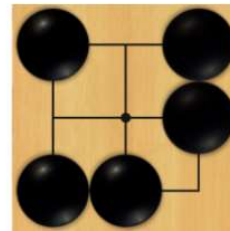
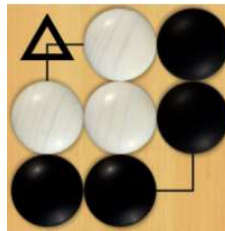
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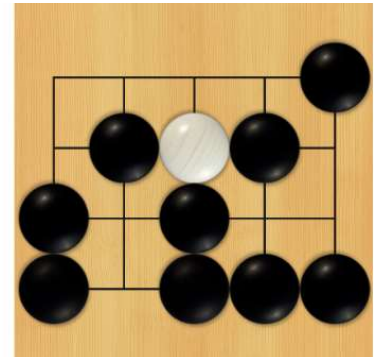
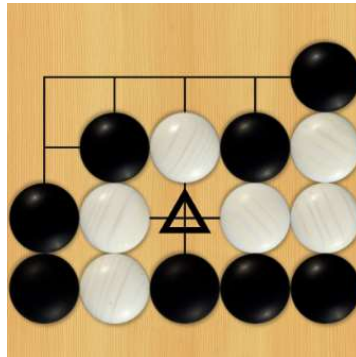
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Here, Black can capture a group of 3 white stones. Note that this move is valid even though the new black stone has no adjacent empty spaces at the moment it's placed:



Black can even capture multiple groups at once. Here, Black captures a group of 2 stones and a group of 3 stones:



The Go board is represented as a character array A where $A_{i,j}$ is one of:

- B for a black stone
- W for a white stone
- . for an empty space

Constraints

$$1 \leq T \leq 150$$

$$1 \leq R, C \leq 3,000$$

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Input begins with an integer T , the number of test cases. Each case begins with a line containing two integers R and C . Then, R lines follow, the i th of which contains C characters $A_{i,1}$ through $A_{i,C}$.

Output Format

For the i th test case, print "Case #i: " followed by a single integer, the maximum number of white stones you can capture on your turn.

Sample Explanation

In the first case, Black can capture 3 white stones by playing in the bottom-right corner.

In the second case, there are no white stones that can be captured.

In the third case, Black can capture both white groups at once, for a total of $6 + 3 = 9$ white stones.

In the fourth case, there are 6 different white stones that can be captured, but Black can capture at most 4 of them (by playing in the center of the board).

Sample Input

```
4
4 4
W...
B.BB
.BW
.BW.
5 5
W...W
.W.W.
BBWBB
.W.W.
W...W
5 5
B..B.
WBBWB
W.WWB
WWBB.
WBB..
5 5
.....
WB.BW
BW.WB
```

Sample Output

```
Case #1: 3
Case #2: 0
Case #3: 9
Case #4: 4
```

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