



# Mega Tic-Tac-Toe

locked

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Alexis is bored with regular Tic-Tac-Toe, played on a  $3 \times 3$  board. She decides to invent *Mega Tic-Tac-Toe*, which has the following additional rules:

- The board is of size  $n \times m$ .
- Alexis is always the letter O, and the other player is always the letter X.
- To win a game, there should be at least  $k$  consecutive cells containing the same symbol (i.e., either an X or an O). Each group of  $k$  consecutive cells must be in the horizontal, vertical, or diagonal direction (i.e., you cannot mix and match a cluster of adjacent cells).

As the size of the board increases, it becomes more and more difficult to determine who wins each game of Mega Tic-Tac-Toe. Given the value of  $k$  and the layout of the board for  $g$  games of Mega Tic-Tac-Toe, print the winner of each game on a new line. If Alexis wins, print WIN; if she loses, print LOSE. If neither player wins, print NONE.

**Note** If both players have at least  $k$  consecutive cells, neither player wins.

## Input Format

The first line contains an integer,  $g$ , denoting the number of games played. The subsequent lines describe each game as follows:

- The first line contains three space-separated integers describing the respective values of  $n$ ,  $m$ , and  $k$  for that game of Mega Tic-Tac-Toe.
- Each of the  $n$  subsequent lines contains a string of  $m$  characters. Each character will be one of the following: an O (denoting a cell marked by Alexis), an X (denoting a cell marked by her opponent), or a - (denoting an unmarked cell).

## Constraints

- $1 \leq g \leq 4$
- $1 \leq n, m \leq 1000$
- $1 \leq k \leq 1000$
- There may not be a winner for every game.

## Output Format

For each game board, print the WIN, LOSE, NONE according to the statement.

## Sample Input

```
4
3 3 3
XOX
XOX
XXX
3 3 3
X-X
O-O
X-X
3 3 3
O-X
XOO
XOO
```

```
3 3 3
0-X
0-X
0-X
```

### Sample Output

```
LOSE
NONE
WIN
NONE
```

### Explanation

We must evaluate the following  $g = 4$  games:

1. Alexis loses this game because there are  $k = 3$  consecutive X's in both the horizontal and vertical directions. Thus, we print `LOSE` on a new line.
2. Neither player has marked  $k = 3$  consecutive cells, so nobody wins and we print `NONE` on a new line.
3. Alexis wins this game because there are  $k = 3$  consecutive diagonal cells marked with 0. Thus, we print `WIN` on a new line.
4. Because *both* players marked  $k = 3$  consecutive cells, neither can win. Thus, we print `NONE` on a new line.

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Submissions: 822

Max Score: 30

Difficulty: Medium

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Python 2



```
1 # Enter your code here. Read input from STDIN. Print output to STDOUT
```

Line: 1 Col: 1

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