code jam
print "hello, world!"

Round 1A 2010

A. Rotate

B. Make it Smooth

C. Number Game

Contest Analysis

Questions asked

Submissions	
Rotate	
11pt	Not attempted **2076/2436 users** correct (85%)
12pt	Not attempted **1855/2071 users** correct (90%)
Make it Smooth	
12pt	Not attempted **509/954 users** correct (53%)
24pt	Not attempted **319/482 users** correct (66%)
Number Game	
16pt	Not attempted **680/1091 users** correct (62%)
25pt	Not attempted **244/450 users** correct (54%)

Top Scores	
rng..58	100
Pipi	100
cgy4ever	100
rem	100
XiaoZiqian	100
qizichao	100
exod40	100
GarnetCrow	100
hos.lyric	100
ACRush	100

Problem A. Rotate

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the Quick-Start Guide to get started.

Small input 11 points	Solve A-small Judge's response for last submission: Correct.
Large input 12 points	Solve A-large Judge's response for last submission: Correct.

Problem

In the exciting game of Join-**K**, red and blue pieces are dropped into an **N**-by-**N** table. The table stands up vertically so that pieces drop down to the bottom-most empty slots in their column. For example, consider the following two configurations:

```
    - Legal Position -              - Illegal Position -

         .......                          .......
         .......                          .......
         .......                          .......
         ....R..                          .......
         ...RB..                  Bad -> ..BR...
         ..BRB..                          ...R...
         .RBBR..                          .RBBR..
```

In these pictures, each '.' represents an empty slot, each 'R' represents a slot filled with a red piece, and each 'B' represents a slot filled with a blue piece. The left configuration is legal, but the right one is not. This is because one of the pieces in the third column (marked with the arrow) has not fallen down to the empty slot below it.

A player wins if they can place at least **K** pieces of their color in a row, either horizontally, vertically, or diagonally. The four possible orientations are shown below:

```
        - Four in a row -

     R     RRRR     R        R
     R              R         R
     R            R            R
     R          R               R
```
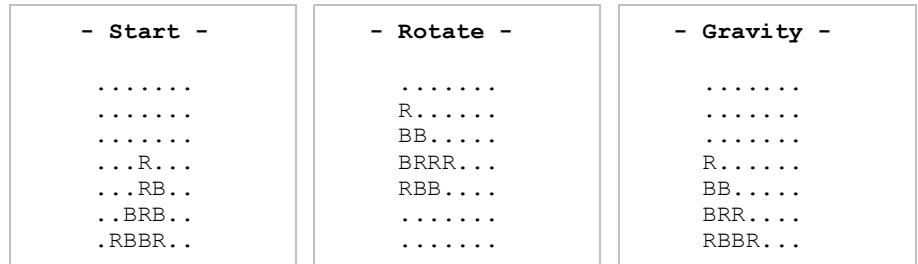
In the "Legal Position" diagram at the beginning of the problem statement, both players had lined up two pieces in a row, but not three.

As it turns out, you are right now playing a very exciting game of Join-**K**, and you have a tricky plan to ensure victory! When your opponent is not looking, you are going to rotate the board 90

degrees clockwise onto its side. Gravity will then cause the pieces to fall down into a new position as shown below:

```
┌──────────────────┐ ┌──────────────────┐ ┌──────────────────┐
│    - Start -     │ │    - Rotate -    │ │   - Gravity -    │
│                  │ │                  │ │                  │
│    .......       │ │    .......       │ │    .......       │
│    .......       │ │    R......       │ │    .......       │
│    .......       │ │    BB.....       │ │    .......       │
│    ...R...       │ │    BRRR...       │ │    R......       │
│    ...RB..       │ │    RBB....       │ │    BB.....       │
│    ..BRB..       │ │    .......       │ │    BRR....       │
│    .RBBR..       │ │    .......       │ │    RBBR...       │
└──────────────────┘ └──────────────────┘ └──────────────────┘
```

Unfortunately, you only have time to rotate once before your opponent will notice.

All that remains is picking the right time to make your move. Given a board position, you should determine which player (or players!) will have **K** pieces in a row after you rotate the board clockwise and gravity takes effect in the new direction.

Notes

- You can rotate the board only once.
- Assume that gravity only takes effect after the board has been rotated completely.
- Only check for winners after gravity has finished taking effect.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow, each beginning with a line containing the integers **N** and **K**. The next **N** lines will each be exactly **N** characters long, showing the initial position of the board, using the same format as the diagrams above.

The initial position in each test case will be a legal position that can occur during a game of Join-K. In particular, neither player will have already formed **K** pieces in a row.

Output

For each test case, output one line containing "Case #x: y", where x is the case number (starting from 1), and y is one of "Red", "Blue", "Neither", or "Both". Here, y indicates which player or players will have **K** pieces in a row after you rotate the board.

Limits

1 ≤ **T** ≤ 100.
3 ≤ **K** ≤ **N**.

Small dataset

3 ≤ **N** ≤ 7.

Large dataset

3 ≤ **N** ≤ 50.

Sample

```
Input           Output

4               Case #1: Neither
7 3             Case #2: Both
.......         Case #3: Red
.......         Case #4: Blue
.......
...R...
...BB..
..BRB..
.RRBR..
6 4
......
......
.R...R
.R..BB
.R.RBR
RB.BBB
4 4
R...
BR..
BR..
BR..
3 3
B..
RB.
RB.
```

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