

Grid Game (prob5)

A grid game appears on kids' placemats at many restaurants. The game board comprises a rectangular grid of dots. The figure (on the right) in the example is a 5x4 grid. Two players, referred to as *A* and *B*, take turns connecting two adjacent dots in a vertical or horizontal direction. When a player draws a line that closes a unit square (or "box"), then he claims a point for that box. The game ends when all boxes have been closed and the winner is the player with the most points. A tie is possible if the number of boxes is even. A sequence of moves is shown below. A line made by *A* is thick, by *B* is thin. A point is recorded by putting an *A* or *B* in a box, depending on which player closed it.



The lines drawn by each player in a given game can be recorded as a sequences of moves, each move recorded as a number followed by a letter. First, number the dots row-by-row, starting at 0 for the upper-left dot, 1 for the dot right to 0. Then, specify a move by giving the starting dot number and a direction (**R**:right, **D**:down). For example, 0R connects the two dots at the left end of the top row of dots and 0D connects the two dots at the top end of the first column. The game above is recorded as 0R6R1R2D1D... (it continues until all boxes are formed).

Input

The first line of input contains a positive integer N ($1 \leq N \leq 200$) giving the number of lines that follow. Each of the lines after the first gives the record of a game. Assume Player *A* always moves first. All moves are valid. The maximum grid size is 50 x 50 dots.

Output

The output for each line is the number of the game, starting with 1, followed by the size of the grid <number of rows>X<number of columns>, followed by the result, one of *A* WINS, *B* WINS, or TIE.

Sample Input

```
4
0R1D2R0D
0R1D4R4D7R6R2D3D5D3R1R0D
0R1R0D2D3R4R1D
3D0D2R4R2D1D6R0R1R5R
```

Sample Output

```
1 2X2 B WINS
2 3X3 TIE
3 3X2 A WINS
4 4X2 B WINS
```