Problem 2 – Chess Moves RBQ

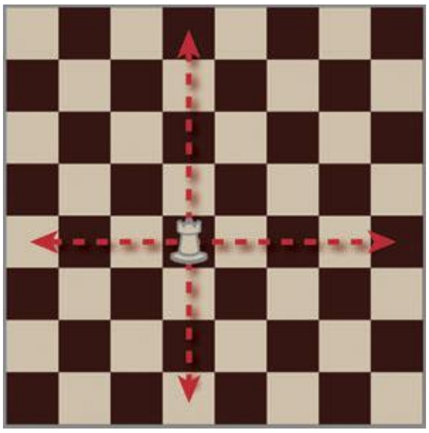
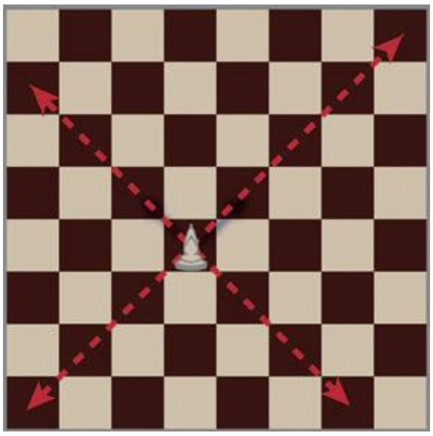
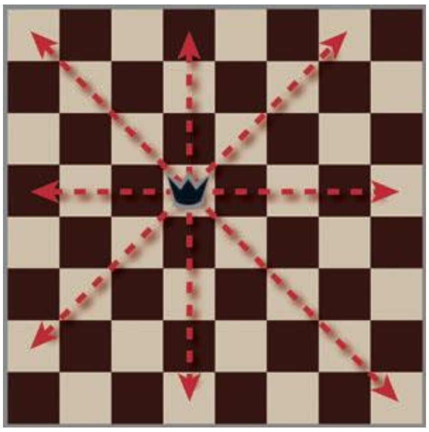
You are given a chess board with size **RxC** (**R** rows and **C** columns). Each square (cell) of the chessboard is identified by a unique coordinate pair - a letter and a number. The vertical **columns** of squares from left to right are labeled a, b, c and so on. The horizontal **rows** of squares are numbered 1, 2, 3 and so on, starting from bottom to top. Thus each square has a unique identification of letter followed by number.

Example of board with size 5x8 is given in the picture.

5	a5	b5	c5	d5	e5	f5	g5	h5
4	a4	b4	c4	d4	e4	f4	g4	h4
3	a3	b3	c3	d3	e3	f3	g3	h3
2	a2	b2	c2	d2	e2	f2	g2	h2
1	a1	b1	c1	d1	e1	f1	g1	h1
	a	b	c	d	e	f	g	h

Moves are given by two square (cell) identifications separated by a single space. Examples: "a1 e3", "d1 f2", "h5 h1", "a1 z9", etc. All given moves will be in this format and **in the range** of the board.

Also you are given 3 types of chess pieces: **rook**, **bishop** and **queen** as explained bellow.

The **rook** moves any number of vacant (empty) squares forwards, backwards, left, or right in a straight line.	The **bishop** moves any number of vacant (empty) squares diagonally in a straight line.	The **queen** moves any number of vacant squares in any direction: forwards, backwards, left, right, or diagonally, in a straight line.
		

Pieces do not capture other pieces. Move is valid if the figure will be placed on an empty cell.

Input

On the first line there will be the number **R** (number of rows). On the second line there will be the number **C** (number of columns). On each of the next **R** lines there will be **C** characters representing one cell (square) of the board. Empty cell are denoted with dash ('**-**'), Rooks with `**R**`, Bishops with `**B**` and Queens with `**Q**`. See examples for clarification.

On the next line there will be the number **T** representing the number of moves to be checked for validity. At each of the next **T** lines there will be a move. All moves will be in the range of the board.

The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

For each of the given moves output either '**yes**' or '**no**' whether the move is valid or not. Invalid moves are those which are not possible because of the given restrictions. See examples for clarification.

Sample solution code (in JavaScript)

```
function solve(params) {
    var rows = parseInt(params[0]),
        cols = parseInt(params[1]),
        tests = parseInt(params[rows + 2]), i, move;
    for (i = 0; i < tests; i++) {
        move = params[rows + 3 + i];
        // Your solution here
        console.log('yes'); // or console.log('no');
    }
}
```

Constraints

- **R** will be between **1** and **9**, inclusive.
- **C** will be between **1** and **26**, inclusive.
- **T** will be between **5** and **12**, inclusive.
- The board will contain only ‘**-**‘, ‘**R**’, ‘**B**’ or ‘**Q**’ characters
- The list of moves will contain only strings with 5 characters in the format described above.
- **Some of the test cases are designed to test only specific invalid move types, so partial solutions may also earn points**
- Allowed working time for your program: **0.25 seconds**. Allowed memory: **32 MB**.

Hints

The **charCodeAt()** method returns the Unicode integer code value of the character at the specified index in a string. The code of the character ‘**a**’ is 97, the code of the character ‘**b**’ is 98, and so on.

The **String.fromCharCode(97)** method returns ‘**a**’, **String.fromCharCode(98)** returns `**b**` and so on.

Examples

Input	Output	Explanation
3		Do not output empty lines!
4		
--R-		
B--B		
Q--Q		
12		
d1 b3	yes	Valid move for queen
a1 a3	no	Non-empty cell on the path (on a2)
c3 b2	no	Rooks cannot move diagonally
a1 c1	yes	Valid move for queen
a1 b2	yes	Valid move for queen
a1 c3	no	c3 is not a vacant square
a2 b3	yes	Valid move for bishop
d2 c1	yes	Valid move for bishop
b1 b2	no	b1 is an empty square (no piece there)
c3 b1	no	c3 to b1 is not a valid move
a2 a3	no	Bishops move only diagonally
d1 d3	no	Another figure in between

Input	Output
5	
5	
Q---Q	

-B---	
--R--	
Q---Q	
10	
a1 a1	no
a1 d4	yes
e1 b4	yes
a5 d2	yes
e5 b2	yes
b3 d5	yes
b3 a2	yes
b3 d1	no
b3 a4	yes
c2 c5	yes