Castle

Time Limit: 2.0s **Memory Limit:** 256M

A rook stands on a $\mathbf{N} \times \mathbf{M}$ chessboard whose each square has a letter which is one of the (R, L, U, D). These letters refer to which way the rook can move:

- R refers to **Right**
- L refers to **Left**
- U refers to **Up**
- D refers to **Down**

The goal of the rook is to reach the target location from its current location by making the least moves. How many **different ways** can the rook move from its current location to its target location with the $\underline{least}$ moves?

You can check rook's wiki page to learn how it moves.

Input

First line contains 2 integers. The first integer $\mathbf{N}$ is number of rows of the chessboard, and the second integer $\mathbf{M}$ is number of columns of the chessboard.

- $1 \leq \mathbf{N}, \mathbf{M} \leq 500$

Next $\mathbf{N}$ lines consist of $\mathbf{M}$ letters, one of the (R, L, U, D), which refer to ways the rock can move.

$(\mathbf{N}+\mathbf{2})^{th}$ line contains **2** integers, the **Start** coordinates. (The first integer indicates to $\mathbf{Y}$, the second number indicates to $\mathbf{X}$.)

- $1 \leq \mathbf{Y_{start}} \leq N$
- $1 \leq \mathbf{X_{start}} \leq M$

$(\mathbf{N}+\mathbf{3})^{th}$ line contains **2** integers, the **End** coordinates. (The first integer indicates to $\mathbf{Y}$, the second number indicates to $\mathbf{X}$.)

- $1 \leq \mathbf{Y_{end}} \leq N$
- $1 \leq \mathbf{X_{end}} \leq M$

*It is guaranteed that **Start** and **End** coordinates will be different from each other.*

Output

Print the different ways the rook can move from its location to the target location with the least amount of moves modulo $10^9 + 7$.

If there is no path, print $\mathbf{0}$.

Examples

Input 1:

```
3 2
R D
R D
L R
1 1
3 2
```

Output 1:

```
1
```

Input 2:

```
3 3
R D D
D R D
R L L
1 1
3 1
```

Output 2:

```
2
```

Explanation

The coordinates of the castle is written in $(Y\ X)$ *syntax*

Input 1

The shortest path can only be created in 1 way with 2 steps.

- It starts from $(1\ 1)$.
- From $(1\ 1)$ it goes right to $(1\ 2)$.

- From $(1\ 2)$ it goes down to $(3\ 2)$.

Input 2

The shortest path can only be created in 2 ways with 3 steps.

- Way 1:
  - It starts from $(1\ 1)$.
  - From $(1\ 1)$ it goes right to $(1\ 2)$.
  - From $(1\ 2)$ it goes down to $(3\ 2)$.
  - From $(3\ 2)$ it goes left to $(3\ 1)$.
- Way 2:
  - It starts from $(1\ 1)$.
  - From $(1\ 1)$ it goes right to $(1\ 3)$.
  - From $(1\ 3)$ it goes down to $(3\ 3)$.
  - From $(3\ 3)$ it goes left to $(3\ 1)$.