

A team of young engineers have built a robot

The robot can travel on a rectangular plane :

1. The rectangular plane is represented by a X-Y plane with bottom left as (0,0) and top right as (M,N)
2. The rectangular plane contains multiple particles. A particle's position is represented by x and y coordinates

The robot's movement :

1. Its position is represented by x and y coordinates and a letter representing one of the four directions (N/S/E/W)
2. It takes in commands in the form of single letters. The possible letters are 'L', 'R' and 'M'.
 - 2.1 'L' and 'R' makes the robot turn 90 degrees left or right respectively, without moving from its current position.
 - 2.2 'M' means move forward one position and maintain the same direction.
3. It stops walking
 - 3.1 If it finds any particle on its way
 - 3.2 If it encounters any coordinate on its path which it had travelled earlier
 - 3.3 If the next command leads to a position outside rectangular plane

INPUT:

1. The first line of input is the top-right coordinates of the rectangular plan (M, N),
2. Next two lines of input are about the robot
 - 2.1 first line gives the robot's starting position, X,Y coordinates and a letter, all 3 separated by spaces
 - 2.2 second line is a series of commands for the robot

Problem:

Where would the robot stop travelling?

OUTPUT:

Robot's final coordinates and direction.

Test Input

4 4

0 0 N

MMMRMMLM

Test Output

2 4 N