Problem K: Racing in maze

Time limit: 1s; Memory limit: 512 MB

Anyone has studied the subject of Artificial Intelligence taught by leacture Pham Minh Tuan at the Faculty of Information Technology - University of Science and Technology - UD a few years ago, knows that programming racing in the maze is a mandatory activity if you want to pass the subject with a high score. Participants will be given a maze which is a map of size $h \times w$, which contain cells denoted by one of the following symbols:

- '#': Obstacle cell.
- '+': From this cell, the car can move to the adjacent square (Left, Right, Up, Down).
- 'L': From this cell, the car can only move left.
- 'R': From this cell, the car can only move right.
- 'U': From this cell, the car can only move up.
- 'D': From this cell, the car can only move down.

The participants must program the car control so that from any position the car moves to a secret location in a given time t. However, because the secret location is a secret, no one knows how to program properly, the participant's car runs wildly until the time is up, then stops. Mr. Tuan wants to know how many valid ways to move in all the time t allows. Knowing that each time unit, the car moves 1 cell according to the symbol of the map. Note that, car hitting an obstacle or leaving the map are considered illegal and do not count as a valid way.

Input

- The first line contains 3 natural numbers h, w and t ($1 \le h \times w \le 100$, $1 \le t \le 10^9$).

- Next h lines contains the symbols of maze.

Output

- Print the number of valid way. Since result may be too big, print it after taking modulo 10^9+7.

Sample

Input	Output
2 2 10 RD UL	4
3 3 2 RD# U+# #LR	7

Explanation Example 1: From any coordinate, there is one valid move. So there are 4 ways in total.

Explanation Example 2: From coordinates (1,1) there is one valid way to move, RD. From coordinates (1,2) there are 3 valid ways to move: DU, DL, DR. From coordinates (2,1) there is 1 way UR. From coordinates (2,2) there are 2 ways: UD, LU. The other coordinates with no valid way of moving. So there are 7 ways in total.