Problem 2 – Labyrinth Escape

You are given a rectangular field of size **N**x**M**, filled with **numbers** and **directions.** On each cell on the field there will be a direction marked with the letters **l**, **r**, **u**, **d**.

By given position **(R, C)** (Rth row and Cth column) the directions are as follows:

From **(R, C) go l** => **(R, C-1)**

From **(R, C) go r** => **(R, C+1)**

From **(R, C) go u** => **(R-1, C)**

From **(R, C) go d** => **(R+1, C)**

The numbers in the field are always as follows:

On the first row the values are from **1 to M**, **on the second row – from M+1 to 2*M, on the third row** – from **2*M +1 to 3*M**, **on the Nth row** – from **(N-1)*M to N*M**.

By given start position, find the **path outside of the field**, or **print if you are lost**.

Example:

N = **3**

M = **4**

Start position: **1 3**

l	r	r	d
d	l	l	l
r	d	d	d

1	2	3	4
5	6	7	8
9	10	11	12

Input

The method Solve accepts a zero-based array of strings. The arguments are as follows:

args[0] contains **M** and **N** separated by a single space (" ")

args[1] contains **R** and **C** – the **start position** (the star position is zero-based)

args[2] to **args[N+2]** contain exactly **M characters**(only the letters 'l', 'r', 'u' or 'd')

Output

The output data should be printed on the console.

The output should contain a single string – "**out SUM_OF_NUMBERS_IN_THE_PATH**" or "**lost NUMBER_OF_CELL_IN_THE_PATH**"

"out SUM_OF_NUMBERS_IN_THE_PATH" means the at some point you can go outside of the field

"lost NUMBER_OF_CELL_IN_THE_PATH" means that you are stepping on a cell that is already visited

Constraints

- **N** and **M** will be always between **1** and **500**
- Allowed working time for your program: 0.2 seconds. Allowed memory: 16 MB.

Examples

Input example	Output example
args =["3 4", "1 3", "lrrd", "**d**lll", "**r**ddd"]	out 45
args =["5 8", "0 0", "**r**rrrrrrd", "rludulr**d**", "**d**urldd**u**d", "**u**rrrldu**d**", "**u**lllllll"]	lost 21
args =["5 8", "0 0", "**r**rrrrrrd", "rludulr**d**", "**l**urldd**u**d", "**u**rrrldu**d**", "**u**lllllll"]	out 442