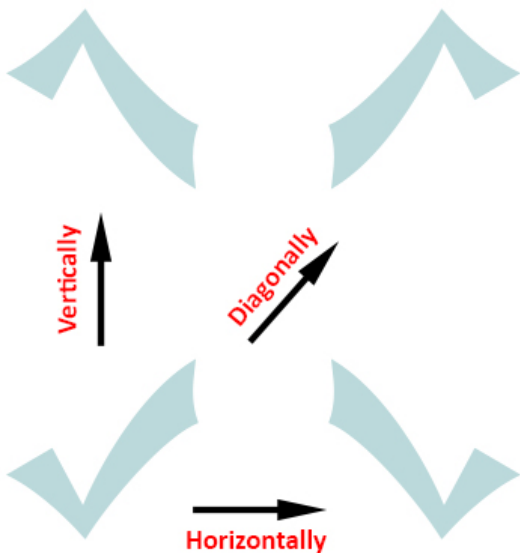


D. Sharapova And Flipping

time limit per test: 2 seconds
memory limit per test: 64 megabytes
input: standard input
output: standard output

One day, Sharapova was wandering in her town. When she was walking beside a tree, she found a paper with a picture painted on it. There was a question written on the back. The question was "Can you repaint this picture after flipping it Horizontally, Vertically or Diagonally?".



Sharapova isn't good at painting. So she asked you to help him.

Given the picture as an N*M grid of characters '*' and '.' only and the direction of flipping. Can you repaint it after flipping?.

Input

The first line contains two integers N, M ($1 \leq N, M \leq 10^3$).

The second line contains a word representing the direction of flipping ("Horizontally", "Vertically" or "Diagonally").

The next N lines, each contains M characters. Characters consists of characters '*' and '.' only.

Output

Print N lines, each contains M characters representing the grid after flipping.

Examples

input

6 7
Horizontally
.....
.....*
.....*
.....*
.*.*.
.*.*.
.....
.....

output

.....
.*.*.
.*.*.
.*.*.
.*.*.
.*.*.
.....
.....

input

6 7
Vertically
.....
.....*
.....*
.....*
.*.*.
.*.*.
.....
.....

output

.....
.*.*.
.*.*.
.*.*.
.*.*.
.*.*.
.....
.....

input

6 7
Diagonally
.....
.....*
.....*
.....*
.*.*.
.*.*.
.....
.....

output

.....
.*.*.
.*.*.
.*.*.
.*.*.
.*.*.
.....
.....

ICPC Assiut Advanced Newcomers 2023

Private

Participant

Group Contests

- ICPC Assiut Advanced Newcomers 2023 Contest 5
- ICPC Assiut Advanced Newcomers 2023 Contest 4
- ICPC Assiut Advanced Newcomers 2023 Contest 3
- ICPC Assiut Advanced Newcomers Practice #1
- ICPC Assiut Advanced Newcomers 2023 Contest 2
- ICPC Assiut Advanced Newcomers 2023 Onsite Contest 2
- ICPC Assiut Advanced Newcomers 2023 Contest 1
- ICPC Assiut Advanced Newcomers 2023 Onsite Contest 1

ICPC Assiut Advanced Newcomers 2023 Onsite Contest 2

Finished

Practice

Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

Submit?

Language: GNU G++20 11.2.0 (64 bit, w

Choose file: Choose File No file chosen

Submit

Last submissions

Submission	Time	Verdict
216207364	Jul/29/2023 13:23	Accepted