Fractals P67430_en

Consider an $n \times m$ matrix of chars M, which may include '`.`', '`X`', '`p`' and '`n`'. Define the "negative" of M as the matrix result of replacing each '`.`' by '`X`', each '`X`' by '`.`', each '`p`' by '`n`', and each '`n`' by '`p`'. For instance, the negative of

```
XpX       .n.
.n.  is   XpX
```

We can use M to create some kind of fractals, by repeatedly replacing each character c of the current matrix by an $n \times m$ matrix, with these rules:

- If $c =$ '`.`', replace c by an $n \times m$ matrix with all '`.`'.
- If $c =$ '`X`', replace c by an $n \times m$ matrix with all '`X`'.
- If $c =$ '`p`', replace c by M.
- If $c =$ '`n`', replace c by the negative of M.

With the example above, after one step we get

```
XXXXpXXXX
XXX.n.XXX
....n....
...XpX...
```

and after two steps we get

```
XXXXXXXXXXXXpXXXXXXXXXXXXX
XXXXXXXXXXXX.n.XXXXXXXXXXXX
XXXXXXXXX....n....XXXXXXXXX
XXXXXXXXX...XpX...XXXXXXXXX
............n............
............XpX............
.........XXXXpXXXX.........
.........XXX.n.XXX.........
```

Can you simulate this process k times?

Input

Input consists of several cases. Every case begins with n, m and k, followed by an $n \times m$ matrix M as explained above. Assume that n and m are between 1 and 100, and $k \geq 1$.

Output

Print k matrices for each case: the result after one step, two steps, etc. Separate these matrices by blank lines. End each case with 10 asteriscs. When printing the results, replace each '`p`' by '`X`', and each '`n`' by '`.`'. With the given cases, no result will have more than 10^6 chars.

Sample input 1

```
2 3 2
XpX
.n.

1 1 1
n

1 2 4
pn

2 3 2
p.p
ppp
```

Sample output 1

```
XXXXXXXXX
XXX...XXX
.........
...XXX...

XXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXX...XXXXXXXXXXXX
XXXXXXXXX.........XXXXXXXXX
XXXXXXXXX...XXX...XXXXXXXXX
...........................
............XXX............
.........XXXXXXXXX.........
.........XXX...XXX.........
**********
X
**********
X..X

X..X.XX.

X..X.XX..XX.X..X

X..X.XX..XX.X..X.XX.X..XX..X.XX.
**********
X.X...X.X
XXX...XXX
X.XX.XX.X
XXXXXXXXX

X.X...X.X.........X.X...X.X
XXX...XXX.........XXX...XXX
X.XX.XX.X.........X.XX.XX.X
XXXXXXXXX.........XXXXXXXXX
X.X...X.XX.X...X.XX.X...X.X
XXX...XXXXXX...XXXXXX...XXX
X.XX.XX.XX.XX.XX.XX.XX.XX.X
XXXXXXXXXXXXXXXXXXXXXXXXXXX
**********
```

Problem information

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