You must solve a word search. ¿does it seem easy? It is, except for a little detail: we are not only going to allow that the words appear in rows, columns or diagonals, but also that “go round”: when the board ends, the word can “continue” in the opposite side. ¿Look the following instance: do you find the word “abracadabra”?

```
z z a z z a z z d z z
r z z b z z c z z a z
z a z z r z z a z z b
```

A detail: we do not accept that the same letter of the word search corresponds to two or more different letters in the word. For instance, the following word search do not contain the word “abracadabra”; instead, it contains the word “zbzzbz” (in diagonal, not in vertical).

```
z z z z z z z z z
a b r a b r a c a d
z z z z z z z z z
```

### Input

A test data contains various cases, separated by a line in white. Each case starts with three naturals separated by spaces, R, C and N. It is fulfilled that \(3 \leq F, C \leq 100\) and \(0 \leq N \leq 100\). Then, \(R\) lines follow with \(C\) lowercase letters each one of them, describing the word search. Finally, \(N\) lines, each one of them contains a non empty word formed by lowercase letters that you must search in the word search.

### Output

Return the same board marking all the appearances of each word. Mark it writing with uppercase letters all the letters that are part of one of the words that you searches. Consider that the same word can appear many times, once or never in the word search. Separe two cases with a line in white.

### Score

- **(40 points)** Some test data will contain word searches where any word will appear in diagonal, nor going round the board, as the ones in the instance 1.
- **(20 points)** Some test data will contain word searches where any will not be any word that appear in diagonal, as the ones in the instance 2.
- **(40 points)** Other test data will contain cases of all kinds, as the ones in the instance 3.

### Sample input 1

```
6 6 2
zzzzzzz
```

```
zabcdz
zbcdez
zcdexz
zdefgz
```
zzzzzz

g
ecdcb

4 10 5
asorfliasd
ievevieija
aramapolaz
afjralsnd
amapola
rosa
iris
nenufar
azahar

Sample output 1
zzzzzz
zaBcdz
zBCDEz
zcDefz
zdEfGz
zzzzzz
ASORfliasd
ievevieija
aRAMAPOLAz
afjralsnd

Sample input 2
3 3 1
aaa
aaa
aaa
aaaa

10 10 5
ajfmcxzsd
afijalifei
afdjfwifw
dafjilijw
afijwleijl
adifjvsild
ijiljfwj
fvdjlsfsfj
ajeiwijw
jixxzvzkq
wajeij
ijimxi
fsiksfiiel
w
fvdjlsfsfjf

Sample output 2
aaa
aaa
aaa

ajfMcxzsd
afijaliFei
afdjfwiWf
dafjilijjW
afijjliEj
adifjvsLd
ijijjWifWj
fvdjlsfsfj
AJEIjWijjW
jilKzvzKq
d

Sample input 3
3 10 1
zzazzazzzdzz
rrzbzzczzzz
zzaazzazzzb
abracadabra

3 10 1
zzazzazzzdzz
rrzbzzczzzz
zzaazzazzzb
zzzzzz

3 9 2
zzzzzzzzzz
abracadab
zzzzzzzzzz
abracadabra
zbzzbzz

3 9 1
zzzzzzzzzz
abracadab
zzzzzzzzzz
zbzzbzzczazzazzazzd

Sample output 3
zzaZZaZZdzz
zrZZBZZczzz
azZZaZZzza