The chiefs of *Alpha Complex* and *Beta Complex* have been deep in negotiations trying to establish deeper ties between the two, previously hostile, organisations. Messages have been passed backwards and forwards, written in a secretive code that only uses the letters M, A, G and I.

For security reasons messages are shredded by the chiefs. Mother, the head of *Alpha Complex*, always cuts messages after every M or A. The more egotistical head of *Beta Complex*, known only as Number One, cuts messages after each I.

For example, the message GAMMAAMIMIA would be shredded by Mother to the pieces GA, M, M, A, A, M, IM and IA or shredded by Number One to GAMMAAMI, MI and A.

Recently spies from *Gamma Complex* have got hold of shredded copies of messages and are trying to reassemble the originals. In each case they have got hold of the pieces of a message shredded by Mother and the pieces of an *identical* message shredded by Number One.

SAMPLE INPUT

```
8 3
A
A
M
IM
IA
GA
M
M
MI
GAMMAAMI
A
```

Write a program that determines the pre-shredded form of a message. The first line of the input will contain a pair of integers *a*, *b* ($1 \leq a,b \leq 2^{16}$) indicating the number of shredded pieces from the two chiefs. The next *a* lines will each contain one of the shredded pieces from Mother, followed by *b* lines containing the pieces from Number One. Note that the pieces will not necessarily appear in the order that they appear in the original message, no piece will contain more than 64 letters and the message contains at least one letter.

You should output a single string; the original message. If there is more than one possible original message you only need to output a single example.

SAMPLE OUTPUT

```
GAMMAAMIMIA
```