A nondeterministic trellis automaton (NTA) is a kind of parallel machine composed of identical finite-state processors arranged in an infinite triangular trellis. The top, or apex, of the triangle is a single processor. The next row has two processors and each successive row of an NTA has one more processor than the row above it. Each processor in an NTA is connected to two children in the row below it. Computation in an NTA occurs bottom up; the state of each processor in a row is based on the state of the processor's children and a transition table. The input to an NTA is the initial configuration of one row of processors. The input is specified by a string that gives the initial state of each processor in a row so that an n-character string specifies the initial configuration for a row of n processors. Computation proceeds up the NTA to the apex by nondeterministically calculating the state of each processor in a row based on the transition table and the state of the processor's children in the row below.

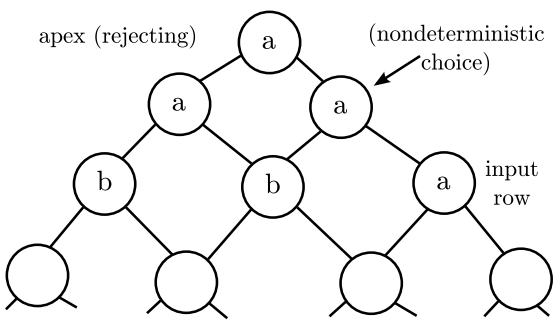
Some states are identified as accepting states. Some transitions are computed nondeterministically. An input is *accepted* if some computation puts the apex processor into an accepting state. An input is *rejected* if no computation puts the apex processor into an accepting state. For example, the table below shows transitions for a 3-state NTA. States are labeled by characters "`a`", "`b`", and "`c`"; the only accepting state is "`c`".

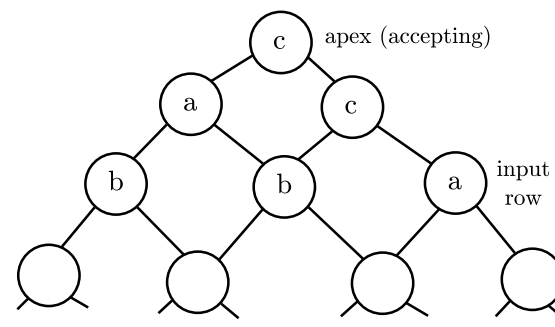
State transition table:

states={a,b,c}
accepting={c}

left child \ right child	a	b	c
a	a	a	c
b	a,c	a	b
c	c	b	a

The diagram below shows two computations for the input "`bba`". The computation on the left rejects the input since the state of the apex is "`a`"; but the computation on the right accepts the input since the state of the apex is "`c`". Since some computation results in an accepting state for the apex, the input "`bba`" is accepted by the NTA. The input "`bbb`" would be rejected by this NTA since the only computation results in the state "`a`" for the apex.





Input

The states (and inputs) of an NTA are consecutive lowercase letters. Thus the states for a 5-state NTA are '`a`', '`b`', '`c`', '`d`', and '`e`'. Accepting states are grouped at the end of the letters so that if a 5-state NTA has two accepting states, the accepting states are '`d`' and '`e`'.

The input for your program is a sequence of NTA descriptions and initial configurations. An NTA description is given by the number of states n followed by the number of accepting states on one line separated by whitespace. The $n \times n$ transition table follows in row-major order; each transition string is given on a separate line. Each NTA description is followed by a sequence of initial configurations, one per line. A line of '`#`' terminates the sequence of initial configurations for that NTA. An NTA description in which the number of states is zero terminates the input for your program.

NTAs will have at most 15 states, initial configuration will be at most 15 characters.

Output

For each NTA description, print the number of the NTA (NTA 1, NTA 2, etc.). For each initial configuration of an NTA print the word '`accept`' or '`reject`' followed by a copy of the initial configuration.

Print a blank line between NTA descriptions.

Sample Input

```
3 1
a
a
c
ca
a
b
c
b
a
bba
aaaaa
abab
babbba
a
baaab
abbbaba
baba
bcbab
#
3 2
ab
a
c
a
ab
b
c
b
ab
abc
cbc
#
0 0
```

Sample Output

```
NTA 1
accept bba
reject aaaaa
reject abab
accept babbba
reject a
accept baaab
accept abbbaba
accept baba
reject bcbab

NTA 2
reject abc
accept cbc
```