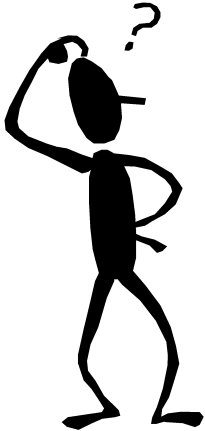# Problem H - Puzzle Solver

Description

In the daily newspaper, you find the following puzzle:

```
    D O G
    A N D
    D A D
  S I N G
+       A
---------
  S O N G
```

The challenge is to replace each letter in the puzzle by a different decimal digit so that the result of the addition is true. The rules are

- Each letter must correspond to a single digit
- Each digit must correspond to a single letter
- Numbers must not start with a zero

Since you do not want to waste time solving these puzzles by hand, you decide to write a program to solve them automatically.

Input

Each test case may consist of several puzzles. In the first line, the number of lines *n* and the number of columns *m* of the puzzle are given. Then, *n* lines follow, each consisting of *m* characters followed by an end-of-line. The first *n-1* lines represent the summands, and the last line represents the sum. Summands are right-aligned and may be pre-padded with spaces as needed.

Output

For each puzzle, your program should output all possible solutions or report that the puzzle cannot be solved. Each solution of a puzzle is a single line containing a sequence of letter-digit pairs separated from each other by a space. Within each pair, the letter is separated from the digit by an equals (=) sign. The letters must be presented in alphabetical order. If there is more than one solution for a puzzle, all solutions should be printed in separate lines, in lexicographic order of the digits. If the puzzle cannot be solved, the output should be

```
No solution!
```

Solutions for different puzzles should be separated by a blank line. There should be no blank line at the end of the output.

Example

Example input:

```
6 4
 SON
 AND
 DAD
SING
    A
SONG
6 4
 DOG
 AND
 DAD
SING
    A
SONG
```

Example output:

```
No solution!

A=2 D=1 G=6 I=3 N=8 O=9 S=4
A=2 D=1 G=6 I=3 N=8 O=9 S=5
A=2 D=1 G=6 I=3 N=8 O=9 S=7
A=3 D=1 G=5 I=0 N=9 O=7 S=2
A=3 D=1 G=5 I=0 N=9 O=7 S=4
A=3 D=1 G=5 I=0 N=9 O=7 S=6
A=3 D=1 G=5 I=0 N=9 O=7 S=8
A=3 D=1 G=5 I=2 N=7 O=9 S=4
A=3 D=1 G=5 I=2 N=7 O=9 S=6
A=3 D=1 G=5 I=2 N=7 O=9 S=8
```