

## Problem B: Minesweeper

### The Problem

Have you ever played Minesweeper? It's a cute little game which comes within a certain Operating System which name we can't really remember. Well, the goal of the game is to find where are all the mines within a  $M \times N$  field. To help you, the game shows a number in a square which tells you how many mines there are adjacent to that square. For instance, suppose the following  $4 \times 4$  field with 2 mines (which are represented by an `*` character):

```
* . . .
. . . .
.* . .
. . . .
```

If we would represent the same field placing the hint numbers described above, we would end up with:

```
*100
2210
1*10
1110
```

As you may have already noticed, each square may have at most 8 adjacent squares.

### The Input

The input will consist of an arbitrary number of fields. The first line of each field contains two integers  $n$  and  $m$  ( $0 < n, m \leq 100$ ) which stands for the number of lines and columns of the field respectively. The next  $n$  lines contains exactly  $m$  characters and represent the field. Each safe square is represented by an `.` character (without the quotes) and each mine square is represented by an `*` character (also without the quotes). The first field line where  $n = m = 0$  represents the end of input and should not be processed.

### The Output

For each field, you must print the following message in a line alone:

```
Field #x:
```

Where  $x$  stands for the number of the field (starting from 1). The next  $n$  lines should contain the field with the `.` characters replaced by the number of adjacent mines to that square. There must be an empty line between field outputs.

### Sample Input

```
4 4
* . . .
. . . .
```

```
. * . .  
 . . . .  
3 5  
* * . . .  
 . . . . .  
 . * . . .  
0 0
```

## Sample Output

Field #1:

```
*100  
2210  
1*10  
1110
```

Field #2:

```
**100  
33200  
1*100
```

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