

## 10189 Minesweeper

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.

### 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.

### 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
```