An atlas divides a map into separate pages in a process called *pagination*. Pagination starts with laying a rectangular grid over the area to be mapped. Some of the grid divisions will not contain an area to be mapped-these are excluded. The remaining grid divisions are assigned page numbers, proceeding from left to right and top to bottom.

An atlas is usable due to the references that direct the reader to the pages that hold adjacent portions of the map. Your team is to write a program that will produce these references.

The following steps describe how the references are assigned to the atlas pages:

- Overlay a rectangular grid on the area the be mapped.
- Exclude grid elements that do not contain any area to be mapped (see the shaded regions of Figure 1).
- Moving left-to-right, top-to-bottom, assign a sequential page number to each unshaded grid element, starting with page 1. For any grid page that contains an adjacent page, the corresponding margin must contain a reference to that adjacent page. In Figure 1, the reference in the left margin of page 13 is to refer the reader to page 12, and the bottom margin is to refer the reader to page 16. The top and right margins do not contain a reference.

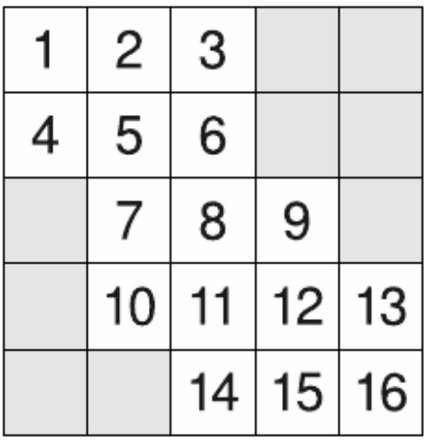

Figure 1. Diagram of the first sample input case.

Input

Input to your program represents a series of rectangular grids used to overlay a map. The first line of each grid contains two integers, R and C, separated by exactly one space. R is the number of rows in the grid, and C is the number of columns in the grid. The following R lines describe the shading of the grid elements. The first character of the second line corresponds to the upper left element of the grid. A capital '`X`' describes a shaded element, whereas a dot '`.`' indicates an unshaded element. R and C will be in the range 1..30 inclusive. There will always be at least one unshaded grid element. The last grid will be followed by the end-of-file.

Output

Output for each map is a series of lines, one line per unshaded grid element (printed page). Each line must contain exactly five integers separated by single spaces, of the form

$p\ t\ r\ b\ l$

where p is the page number, and t, r, b, and l are the top, right, bottom, and left margin references of page p. If a particular margin is to remain empty (no adjacent grid page), print a page number of `0`. Print page definitions in ascending page number order. No leading or trailing whitespace is to appear on an output line. Print an empty line after the information for the last page of each grid is printed.

Sample Input

```
5 5
...XX
...XX
X...X
X....
XX...
2 4
X...
..XX
```

Sample Output

```
1 0 2 4 0
2 0 3 5 1
3 0 0 6 2
4 1 5 0 0
5 2 6 7 4
6 3 0 8 5
7 5 8 10 0
8 6 9 11 7
9 0 0 12 8
10 7 11 0 0
11 8 12 14 10
12 9 13 15 11
13 0 0 16 12
14 11 15 0 0
15 12 16 0 14
16 13 0 0 15

1 0 2 5 0
2 0 3 0 1
3 0 0 0 2
4 0 5 0 0
5 1 0 0 4
```