Problem D. Manhattan Circle

Time Limit 2000 ms
Mem Limit 262144 kB

Given a n by m grid consisting of '.' and '#' characters, there exists a whole manhattan circle on the grid. The top left corner of the grid has coordinates $(1, 1)$, and the bottom right corner has coordinates (n, m).

Point (a, b) belongs to the manhattan circle centered at (h, k) if $|h - a| + |k - b| < r$, where r is a positive constant.

On the grid, the set of points that are part of the manhattan circle is marked as '#'. Find the coordinates of the center of the circle.

Input

The first line contains t ($1 \le t \le 1000$) — the number of test cases.

The first line of each test case contains n and m ($1 \le n \cdot m \le 2 \cdot 10^5$) — the height and width of the grid, respectively.

The next n lines contains m characters '.' or '#'. If the character is '#', then the point is part of the manhattan circle.

It is guaranteed the sum of $n \cdot m$ over all test cases does not exceed $2 \cdot 10^5$, and there is a whole manhattan circle on the grid.

Output

For each test case, output the two integers, the coordinates of the center of the circle.

Examples

Input	Output
6 5 5 ....#.. .... 5 5 ..#.. .###. ##### .###. ..#.. 5 6 ....#.... ###... .#.... 1 1 # 5 6 ...#.. ..###. .##### ..###. ...#.. 2 10 ....#......	3 3 3 3 4 2 1 1 3 4 2 4