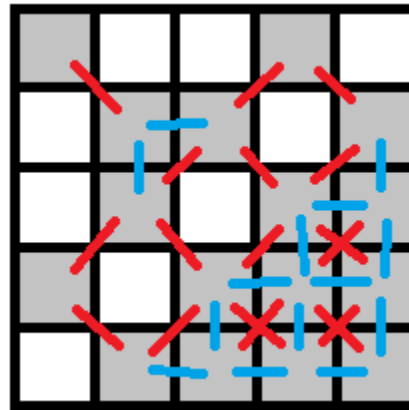


J • Cardinal Adjacencies

In landscape ecology, one is interested in the *connectedness* of regions, particularly near shorelines. A fine grid is overlaid on a map or aerial photo and grid squares with land are marked:



Land squares which share an **edge** are *cardinal* (North, East, South and West) *adjacent* (blue lines in the image) and land squares which share an **edge** or a **vertex** (red and blue lines in the image) are *intercardinal adjacent*. Write a program which takes as input a marked grid and outputs the total *cardinal adjacencies* in the grid and the total number of *intercardinal adjacencies* in the grid.

Input

The input consists of multiple lines. The first line of input contains two space separated decimal integers **nrows** and **ncolumns**, ($0 < \text{nrows}, \text{ncolumns} \leq 1000$). This line is followed by **nrows** additional lines of input each of which contains **ncolumns** space separated values of 0 or 1. 1 indicates land.

Output

There is one line of output containing two space separated decimal integers: the number of *cardinal adjacencies* followed by the number of *intercardinal adjacencies*.

Sample 1:

| Sample Input | Sample Output |
|--|---------------|
| 5 5 1 0 0 1 0 0 1 1 0 1 0 1 0 1 1 1 0 1 1 1 0 1 1 1 1 | 14 31 |