IDENTITY Submatrix

We say that a matrix is good if there is a sub-matrix which is an identity matrix. If a matrix is not good, then I say its goodness is 0. However, if it is good, we define goodness to be the dimension of largest identity sub-matrix of the given matrix (i.e. if identity sub-matrix is n x n, then the goodness is n). For example,

0 1 1 0

1 0 0 1

1 0 2 3

This matrix is good since

1 0

0 1

is its sub-matrix and is identity. Since the dimension of the largest sub-matrix of the given matrix is 2, the goodness is 2.

Your task:

Given a matrix, print its goodness value and the location of the top left corner of the largest identity sub-matrix. For the example given above, goodness value is 2 and location of the top left corner of the identity sub-matrix is (1,3) i.e. first row third column. If goodness is 0, then top left corner location may be taken as (-1,-1) since it is actually not defined.

Assume all numbers to be integer. If their are two or more largest identity sub-matrix with the location of top-left corner at (i1,j1) and (i2,j2), then output (i1,j1) if (i1 < i2) or (i1 == i2 and j1 < j2) , otherwise output (i2,j2).

Input Format:

Let m,n represent the rows and columns of the input matrix. Then the input will be provided as:

m n

m rows each containing n space-separated integers

Output Format:

Let g be the goodness value of the input matrix and (i,j) is the location of the top left corner of the identity sub-matrix. Then you should display the output as:

g i j

Example

Consider the following input

3 4

0 1 1 0

1 0 0 1

1 0 2 3

Then, the output should be

2 1 3