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# Connected Cells in a Grid ☆



Consider a matrix where each cell contains either a $0$ or a $1$. Any cell containing a $1$ is called a *filled* cell. Two cells are said to be *connected* if they are adjacent to each other horizontally, vertically, or diagonally. In the following grid, all cells marked `X` are connected to the cell marked `Y`.

```
XXX
XYX
XXX
```

If one or more filled cells are also connected, they form a *region*. Note that each cell in a region is connected to zero or more cells in the region but is not necessarily directly connected to all the other cells in the region.

**Task**

Given an $n \times m$ matrix, find and print the number of cells in the largest *region* in the matrix. Note that there may be more than one region in the matrix.

**Input Format**

The first line contains an integer $n$, the number of rows in the matrix.
The second line contains an integer $m$, the number of columns in the matrix.
Each of the next $n$ lines contains $m$ space-separated integers matrix[i][j].

**Constraints**

- $0 < n, m < 10$

**Output Format**

Print the number of cells in the largest *region* in the given matrix.

**Sample Input**

```
4
4
1 1 0 0
0 1 1 0
0 0 1 0
1 0 0 0
```

**Sample Output**

```
5
```

**Explanation**

The diagram below depicts two regions of the matrix; for each region, the component cells forming the region are marked with an `X`:

```
X X 0 0    1 1 0 0
0 X X 0    0 1 1 0
```

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Difficulty Medium
Max Score 50
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```
0 0 X 0    0 0 1 0
1 0 0 0    X 0 0 0
```

The first region has five cells and the second region has one cell. We print the size of the largest region.

**Current Buffer** (saved locally, editable) Java 7

```
1  import java.io.*;
2  import java.util.*;
3  import java.text.*;
4  import java.math.*;
5  import java.util.regex.*;
6
7  public class Solution {
8
9      static int connectedCell(int[][] matrix) {
10         // Complete this function
11     }
12
13     public static void main(String[] args) {
14         Scanner in = new Scanner(System.in);
15         int n = in.nextInt();
16         int m = in.nextInt();
17         int[][] matrix = new int[n][m];
18         for(int matrix_i = 0; matrix_i < n; matrix_i++){
19             for(int matrix_j = 0; matrix_j < m; matrix_j++){
20                 matrix[matrix_i][matrix_j] = in.nextInt();
21             }
22         }
23         int result = connectedCell(matrix);
24         System.out.println(result);
25         in.close();
26     }
27 }
```

Line: 1 Col: 1

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