In a given 2D binary array A, there are two islands.  (An island is a 4-directionally connected group of 1s not connected to any other 1s.)

Now, we may change 0s to 1s so as to connect the two islands together to form 1 island.

Return the smallest number of 0s that must be flipped.  (It is guaranteed that the answer is at least 1.)

**Example 1:**

**Input:** A = [[0,1],[1,0]]

**Output:** 1

**Example 2:**

**Input:** A = [[0,1,0],[0,0,0],[0,0,1]]

**Output:** 2

**Example 3:**

**Input:** A = [[1,1,1,1,1],[1,0,0,0,1],[1,0,1,0,1],[1,0,0,0,1],[1,1,1,1,1]]

**Output:** 1

**Constraints:**

* 2 <= A.length == A[0].length <= 100
* A[i][j] == 0 or A[i][j] == 1