

Problem 782: Transform to Chessboard

Problem Information

Difficulty: Hard

Acceptance Rate: 51.03%

Paid Only: No

Tags: Array, Math, Bit Manipulation, Matrix

Problem Description

You are given an $n \times n$ binary grid `board`. In each move, you can swap any two rows with each other, or any two columns with each other.

Return the minimum number of moves to transform the board into a **chessboard board**. If the task is impossible, return `-1`.

A **chessboard board** is a board where no `0`'s and no `1`'s are 4-directionally adjacent.

Example 1:



Input: `board = [[0,1,1,0],[0,1,1,0],[1,0,0,1],[1,0,0,1]]` **Output:** `2` **Explanation:** One potential sequence of moves is shown. The first move swaps the first and second column. The second move swaps the second and third row.

Example 2:



Input: `board = [[0,1],[1,0]]` **Output:** `0` **Explanation:** Also note that the board with 0 in the top left corner, is also a valid chessboard.

Example 3:



****Input:**** board = [[1,0],[1,0]] ****Output:**** -1 ****Explanation:**** No matter what sequence of moves you make, you cannot end with a valid chessboard.

****Constraints:****

* `n == board.length` * `n == board[i].length` * `2 <= n <= 30` * `board[i][j]` is either `0` or `1`.

Code Snippets

C++:

```
class Solution {
public:
    int movesToChessboard(vector<vector<int>>& board) {

    }
};
```

Java:

```
class Solution {
    public int movesToChessboard(int[][] board) {

    }
}
```

Python3:

```
class Solution:
    def movesToChessboard(self, board: List[List[int]]) -> int:
```