1284. Minimum Number of Flips to Convert Binary Matrix to Zero Matrix

Description

Given a `m x n` binary matrix `mat`. In one step, you can choose one cell and flip it and all the four neighbors of it if they exist (Flip is changing `1` to `0` and `0` to `1`). A pair of cells are called neighbors if they share one edge.

Return the *minimum number of steps* required to convert `mat` to a zero matrix or `-1` if you cannot.

A **binary matrix** is a matrix with all cells equal to `0` or `1` only.

A **zero matrix** is a matrix with all cells equal to `0`.

Example 1:

$$\begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 0 & 1 \\ 1 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

```
Input: mat = [[0,0],[0,1]]
Output: 3
Explanation: One possible solution is to flip (1, 0) then (0, 1) and finally (1, 1) as shown.
```

Example 2:

```
Input: mat = [[0]]
Output: 0
Explanation: Given matrix is a zero matrix. We do not need to change it.
```

Example 3:

```
Input: mat = [[1,0,0],[1,0,0]]
Output: -1
Explanation: Given matrix cannot be a zero matrix.
```

Constraints:

- `m == mat.length`
- `n == mat[i].length`
- `1 <= m, n <= 3`
- `mat[i][j]` is either `0` or `1`.