Problem 2319: Check if Matrix Is X-Matrix

Problem Information

Difficulty: Easy
Acceptance Rate: 65.98%
Paid Only: No
Tags: Array, Matrix

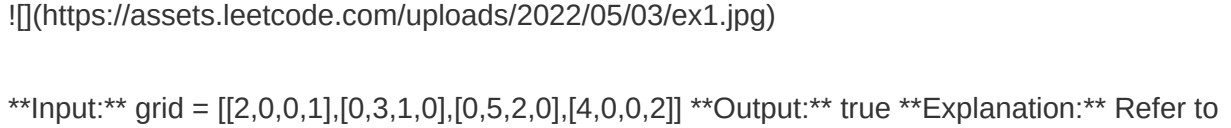
Problem Description

A square matrix is said to be an **X-Matrix** if **both** of the following conditions hold:

1. All the elements in the diagonals of the matrix are **non-zero**. 2. All other elements are 0.

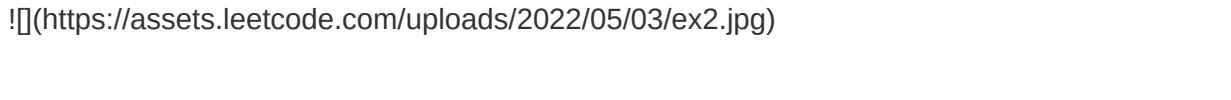
Given a 2D integer array `grid` of size `n x n` representing a square matrix, return `true` _if_`grid` _is an X-Matrix_. Otherwise, return `false`.

Example 1:



Input: grid = [[2,0,0,1],[0,3,1,0],[0,5,2,0],[4,0,0,2]] **Output:** true **Explanation:** Refer to the diagram above. An X-Matrix should have the green elements (diagonals) be non-zero and the red elements be 0. Thus, grid is an X-Matrix.

Example 2:



Input: grid = [[5,7,0],[0,3,1],[0,5,0]] **Output:** false **Explanation:** Refer to the diagram above. An X-Matrix should have the green elements (diagonals) be non-zero and the red elements be 0. Thus, grid is not an X-Matrix.

Constraints:

* `n == grid.length == grid[i].length` * `3 <= n <= 100` * `0 <= grid[i][j] <= 105`

Code Snippets

C++:

```
class Solution {
public:
bool checkXMatrix(vector<vector<int>>& grid) {

}
};
```

Java:

```
class Solution {
public boolean checkXMatrix(int[][] grid) {

}
}
```

Python3:

```
class Solution:
def checkXMatrix(self, grid: List[List[int]]) -> bool:
```