Problem 766: Toeplitz Matrix

Problem Information

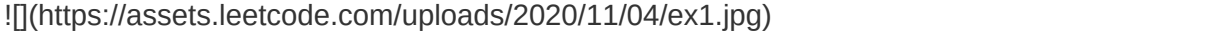
Difficulty: Easy
Acceptance Rate: 69.51%
Paid Only: No
Tags: Array, Matrix

Problem Description

Given an `m x n` `matrix`, return _`true` if the matrix is Toeplitz. Otherwise, return `false`._

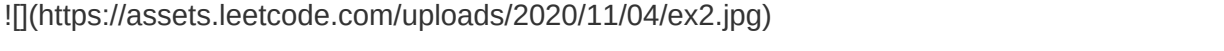
A matrix is **Toeplitz** if every diagonal from top-left to bottom-right has the same elements.

Example 1:



Input: matrix = [[1,2,3,4],[5,1,2,3],[9,5,1,2]] **Output:** true **Explanation:** In the above grid, the diagonals are: "[9]", "[5, 5]", "[1, 1, 1]", "[2, 2, 2]", "[3, 3]", "[4]". In each diagonal all elements are the same, so the answer is True.

Example 2:



Input: matrix = [[1,2],[2,2]] **Output:** false **Explanation:** The diagonal "[1, 2]" has different elements.

Constraints:

* `m == matrix.length` * `n == matrix[i].length` * `1 <= m, n <= 20` * `0 <= matrix[i][j] <= 99`

Follow up:

* What if the `matrix` is stored on disk, and the memory is limited such that you can only load at most one row of the matrix into the memory at once? * What if the `matrix` is so large that you can only load up a partial row into the memory at once?

Code Snippets

C++:

```
class Solution {
public:
bool isToeplitzMatrix(vector<vector<int>>& matrix) {

}
};
```

Java:

```
class Solution {
public boolean isToeplitzMatrix(int[][] matrix) {

}
}
```

Python3:

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