Toeplitz Matrix

Given a square matrix, find if it is a Toeplitz matrix or not.

A Toeplitz (or diagonal-constant) matrix is a matrix where each descending diagonal from left to right is constant (i.e., all elements in a diagonal are same).  
  
Input: An N x N matrix  
Output: Boolean

# Example

Input: [[3, 4, 5, 6],

[2, 3, 4, 5],

[1, 2, 3, 4],

[0, 1, 2, 3]]

=> Output: True

# Constraints

Time Complexity: O(N^2)  
Auxiliary Space Complexity: O(1)  
  
Remember, for a matrix to be considered a toeplitz, the elements in each descending diagonal must be the same.

# Solution

1. Iterate over the first row in the matrix
   1. At each cell descend diagonally checking to see if each element is the same as the starting cell
      1. If true, continue descending
      2. If false, return False
2. Iterate over the first column in the matrix
   1. At each cell descend diagonally checking to see if each element is the same as the starting cell
      1. If true, continue descending
      2. If false, return False
3. If we reach the end of both loops without returning false then the matrix must be a toeplitz and we can return True

# Notes

Consider if you can better organize your code using helper functions

Common first round technical screen question for Google (2016).

# Resources

<http://www.geeksforgeeks.org/find-if-given-matrix-is-toeplitz-or-not/>