C++ Assignments | 2D Arrays - 3 | Week 6
Given an m x n integer matrix matrix, if an element is 0, set its entire row and column to 0's.
You must do it in place.
Input :
1 1 1
1 0 1
1 1 1
Output :
1 0 1
0 0 0
1 0 1
CODE IS :-

```cpp
#include <iostream>
#include <vector>
using namespace std;

void setZeroes(vector<vector<int>>& matrix) {
    int rows = matrix.size();
    int cols = matrix[0].size();
    bool firstRow = false, firstCol = false;

    // Mark the first row and first column
    for (int i = 0; i < rows; i++) {
        if (matrix[i][0] == 0) firstCol = true;
    }
    for (int j = 0; j < cols; j++) {
        if (matrix[0][j] == 0) firstRow = true;
    }

    // Use first row and column as markers
    for (int i = 1; i < rows; i++) {
        for (int j = 1; j < cols; j++) {
            if (matrix[i][j] == 0) {
                matrix[i][0] = 0;
                matrix[0][j] = 0;
            }
        }
    }

    // Set elements to zero based on markers
    for (int i = 1; i < rows; i++) {
        for (int j = 1; j < cols; j++) {
            if (matrix[i][0] == 0 || matrix[0][j] == 0) {
                matrix[i][j] = 0;
            }
        }
    }
}
```

```cpp
    // Handle the first row and column separately
    if (firstRow) {
        for (int j = 0; j < cols; j++) {
            matrix[0][j] = 0;
        }
    }
    if (firstCol) {
        for (int i = 0; i < rows; i++) {
            matrix[i][0] = 0;
        }
    }
}

void printMatrix(const vector<vector<int>>& matrix) {
    for (const auto& row : matrix) {
        for (int val : row) {
            cout << val << " ";
        }
        cout << endl;
    }
}

int main() {
    vector<vector<int>> matrix = {
        {1, 1, 1},
        {1, 0, 1},
        {1, 1, 1}
    };

    setZeroes(matrix);
    cout << "Output:" << endl;
    printMatrix(matrix);

    return 0;
}
```

STEPS :-

.Use the First Row and Column as Markers.

.Traverse the Matrix

.Set Rows and Columns to 0

.Handle the First Row and Column Separately