Question-1

Given a M x N matrix mat[][], the task is to count the number of cells which have the sum of its adjacent cells equal to a prime number. For a cell x[i][j], only x[i+1][j], x[i-1][j], x[i][j+1] and x[i][j-1] are the adjacent cells.

Input : mat[][] = {{1, 3}, {2, 5}}
Output :2
Explanation: Only the cells mat[0][0] and mat[1][1] satisfying the condition.
i.e for mat[0][0]:(3+2) = 5, for mat[1][1]: (3+2) = 5

Input : mat[][] = {{1, 2, 3, 4}, {5, 6, 7, 8}, {9, 10, 11, 12}}
Output : 6
Explanation: Cells mat[0][0], mat[0][2], mat[0][3], mat[1][3], mat[2][2] and mat[2][3] are satisfying the condition.

Question-2

Search in a row wise and column wise sorted matrix. Given an n x n matrix and a number x, find the position of x in the matrix if it is present in it. Otherwise, print "Not Found". In the given matrix, every row and column is sorted in increasing order. The designed algorithm should have linear time complexity.

Input:
mat[4][4] = { {10, 20, 30, 40},
{15, 25, 35, 45},
{27, 29, 37, 48},
{32, 33, 39, 50}};
x = 29
Output: Found at (2, 1)
Explanation: Element at (2,1) is 29

Input : mat[4][4] = { {10, 20, 30, 40},
{15, 25, 35, 45},
{27, 29, 37, 48},
{32, 33, 39, 50}};
x = 100
Output : Element not found
Explanation: Element 100 is not found

Question-3

Given an N * M 2D binary matrix, the task is to find the count of columns having odd number of 1s.
Input: mat[][] = {
{0, 0, 1, 0},

{1, 0, 0, 1},
{1, 1, 1, 0}}
Output: 2
Column 2 and 4 are the only columns having odd number of 1's.

Input: mat[][] = {
{1, 1, 0, 0, 1, 1},
{0, 1, 0, 1, 0, 0},
{1, 1, 1, 0, 1, 0}}
Output: 4