Programming Assignment-6 on 2-D array

1. Spiral Matrix Traversal: Write a C program to traverse a given 2D matrix in a spiral order.
2. Matrix Rotation: Rotate a given square matrix (NxN) by 90 degrees in an anti-clockwise direction without using extra space.
3. Find Island Count: Given a 2D grid where '1' represents land and '0' represents water, find the number of islands.
4. Submatrix Sum: Given a 2D matrix, find the sum of elements in a submatrix with the maximum sum.
5. Search in a 2D Matrix: Given a sorted 2D matrix, write an efficient algorithm to search for a target value.
6. Longest Increasing Path: Find the length of the longest increasing path in a 2D matrix.
7. Minimum Cost Path: Find the minimum cost path from the top-left corner to the bottom-right corner of a matrix, with allowed movements only in right, bottom, and diagonally.
8. Count All Paths: Count all possible paths from the top-left corner to the bottom-right corner of a matrix with restrictions (e.g., certain cells are blocked).
9. Rotate a Matrix by 180 Degrees: Rotate a given 2D matrix by 180 degrees without using extra space.
10. Set Matrix Zeroes: Given a matrix, write a program such that if an element is 0, set its entire row and column to 0.