**Matrix :**

|  |  |  |
| --- | --- | --- |
|  | **Description** | **Status** |
|  | Rotate Matrix Elements |  |
|  | Inplace rotate square matrix by 90 degrees | Set 1 |  |
|  | Rotate a matrix by 90 degree without using any extra space | Set 2 |  |
|  | Rotate a Matrix by 180 degree |  |
|  | Rotate each ring of matrix anticlockwise by K elements |  |
|  | Turn an image by 90 degree |  |
|  | Check if all rows of a matrix are circular rotations of each other |  |
|  | Sort the given matrix |  |
|  | Find the row with maximum number of 1s |  |
|  | Find median in row wise sorted matrix |  |
|  | Matrix Multiplication | Recursive |  |
|  | Program to multiply two matrices |  |
|  | Program for scalar multiplication of a matrix |  |
|  | Program to print Lower triangular and Upper triangular matrix of an array |  |
|  | Find distinct elements common to all rows of a matrix |  |
|  | Print a given matrix in spiral form |  |
|  | Find maximum element of each row in a matrix |  |
|  | Find unique elements in a matrix |  |
|  | Shift matrix elements row-wise by k |  |
|  | Different Operations on Matrices |  |
|  | Print a given matrix in counter-clock wise spiral form |  |
|  | Swap major and minor diagonals of a square matrix |  |
|  | Maximum path sum in matrix |  |
|  | Squares of Matrix Diagonal Elements |  |
|  | Move matrix elements in given direction and add elements with same value |  |
|  | Sorting rows of matrix in ascending order followed by columns in descending order |  |
|  | Sum of middle row and column in Matrix |  |
|  | Row-wise vs column-wise traversal of matrix |  |
|  | Rotate the matrix right by K times |  |
|  | Program to check idempotent matrix |  |
|  | Program to check Involutory Matrix |  |
|  | Interchange elements of first and last rows in matrix |  |
|  | Print matrix in zag-zag fashion |  |
|  | Row wise sorting in 2D array |  |
|  | Program for Markov matrix |  |
|  | Program to check diagonal matrix and scalar matrix |  |
|  | Sort the matrix row-wise and column-wise |  |
|  | Find the number of islands |  |
|  | Magic Square | Even Order |  |
|  | Magic Square |  |
|  | Check given matrix is magic square or not |  |
|  | Check given matrix is magic square or not |  |
|  | Kronecker Product of two matrices |  |
|  | Count sub-matrices having sum divisible ‘k’ |  |
|  | Diagonally Dominant Matrix |  |
|  | Minimum operations required to make each row and column of matrix equals |  |
|  | Count frequency of k in a matrix of size n where matrix(i, j) = i+j |  |
|  | Given 1’s, 2’s, 3’s ……k’s print them in zig zag way. |  |
|  | Number of cells a queen can move with obstacles on the chessborad |  |
|  | Maximum product of 4 adjacent elements in matrix |  |
|  | Minimum flip required to make Binary Matrix symmetric |  |
|  | Program to check if matrix is lower triangular |  |
|  | Program to check if matrix is upper triangular |  |
|  | Frequencies of even and odd numbers in a matrix |  |
|  | Center element of matrix equals sums of half diagonals |  |
|  | Program for Identity Matrix |  |
|  | Program to swap upper diagonal elements with lower diagonal elements of matrix. |  |
|  | Sparse Matrix Representations |  |
|  | Ways of filling matrix such that product of all rows and all columns are equal to unity |  |
|  | Mirror of matrix across diagonal |  |
|  | Find if there is a rectangle in binary matrix with corners as 1 |  |
|  | Find all rectangles filled with 0 |  |
|  | Shortest distance between two cells in a matrix or grid |  |
|  | Counting sets of 1s and 0s in a binary matrix |  |
|  | Search in a row wise and column wise sorted matrix |  |
|  | Create a matrix with alternating rectangles of O and X |  |
|  | Zigzag (or diagonal) traversal of Matrix |  |
|  | Inplace (Fixed space) M x N size matrix transpose | Updated |  |
|  | Minimum cost to sort a matrix of numbers from 0 to n^2 – 1 |  |
|  | Unique cells in a binary matrix |  |
|  | Count entries equal to x in a special matrix |  |
|  | Check if a given matrix is sparse or not |  |
|  | Row-wise common elements in two diagonals of a square matrix |  |
|  | Check if sums of i-th row and i-th column are same in matrix |  |
|  | Find row number of a binary matrix having maximum number of 1s |  |
|  | Program to check if a matrix is symmetric |  |
|  | Find if a 2-D array is completely traversed or not by following the cell values |  |
|  | Program to Print Matrix in Z form |  |
|  | Print all palindromic paths from top left to bottom right in a matrix |  |
|  | Possible moves of knight |  |
|  | Efficiently compute sums of diagonals of a matrix |  |
|  | Boundary elements of a Matrix |  |
|  | Print a matrix in a spiral form starting from a point |  |
|  | Print matrix in snake pattern |  |
|  | Program to Interchange Diagonals of Matrix |  |
|  | Find difference between sums of two diagonals |  |
|  | Construct Ancestor Matrix from a Given Binary Tree |  |
|  | Construct tree from ancestor matrix |  |
|  | Circular Matrix (Construct a matrix with numbers 1 to m\*n in spiral way) |  |
|  | Program for Sudoku Generator |  |
|  | Program for Conway’s Game Of Life |  |
|  | Maximum sum of hour glass in matrix |  |
|  | Maximum and Minimum in a square matrix. |  |
|  | Print matrix in antispiral form |  |
|  | Program to find Normal and Trace of a matrix |  |
|  | Sort a Matrix in all way increasing order |  |
|  | Minimum operations required to set all elements of binary matrix |  |
|  | Print a given matrix in reverse spiral form |  |
|  | C Program To Check whether Matrix is Skew Symmetric or not |  |
|  | Sum of matrix element where each elements is integer division of row and column |  |
|  | Sparse Matrix and its representations |  |
|  | Find number of transformation to make two Matrix Equal |  |
|  | Form coils in a matrix |  |
|  | Sum of matrix in which each element is absolute difference of its row and column numbers |  |
|  | Check horizontal and vertical symmetry in binary matrix |  |
|  | Maximum determinant of a matrix with every values either 0 or n |  |
|  | Sum of both diagonals of a spiral odd-order square matrix |  |
|  | Find pair of rows in a binary matrix that has maximum bit difference |  |
|  | Find all permuted rows of a given row in a matrix |  |
|  | Find perimeter of shapes formed with 1s in binary matrix |  |
|  | Print cells with same rectangular sums in a matrix |  |
|  | Print matrix in diagonal pattern |  |
|  | Maximum difference of sum of elements in two rows in a matrix |  |
|  | Find pairs with given sum such that elements of pair are in different rows |  |
|  | Total coverage of all zeros in a binary matrix |  |
|  | Replace every matrix element with maximum of GCD of row or column |  |
|  | Count all sorted rows in a matrix |  |
|  | Queries in a Matrix |  |
|  | Maximum XOR value in matrix |  |
|  | Maximum mirrors which can transfer light from bottom to right |  |
|  | Direction at last square block |  |
|  | Print K’th element in spiral form of matrix |  |
|  | Find if given matrix is Toeplitz or not |  |
|  | Count zeros in a row wise and column wise sorted matrix |  |
|  | Count Negative Numbers in a Column-Wise and Row-Wise Sorted Matrix |  |
|  | Find size of the largest ‘+’ formed by all ones in a binary matrix |  |
|  | Return previous element in an expanding matrix |  |
|  | Print n x n spiral matrix using O(1) extra space |  |
|  | Shortest path in a Binary Maze |  |
|  | Find orientation of a pattern in a matrix |  |
|  | Find a specific pair in Matrix |  |
|  | Print maximum sum square sub-matrix of given size |  |
|  | Common elements in all rows of a given matrix |  |
|  | In-place convert matrix in specific order |  |
|  | A Boolean Matrix Question |  |
|  | Given a Boolean Matrix, find k such that all elements in k’th row are 0 and k’th column are 1. |  |
|  | Print unique rows in a given boolean matrix |  |
|  | Find the largest rectangle of 1’s with swapping of columns allowed |  |
|  | Validity of a given Tic-Tac-Toe board configuration |  |
|  | Submatrix Sum Queries |  |
|  | Program for Rank of Matrix |  |
|  | Maximum size rectangle binary sub-matrix with all 1s |  |
|  | Maximum size square sub-matrix with all 1s |  |
|  | Find sum of all elements in a matrix except the elements in row and/or column of given cell? |  |
|  | Count number of islands where every island is row-wise and column-wise separated |  |
|  | Find a common element in all rows of a given row-wise sorted matrix |  |
|  | Given a matrix of ‘O’ and ‘X’, replace ‘O’ with ‘X’ if surrounded by ‘X’ |  |
|  | Given a matrix of ‘O’ and ‘X’, find the largest subsquare surrounded by ‘X’ |  |
|  | Flood fill Algorithm – how to implement fill() in paint? |  |
|  | Print all elements in sorted order from row and column wise sorted matrix |  |
|  | Given an n x n square matrix, find sum of all sub-squares of size k x k |  |
|  | Program to find transpose of a matrix |  |
|  | C program for addition of two matrices |  |
|  | C program for subtraction of matrices |  |
|  | Collect maximum points in a grid using two traversals |  |
|  | Collect maximum coins before hitting a dead end |  |
|  | Number of paths with exactly k coins |  |
|  | Find length of the longest consecutive path from a given starting character |  |
|  | Find the longest path in a matrix with given constraints |  |
|  | Minimum Initial Points to Reach Destination |  |
|  | Divide and Conquer | Set 5 (Strassen’s Matrix Multiplication) |  |
|  | Dynamic Programming | Set 27 (Maximum sum rectangle in a 2D matrix) |  |