**1.** Write a program in C for subtraction of two Matrices.   
Test Data :  
Input the size of the square matrix (less than 5): 2  
Input elements in the first matrix :  
element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8  
Input elements in the second matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
Expected Output :  
The First matrix is :  
  
5 6  
7 8  
The Second matrix is :  
  
1 2  
3 4  
The Subtraction of two matrix is :  
  
4 4  
4 4

**2.** Write a program in C for multiplication of two square Matrices.    
Test Data :  
Input the rows and columns of first matrix : 2 2  
Input the rows and columns of second matrix : 2 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
Input elements in the second matrix :  
element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8  
Expected Output :  
The First matrix is :  
  
1 2  
3 4  
The Second matrix is :  
  
5 6  
7 8  
The multiplication of two matrix is :  
  
19 22  
43 50

**3.** Write a program in C to find transpose of a given matrix.   
Test Data :  
Input the rows and columns of the matrix : 2 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
Expected Output :  
The matrix is :  
  
1 2  
3 4  
  
The transpose of a matrix is :  
1 3  
2 4

**4.** Write a program in C to find sum of right diagonals of a matrix.   
Test Data :  
Input the size of the square matrix : 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
Expected Output :  
The matrix is :  
1 2  
3 4  
Addition of the right Diagonal elements is :5  
Elements in array are:

**5.** Write a program in C to find the sum of left diagonals of a matrix.    
Test Data :  
Input the size of the square matrix : 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
Expected Output :  
The matrix is :  
1 2  
3 4  
Addition of the left Diagonal elements is :5

**6.** Write a program in C to find sum of rows an columns of a Matrix.   
Test Data :  
Input the size of the square matrix : 2  
Input elements in the first matrix :  
element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8  
Expected Output :  
The First matrix is :  
The matrix is :  
5 6  
7 8  
The sum or rows and columns of the matrix is :  
5 6 11  
7 8 15  
  
12 14

**7.** Write a program in C to print or display the lower triangular of a given matrix.   
Test Data :  
Input the size of the square matrix : 3  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [0],[2] : 3  
element - [1],[0] : 4  
element - [1],[1] : 5  
element - [1],[2] : 6  
element - [2],[0] : 7  
element - [2],[1] : 8  
element - [2],[2] : 9  
Expected Output :  
The matrix is :  
1 2 3  
4 5 6  
7 8 9  
  
Setting zero in lower triangular matrix  
  
1 2 3  
0 5 6  
0 0 9

**8.** Write a program in C to print or display upper triangular matrix.    
Test Data :  
Input the size of the square matrix : 3  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [0],[2] : 3  
element - [1],[0] : 4  
element - [1],[1] : 5  
element - [1],[2] : 6  
element - [2],[0] : 7  
element - [2],[1] : 8  
element - [2],[2] : 9  
Expected Output :  
The matrix is :  
1 2 3  
4 5 6  
7 8 9  
  
Setting zero in upper triangular matrix  
1 0 0  
4 5 0  
7 8 9

**9.** Write a program in C to calculate determinant of a 3 x 3 matrix.   
Test Data :  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 0  
element - [0],[2] : -1  
element - [1],[0] : 0  
element - [1],[1] : 0  
element - [1],[2] : 1  
element - [2],[0] : -1  
element - [2],[1] : -1  
element - [2],[2] : 0  
Expected Output :  
The matrix is :  
1 0 -1  
0 0 1  
-1 -1 0  
  
The Determinant of the matrix is: 1