

### Problem Set on 2D Array

1. Write a program in C for a 2D array of size 3x3 and print the matrix. Matrix elements are 1,2,3,4,5,6,7,8,9.

Sample Input	Sample Output
	1 2 3 4 5 6 7 8 9

2. Write a program in C for a 2D array of size 3x3 and print the matrix. Matrix elements must be taken from user

Sample Input	Sample Output
Enter Array Elements: 1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

3. Write a program in C for a 2D array of size n x m and print the matrix. Matrix elements must be taken from the user.

Sample Input	Sample Output
3 4 1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12

4. Write a program in C for a 2D array of size n x m and print the matrix. Matrix elements must taken from user

Sample Input	Sample Output
2 2 1 2 3 4	a[0][0]=1 a[0][1]=2 a[1][0]=3 a[1][1]=4

5. Write a program in C for a 2D array of size n x m and print the summation of all matrix values. Matrix elements must be taken from the user.

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Sum = 45

6. Write a program in C for adding two matrices of the same size.  
Size and values are taken from the user.

Sample Input	Sample Output
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	The First matrix is : 1 2 3 4  The Second matrix is : 5 6 7 8  The Addition of two matrix is : 6 8 10 12

7. Write a program in C for subtraction two matrices of the same size.  
Size and values are taken from the user.

Sample Input	Sample Output
2 2 First matrix: 1 2 3 4 Second matrix: 5 6 7 8	The subtraction of two matrix is: 4 4 4 4

8. Write a program in C will read a 2D Array and print the sum of all elements of each row.

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	6 15 24

9. Write a program in C program to transpose a matrix.

Sample Input	Sample Output
2 3 1 2 3 4 5 6	Transpose Matrix is: 1 4 2 5 3 6

10. Write a program in C to print the diagonal elements of a 2D array.

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Diagonal Elements: 1 5 9

11. Write a program in C to print the sum diagonal elements of a 2D array.

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Sum = 15

12. Write a program in C to print the lower triangle of a square matrix.

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Lower Triangle Matrix: 1 0 0 4 5 0 7 8 9

13. Write a program in C to print the sum of the lower triangle of a square matrix.

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Sum of lower triangle matrix: 33

14. Write a program in C to print the upper triangle of a square matrix.

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Upper Triangle Matrix: 1 2 3 0 5 6 0 0 9

13. Write a program in C to print the sum of the upper triangle of a square matrix.

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Sum of upper triangle matrix: 26

14. Write a C program C program to check if a given matrix is an identity matrix or not.

Sample Input	Sample Output
3 3 1 0 0 0 1 0 0 0 1	Matrix1 is an IDENTITY MATRIX.

15. C program to find the frequency of even numbers in matrix

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Number of even elements: 4

16. Write a C program to find the trace of matrix

Sample Input	Sample Output
3 3 1 2 3 4 5 6 7 8 9	Trace: 15