ARCHER INFOTECH,PUNE

List Of Two-dimensional Array Programs

1.Write a C Program to Read and Print a RxC Matrix, R and C must be input by the User

This program will read a two dimensional array (Matrix), number of rows (R) and number of columns (C) will be read through the User.

Input : Enter number of Rows :3

Enter number of Cols :3

Output:Matrix is :

1 1 1

2 2 2

3 3 3

2.Write a C Program to Read a Matrix and find Sum and Product of all elements

This program will read a matrix and prints sum and product of all elements of the two dimensional array.

Input : Enter number of Rows :3

Enter number of Cols :3

Output:Matrix is :

1 1 1

2 2 2

3 3 3

Sum :18

Product: 216

3.Write a C Program to find Sum of all elements of each row of a matrix

This C program will read a Matrix (two dimensional arrays) and print the sum of all elements of each row.

4.Write a C Program to Transpose a Matrix

This C program will read a matrix and print its transpose matrix.

5.Write a C Program to Read a Matrix and Print Diagonals

This C program will read a matrix of MxN dimensions and prints only diagonal's elements of the matrix.

Input:

```
1       1       1
2       2       2
3       3       3
```

Output:

```
1
        2
                3
```

6.Write a C Program to find sum and subtraction of two matrices

This C program will read two matrices and find their sum (addition) and subtraction, in addition matrix addition of both matrices' elements will be assigned and in the subtraction matrix, subtraction of both matrices' elements will be assigned.

7.Write a C Program to find multiplication of two matrices

This C program will read two matrices and make a third matrix, which will contain the multiplication of both input matrices.

8.Write a C Program to print lower diagonal of a matrix

This C program will read a square matrix and print its lower diagonal.

Output:

Lower Triangular Matrix

2 0 0

4 5 0

6 7 8

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

Given a matrix, we have to check whether the matrix is an identity matrix or not using a C program.

Input :

Matrix 1

1 0 0

0 1 0 ==== output: matrix is an identity matrix

0 0 1

Matrix 1

1 0 0

0 1 1 ==== output: matrix is not identity matrix

0 0 1

10.Write a C program to check two matrices are identical or not

Given two matrices, we have to check whether they are identical or not using C program

Input

Matrix 1

1 1 1

2 2 2

3 3 3

Matrix 2

1 1 1

2 2 2

3 3 3

Output: both are identical

11.Write a C program to check a given matrix is a sparse matrix or not

Given a matrix, we have to check whether the matrix is a sparse matrix or not using a C program.

Matrix 1:

Enter the elements of the matrix:

4 5 6

7 0 0

0 0 0

Output : Matrix is a Sparse Matrix

Matrix 2:

Enter the elements of the matrix:

1 2 3

4 5 6

7 8 9

Output : Matrix is not a Sparse Matrix

12.Write a C program to interchange the rows in the matrix

Given a matrix, we have to interchange the specified rows in the matrix using the C program.

13.Write a C program to interchange the columns in the matrix

Given a matrix, and we have to interchange the specified columns using the C program.

14.Write a C program to arrange row elements in ascending order

Given an array, we have to arrange the row elements in ascending order using the C program.

15.Write a C program to arrange column elements in ascending order

Given a matrix, we have to arrange column elements in ascending order using a C program.

16.Write a C program to find the frequency of even numbers in matrix

Given a matrix, we have to find the frequency of even numbers in the matrix using a C program.

17.Write a C program to find the sum of main and opposite diagonal elements of a matrix

Given a matrix, we have to find the sum of main and opposite diagonal elements of a matrix using C program.

Input :

Matrix:

9 8 7

5 4 6

1 2 3

Output :

Sum of Main diagonal elements: 16

Sum of Opposite diagonal elements: 12

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

Trace of a n x n square matrix is sum of diagonal elements. Given a square matrix, we have to find the trace of matrix.

Input:

Matrix:

9 8 7

5 4 6

1 2 3

Output:

Trace of matrix is: 16

19.Write a C program to print the upper triangular matrix

Given a 3x3 matrix, we have to print the upper triangular matrix using a C program.

Input:

Matrix:

9 8 7

5 4 6

1 2 3

Output:

Upper triangular matrix is:

9 8 7

  4 6

    3