**2D Array Practice Questions**

1. WAP to input a 2D array of size M\*N and display it in tabular form.
2. WAP to input a 2D array of size M\*N and find the sum and average of all the elements.
3. WAP to input a 2D array of size M\*N and find the sum of individual rows and individual columns.
4. WAP to input a 2D array of size M\*N and display boundary elements in matrix form.
5. WAP to input a 2D array of size M\*N and display the transpose of it.
6. WAP to input a 2D array and find the sum of its diagonal elements.
7. WAP to input a 2D array and display diagonal elements in matrix form.
8. WAP to input 2 matrices from the user and add them.
9. WAP to input a matrix and check if its identity matrix or not.
10. WAP to input a matrix of order M\*N and check if it’s sparse or dense matrix.
11. Write a program in C to calculate determinant of a 3 x 3 matrix.
12. Write a program to keep records and perform statistical analysis for a class of students. The class may have up to 10 students. There are three quizzes during the semester for computer programming. Each student is identified by a four digit roll no. The program will print the student scores and calculate and print the following statistics
13. High score & Low score for each quiz along with the roll number of that student.
14. Average of Each Quiz and overall average of all the 3 quizzes
15. Highest Average and Lowest average of all the three quizzes along with quiz no.
16. Highest marks & lowest marks of each student in the 3 quizzes along with the quiz no.
17. WAP to input 2 matrixes and multiply them.
18. WAP to input a matrix and print its upper triangular matrix.
19. WAP to input a matrix and print its Lower triangular matrix.
20. WAP to input a matrix and print it in zig zack form.

Example :- if matrix is 1 2 3 4

5 6 7 8

9 1 2 3

4 5 9 1

Then output matrix will be

1 2 3 4

8 7 6 5

9 1 2 3

1 9 5 4

1. Suppose there is a game known as “MATCH THE TABLES”, in which the player picks up two tables(each having 10 rows and 10 columns) and matches them. If out of 100 entries at least 90 corresponding entries match then the tables are said to be identical and the player is declared the winner. Wap in ‘C’ to implement the above game.
2. Which of the following initializations of a 2d array are valid?

(i) int abc[2][2] = {1, 2, 3 ,4 } (ii) int abc[][] = {1, 2, 3 ,4 }

(iii) int abc[][2] = {1, 2, 3 ,4 } (iv) int abc[2][] = {1, 2, 3 ,4 }

1. An array =X [-15……….10, 15……………40] requires one byte of storage. If beginning location is 1500 determine the location of X [5][20]for data stored as

(i) Column major wise (ii) Row major wise.

1. Consider the following declaration of a ‘two-dimensional array in C:

|  |
| --- |
| char a[100][100]; |

Assuming that the main memory is byte-addressable and that the array is stored starting from memory address 0. Find the address of a[40][50] using row and column major.

1. Let A be a square matrix of size n x n. Consider the following program. What is the expected output?

C = 100;

for(i=0;i<n;i++)

    for(j=0;j<n;j++)

    {

        Temp = A[i][j] + C;

       A[i][j] = A[j][i];

        A[j][i] = Temp – C;

    }

for(i=0;i<n;i++)

    for(j=0;j<n;j++)

       printf(“%d ”,A[i][j]);