Programming Problems – 1D and 2D Array

1. Sum of all elements

Write a C program to read n integers into a 1D array and compute the sum of all the elements. Display the final sum.

Answer for Q1 and Q2

2. Find maximum and minimum

Write a C program to read n integers into an array and determine the maximum and minimum values present in the array. Print both values.

Answer for Q1 and Q2

3. Reverse the array

Write a C program to read an array of n integers and print the array in reverse order without using a second array.

Answer for Q3

4. Frequency of a given number

Write a C program that reads n integers and then reads an integer key. Count and display how many times the key appears in the array.

Answer for Q4

5. Copy one array to another

Write a C program to read n integers into array A and then copy all elements into another array B. Print array B after copying.

Answer for Q5

6. Find the second largest element

Write a C program to read n integers and find the second largest distinct element in the array. Assume that the array contains at least two distinct numbers.

Answer for Q6

7. Check if the array is sorted

Write a C program that reads n integers and checks whether the array is sorted in non-decreasing (ascending) order. Print "Sorted" or "Not Sorted".

Answer for Q7

8. Count even and odd numbers

Write a C program to read n integers and count how many of them are even and how many are odd. Print both counts.

Answer for Q8

9. Merge two arrays
Write a C program to read two arrays A and B of sizes n and m. Create a third array C that contains all elements of A followed by all elements of B. Print the merged array.

Answer for Q9

10. Remove duplicate elements #GOOD QUESTION
Write a C program that reads n integers and prints the array after removing duplicate values, keeping only the first occurrence of each element.

Answer for Q10

11. Left rotate the array by one position #GOOD QUESTION
Write a C program to perform a left rotation on an array by one position. (Example: 1 2 3 4 5 → 2 3 4 5 1)

Answer for Q11

12. Count positive, negative, and zero elements
Write a C program to read n integers and count how many elements are positive, negative, and zero. Print the three counts.

#EZZZ

13. Count elements greater than average
Write a C program to read n integers, compute their average, and count how many elements are strictly greater than the average.

#EZZZ

14. Insert an element at a given position #GOOD QUESTION
Write a C program to read an array of n elements, then read a value and a position. Insert the value into the array at the specified position, shifting the remaining elements to the right. Print the updated array.

Answer for Q14

15. Delete an element from a given position #GOOD QUESTION
Write a C program that reads n integers and deletes the element at a specified position by shifting all remaining elements to the left. Print the resulting array.

Answer for Q15

16. Read and display a matrix
Write a C program to read a matrix of size m × n and print it in matrix form.

Answer for Q16

17. Matrix addition
Write a C program to read two matrices of the same dimension m × n and compute their sum, storing the result in a third matrix.

Answer for Q17

18. Matrix subtraction
Write a C program to read two m × n matrices and compute the difference (first matrix – second matrix). Print the result.

#Similar to Q17 => EZZZZ

19. Matrix multiplication #GOOD QUESTION
Write a C program to read matrices of sizes m × n and n × p and compute their product. Display the resulting m × p matrix. Show ”Invalid” if the matrices are not conformable.

Answer for Q19

20. Transpose of a matrix
Write a C program to compute the transpose of an m × n matrix. Print both the original and its transpose.

Answer for Q20

21. Check whether a matrix is square
Write a C program that reads a matrix and checks whether it is a square matrix (same number of rows and columns).

#EZZZ

22. Sum of all elements of a matrix
Write a C program to compute the sum of all elements in an m × n matrix.

Answer for Q22

23. Sum of each row and each column
Write a C program to read an m × n matrix and compute the sum of each row and the sum of each column. Print all row sums and column sums.

Answer for Q23

24. Check if a matrix is symmetric
A matrix is symmetric if A[i][j] = A[j][i]. Write a C program to check whether a given square matrix is symmetric.

Answer for Q24

25. Upper and lower triangular matrix #GOOD QUESTION
Write a C program to read a square matrix and print its upper triangular part and lower triangular part.

Answer for Q25

26. Diagonal elements and their sum
Write a C program to read a square matrix and print all main diagonal elements and their sum, and all secondary diagonal elements and their sum.

Answer for Q26

27. Identity matrix check
Write a C program to check whether a given square matrix is an identity matrix, i.e., all diagonal elements are 1 and all non-diagonal elements are 0.

Answer for Q27

28. Sparse matrix check
A matrix is sparse if the number of zero elements is greater than half of the total elements. Write a C program to check whether a matrix is sparse.

Answer for Q28

29. Interchange two rows / two columns #GOOD QUESTION
Write a C program to read an m × n matrix and interchange two rows and two columns as specified by the user. Print the matrix after each operation.

Answer for Q29

30. Boundary elements of a matrix
Write a C program to print only the boundary elements of an m × n matrix. All non-boundary elements should be skipped.

Answer for Q30