

1D Array:

1. Write a C program to replace the value at a given index.
2. Write a C program to count the occurrences of a number in an array.
3. Write a C program to find the maximum/minimum element and its index in an array of integers.
4. Write a C program to find the 2nd/3rd maximum/minimum element and its index in an array of integers.
5. Write a C program that takes an array of integers A, another integer t and finds the first/last index of t in the array A. If t does not exist in the array, it should print -1.
6. Write a C program that takes an array of integers A, another integer t and count the occurrences of t in the array A.
7. Write a C program that takes an array of positive integers A, another integer t, removes it from the array A if it exists and shifts every element at right to the left placing -1 at the end of the array.
8. Write a C program to find the mode (the number repeated most often) of an array.
9. Write a C program that takes N integer numbers in an array, N different integer numbers in a second array and puts the sum of the same indexed numbers from the two arrays in a third array.
10. Write a C program to reverse an array.
11. Write a C program to reverse an array (in place).
12. Write a C program to sort an array in ascending/descending order.?
13. Write a C program to remove all the duplicate elements in an array.?
14. Write a C program to print true if an input array of integers contains a pair with a given sum, false otherwise.
15. Write a C program to find the union (set operation) of two arrays.
16. Write a C program to find the intersection (set operation) of two arrays.
17. -

String:

18. Write a C program to find the number of lowercase characters in a string without using any library function.
19. Write a C program to Capitalize a given string.

Sample Input	Sample Output
hello	Hello
WORLD	World
AfTer	After

20. Write a C program to count the occurrences of a character in a string irrespective of its case.
21. Write a C program to count the occurrences of every character of a string.
22. Write a C program to count the occurrences of every character of a string irrespective of their cases.
23. Write a C program to remove the last k characters from a string without using any loops.

24. Write a C program to check whether a given string is a palindrome or not.
25. Write a C program to find the length of a string without using any library function.
26. Write a C program to concatenate two strings without using any library function.
27. Write a C program to find the number of words in a string without using any library function.
28. -

2D Array:

29. Write a C program to print a 2D matrix both row-wise and column-wise.
30. Write a C program to transpose a 2D square matrix and store the transposed matrix in a new 2d array. Can you do it into the original 2d array that means without taking any new array?

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

31. Write a C program to check if a 2D square matrix is [symmetric](#) not.
32. Write a C program to check if a 2D square matrix is symmetric or not w.r.t. the [right diagonal](#).
33. Write a C program to generate the 2D [identity](#) matrix of a given size.
34. Write a C program to print both the diagonals ([major](#), [minor](#)) of a 2D square matrix.
35. Write a C program to print the [trace](#) of a 2D square matrix.
36. Write a C program to check if a 2D square matrix is a [diagonal](#) matrix or not.?
37. Write a C program to check if a 2D square matrix is a [diagonal](#) matrix or not w.r.t. the right diagonal.?
38. Write a C program to multiply two 2D matrices.?
39. Write a C program to swap any two given rows/columns of a 2D matrix.