



# Assignment

Course No.: CSE 1101

Course Title: Structured Programming

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For the students of 1st Year, ODD semester

Session: 2023-2024

B.Sc. in Computer Science & Engineering

(BSc in CSE)

- write the code by yourself
  - Submit your code (hard copy after vacation)
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Rajshahi University of Engineering & Technology [RUET]

1. Write a program in C to separate individual characters from a string.
2. Write a program in C to count the total number of words in a string.
3. Write a program in C to compare two strings without using string library functions.
4. Write a program in C to count the total number of alphabets, digits and special characters in a string.
5. Write a program in C to find the maximum number of characters in a string.
6. Write a program in C to read a sentence and replace lowercase characters with uppercase and vice versa.
7. Write a program in C to remove characters from a string except alphabets.
8. Write a program in C to find the largest and smallest words in a string.
9. Write a program in C to count the number of punctuation characters present in a string.
10. Write a program in C to read a file and remove the spaces between two words of its content.
11. A given string contains the bracket characters '(', ')', '{', '}', '<', '>', '[' and ']', Write a C program to check if the string is valid or not. The input string will be valid when open brackets and closed brackets are same type of brackets.
12. Write a program in C to check Armstrong and Perfect numbers using the function.
13. Write a C program to find the maximum and minimum of some values using a function that returns an array.
14. Write a program in C to print all perfect numbers in a given range using the function.
15. Write a program in C to get the largest element of an array using the function.
16. Write a program in C to check if a given number is even or odd using the function.
17. Write a program in C to find the sum of the series  $1!/1+2!/2+3!/3+4!/4+5!/5$  using the function.
- 18.
19. Write a program in C to print the first 50 natural numbers using recursion

output:

Recursion : print first 50 natural numbers :

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The natural numbers are : 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
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20. Write a program in C to find the Factorial of a number using recursion

output:

Recursion : Find the Factorial of a number :

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Input a number : 5
The Factorial of 5 is : 120
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21. Write a C program to create, initialize and use pointers.
22. Write a C program to add two numbers using pointers.
23. Write a C program to swap two numbers using pointers.
24. Write a C program to input and print array elements using pointer.
25. Write a C program to copy one array to other using pointers.
26. Write a C program to swap two arrays using pointers.
27. Write a C program to reverse an array using pointers.
28. Write a C program to search an element in array using pointers.
29. Write a C program to access two dimensional array using pointers.
30. Write a C program to add two matrix using pointers.

31. Write a C program to multiply two matrix using pointers.
- 32 Write a C program to find length of string using pointers.
33. Write a C program to copy one string to another using pointer.
- 33 Write a C program to concatenate two strings using pointers.
- 34 Write a C program to compare two strings using pointers.
- 35 Write a C program to find reverse of a string using pointers.
- 36 Write a C program to sort array using pointers.
- 37 Write a C program to return multiple values from function using pointers.
- 38 Write a C program to Reverse an Array elements.
- 39 Write a C program to Find the Maximum Element in an Array
- 40 Write a program in C to copy the elements of one array into another array.
- 41 Write a program in C to print all unique elements in an array.
- 42 Write a program in C to merge two arrays of the same size sorted in descending order.
- 43 Write a program in C to count the frequency of each element of an array.
- 44 Write a program in C to find the maximum and minimum elements in an array.
- 45 Write a program in C to separate odd and even integers into separate arrays.
- 46 Write a program in C to sort elements of an array in ascending and then descending order.
- 47 Write a program in C to insert the values in the array (sorted list).
- 48 Write a program in C to delete an element at a desired position from an array.
- 49 Write a program in C to find the second largest element in an array.
- 50 Write a program in C for a 2D array of size 3x3 and print the matrix.
- 51 Write a program in C for the multiplication of two square matrices.
- 52 Write a program in C to find the sum of the right diagonals of a matrix.
- 53 Write a program in C to print or display the lower triangular of a given matrix.
- 54 Write a program in C to calculate the determinant of a 3 x 3 matrix.
- 55 Write a program in C to accept a matrix and determine whether it is a sparse matrix.
- 56 Write a program in C to check whether a given matrix is an identity matrix.
- 57 Write a program in C to find the largest sum of contiguous subarrays in an array.
- 58 Write a program in C to find two elements whose sum is closest to zero.
- 59 Write a program in C to find out if a given integer x appears more than  $n/2$  times in a sorted array of n integers.
- 60 Write a program in C to check whether an array is a subset of another array.
- 61 Write a program in C to find the row with the maximum number of 1s.
- 62 Write a program in C to find the maximum difference  $n - m$  such that  $\text{array}[n] > \text{array}[m]$  from a given array [].
- 63 Write a program in C to find the factorial of a given number using pointers.
- 64 Write a program in C to count the number of vowels and consonants in a string using a pointer.
- 65 Write a program in C to sort an array using a pointer.
- 66 Write a program in C to print the elements of an array in reverse order.
- 67 Write a program in C to print all the alphabets using a pointer.
- 68 Write a program in C to print a string in reverse using a pointer.
- 69 Write a program in C to compute the sum of all elements in an array using pointers.