

C PROGRAMMING AND DATA STRUCTURES LAB
B.Tech I Year I Semester (CE&MECH)

List of Experiments

1. Write a C program to find the sum of individual digits of a positive integer.
2. Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.
3. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
4. Write a C program to find the roots of a quadratic equation.
5. Write a C program to find the factorial of a given integer.
6. Write a C program to find the GCD (greatest common divisor) of two given integers.
7. Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +, -, *, /, % and use Switch Statement)
8. Write a C program to find both the largest and smallest numbers in a list of integers.
9. Write a C program that uses functions to perform the following:
 - i) Addition of Two Matrices
 - ii) Multiplication of Two Matrices
10. Write a C program that uses functions to perform the following operations:
 - i) To insert a sub-string into a given main string from a given position.
 - ii) To delete n characters from a given position in a given string.
11. Write a C program to determine if the given string is a palindrome or not.
12. Write a C program that displays the position or index in the string where the string 'T' begins, or -1 if 'T' doesn't contain 'T'.
13. Write a C program to count the lines, words and characters in a given text.
14. Write a C program to generate Pascal's triangle.
15. Write a C program to construct a pyramid of numbers.
16. Write a C program that uses functions to perform the following operations:
 - i) Reading a complex number
 - ii) Writing a complex number
 - iii) Addition of two complex numbers
 - iv) Multiplication of two complex numbers(Note: represent complex numbers using a structure.)
17.
 - i. Write a C program which copies one file to another.
 - ii. Write a C program to reverse the first n characters in a file.
(Note: The file name and n are specified on the command line.)
18.
 - i. Write a C program to display the contents of a file.

- ii. Write a C program to merge two files into a third file (i.e., the contents of the first file followed by those of the second are put in the third file).
19. Write a C program that uses functions to perform the following operations on a singly linked list:
 - i) Creation
 - ii) Insertion
 - iii) Deletion
 - iv) Traversal
 20. Write a C program that implements a stack (its operations) using Arrays
 21. Write a C program that implements a Queue (its operations) using Arrays
 22. Write a C program that implements the following sorting methods to sort a given list of integers in ascending order:
 - i) Bubble sort
 - ii) Selection sort
 - iii) Insertion sort
 23. Write a C program that uses both recursive and non-recursive functions to perform the following searching operations for a Key value in a given list of integers:
 - i) Linear search
 - ii) Binary search