

B.Tech I Year I Semester
(CSE, DS, IT, AI&ML ,EEE & ECE)

PROGRAMMING FOR PROBLEM SOLVING LAB

PRACTICE SESSIONS:

1.Simple numeric problems:

- a) Write a program for finding the max and min from the three numbers.
- b) Write the program for the simple, compound interest.
- c) Write a program that prints a multiplication table for a given number and the number of rows in the table. For example, for a number 5 and rows = 3, the output should be:
5x1=5
5x2=10
5x3=15
- d) Write a program that shows the binary equivalent of a given positive number between 0 to 255.

2.Expression Evaluation:

- a) 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).
- b) Write a program that finds if a given number is a prime number.
- c) Write a C program to find the sum of individual digits of a positive integer and test given number is palindrome.
- d) A 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.Arrays, Pointers, and Functions:

- a) Write a C program to find the minimum, maximum, and average in an array of integers.
- b) Write a C program that uses functions to perform the following:
 - i) Addition of Two Matrices
 - ii) Multiplication of Two Matrices.
- c) Write a program for reading elements using a pointer into an array and displaying the values using the array.
- d) Write a program to display values in reverse order from an array using a pointerFiles:

4.Files

- a) Write a C program that copies one file to another, replacing all lowercase characters with their uppercase equivalents.

- b) 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).

5.Strings:

- a) 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 characters from a given position in a given string.
- b) Write a C program to determine if the given string is a palindrome or not (Spelled the same in both directions, with or without a meaning, like madam, civic, noon, abcba, etc.).
- c) Write a C program that displays the position of a character 'ch' in the given string 'S' or -1 if 'S' doesn't contain 'ch'.
- d) Write a C program to count the lines, words, and characters in a given text.

6.Sorting and Searching:

- a) Write a C program that uses a non-recursive function to search for a key value in a given list of integers using the linear search method.
- b) Write a C program that uses a non-recursive function to search for a key value in a given sorted list of integers using the binary search method.
- c) Write a C program that implements the Bubble sort method to sort a given list of integers in ascending order.
- d) Write a C program that sorts the given array of integers using the selection sort in descending order.
- e) Write a C program that sorts the given array of integers using the insertion sort in ascending order.
- f) Write a C program that sorts a given array of names.