**2nd**

### Control Structures

3. \*\*If-Else Statement\*\*

- Write a program to check if a number is positive, negative, or zero.

4. \*\*Switch Case\*\*

- Write a program to simulate a basic calculator using the switch case statement.

### Loops

5. \*\*For Loop\*\*

- Write a program to print the first 10 natural numbers using a for loop.

6. \*\*While Loop\*\*

- Write a program to print the multiplication table of a number using a while loop.

7. \*\*Do-While Loop\*\*

- Write a program to keep taking input from the user until they enter a negative number.

### Functions

8. \*\*Function to Calculate Factorial\*\*

- Write a function to calculate the factorial of a number.

9. \*\*Function to Check Prime\*\*

- Write a function to check if a number is prime.

### Arrays

10. \*\*Array Input and Output\*\*

- Write a program to take 5 integer inputs from the user and store them in an array. Then, print the elements of the array.

11. \*\*Sum of Array Elements\*\*

- Write a program to find the sum of all elements in an array.

### Strings

12. \*\*String Input and Output\*\*

- Write a program to take a string input from the user and print it.

13. \*\*String Length\*\*

- Write a program to find the length of a string without using the strlen() function.

### Pointers

14. \*\*Pointer Basics\*\*

- Write a program to demonstrate the use of pointers by printing the address of a variable.

15. \*\*Pointer and Array\*\*

- Write a program to access array elements using a pointer.

### Structures

16. \*\*Structure Definition and Usage\*\*

- Define a structure to store student information (name, roll number, marks). Write a program to read and print the details of a student.

### File Handling

17. \*\*File Write and Read\*\*

- Write a program to create a file, write some text into it, and then read and display the text.

### Recursion

18. \*\*Recursive Factorial\*\*

- Write a recursive function to calculate the factorial of a number.

19. \*\*Fibonacci Series using Recursion\*\*

- Write a recursive function to generate the Fibonacci series up to a given number.

### Sorting and Searching

20. \*\*Bubble Sort\*\*

- Write a program to sort an array of integers using the Bubble Sort algorithm.

21. \*\*Binary Search\*\*

- Write a program to implement the binary search algorithm on a sorted array.

### Advanced Topics (for more practice)

22. \*\*Dynamic Memory Allocation\*\*

- Write a program to dynamically allocate memory for an array of integers using malloc(), and then free the allocated memory.

23. \*\*Matrix Multiplication\*\*

- Write a program to multiply two matrices.

24. \*\*String Manipulation\*\*

- Write a program to concatenate two strings without using the strcat() function.

25. \*\*Linked List\*\*

- Write a program to create a simple linked list, insert elements, and display them.

**3rd**

### Intermediate Level

3. \*\*Palindrome\*\*

- Write a C program to check whether a given string is a palindrome.

### Advanced Level

1. \*\*Sorting Algorithms\*\*

- Write a C program to implement bubble sort, selection sort, and insertion sort.

2. \*\*Linked List\*\*

- Write a C program to implement a singly linked list and perform operations like insertion, deletion, and traversal.

3. \*\*Binary Search Tree\*\*

- Write a C program to implement a binary search tree and perform operations like insertion, deletion, and inorder traversal.

4. \*\*File Handling\*\*

- Write a C program to read from a file and write to a file.

5. \*\*Dynamic Memory Allocation\*\*

- Write a C program to demonstrate the use of `malloc`, `calloc`, `realloc`, and `free`.

### Practice Problems

1. \*\*LCM and GCD\*\*

- Write a C program to find the LCM and GCD of two numbers.

2. \*\*Tower of Hanoi\*\*

- Write a C program to solve the Tower of Hanoi problem using recursion.

3. \*\*Pascal’s Triangle\*\*

- Write a C program to print Pascal’s triangle.

4. \*\*String Manipulation\*\*

- Write a C program to implement functions like string length, string copy, string concatenate, and string compare without using the standard library functions.

5. \*\*Game of Life\*\*

- Write a C program to simulate Conway's Game of Life.