

C Language

1. Introduction and First Program

- a. Why Programming
- b. Types of Programming
- c. Introduction C
- d. Benefits of C
- e. Some Facts about C
- f. Understanding First C Program
- g. Executing using IDE

2. Variables and Data Types

- a. 'C' Tokens
- b. Identifiers
- c. Keywords
- d. Data Types
- e. Variables
- f. Constants

3. Console I/O Operations

- a. printf function
- b. scanf function
- c. Unformatted Functions

4. Operators and Expressions

- a. Expressions
- b. Types of Operators
- c. Type Casting

5. Control Flow Statements

- a. Decision Making in C
- b. If Statement

- c. Switch Statement
- d. Unconditional Branching
- e. While Loop
- f. Do...While Loop
- g. For Loop
- h. Break and continue statements

6. Working with Functions

- a. What is a Function
- b. Benefits of a Function
- c. Function Terminology
- d. How does Function Works
- e. Scope and Lifetime of Variables in function
- f. Storage Classes of Variables
- g. Call by value and call by reference
- h. Recursion

7. Working with Arrays

- a. Understanding Arrays
- b. Arrays Declaration and Initialization
- c. Sample Programs
- d. Multidimensional Arrays.
- e. Arrays and Functions

8. String Handling

- a. Declaration and Initialization
- b. Reading and Writing Strings
- c. Standard string library functions
- d. Array of pointers tstring

9. Pointers

- a. Understanding Pointers
- b. Declaring and Initializing Pointers

- c. Function and Pointer Parameters
- d. Pointer Arithmetic
- e. Pointer and Arrays
- f. Two Dimensional Arrays and Pointers
- g. void Pointer
- h. Dynamic allocation of memory
- i. Difference between malloc and calloc

10. Structure and Unions

- a. Overview of Structures
- b. Defining and Using a Structure
- c. Structures within a Structure
- d. typedef keyword
- e. Passing Structures Functions
- f. Array of Structures
- g. Structure and Pointers
- h. Unions

11. File Handling

- a. What is a Stream
- b. Opening and Closing of Files
- c. Writing and Reading in Text Format
- d. Writing and Reading in Binary Format

12. Preprocessor Directives

- a. Pre-Processor Directives
- b. #define Macro
- c. Conditional Compilation
- d. Pre-defined Macros
- e. #include and Header Files

13. Command Line Arguments and Variable Number of Arguments

- a. Command Line Arguments
- b. Variable Arguments