

C LANGUAGE



ELEGANT  **TRAINING**

C Language

Pre - requisites

Basic Understanding of MSO is enough to learn this course



CLanguage



About

CLanguage

C is a general-purpose, procedural programming language known for its speed, efficiency, and low-level memory access. It is widely used in system programming, embedded systems, game development, and operating systems. Many modern languages, including C++, Java, Python, and C#, are influenced by C.

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Module 1: Introduction to C Programming

History & Features of C

Installing C Compiler (GCC, Turbo C, Code::Blocks, Dev-C++)

Writing & Running a Simple C Program

Compilation & Execution Process

Module 2: Basics of C

C Tokens: Keywords, Identifiers, Constants, Operators

Variables & Data Types

Input/Output Functions (printf(), scanf(), getchar(), putchar())

Type Modifiers (signed, unsigned, short, long)

Comments & Coding Standards

Module 3: Control Flow Statements

Decision-Making Statements (if, if-else, nested if, switch-case)

Looping Statements (for, while, do-while)

Jump Statements (break, continue, goto)

Module 4: Functions in C

Function Declaration & Definition

Function Call (Call by Value vs. Call by Reference)

Recursion in C

Storage Classes (auto, static, extern, register)

Module 5: Arrays & Strings

One-Dimensional & Multi-Dimensional Arrays

Array Operations (Sorting, Searching)

String Handling (gets(), puts(), strlen(), strcpy(), strcmp(), etc.)

Pointers & Arrays Relationship





Module 6: Pointers & Dynamic Memory Allocation

Basics of Pointers

Pointer Arithmetic

Pointers and Arrays, Pointers and Functions

Dynamic Memory Allocation (malloc(), calloc(), realloc(), free())

Module 7: Structures & Unions

Defining & Using Structures

Array of Structures

Pointers to Structures

Difference Between Structure & Union

Module 8: File Handling in C

File Operations (fopen(), fclose(), fprintf(), fscanf(), fread(), fwrite())

Text vs. Binary Files

File Pointers (fseek(), tell(), rewind())

Module 9: Preprocessors & Macros

Preprocessor Directives (#define, #include, #ifdef, #ifndef)

Macros & Inline Functions

Module 10: Data Structures in C (Optional for Advanced Learners)

Linked Lists (Singly, Doubly, Circular)

Stacks & Queues (Using Arrays & Linked Lists)

Trees & Graphs (Basics)

Sorting & Searching Algorithms (Bubble, Selection, Insertion, Quick, Merge)



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