

C++



ELEGANT TRAINING

C++

Pre - requisites

Basic Understanding of MS Office is enough to learn this course



C++



About

C++

C++ is a powerful, high-performance programming language widely used for system software, game development, competitive programming, and high-performance applications. It extends the C programming language by adding object-oriented programming (OOP) features while maintaining low-level memory manipulation capabilities.

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Module 1: Introduction to C++

History & Features of C++

Setting up the Development Environment (IDE: Code::Blocks, Dev-C++, Visual Studio, or GCC)

Writing & Running a Simple C++ Program

Understanding Compilation & Execution

Module 2: Basics of C++ Programming

Variables, Constants, & Data Types

Input/Output (cin, cout, endl)

Operators: Arithmetic, Relational, Logical, Bitwise

Type Casting & Type Modifiers

Module 3: Control Flow & Looping

Conditional Statements (if, if-else, switch-case)

Loops (for, while, do-while)

Break, Continue, and Goto Statements

Module 4: Functions in C++

Function Declaration & Definition

Function Overloading

Inline Functions

Recursive Functions

Call by Value vs. Call by Reference

Module 5: Arrays & Strings

One-Dimensional & Multi-Dimensional Arrays

Array Manipulation (Sorting, Searching)

Character Arrays & String Handling Functions

String Class in C++

Module 6: Pointers & Dynamic Memory Allocation

Introduction to Pointers

Pointer Arithmetic

Pointers and Arrays

Dynamic Memory Allocation (new & delete)

Pointers to Functions



Module 7: Object-Oriented Programming (OOP) in C++

Classes & Objects
Access Specifiers (Public, Private, Protected)
Constructors & Destructors
Friend Functions & Friend Classes
Static Members & Methods

Module 8: Inheritance & Polymorphism

Types of Inheritance (Single, Multiple, Multilevel, Hierarchical, Hybrid)
Function Overriding & Virtual Functions
Abstract Classes & Pure Virtual Functions
Runtime Polymorphism

Module 9: File Handling in C++

File Streams (ifstream, ofstream, fstream)
File Read/Write Operations
Working with Binary Files
Module 10: Exception Handling
Try, Catch, and throw Blocks
Handling Multiple Exceptions
Standard Exception Classes



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