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Learning Style: On Demand

Technology:

Difficulty: Beginner

Course Duration: 12 Hours

Introduction to C++



About the course:

Introduction to C++ is a foundational course designed to provide a comprehensive introduction to the C++ programming language. This course is perfect for beginners and those looking to expand their programming skills. It covers the fundamental concepts of C++, including variables, data types, control structures, and functions

Course Objectives:

- Course Introduction
- Essential Fundamentals
- C++ Introduction
- Development Environment Setup
- C++ Basics
- Functions
- Files
- Debugging and Error Handling
- Fundamental Data Types
- Operators
- Scope and Duration
- Flow Control Conditional Statements
- Flow Control Loops
- Arrays and Pointers
- Enums, Structs, OOP, and Classes
- Project

Audience:

Anyone who is interested its a basic level course

Prerequisite:

None

Course Outline:

- Course Introduction

- Chapter 1: Essential Fundamentals
    - Lesson 1: Electricity
    - Lesson 2: Computers
    - Lesson 3: Electronic Computers
    - Lesson 4: Bits
    - Lesson 5: Computer Elements
    - Lesson 6: To Sum Up
    - Lesson 7: Programming Languages Hardware
    - Lesson 8: Programming Paradigm

- Chapter 2: C++ Introduction
    - Lesson 1: Introduction to C++
    - Lesson 2: Introduction to C++ Development

- Chapter 3: Development Environment Setup

    - Lesson 1: IDEs
    - Lesson 2: VS Code
    - Lesson 3: MSYS2
    - Lesson 4: VS Code
    - Lesson 5: Hello World

- Chapter 4: C++ Basics
    - Lesson 1: C++ Program Structure
    - Lesson 2: Comments
    - Lesson 3: C++ Syntax and Syntax Errors
    - Lesson 4: Introduction to Data Objects and Variables
    - Lesson 5: Naming Identifiers and Basic Formatting
    - Lesson 6: Intro to Operators
    - Lesson 7: Quiz

- Chapter 5: Functions
    - Lesson 1: Introduction to Functions
    - Lesson 2: Parameters and Arguments
    - Lesson 3: Return Value
    - Lesson 4: Introduction to Local Variables
    - Lesson 5: Forward Declarations and Definitions
    - Lesson 6: How to Use Functions Effectively
    - Lesson 7: Quiz

- Chapter 6: Files
    - Lesson 1: Program with Multiple Files
    - Lesson 2: Naming Collisions and Intro to Namespaces
    - Lesson 3: Preprocessor Directive
    - Lesson 4: Header Files
    - Lesson 5: Header Guards
    - Lesson 6: Quiz

- Chapter 7: Debugging and Error Handling
    - Lesson 1: Syntax and Semantic Error
    - Lesson 2: The Debugging Process
    - Lesson 3: Using a Debugger Stepping
    - Lesson 4: Using a Debugger Watching Variables
    - Lesson 5: Using a Debugger The Call Stack
    - Lesson 6: Quiz

- Chapter 8: Fundamental Data Types
    - Lesson 1: Introduction to Fundamental Data Types
    - Lesson 2: Void
    - Lesson 3: Object Sizes and Size of Operator
    - Lesson 4: Integers

    - Lesson 5: Floating Point
    - Lesson 6: Char
    - Lesson 7: Bool
    - Lesson 8: Type Conversion
    - Lesson 9: Constants
    - Lesson 10: String
    - Lesson 11: Quiz

- Half of the Course

- Chapter 9: Operators
    - Lesson 1: Operator Precedence and Associativity
    - Lesson 2: Arithmetic Operators
    - Lesson 3: Increase and Decrease Operators
    - Lesson 4: Conditional Operator
    - Lesson 5: Relational Operators
    - Lesson 6: Logical Operators
    - Lesson 7: Quiz

- Chapter 10: Scope and Duration
    - Lesson 1: Compound Statements (Blocks)
    - Lesson 2: User-Defined Namespaces
    - Lesson 3: Using Declarations and Directives
    - Lesson 4: Static Local Variables
    - Lesson 5: Global Variables and Variable Shadowing
    - Lesson 6: Quiz

- Chapter 11: Flow Control Conditional Statements
    - Lesson 1: Control Flow Introduction
    - Lesson 2: If Statement
    - Lesson 3: Switch Case Statement
    - Lesson 4: Quiz

- Chapter 12: Flow Control Loops
    - Lesson 1: While Loop
    - Lesson 2: Do While Loop
    - Lesson 3: For Loop
    - Lesson 4: Quiz

- Chapter 13: Arrays and Pointers
    - Lesson 1: Arrays
    - Lesson 2: C-Style Strings
    - Lesson 3: Introduction to Pointers
    - Lesson 4: Pointer Init and Assign

    - Lesson 5: Pointer and Const
    - Lesson 6: Arrays and Pointers
    - Lesson 7: Quiz

- Chapter 14: Enums, Structs, OOP, and Classes
    - Lesson 1: Introduction to Program-Defined Data Types
    - Lesson 2: Enums
    - Lesson 3: Structs
    - Lesson 4: Intro to OOP and Classes
    - Lesson 5: Quiz

- Chapter 15: Project
    - Lesson 1: Starting the Project
    - Lesson 2: Library Management System

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