

C++ and Data Structure

Basic Structure and Syntax

- Array Types
- Basic Types
- Class Definition
- Class Objects
- Class Types
- Constant Types
- Control Structures - Do
- Control Structures - Switch
- Control Structures - While
- Delete
- Dynamic Memory Delete
- Dynamic Memory New
- Exceptions
- File Input and Output
- For
- If
- Input
- Multiple Inheritance
- Namespaces
- New
- Operator Overloading
- Operators
- Output
- Pointer Types
- Pointers to Functions
- Preprocessor
- Reference Types
- String
- Switch
- Fundamental Types
- Linkage of Names
- Objects & Their Properties
- One Definition Rule
- Scope of Names
- Unqualified & Qualified Name
- Lookup



C++ Class

- Class Definition
- Class Member Functions
- Class Objects
- Class Scope
- Friends to a Class
- Static Class Member
- This Pointer
- Virtual Functions
- Class Objects
- Class Types
- Data Members
- Nested Types

C++ Data Types

- Array Types
- Class Types
- Constant Types
- Constant Values
- Enumeration Types
- Pointer and Reference Types
- Symbolic Variables
- Typedef Types
- Volatile Objects
- Default Function Arguments

Class Derivation and Inheritance

- Class Scope Under Derivation
- Derivation Specification
- Information Hiding Under Derivation
- Initialization and Assignment Under Derivation
- Initialization Order Under Derivation
- Public, Protected, and Private Base Class

Class Member Functions

- Class Initialization
- Containers and Iterators
- File Input and Output
- Memberwise Initialization
- Operator Overloading

- User-Defined Conversions

Efficiency

- Compiler-Generated Code
- Inline Functions
- Virtual Tables

Exception Handling

- Catch Handler and Throw Clause
- Exceptions During Construction of Objects
- Function Throw List

Fundamentals of OOD

- Designing Classes and Objects
- Encapsulation
- Inheritance
- Polymorphism
- Relationships (is a, has a)

OOP

- Abstract Base Classes
- Virtual Base Classes
- Virtual Functions

Templates

- Algorithms and Utilities
- Argument Deduction
- C++ STL
- Explicit Specialization
- Function Templates
- Overloaded Function Names
- Template Class Definition
- Template Class Friend Declarations
- Template Classes Under Inheritance

Access Checking

- Friends
- Public, Protected, & Private Base Class
- Public, Protected, & Private Class Members

C++ Std Library/Derivation/Overloading/Templates

- Argument Deduction
- Class Templates
- Containers
- Derivation Syntax
- Explicit Specialization
- Function Templates
- Function/Member Function Overloading
- IOStreams
- Iterators
- Lookup Rules for Member Names
- Operator Overloading
- Overload Resolution
- Strings
- Virtual Functions & Their Overriding
- Virtual Functions & Their Overriding

Declarations & Statements

- Enumeration Types
- Expression Statement
- Inline Functions
- Iteration Statements
- Namespaces
- Selection Statements
- Typedefs Types

Exceptions

- Exception Handlers
- Function Exception Specifications
- Stack Unwinding
- The Terminate & Unexpected Functions

Expressions

- Class Member Access
- Constant Expressions
- Dynamic, Static & C-Style Cast Operators
- New & Delete

Special Member Functions

- Constructors
- Copy Constructors & Copy Assignment Operators
- Destructors
- Order of Initialization of Base Classes & Members
- User-Defined Conversions