Clear Programming Paradigm

C and C++ Training and Outsourcing

This brochure is an overview of a C++ training course offered by
Clear Programming Paradigm LLC

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Overview

The five-day C++ training course is an introduction to the C++ programming language, the C++ Standard Library, and modern C++11 to C++17 standards. The training is offered both remotely and on-site.

The course is intended for teams to learn the C++ programming language, the C++ Standard Library, and modern C++ standards. No prior experience with C++ is required to attend the course, and the recommended group size should not exceed ten people.

The training day consists of a theoretical introduction, source code examples, and coding exercises. The final day is dedicated to creating a C++ project, debugging the code, and doing code review sessions. During the training, there is an ongoing Q&A session between the trainer and participants.

Topics

The following is a breakdown of all the C++ topics by day:

Day 1	Day 2

• Introduction
• Compilers
• Types
• Declaration, Definition, and Initialization
• Operators, Operands, Expressions
• Standard Input
• Arrays
• Pointers
• References
• Strings
• Automatic Type Deduction
• Built-in Statements
• Constants
• Functions
• Scope and Lifetime
• Q&A and Exercises
	• Classes
	  ○ Data Member Fields
	  ○ Member Functions
	  ○ Access Specifiers
	  ○ Constructors
	  ○ Default Constructor
	  ○ Member Initialization
	  ○ Copy Constructor
	  ○ Copy Assignment
	  ○ Move Constructor
	  ○ Move Assignment
	  ○ Operator Overloading
	  ○ Destructors
	  ○ Inheritance and Polymorphism
	• Templates
	• Enumerations
	• Code Organization
	  ○ Header and Source Files
	  ○ Header Guards
	  ○ Namespaces
	• Q&A and Exercises

Day 3	Day 4

• Conversions
• Exceptions
• I/O Streams
• C++ Standard Library
  ○ Containers
  ▪ std::vector
  ▪ std::array
  ▪ std::set
  ▪ std::map
  ▪ std::pair
  ▪ Other Containers
  ○ The Range-Based for Loop
  ○ Iterators
  ○ Algorithms and Utilities
  ▪ std::sort
  ▪ std::find
  ▪ std::copy
  ▪ Min and Max Elements
  ▪ Other Functions
  ○ Lambda Expressions
• Q&A and Exercises
	• C++ 11 Standard
	  ○ Automatic Type Deduction
	  ○ Range-based Loops
	  ○ Initializer Lists
	  ○ Move Semantics
	  ○ Lambda Expressions
	  ○ The constexpr Specifier
	  ○ Scoped Enumerators
	  ○ Smart Pointers
	  ○ std::tuple
	  ○ static_assert
	  ○ Introduction to Concurrency
	  ○ Deleted and Defaulted Functions
	  ○ Type Aliases
	• C++14 Standard
	  ○ Binary Literals
	  ○ Digits Separators
	  ○ Auto for Functions
	  ○ Generic Lambdas
	  ○ std::make_unique
	• C++ 17 Standard
	  ○ Nested Namespaces
	  ○ Constexpr Lambdas
	  ○ Structured Bindings
	  ○ std::filesystem
	  ○ std::string_view
	  ○ std::any
	  ○ std::variant
	• Q&A and Exercises

Day 5
• Project • Q&A and Code Review

Workflow

A training day can be organized as follows:

Time	Activity
09:00 – 11:00	Live training
11:00 – 12:30	Exercises
12:30 – 13:30	Lunch break
13:30 – 15:30	Live training
15:30 – 17:00	Exercises

Live training includes:

- Theoretical introduction
- Source code examples
- PDF handouts

Exercises include:

- Solved source code tasks
- Q&A sessions with a trainer

Summary

This course provides a professional-grade introduction to the modern C++ programming language, improves the productivity of your employees, and cuts down the time needed to learn the C++ programming language.

The course follows the latest trends and guidelines and provides the necessary building blocks that make a C++ knowledge backbone. The training can be customized to meet the client's requirements.

About Us

We are Clear Programming Paradigm LLC, an IT consultancy company from Belgrade, Serbia. We provide high-quality, professional-grade C and C++ training and outsourcing services for teams and corporate clients.

We help shorten the time needed to learn the C++ programming language, increase productivity and get your team up to date on the latest C++ standards. We understand it can be challenging to find C and C++ developers on the market. Through our training, we want to help you solve this problem. Contact us at info@cppsrc.com or visit us at www.cppsrc.com.

The Trainer

Slobodan Dmitrovic is a professional C++ trainer and consultant for some of the major automotive and telecommunications companies worldwide. He is an experienced conference speaker and author of a couple of programming books on C and C++. Slobodan's ability to clearly explain complex topics and provide insightful training made him a sought-after trainer for the automotive, telecommunications, and other IT-related industries.

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