Clear Programming Paradigm

C and C++ Training and Outsourcing

C Training Course

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

Table of Contents

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.

We aim to provide quality, professional-grade C and C++ training, educate the employees, and solve the challenge of finding C and C++ developers on the market. Contact us at info@cppsrc.com or visit us at www.cppsrc.com.

The C Trainer

Slobodan Dmitrovic is a professional C and C++ trainer and consultant for some major automotive and telecommunications companies worldwide. He is an experienced conference speaker and author of several 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, fintech, and other industries.

C Training Overview

This five-day C training course is an introduction to the C programming language, the C standard library, and C11 to C2X standards. The training is offered both remotely and on-site. No prior experience with C is required to attend the course.

This C training course is for individuals and teams who wish to learn the C programming language. The recommended group size is up to ten people.

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

Topics

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

Day 1	Day 2
• Introduction • Types and Declarations • Operators and Expressions • Statements ○ Selection Statements ○ Iteration Statements • Arrays • Pointers • Functions • The const Qualifier • Enumerations • Function Pointers • Preprocessor ○ Conditional Compilation ○ Built-in Macros ○ Function-like Macros • Q&A and Exercises	• Structures ○ Introduction ○ Initialization ○ Member Access Operator ○ Copying Structures ○ Pointers to Structures ○ Self-Referencing Structures ○ Structures as Function Arguments • Unions • Typedef • Conditional Expression • Dynamic Memory Allocation ○ malloc ○ calloc ○ realloc • Storage and Scope • Q&A and Exercises

Day 3	Day 4
• Standard Input and Output • File Input and Output • Header and Source Files • The C Standard Library ○ String Manipulation ○ Memory Manipulation Functions ○ Mathematical Functions ○ String Conversion Functions ○ Time and Date • Linkage • Bitwise Operators • Dos and Don't's ○ Do Not Use the gets Function ○ Initialize Variables Before Using Them ○ Do Not Read Out of Bounds ○ Do Not Free the Allocated Memory Twice ○ Do Not Cast the Result of malloc ○ Do Not Overflow a Signed Integer ○ Cast a Pointer to void* When Printing Through printf ○ Do Not Divide by Zero ○ Where to Use Pointers? ○ Prefer Functions to Function-Like Macros ○ static Global Names ○ What to Put in Header Files? • Q&A and Exercises	• C 11 Standard ○ Static_assert ○ The _Noreturn Function Specifier ○ Type Generic Macros Using _Generic ○ The _Alignof Operator ○ The _Alignas Specifier ○ Anonymous Structures and Unions ○ Aligned Memory Allocation: aligned_alloc ○ Unicode Support for UTF-16 and UTF-32 ○ Bounds-Checking Functions • C2X Standard ○ Static_assert Without a Message ○ Attributes ○ No Parameters Function Declaration ○ The strdup Function ○ The memccpy Function • Q&A and Exercises

Day 5
• C Project • Q&A, Debugging, and Code Review

Workflow

Typical C 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 the following:

- C Theoretical introduction
- C Source code examples
- PDF handouts

Exercises include the following:

- C source code tasks
- Complete C source code solutions
- Q&A sessions with a trainer

The workflow can be modified according to the client's needs.

Summary

This course aims to provide a high-quality, professional-grade introduction to the modern C programming language, establish a solid base, and enable further progress.

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

Slobodan Dmitrovic
Founder, C, and C++ Trainer and Consultant

Clear Programming Paradigm LLC
info@cppsrc.com
+381640763031
www.cppsrc.com

Clear Programming Paradigm