olsen software ltd

+44 7989 401397
info@olsensoft.com

Rust Programming (4 days)

Course overview

Rust is an intriguing language. Syntactically similar to C++, it offers higher-order language features to simplify important tasks such as memory management, concurrent execution, and safe vs. unsafe execution.

This course will help you understand what Rust applications look like, how to write Rust applications properly, and how to get the most out of the language and its libraries.

What you'll learn

- Creating, building, and running Rust applications
- Organizing Rust code and application structure properly
- Managing memory safely and effectively
- Using object-oriented techniques
- Using functional programming techniques
- Implementing concurrency
- Exploring additional Rust techniques

Prerequisites

- Experience with C/C++ or a similar programming language such as Go or Java

Course details

- Getting Started with Rust: What is Rust; What can I do with Rust; What tools do I need for Rust
- Rust Language Essentials: Types and variables; Conditional logic; Iteration; Functions; Collections
- Organizing Rust Code: Modules; Packages; Crates; Using the Cargo dependency manager and build tool
- Error Handling: Overview; Recoverable errors; Unrecoverable errors
- Object Orientation: Defining structures; Implementing functionality; Specifying traits; Design patterns
- Functional Programming: Concepts; Anonymous functions; Closures; Patterns and techniques
- Memory Management: What memory management problems does Rust solve; Managing the stack and the heap; Unsafe Rust
- Ownership: The concept of ownership in Rust; References; Borrowing; Slices

- Smart Pointers: The role of smart pointers in Rust; Using Box, Deref, and Drop; Using Rc and RefCell
- Concurrency: Overview of concurrency in Rust; Creating threads; Defining actors and passing messages; Accessing shared data safely
- Testing: Types of tests; Writing tests; Running tests; Test techniques
- Tour of Additional Rust Techniques: Embedded systems; Data analysis; Database access