

Rust Programming Course Outline

Rust Programming: Harnessing Speed, Security, and Memory Management

Explore the power and efficiency of Rust, a modern language designed for speed, security, and low-level memory access. This course is ideal for experienced developers looking to enhance their skills and productivity by leveraging Rust's unique capabilities.

Outline

1. Introduction to Rust

- Overview of Rust language focusing on speed, security, and low-level memory access.
- Setting up a basic Rust environment.
- Exploring key language features, including the borrow checker.
- Building a command-line application for data analytics over large datasets.

Topics Covered

- Rust - the pitch
- Setting up the Rust environment
- Variables and immutability
- Functions with numbers
- Structs and Derive
- References and calls
- Borrowing
- Building a command-line application with clap

2. Making Python Faster with Rust

- Introduction to Rust's speed and integration with Python using PyO3 for native extensions.
- Exploring technologies to enhance Python performance with Rust.

Topics Covered

- Rust - the pitch
- Integrating Rust with Python using PyO3
- Building native extensions to optimize Python code

Learning Outcomes

Session 1: By the end of session 1 participants will...

- Understand the basics of Rust.
- Know how to set up a Rust environment.
- Explore Rust language features.
- Build a command-line application.

Session 2: By the end of session 2 participants will...

- Understand how Rust integrates with Python.
- Be able to use PyO3 for building native extensions.
- Enhance Python performance using Rust.

Note: This course assumes participants have prior experience in programming and basic knowledge of Python and Rust.