

Related Roadmaps

✓

 Backend Roadmap

✓

 DevOps Roadmap

✓

 Go Roadmap

Find the interactive version of this roadmap and more roadmaps at

roadmap.sh

Syntax and Semantics

Variables, DataTypes and Constants

Control Flow and Constructs

Functions and Method Syntax

Pattern Matching & Destructuring

Constructs

Enums

Traits

Structs

Impl Blocks

Data Structures

Integers

Floats

Boolean

Character

String

Tuple

Array

Vector

Hashmap

Hashset

LinkedList

Stack

Queue

Binary Heap

Ownership System

Ownership Rules & Memory Safety

Borrowing, References and Slices

Deep Dive: Stack vs Heap

Advanced Topics

BTreeMap

BTreeSet

RC

Arc

Mutex

RwLock

Channels

Declarative Macros with macro\_rules!

Procedural Macros & Custom Derive

Domain Specific Languages (DSLs)

Macros & Metaprogramming

Ecosystem and Libraries

Web Development

Axum

Actix

Leptos

Loco

Rocket

Personal recommendation: Axum

Asynchronous Programming

Tokio

async-std

smol

termion

structopt

clap

CLI Utilities

bevy

fyrox

ggez

macroquad

wgpu-rs

Game Development

Criterion.rs

Performance and Profiling

Rust

Introduction

Language Basics

Error Handling

Modules & Crates

Testing

Unit & Integration Testing

Mocking & Property Based Testing

Traits & Generics

Lifetimes & Borrow Checker

Explicit Lifetime Annotations

Lifetime Elision Rules

Covariant & Contravariant Lifetimes

Networking

reqwest

hyper

quinn

Cryptography

ring

rust-crypto

sodiumoxide

tauri

gtk-rs

relm

GUI Development

wasm-pack

wasmer

wasm-bindgen

WebAssembly (WASM)

Documenting with `rustdoc`

rust-gdb

rust-lldb

Debugging

Continue learning with following roadmaps

Backend

DevOps

What is Rust?

Why use Rust?

Environment Setup

Installing Rust and Cargo

IDEs and Rust Toolchains

Rust REPL (Rust Playground)

Option and Result Enumerations

Propagating Errors and `?` Operator

Custom Error Types and Traits

Code Organization & Namespacing

Dependency Management with Cargo

Publishing on Crates.io

Concurrency & Parallelism

Threads, Channels and Message Passing

Atomic Operations & Memory Barriers

Futures and Async/Await Paradigm

Trait Definitions & Implementations

Trait Bounds and Associated Types

Generics & Type-Level Programming

Serde

json-rust

toml-rust

Serialization / Deserialization

Diesel

sqlx

rusqlite

Database and ORM

embedded-hal

rppal

nrf-hal

Embedded and Systems

WebAssembly (WASM)

rust-gdb

rust-lldb

Debugging



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