

Related Roadmaps

- ✔ Backend Roadmap
- ✔ DevOps Roadmap
- ✔ Go Roadmap

Find the detailed version of this roadmap  
Along with resources and more roadmaps

<https://roadmap.sh>

Rust

Keep Learning

Pattern Matching and Destructuring

Functions and Method Syntax

Control Flow Constructs

Variables, Constants, and Data Types

Syntax and Semantics

Language Basics

Ownership System

Ownership Rules and Memory Safety

Borrowing, References, and Slices

Deep Dive: Stack vs Heap

Error Handling

Option & Result Enumerations

Propagating Errors and `?` Operator

Custom Error Types and Traits

Declarative Macros with `macro_rules!`

Procedural Macros and Custom Derive

Domain-Specific Languages (DSLs) in Rust

Macros and Metaprogramming

Ecosystem and Libraries

Rocket

Warp

Actix

Yew

Web Development

ring

rust-crypto

sodiumoxide

Cryptography

clap

structopt

termion

CLI Utilities

wasm-bindgen

wasm-pack

wasmer

Debugging

rust-gdb

rust-lldb

Introduction

What is Rust?

Why use Rust?

Memory Safety and Zero-Cost Abstractions

Environment Setup

Installing Rust and Cargo

IDEs and Rust Toolchains

Rust REPL (Rust Playground)

Enums

Structs

Traits

Impl Blocks

Constructs

Data Structures

Integers

Floats

Boolean

Character

Tuple

Array

Vector

String

Hashmap

Hashset

LinkedList

BinaryHeap

Stack

Queue

Advanced

BTreeMap

BTreeSet

Rc

Arc

Mutex

RwLock

Channels

Modules and Crates

Code Organization and Namespacing

Dependency Management with Cargo.toml

Publishing to crates.io

Lifetimes and Borrow Checker

Explicit Lifetime Annotations

Lifetime Elision Rules

Covariant and Contravariant Lifetimes

Traits and Generics

Trait Definitions and Implementations

Trait Bounds and Associated Types

Advanced Generics and Type-level Programming

Asynchronous Programming

Tokio

async-std

smol

Networking

request

hyper

quinn

Database and ORM

Diesel

sqlx

rusqlite

Serialization/Deserialization

Serde

json-rust

toml-rs

Game Development

bevy

fyrox

ggez

macroquad

wgpu-rs

GUI Development

druid

gtk-rs

relm

WebAssembly (WASM)

Embedded and Systems

embedded-hal

rppal

nrf-hal

Testing

Unit and Integration Testing

Mocking and Property-based Testing

Documenting with `rustdoc`

Performance and Profiling

Criterion.rs