

THE CLOJURE PROGRAMMING JOURNEY

FROM FIRST STEPS TO
PROFESSIONAL MASTERY
IN FUNCTIONAL PROGRAMMING

```
(defn journey [x]
  (->> x
    (map inc)
    (filter even?)
    (reduce +)))
```



EXPRESSIVE
SYNTAX



FUNCTIONAL
POWER



RELIABLE
SOFTWARE



INTERACTIVE
DEVELOPMENT

{λ}

SERGEY SOKOLIUK

The Clojure Programming Journey

From First Steps to Professional Mastery in Functional Programming

Steve T. Publications

This book is available at

<https://leanpub.com/theclojureprogrammingjourney>

This version was published on 2026-07-07



Leanpub

This is a [Leanpub](#) book. Leanpub empowers authors and publishers with the Lean Publishing process. [Lean Publishing](#) is the act of publishing an in-progress ebook using lightweight tools and many iterations to get reader feedback, pivot until you have the right book and build traction once you do.

© 2026 Steve T. Publications

Contents

From First Steps to Professional Mastery in Functional Programming	1
Introduction: Why Clojure?	2
The Complexity Crisis	2
Three Pillars	2
Who This Book Is For	2
How This Book Is Organized	2
What You Will Be Able To Do	2
A Note on Versions	2
Chapter 1: Getting Started, Installation and Your First Program	4
The Clojure Ecosystem Landscape	4
Installing the Tooling	4
Your First REPL Session	4
Writing Your First File	4
Development Environment Setup	4
Exercise: Your First Project	4
Common First-Time Pitfalls	5
Chapter 2: The Lisp Foundation, Syntax and Evaluation	6
S-Expressions and the Uniform Data Model	6
The Read-Eval-Print Loop	6
Special Forms vs Functions	6
Naming and Namespace Conventions	6
Reading Clojure Code	6
Exercises	6
Chapter 3: Data Structures, The Heart of Clojure	8
Vectors and Lists	8
Maps and Keywords	8
Sets and Strings	8

CONTENTS

Persistent Data Structures Explained	8
Transients for Performance	8
Comparing with Other Languages' Collections	8
Exercises	9
Chapter 4: Functions and Functional Programming	10
Defining Functions	10
First-Class and Higher-Order Functions	10
Pure Functions and Side Effects	10
Destructuring Deep Dive	10
Thread Macros and Flow Control	10
Composing Functions	10
Exercises	11
Chapter 5: Immutability and State Management	12
Why Immutability?	12
Atoms	12
Refs and Software Transactional Memory	12
Agents	12
Vars and Dynamic Binding	12
Choosing the Right State Mechanism	12
Exercises	13
Chapter 6: Sequences and Lazy Evaluation	14
The Sequence Abstraction	14
Core Sequence Functions	14
Lazy Sequences	14
Performance of Laziness	14
Reduction and Transducers	14
Working with Collections in Practice	14
Exercises	15
Chapter 7: Macros, Metaprogramming with Code as Data	16
What Are Macros?	16
Writing Your First Macro	16
Common Macro Patterns	16
Macro Debugging and Testing	16
When NOT to Use Macros	16
Reading Library Macros	16
Exercises	17

CONTENTS

Chapter 8: Concurrency and Parallelism	18
The Concurrency Problem	18
Thread Pools and Executors	18
Core.Async for Message Passing	18
Clojure's STM in Practice	18
Parallel Reduction and Transducers	18
Manifold: An Alternative to core.async	18
Parallel Reduction with clojure.core.reducers	19
Testing Concurrent Code	19
Exercises	19
Chapter 9: Protocols, Multimethods, and Polymorphism	20
Protocols	20
Records	20
Multimethods	20
Types and the deftype/defrecord Distinction	20
Extensibility Patterns	20
Exercises	20
Chapter 10: Java Interoperability	22
Calling Java from Clojure	22
JavaBeans Syntax	22
Importing and Namespaces	22
Implementing Java Interfaces	22
Building JVM Libraries	22
Common Interop Patterns	22
Exercises	23
Chapter 11: Performance and Optimization	24
Understanding Clojure Performance	24
Type Hints and Primitives	24
Profiling Tools	24
Memory Management	24
Common Performance Pitfalls	24
Benchmarking Methodology	24
Exercises	25
Chapter 12: Testing and Quality Assurance	26
Clojure.Test	26
Spec and Data-Driven Testing	26

CONTENTS

Malli: High-Performance Data Specification	26
Property-Based Testing with test.check	26
Mocking and Stubbing	26
Test-Driven Development in Clojure	26
Continuous Integration	27
Exercises	27
Chapter 13: Build Tools, Dependency Management, and Project Structure	28
The clojure CLI Tool	28
deps.edn Deep Dive	28
Leiningen	28
Dependency Management	28
Project Structure Conventions	28
Build Profiles and Environments	28
Publishing Libraries	29
Exercises	29
Chapter 14: REPL-Driven Development	30
The Philosophy of REPL-Driven Development	30
REPL Workflows	30
Tools for Advanced REPL Use	30
Debugging with the REPL	30
Building with the REPL	30
REPL-Driven Testing	30
Exercises	31
Chapter 15: Web Development and Application Architecture	32
Web Frameworks Overview	32
Building a REST API	32
Template Engines and Frontend Integration	32
Database Integration	32
Running Project: Building a Transaction API	32
Application Architecture Patterns	33
Authentication and Security	33
Exercises	33
Chapter 16: ClojureScript and Full-Stack Development	35
ClojureScript Compilation	35
Shadow-CLJS	35
Reagent and React Integration	35

CONTENTS

Full-Stack Patterns	35
ClojureScript Ecosystem	35
Deployment of ClojureScript Apps	35
Running Project: TxFlow Frontend	36
Exercises	36
Chapter 17: The Modern Clojure Ecosystem	37
Documentation Tools	37
Logging and Observability	37
Configuration Management	37
Deployment and DevOps	37
Structured Logging	37
Metrics and Observability with OpenTelemetry	37
Secrets Management	38
CI/CD Pipeline Example	38
Community Resources	38
The Future of Clojure	38
How Experienced Clojurists Approach Problem-Solving	38
Running Project: Deploying TxFlow to Production	38
Exercises	38
Conclusion: The Clojure Way Forward	40
What Makes Clojure Unique	40
When to Choose Clojure	40
The Career Dimension	40
A Final Meditation on Simplicity	40
Appendix A: Glossary of Clojure Terms	41
Appendix B: Quick-Reference Syntax Cheat Sheet	42
Basic Syntax	42
Data Structures	42
Destructuring Patterns	42
Thread Macros	42
Java Interop	42
State Management Quick Reference	42
Appendix C: Core Function Reference Table	44
Sequence Functions (clojure.core)	44
Collection Functions	44

Predicate Functions	44
Math and Numeric Functions	44
String Functions (clojure.string)	44
Appendix D: Naming Conventions Cheat Sheet	45
Namespace Names	45
Function and Variable Names	45
Keyword Names	45
Metadata Conventions	45
File Extension Conventions	45
Appendix E: Alphabetical Index	46

From First Steps to Professional Mastery in Functional Programming

Clojure is one of the most thoughtfully designed programming languages ever created. Born from Lisp heritage and built for the modern era, it combines the power of the JVM with a philosophy of simplicity, immutability, and interactive development. This book takes you from your very first Clojure expression through professional-grade application architecture, covering everything you need to write reliable, elegant software in one of the world's most satisfying languages. Whether you are a Java developer seeking a more expressive tool, a Python programmer curious about functional programming, or a seasoned polyglot looking for a language that respects your intelligence, this journey will transform how you think about code.

Introduction: Why Clojure?

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The Complexity Crisis

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Three Pillars

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Who This Book Is For

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

How This Book Is Organized

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

What You Will Be Able To Do

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

A Note on Versions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 1: Getting Started, Installation and Your First Program

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The Clojure Ecosystem Landscape

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Installing the Tooling

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Your First REPL Session

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Writing Your First File

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Development Environment Setup

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercise: Your First Project

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Common First-Time Pitfalls

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 2: The Lisp Foundation, Syntax and Evaluation

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

S-Expressions and the Uniform Data Model

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The Read-Eval-Print Loop

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Special Forms vs Functions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Naming and Namespace Conventions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Reading Clojure Code

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 3: Data Structures, The Heart of Clojure

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Vectors and Lists

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Maps and Keywords

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Sets and Strings

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Persistent Data Structures Explained

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Transients for Performance

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Comparing with Other Languages' Collections

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 4: Functions and Functional Programming

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Defining Functions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

First-Class and Higher-Order Functions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Pure Functions and Side Effects

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Destructuring Deep Dive

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Thread Macros and Flow Control

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Composing Functions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 5: Immutability and State Management

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Why Immutability?

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Atoms

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Refs and Software Transactional Memory

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Agents

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Vars and Dynamic Binding

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Choosing the Right State Mechanism

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 6: Sequences and Lazy Evaluation

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The Sequence Abstraction

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Core Sequence Functions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Lazy Sequences

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Performance of Laziness

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Reduction and Transducers

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Working with Collections in Practice

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 7: Macros, Metaprogramming with Code as Data

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

What Are Macros?

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Writing Your First Macro

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Common Macro Patterns

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Macro Debugging and Testing

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

When NOT to Use Macros

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Reading Library Macros

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 8: Concurrency and Parallelism

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The Concurrency Problem

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Thread Pools and Executors

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Core.Async for Message Passing

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Clojure's STM in Practice

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Parallel Reduction and Transducers

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Manifold: An Alternative to core.async

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Parallel Reduction with clojure.core.reducers

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Testing Concurrent Code

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 9: Protocols, Multimethods, and Polymorphism

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Protocols

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Records

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Multimethods

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Types and the deftype/defrecord Distinction

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Extensibility Patterns

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 10: Java Interoperability

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Calling Java from Clojure

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

JavaBeans Syntax

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Importing and Namespaces

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Implementing Java Interfaces

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Building JVM Libraries

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Common Interop Patterns

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 11: Performance and Optimization

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Understanding Clojure Performance

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Type Hints and Primitives

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Profiling Tools

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Memory Management

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Common Performance Pitfalls

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Benchmarking Methodology

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 12: Testing and Quality Assurance

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Clojure.Test

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Spec and Data-Driven Testing

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Malli: High-Performance Data Specification

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Property-Based Testing with test.check

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Mocking and Stubbing

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Test-Driven Development in Clojure

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Continuous Integration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 13: Build Tools, Dependency Management, and Project Structure

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The clojure CLI Tool

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

deps.edn Deep Dive

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Leiningen

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Dependency Management

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Project Structure Conventions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Build Profiles and Environments

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Publishing Libraries

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 14: REPL-Driven Development

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The Philosophy of REPL-Driven Development

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

REPL Workflows

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Tools for Advanced REPL Use

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Debugging with the REPL

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Building with the REPL

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

REPL-Driven Testing

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 15: Web Development and Application Architecture

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Web Frameworks Overview

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Building a REST API

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Template Engines and Frontend Integration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Database Integration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Running Project: Building a Transaction API

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Phase 1: Project Scaffolding

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Phase 2: Malli Schemas for API Contracts

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Phase 3: Database Layer with next.jdbc

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Phase 4: Routes with Malli Coercion

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Phase 5: Authentication with JWT

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Application Architecture Patterns

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Authentication and Security

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 16: ClojureScript and Full-Stack Development

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

ClojureScript Compilation

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Shadow-CLJS

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Reagent and React Integration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Full-Stack Patterns

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

ClojureScript Ecosystem

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Deployment of ClojureScript Apps

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Running Project: TxFlow Frontend

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Phase 6: Shared Validation Library

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Phase 7: Reagent Components for Transaction Management

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Phase 8: Real-Time Updates with WebSockets

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Chapter 17: The Modern Clojure Ecosystem

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Documentation Tools

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Logging and Observability

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Configuration Management

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Deployment and DevOps

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Structured Logging

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Metrics and Observability with OpenTelemetry

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Secrets Management

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

CI/CD Pipeline Example

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Community Resources

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The Future of Clojure

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

How Experienced Clojurists Approach Problem-Solving

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Running Project: Deploying TxFLOW to Production

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Exercises

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Conclusion: The Clojure Way Forward

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

What Makes Clojure Unique

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

When to Choose Clojure

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

The Career Dimension

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

A Final Meditation on Simplicity

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Appendix A: Glossary of Clojure Terms

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Appendix B: Quick-Reference Syntax Cheat Sheet

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Basic Syntax

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Data Structures

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Destructuring Patterns

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Thread Macros

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Java Interop

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

State Management Quick Reference

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Appendix C: Core Function Reference

Table

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Sequence Functions (clojure.core)

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Collection Functions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Predicate Functions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Math and Numeric Functions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

String Functions (clojure.string)

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Appendix D: Naming Conventions

Cheat Sheet

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Namespace Names

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Function and Variable Names

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Keyword Names

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Metadata Conventions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

File Extension Conventions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.

Appendix E: Alphabetical Index

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/theclojureprogrammingjourney>.