

clojure for the brave and true

clojure for the brave and true is a compelling phrase that encapsulates the spirit of exploring one of the most powerful and elegant programming languages designed for modern software development. Clojure, a dynamic, functional Lisp dialect, has gained significant popularity among developers seeking a language that combines simplicity, expressiveness, and robustness. Whether you are a seasoned programmer or a newcomer eager to learn, diving into Clojure can be both a rewarding and challenging journey. This article aims to guide you through understanding what makes Clojure unique, how to get started, and why it might be the right choice for your next project.

What Is Clojure?

Clojure is a modern Lisp that runs on the Java Virtual Machine (JVM), offering seamless interoperability with Java libraries and frameworks. Created by Rich Hickey in 2007, Clojure emphasizes immutability, concurrency, and simplicity, making it an ideal language for building reliable and maintainable software systems.

Key Features of Clojure

- Immutable Data Structures: Clojure's default data structures are immutable, enabling safer concurrency without the need for locks.
- Lisp Syntax: Its homoiconic syntax allows code to be manipulated as data, facilitating metaprogramming and macro development.
- Hosted on JVM: Leverages the JVM ecosystem, providing access to a vast array of Java libraries.
- Concurrency Support: Designed with concurrency in mind, offering powerful constructs like atoms, refs, agents, and core.async.
- REPL-Driven Development: Supports interactive programming through a robust Read-Eval-Print Loop (REPL).

Why Choose Clojure? Benefits for Developers

Clojure offers several advantages that make it appealing for a wide range of programming tasks:

1. Simplicity and Elegance

Clojure's syntax is minimalistic, reducing cognitive load and making code easier to read and maintain. Its homoiconic nature means code is data, enabling powerful macros and metaprogramming.

2. Emphasis on Immutability

Immutable data structures eliminate many common bugs related to shared state, especially in

concurrent environments. This leads to more reliable and predictable code.

3. Seamless Java Interoperability

Developers can leverage existing Java libraries effortlessly, significantly expanding the language's capabilities without reinventing the wheel.

4. Powerful Concurrency Primitives

With constructs like `atoms`, `refs`, and `core.async`, Clojure simplifies writing concurrent and parallel programs, making full use of multicore processors.

5. Active Community and Ecosystem

Clojure boasts a vibrant community that contributes a variety of libraries, tools, and frameworks, facilitating rapid development.

Getting Started with Clojure

Embarking on a Clojure journey involves understanding its core concepts, setting up the development environment, and practicing basic programming tasks.

Setting Up Your Environment

- Install Java Development Kit (JDK): Since Clojure runs on the JVM, ensure you have a recent JDK installed.
- Install Leiningen: The most popular build tool for Clojure projects, which manages dependencies and project configurations.
- Use a REPL: Tools like Leiningen or Clojure CLI provide an interactive environment to experiment with code.

Basic Clojure Syntax and Concepts

- Define Variables: `(def x 10)`
- Functions: `(defn add [a b] (+ a b))`
- Lists and Vectors: `(1 2 3)` for lists, `[1 2 3]` for vectors
- Maps: `{:name "Alice" :age 30}`
- Conditional Statements: `(if (> x 5) "Big" "Small")`

Sample "Hello, World!"

```
```clojure
(ns hello-world.core)

(defn -main []
 (println "Hello, World!"))
```
```

You can run this using Leiningen or the Clojure CLI, experiencing the simplicity firsthand.

Core Concepts in Clojure

Understanding the fundamental ideas behind Clojure is essential for effective programming.

Immutability and Persistent Data Structures

Clojure's data structures are persistent and immutable, meaning that any modification produces a new data structure without altering the original. This approach simplifies reasoning about code and enhances safety in concurrent contexts.

Functions as First-Class Citizens

Functions in Clojure are first-class, allowing them to be passed as arguments, returned from other functions, and stored in data structures. This promotes functional programming paradigms.

Macros and Metaprogramming

Macros enable developers to extend the language's syntax and create domain-specific languages (DSLs). Due to Clojure's homoiconic nature, macros are a powerful tool for code transformation.

Concurrency Primitives

- Atoms: For managing shared, synchronous state.
- Refs: For coordinated, transactional changes.
- Agents: For asynchronous state changes.
- core.async: Provides channels and go blocks for asynchronous programming.

Advanced Topics in Clojure

Once comfortable with the basics, developers can explore more sophisticated features and best practices.

Functional Programming Paradigms

Clojure promotes pure functions, higher-order functions, and recursion, enabling concise and expressive code.

Building Web Applications

Frameworks like Reitit, Luminus, and Compojure facilitate web development, integrating seamlessly

with Clojure.

Data Transformation and Analysis

Clojure's powerful sequence library (``clojure.core/seq``) allows efficient data manipulation, making it suitable for data analysis tasks.

Testing and Debugging

Tools such as `clojure.test` and CIDER provide robust testing and debugging environments to ensure code quality.

Popular Clojure Libraries and Frameworks

The Clojure ecosystem offers numerous libraries that extend its functionality:

- Web Development: Luminus, Reitit, Compojure
- Data Processing: Incanter, Nextjournal
- Database Interaction: HugSQL, Yesql
- UI Development: Reagent, re-frame (for React-based apps)
- Concurrency and Async: `core.async`, Manifold

Real-World Applications of Clojure

Clojure is used across various industries and domains:

- Financial Services: For building reliable trading systems.
- Data Science: For data transformation and analysis pipelines.
- Web Development: Creating scalable web applications.
- DevOps and Automation: Scripting and automation tasks.

Some notable companies adopting Clojure include Netflix, Cognitect, Walmart Labs, and Shopify.

Challenges and Considerations When Using Clojure

While Clojure offers many benefits, it also presents certain challenges:

Learning Curve

Its Lisp syntax and functional paradigm may be unfamiliar to developers coming from imperative languages.

Tooling and Ecosystem Maturity

Although growing, the Clojure ecosystem isn't as extensive as more mainstream languages like Java or JavaScript.

Performance Considerations

While JVM-based, some performance-critical applications may require careful optimization.

Conclusion: Is Clojure for You?

Choosing Clojure depends on your project requirements, team expertise, and long-term goals. Its emphasis on immutability, concurrency, and simplicity makes it an excellent choice for building reliable, scalable, and maintainable software. Embracing Clojure's philosophy can lead to more expressive code and a deeper understanding of functional programming principles.

If you are brave enough to explore a language that challenges conventional programming paradigms but rewards you with powerful tools and a vibrant community, then Clojure for the brave and true might just be your next programming adventure.

Keywords for SEO optimization: Clojure programming, learn Clojure, Clojure tutorials, Clojure language features, functional programming with Clojure, Clojure libraries, Clojure web development, JVM languages, immutability in Clojure, concurrency in Clojure, Clojure for beginners, advanced Clojure techniques

Frequently Asked Questions

What is the main focus of 'Clojure for the Brave and True'?

The book aims to teach readers Clojure programming from the ground up, emphasizing practical skills, functional programming concepts, and building confidence to tackle real-world problems with Clojure.

How does 'Clojure for the Brave and True' approach teaching functional programming?

It introduces functional programming principles through clear explanations, hands-on projects, and beginner-friendly examples, making complex ideas accessible and encouraging readers to think functionally.

Is 'Clojure for the Brave and True' suitable for complete beginners?

Yes, the book is designed for beginners with little to no prior programming experience, guiding them step-by-step through Clojure fundamentals and gradually building their confidence.

What makes 'Clojure for the Brave and True' popular among developers today?

Its engaging writing style, practical exercises, and focus on real-world applications make it a favorite for both newcomers and experienced programmers looking to expand into Clojure and functional programming.

Does the book cover advanced topics or focus mainly on basics?

While primarily focused on foundational concepts and practical skills, the book also introduces some advanced topics like concurrency and macros, providing a solid base for further exploration.

Additional Resources

Clojure for the Brave and True: Navigating a Lisp for Modern Programmers

Clojure for the brave and true—a phrase that captures both the challenge and the allure of diving into one of the most distinctive and powerful programming languages out there. Clojure, a modern Lisp dialect designed to run on the Java Virtual Machine (JVM), has garnered a dedicated following among developers seeking a language that emphasizes immutability, concurrency, and simplicity. Yet, its syntax and conceptual approach can seem daunting to newcomers. This article explores the core principles of Clojure, its unique features, and why those willing to embrace its challenges find a powerful tool for building robust, scalable software.

The Origins and Philosophy of Clojure

A Brief Historical Context

Clojure was created by Rich Hickey in 2007, emerging as a response to perceived shortcomings in existing languages—especially those that run on the JVM. Hickey envisioned a language that combined the expressiveness of Lisp with modern features suited for contemporary software development. Since then, Clojure has evolved into a language that champions simplicity, immutability, and a functional programming paradigm.

Core Philosophical Pillars

Clojure's design is rooted in several key philosophies:

- Emphasize Simplicity: Reduce complexity to make code more understandable and maintainable.

- Immutability by Default: Use persistent data structures that are immutable by default, facilitating safer concurrent programming.
- Embrace Functional Programming: Focus on pure functions and stateless computation.
- Host Agnostic: While primarily targeting JVM, Clojure also has variants for JavaScript (ClojureScript) and .NET (ClojureCLR).
- Encourage Interactive Development: Support REPL-driven workflows for rapid feedback and exploration.

The Syntax and Semantics of Clojure

A Lisp in the Modern Age

Clojure's syntax is a quintessential Lisp syntax—using s-expressions (symbolic expressions) composed of nested parentheses. While this may seem alien to programmers accustomed to C-style languages, it offers uniformity and flexibility.

For example, defining a simple function:

```
```clojure
(defn add [a b]
 (+ a b))
```
```

Here, `defn` defines a function named `add`, taking parameters `a` and `b`, returning their sum.

Key Syntax Features

- Parentheses: The core structural element, used for function calls and data structures.
- Lists and Vectors: Data structures for ordered collections, with lists being linked lists and vectors being array-backed.
- Maps and Sets: For key-value associations and collections of unique elements.
- Symbols and Keywords: Symbols are identifiers; keywords (prefixed with `:`) are constants often used as keys.

The Power of Homoiconicity

Because Clojure code is represented as data structures, it can manipulate code itself—a property called homoiconicity. This enables powerful metaprogramming and macro capabilities, allowing developers to extend the language or generate code dynamically.

Core Features That Define Clojure

Immutable Data Structures

At the heart of Clojure are persistent, immutable data structures—vectors, maps, sets, and lists—that are designed for efficient versioning and sharing.

- Advantages:
- Thread Safety: No need for locks or synchronization.
- Ease of Debugging: Data remains unchanged, simplifying reasoning.
- Concurrency: Facilitates safe parallel computations.

Functions as First-Class Citizens

Functions in Clojure are first-class objects—can be passed around, returned, and stored in data structures. This supports higher-order programming, closures, and functional composition.

Macros and Metaprogramming

Clojure's macro system allows developers to write code that generates code, providing a powerful way to extend language capabilities and create domain-specific abstractions.

Concurrency Primitives

Clojure offers several primitives to manage state safely across threads:

- Atoms: For managing shared, synchronous, uncoordinated state.
- Refs: For coordinated, transactional state changes.
- Agents: For asynchronous state changes.
- Core.async: A library inspired by channels and CSP (Communicating Sequential Processes) for asynchronous programming.

Why Choose Clojure? The Benefits for Modern Developers

Emphasis on Simplicity and Minimalism

Unlike languages with complex syntax and extensive feature sets, Clojure maintains a lean core, making it easier to learn and reason about. Its minimalist syntax reduces cognitive load, allowing developers to focus on problem-solving.

Robust Concurrency Support

Modern applications often require handling multiple tasks simultaneously. Clojure's immutability and concurrency primitives make it straightforward to build scalable, thread-safe systems without the pitfalls of traditional shared-state concurrency.

Interoperability with Java Ecosystem

Running on the JVM means Clojure can leverage the vast Java ecosystem—libraries, tools, frameworks—without rewriting or porting code. This interoperability accelerates development and integration.

Dynamic and Interactive Development

The REPL (Read-Eval-Print Loop) environment is a cornerstone of Clojure development, enabling developers to write code, test snippets, and refactor interactively. This promotes exploratory

programming and faster iteration cycles.

Community and Ecosystem

While smaller than some mainstream languages, Clojure's community is passionate and active, producing libraries, tutorials, and tools that support web development, data processing, testing, and more.

Challenges and Considerations

Learning Curve

The Lisp syntax, while elegant and uniform, can be intimidating to newcomers. Mastering macros and homoiconicity requires a shift in thinking from procedural to declarative, functional paradigms.

Performance Considerations

While JVM interoperability offers performance benefits, idiomatic Clojure code emphasizes immutability and functional constructs, which can sometimes introduce overhead if not carefully optimized.

Ecosystem Maturity

Compared to languages like JavaScript or Python, Clojure's ecosystem is smaller, which may impact availability of libraries or community support for niche domains.

Practical Domains Where Clojure Excels

Web Development

Frameworks like Luminus and Ring enable building web applications quickly, leveraging Clojure's simplicity and Java integration.

Data Processing and Analysis

Clojure's immutable data structures and emphasis on pure functions make it suitable for data pipelines, especially in conjunction with Java libraries like Apache Spark.

Concurrent and Distributed Systems

Its primitives for concurrency and mutable state management make Clojure a good choice for building scalable, distributed applications.

Automation and Scripting

The REPL environment and dynamic nature facilitate quick scripting and automation tasks.

Getting Started with Clojure

Setting Up

- Install Leiningen: The most popular build tool and project manager.
- Start the REPL: Launch a Clojure REPL with ``lein repl``, allowing for interactive development.
- Write Your First Program:

```
```clojure
(println "Hello, brave Clojure world!")
```
```

Learning Resources

- "Clojure for the Brave and True" by Daniel Higginbotham: An accessible, friendly introduction.
- Official documentation: <https://clojure.org>
- Community tutorials, blogs, and forums.

Conclusion: Embracing the Challenge

Clojure for the brave and true encapsulates the spirit required to master a language that eschews conventions in favor of elegance and power. While its Lisp roots and unique syntax may initially seem daunting, those willing to embrace its core principles—immutability, simplicity, and functional programming—will find Clojure a potent tool for building reliable, scalable, and maintainable software. Its seamless JVM integration, combined with an active community and a philosophy centered on clarity and minimalism, makes Clojure not just a language but a way of thinking about code.

For developers seeking to push their boundaries and explore a language designed for the modern era, Clojure offers an invitation to think differently, code more safely, and develop with confidence in the face of complexity. The path may be challenging, but the rewards—robustness, flexibility, and a deeper understanding of programming—are well worth the journey.

[Clojure For The Brave And True](#)

clojure for the brave and true: *Clojure for the Brave and True* Daniel Higginbotham, 2015-10-15 For weeks, months—nay!—from the very moment you were born, you’ve felt it calling to you. At long last you’ll be united with the programming language you’ve been longing for: Clojure! As a Lisp-style functional programming language, Clojure lets you write robust and elegant code, and because it runs on the Java Virtual Machine, you can take advantage of the vast Java ecosystem. Clojure for the Brave and True offers a dessert-first approach: you’ll start playing with real programs immediately, as you steadily acclimate to the abstract but powerful features of Lisp and functional programming. Inside you’ll find an offbeat, practical guide to Clojure, filled with quirky sample programs that catch cheese thieves and track glittery vampires. Learn how to: -Wield Clojure’s core functions -Use Emacs for Clojure development -Write macros to modify Clojure itself -Use Clojure’s

tools to simplify concurrency and parallel programming Clojure for the Brave and True assumes no prior experience with Clojure, the Java Virtual Machine, or functional programming. Are you ready, brave reader, to meet your true destiny? Grab your best pair of parentheses—you're about to embark on an epic journey into the world of Clojure!

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Statistics, big data, and machine learning for Clojure programmers About This Book Write code using Clojure to harness the power of your data Discover the libraries and frameworks that will help you succeed A practical guide to understanding how the Clojure programming language can be used to derive insights from data Who This Book Is For This book is aimed at developers who are already productive in Clojure but who are overwhelmed by the breadth and depth of understanding required to be effective in the field of data science. Whether you're tasked with delivering a specific analytics project or simply suspect that you could be deriving more value from your data, this book will inspire you with the opportunities—and inform you of the risks—that exist in data of all shapes and sizes. What You Will Learn Perform hypothesis testing and understand feature selection and statistical significance to interpret your results with confidence Implement the core machine learning techniques of regression, classification, clustering and recommendation Understand the importance of the value of simple statistics and distributions in exploratory data analysis Scale algorithms to web-sized datasets efficiently using distributed programming models on Hadoop and Spark Apply suitable analytic approaches for text, graph, and time series data Interpret the terminology that you will encounter in technical papers Import libraries from other JVM languages such as Java and Scala Communicate your findings clearly and convincingly to nontechnical colleagues In Detail The term “data science” has been widely used to define this new profession that is expected to interpret vast datasets and translate them to improved decision-making and performance. Clojure is a powerful language that combines the interactivity of a scripting language with the speed of a compiled language. Together with its rich ecosystem of native libraries and an extremely simple and consistent functional approach to data manipulation, which maps closely to mathematical formula, it is an ideal, practical, and flexible language to meet a data scientist's diverse needs. Taking you on a journey from simple summary statistics to sophisticated machine learning algorithms, this book shows how the Clojure programming language can be used to derive insights from data. Data scientists often forge a novel path, and you'll see how to make use of Clojure's Java interoperability capabilities to access libraries such as Mahout and Mllib for which Clojure wrappers don't yet exist. Even seasoned Clojure developers will develop a deeper appreciation for their language's flexibility! You'll learn how to apply statistical thinking to your own data and use Clojure to explore, analyze, and visualize it in a technically and statistically robust way. You can also use Incanter for local data processing and ClojureScript to present interactive visualisations and understand how distributed platforms such as Hadoop and Spark's MapReduce and GraphX's BSP solve the challenges of data analysis at scale, and how to explain algorithms using those programming models. Above all, by following the explanations in this book, you'll learn not just how to be effective using the current state-of-the-art methods in data science, but why such methods work so that you can continue to be productive as the field evolves into the future. Style and approach This is a practical guide to data science that teaches theory by example through the libraries and frameworks accessible from the Clojure programming language.

clojure for the brave and true: *Mastering Clojure: An Essential Guide to Functional Programming Basics* Adam Jones, 2025-01-02 Unlock the power of functional programming with *Mastering Clojure: An Essential Guide to Functional Programming Basics*, your definitive resource for conquering the Clojure language. Whether you're a newcomer to programming or a seasoned developer eager to expand your expertise, this book provides an in-depth exploration of Clojure's foundational concepts and vibrant ecosystem. Embark on your Clojure journey with precise, insightful explanations covering everything from setting up your development environment to crafting sophisticated web applications. Delve into Clojure's innovative data structures, functional

programming principles, concurrency, and parallelism. Master state and identity management within your applications, handle errors efficiently, and debug with confidence. Discover the seamless integration of Clojure with Java, tapping into the extensive Java ecosystem for your projects. Through practical examples, expert advice, and targeted tutorials, Mastering Clojure equips you to write efficient, elegant code harnessing the full potential of functional programming. Embrace the journey to becoming a skilled Clojure developer, ready to tackle contemporary software development challenges with creativity and assurance.

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clojure for the brave and true: Getting Clojure Russ Olsen, 2018-05-09 Behind every programming language lies a vision of how programs should be built. The vision behind Clojure is of a radically simple language framework holding together a sophisticated collection of programming features. Learning Clojure involves much more than just learning the mechanics of the language. To really get Clojure you need to understand the ideas underlying this structure of framework and features. You need this book: an accessible introduction to Clojure that focuses on the ideas behind the language as well as the practical details of writing code. Clojure attracts developers on the cutting edge and is arguably the best language for learning to program in the functional style without compromise. But this comes with a steep learning curve. Getting Clojure directly addresses this by teaching you how to think functionally as it teaches you the language. You'll learn about Clojure's powerful data structures and high-level functions, but you'll also learn what it means for a language to be functional, and how to think in Clojure's functional way. Each chapter of Getting Clojure takes a feature or two or three from the language, explains the syntax and the mechanics behind that feature so that you can make it work before digging into the deeper questions: What is

the thinking behind the feature? And how does it fit in with the rest of the language? In *Getting Clojure* you'll learn Clojure's very simple syntax, but you'll also learn why that syntax is integral the way the language is constructed. You'll discover that most data structures in Clojure are immutable, but also why that leads to more reliable programs. And you'll see how easy it is to write Clojure functions and also how you can use those functions to build complex and capable systems. With real-world examples of how working Clojure programmers use the language, *Getting Clojure* will help you see the challenges of programming through the eye of experienced Clojure developers. What You Need: You will need to have some background in programming. To follow along with the examples in the book, you will need Java 6 or new, Clojure 1.8 or 1.9, and Leiningen 2.

clojure for the brave and true: Programming Clojure Alex Miller, Stuart Halloway, Aaron Bedra, 2018-02-23 Drowning in unnecessary complexity, unmanaged state, and tangles of spaghetti code? In the best tradition of Lisp, Clojure gets out of your way so you can focus on expressing simple solutions to hard problems. Clojure cuts through complexity by providing a set of composable tools—immutable data, functions, macros, and the interactive REPL. Written by members of the Clojure core team, this book is the essential, definitive guide to Clojure. This new edition includes information on all the newest features of Clojure, such as transducers and specs. Clojure joins the flexibility and agility of Lisp with the reach, stability, and performance of Java. Combine Clojure's tools for maximum effectiveness as you work with immutable data, functional programming, and safe concurrency to write programs that solve real-world problems. Start by reading and understanding Clojure syntax and see how Clojure is evaluated. From there, find out about the sequence abstraction, which combines immutable collections with functional programming to create truly reusable data transformation code. Clojure is a functional language; learn how to write programs in a functional style, and when and how to use recursion to your advantage. Discover Clojure's unique approach to state and identity, techniques for polymorphism and open systems using multimethods and protocols, and how to leverage Clojure's metaprogramming capabilities via macros. Finally, put all the pieces together in a real program. New to this edition is coverage of Clojure's spec library, one of the most interesting new features of Clojure for describing both data and functions. You can use Clojure spec to validate data, destructure data, explain invalid data, and generate large numbers of tests to verify the correctness of your code. With this book, you'll learn how to think in Clojure, and how to take advantage of its combined strengths to build powerful programs quickly. What You Need: Java 6 or higher Clojure 1.9

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programming Understand Clojure performance and capabilities Develop reactive web pages using ClojureScript Adopt an REPL-driven development workflow Clojure is a modern dialect of Lisp, designed for concurrency and Java compatibility. It can be used with the Java virtual machine, Microsoft's Common Language Runtime, and JavaScript engines, providing a level of both versatility and functionality that is appealing to more and more enterprise-level developers. As requirements grow increasingly complex, stepping away from imperative programming can dramatically streamline the development workflow. Professional Clojure provides the expert instruction that gets professionals up to speed and back to work quickly.

clojure for the brave and true: *Practical Clojure* Luke VanderHart, Stuart Sierra, 2010-12-31 This book is the first definitive reference for the Clojure language, providing both an introduction to functional programming in general and a more specific introduction to Clojure's features. This book demonstrates the use of the language through examples, including features such as software transactional memory (STM) and immutability, which may be new to programmers coming from other languages. Overview of functional programming and description of what sets Clojure apart from other languages Detailed explanation of Clojure's special features Examples of real-world tasks that are well-suited to Clojure's capabilities, starting with simple tasks and moving on to more complex applications

clojure for the brave and true: *The Joy of Clojure* Chris Houser, Michael Fogus, 2014-05-28 Summary The Joy of Clojure, Second Edition is a deep look at the Clojure language. Fully updated for Clojure 1.6, this new edition goes beyond just syntax to show you the why of Clojure and how to write fluent Clojure code. You'll learn functional and declarative approaches to programming and will master the techniques that make Clojure so elegant and efficient. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The Clojure programming language is a dialect of Lisp that runs on the Java Virtual Machine and JavaScript runtimes. It is a functional programming language that offers great performance, expressive power, and stability by design. It gives you built-in concurrency and the predictable precision of immutable and persistent data structures. And it's really, really fast. The instant you see long blocks of Java or Ruby dissolve into a few lines of Clojure, you'll know why the authors of this book call it a joyful language. It's no wonder that enterprises like Staples are betting their infrastructure on Clojure. About the Book The Joy of Clojure, Second Edition is a deep account of the Clojure language. Fully updated for Clojure 1.6, this new edition goes beyond the syntax to show you how to write fluent Clojure code. You'll learn functional and declarative approaches to programming and will master techniques that make Clojure elegant and efficient. The book shows you how to solve hard problems related to concurrency, interoperability, and performance, and how great it can be to think in the Clojure way. Appropriate for readers with some experience using Clojure or common Lisp. What's Inside Build web apps using ClojureScript Master functional programming techniques Simplify concurrency Covers Clojure 1.6 About the Authors Michael Fogus and Chris Houser are contributors to the Clojure and ClojureScript programming languages and the authors of various Clojure libraries and language features. Table of Contents PART 1 FOUNDATIONS Clojure philosophy Drinking from the Clojure fire hose Dipping your toes in the pool PART 2 DATA TYPES On scalars Collection types PART 3 FUNCTIONAL PROGRAMMING Being lazy and set in your ways Functional programming PART 4 LARGE-SCALE DESIGN Macros Combining data and code Mutation and concurrency Parallelism PART 5 HOST SYMBIOSIS Java.next Why ClojureScript? PART 6 TANGENTIAL CONSIDERATIONS Data-oriented programming Performance Thinking programs Clojure changes the way you think

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