

THE PROFESSIONAL'S GUIDE TO ELIXIR

A Comprehensive Guide to
Functional Programming,
Concurrency, and
Fault-Tolerant Systems



FUNCTIONAL
PROGRAMMING



CONCURRENCY
ON THE BEAM



FAULT-TOLERANT
SYSTEMS WITH OTP



PHOENIX & LIVEVIEW
WEB APPLICATIONS



THE ELIXIR TOOLCHAIN
MIX • HEX • DIALYZER

THOMAS SCHRÖDER

The Professional's Guide to Elixir

A Comprehensive Guide to Functional Programming,
Concurrency, and Fault-Tolerant Systems

Steve T. Publications

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A Comprehensive Guide to Functional Programming, Concurrency, and Fault-Tolerant Systems

Elixir is a dynamic, functional programming language that runs on the Erlang virtual machine (BEAM), the same battle-tested runtime that powers WhatsApp's billion-user messaging infrastructure and Discord's real-time voice platform. This book takes you from your first Elixir program to building production-grade distributed systems. You will learn the language's core syntax and data types, master functional programming patterns, understand the BEAM virtual machine's legendary concurrency model, build fault-tolerant applications with OTP supervision trees, wield powerful metaprogramming macros, deploy scalable web applications with Phoenix and LiveView, and navigate the complete Elixir toolchain from Mix to Hex to Dialyzer. Whether you are a beginner discovering functional programming for the first time or an experienced developer seeking deep expertise in concurrent software architecture, this book provides the knowledge, practical examples, and real-world insights you need to write software that scales gracefully and survives failure.

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Chapter 17: The Ecosystem, Comparisons, and When to Choose Elixir

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Popular Libraries and Frameworks Beyond Phoenix

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The Elixir Community and Learning Resources

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Elixir vs. Erlang: When to Use Which

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Elixir vs. Other Languages (Go, Rust, Java, Python, Node.js)

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Decision Framework: When to Choose Elixir

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Common Pitfalls and Anti-Patterns

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The Future of Elixir

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Conclusion

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What We Have Learned

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The Elixir Advantage in Modern Software Engineering

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Where to Go From Here

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