

Developing Web Apps With Haskell And Yesod Safety Driven Web Development

AngularJS is the leading framework for building dynamic JavaScript applications that take advantage of the capabilities of modern browsers and devices. AngularJS, which is maintained by Google, brings the power of the Model-View-Controller (MVC) pattern to the client, providing the foundation for complex and rich web apps. It allows you to build applications that are smaller, faster, and with a lighter resource footprint than ever before. Best-selling author Adam Freeman explains how to get the most from AngularJS. He begins by describing the MVC pattern and the many benefits that can be gained...

Summary Functional Programming in JavaScript teaches JavaScript developers functional techniques that will improve extensibility, modularity, reusability, testability, and performance. Through concrete examples and jargon-free explanations, this book teaches you how to apply functional programming to real-life development tasks. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology In complex web applications, the low-level details of your JavaScript code can obscure the workings of the system as a whole. As a coding style, functional programming (FP) promotes loosely coupled relationships among the components of your application, making the big picture easier to design, communicate, and maintain. About the Book Functional Programming in JavaScript teaches you techniques to improve your web applications - their extensibility, modularity, reusability, and testability, as well as

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their performance. This easy-to-read book uses concrete examples and clear explanations to show you how to use functional programming in real life. If you're new to functional programming, you'll appreciate this guide's many insightful comparisons to imperative or object-oriented programming that help you understand functional design. By the end, you'll think about application design in a fresh new way, and you may even grow to appreciate monads! What's Inside High-value FP techniques for real-world uses Using FP where it makes the most sense Separating the logic of your system from implementation details FP-style error handling, testing, and debugging All code samples use JavaScript ES6 (ES 2015) About the Reader Written for developers with a solid grasp of JavaScript fundamentals and web application design. About the Author Luis Atencio is a software engineer and architect building enterprise applications in Java, PHP, and JavaScript. Table of Contents PART 1 THINK FUNCTIONALLY Becoming functional Higher-order JavaScript PART 2 GET FUNCTIONAL Few data structures, many operations Toward modular, reusable code Design patterns against complexity PART 3 ENHANCING YOUR FUNCTIONAL SKILLS Bulletproofing your code Functional optimizations Managing asynchronous events and data Haskell is one of the leading languages for teaching functional programming, enabling students to write simpler and cleaner code, and to learn how to structure and reason about programs. This introduction is ideal for beginners: it requires no previous programming experience and all concepts are explained from first principles via carefully chosen examples. Each chapter includes exercises that range from the straightforward to extended projects, plus suggestions for further reading on more advanced topics. The author is a leading Haskell researcher and instructor, well-known for his teaching skills. The presentation is clear and

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simple, and benefits from having been refined and class-tested over several years. The result is a text that can be used with courses, or for self-learning. Features include freely accessible Powerpoint slides for each chapter, solutions to exercises and examination questions (with solutions) available to instructors, and a downloadable code that's fully compliant with the latest Haskell release.

Learn to use the APIs and frameworks for parallel and concurrent applications in Haskell. This book will show you how to exploit multicore processors with the help of parallelism in order to increase the performance of your applications. Practical Concurrent Haskell teaches you how concurrency enables you to write programs using threads for multiple interactions. After accomplishing this, you will be ready to make your move into application development and portability with applications in cloud computing and big data. You'll use MapReduce and other, similar big data tools as part of your Haskell big data applications development. What You'll Learn Program with Haskell Harness concurrency to Haskell Apply Haskell to big data and cloud computing applications Use Haskell concurrency design patterns in big data Accomplish iterative data processing on big data using Haskell Use MapReduce and work with Haskell on large clusters Who This Book Is For Those with at least some prior experience with Haskell and some prior experience with big data in another programming language such as Java, C#, Python, or C++.

Providing an end-to-end view of how modern web applications are built, Dynamic Web Applications takes a cohesive approach to building a software architecture from core components. It tells a development story through a running case study taking you through each phase - analysis, design and implementation - without straying into detail or trying to cover too many alternatives. Using Java server side

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frameworks and XML-based page generation with device-adaptive mark-up, this is a contemporary and well targeted coverage of important areas of web application development including Ajax, mobile Internet development, XML transformation, adaptive markup, web services and web application frameworks. It shows you how to build functionality into a website using standard patterns and technologies. These will work as a basic framework from which you will be able to explore more challenging developments such as porting applications to mobile devices and including Web 2.0 features. An ideal text for web programming courses, this book will help you whether you are a student or need to reskill and want a dependable and accessible self-study package.

Beginning Haskell provides a broad-based introduction to the Haskell language, its libraries and environment, and to the functional programming paradigm that is fast growing in importance in the software industry. The book takes a project-based approach to learning the language that is unified around the building of a web-based storefront. Excellent coverage is given to the Haskell ecosystem and supporting tools. These include the Cabal build tool for managing projects and modules, the HUnit and QuickCheck tools for software testing, the Scotty framework for developing web applications, Persistent and Esqueleto for database access, and also parallel and distributed programming libraries. Functional programming is gathering momentum, allowing programmers to express themselves in a more concise way, reducing boilerplate and increasing the safety of code. Indeed, mainstream languages such as C# and Java are adopting features from functional programming, and from languages implementing that paradigm. Haskell is an elegant and noise-free pure functional language with a long history, having a huge number of library contributors and an active

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community. This makes Haskell the best tool for both learning and applying functional programming, and *Beginning Haskell* the perfect book to show off the language and what it can do. Takes you through a series of projects showing the different parts of the language. Provides an overview of the most important libraries and tools in the Haskell ecosystem. Teaches you how to apply functional patterns in real-world scenarios.

Easy to understand and fun to read, this updated edition of *Introducing Python* is ideal for beginning programmers as well as those new to the language. Author Bill Lubanovic takes you from the basics to more involved and varied topics, mixing tutorials with cookbook-style code recipes to explain concepts in Python 3. End-of-chapter exercises help you practice what you've learned. You'll gain a strong foundation in the language, including best practices for testing, debugging, code reuse, and other development tips. This book also shows you how to use Python for applications in business, science, and the arts, using various Python tools and open source packages.

Whether you need a new tool or just inspiration, *Seven Web Frameworks in Seven Weeks* explores modern options, giving you a taste of each with ideas that will help you create better apps. You'll see frameworks that leverage modern programming languages, employ unique architectures, live client-side instead of server-side, or embrace type systems. You'll see everything from familiar Ruby and JavaScript to the more exotic Erlang, Haskell, and Clojure. The rapid evolution of web apps demands innovative solutions: this survey of frameworks and their unique perspectives will inspire you and get you thinking in new ways to meet the challenges you face daily. This book covers seven web frameworks that are influencing modern web applications and changing web development: Sinatra, CanJS, AngularJS, Ring,

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Webmachine, Yesod, Immutant. Each of these web frameworks brings unique and powerful ideas to bear on building apps. Embrace the simplicity of Sinatra, which sheds the trappings of large frameworks and gets back to basics with Ruby. Live in the client with CanJS, and create apps with JavaScript in the browser. Be declarative with AngularJS; say what you want, not how to do it, with a mixture of declarative HTML and JavaScript. Turn the web into data with Ring, and use Clojure to make data your puppet. Become a master of advanced HTTP with Webmachine, and focus the power of Erlang. Prove web theorems with Yesod; see how Haskell's advanced type system isn't just for academics. Develop in luxury with Immutant, an enlightened take on the enterprise framework. Seven Web Frameworks will influence your work, no matter which framework you currently use. Welcome to a wider web. What You Need: You'll need Windows, MacOS X or Linux, along with your favorite web browser. Each chapter will cover what you need to download and which language versions are required.

This easy-to-use, fast-moving tutorial introduces you to functional programming with Haskell. You'll learn how to use Haskell in a variety of practical ways, from short scripts to large and demanding applications. Real World Haskell takes you through the basics of functional programming at a brisk pace, and then helps you increase your understanding of Haskell in real-world issues like I/O, performance, dealing with data, concurrency, and more as you move through each chapter.

This fast-moving guide introduces web application development with Haskell and Yesod, a potent language/framework combination that supports high-

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performing applications that are modular, type-safe, and concise. Fully updated for Yesod 1.4, this second edition shows you how Yesod handles widgets, forms, persistence, and RESTful content. Author also introduces various Haskell tools to supplement your basic knowledge of the language.

Take your Haskell and functional programming skills to the next level by exploring new idioms and design patterns About This Book Explore Haskell on a higher level through idioms and patterns Get an in-depth look into the three strongholds of Haskell: higher-order functions, the Type system, and Lazy evaluation Expand your understanding of Haskell and functional programming, one line of executable code at a time Who This Book Is For If you're a Haskell programmer with a firm grasp of the basics and ready to move more deeply into modern idiomatic Haskell programming, then this book is for you. What You Will Learn Understand the relationship between the "Gang of Four" OOP Design Patterns and Haskell Try out three ways of Streaming I/O: imperative, Lazy, and Iteratee based Explore the pervasive pattern of Composition: from function composition through to high-level composition with Lenses Synthesize Functor, Applicative, Arrow and Monad in a single conceptual framework Follow the grand arc of Fold and Map on lists all the way to their culmination in Lenses and Generic Programming Get a taste of Type-level programming in Haskell and how this relates to dependently-typed programming Retrace the evolution, one key language extension at a time, of the Haskell Type and Kind systems Place the elements of

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modern Haskell in a historical framework In Detail
Design patterns and idioms can widen our perspective by showing us where to look, what to look at, and ultimately how to see what we are looking at. At their best, patterns are a shorthand method of communicating better ways to code (writing less, more maintainable, and more efficient code). This book starts with Haskell 98 and through the lens of patterns and idioms investigates the key advances and programming styles that together make "modern Haskell". Your journey begins with the three pillars of Haskell. Then you'll experience the problem with Lazy I/O, together with a solution. You'll also trace the hierarchy formed by Functor, Applicative, Arrow, and Monad. Next you'll explore how Fold and Map are generalized by Foldable and Traversable, which in turn is unified in a broader context by functional Lenses. You'll delve more deeply into the Type system, which will prepare you for an overview of Generic programming. In conclusion you go to the edge of Haskell by investigating the Kind system and how this relates to Dependently-typed programming. Style and approach Using short pieces of executable code, this guide gradually explores the broad pattern landscape of modern Haskell. Ideas are presented in their historical context and arrived at through intuitive derivations, always with a focus on the problems they solve. Haskell is the world's leading lazy functional programming language, widely used for teaching, research, and applications. The language continues to develop rapidly, but in 1998 the community decided to capture a stable snapshot of the language: Haskell 98.

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All Haskell compilers support Haskell 98, so practitioners and educators alike have a stable base for their work. This book constitutes the agreed definition of Haskell 98, both the language itself and its supporting libraries, and should be a standard reference work for anyone involved in research, teaching, or application of Haskell.

Summary SPA Design and Architecture teaches you the design and development skills you need to create SPAs. Includes an overview of MV* frameworks, unit testing, routing, layout management, data access, pub/sub, and client-side task automation. This book is full of easy-to-follow examples you can apply to the library or framework of your choice. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The next step in the development of web-based software, single-page web applications deliver the sleekness and fluidity of a native desktop application in a browser. If you're ready to make the leap from traditional web applications to SPAs, but don't know where to begin, this book will get you going. About the Book SPA Design and Architecture teaches you the design and development skills you need to create SPAs. You'll start with an introduction to the SPA model and see how it builds on the standard approach using linked pages. The author guides you through the practical issues of building an SPA, including an overview of MV* frameworks, unit testing, routing, layout management, data access, pub/sub, and client-side task automation. This book is full of easy-to-follow examples you can apply to the

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library or framework of your choice. What's Inside Working with modular JavaScript Understanding MV* frameworks Layout management Client-side task automation Testing SPAs About the Reader This book assumes you are a web developer and know JavaScript basics. About the Author Emmet Scott is a senior software engineer and architect with experience building large-scale, web-based applications. Table of Contents PART 1 THE BASICS What is a single-page application? The role of MV* frameworks Modular JavaScript PART 2 CORE CONCEPTS Navigating the single page View composition and layout Inter-module interaction Communicating with the server Unit testing Client-side task automation APPENDIXES Employee directory example walk-through Review of the XMLHttpRequest API Chapter 7 server-side setup and summary Installing Node.js and Gulp.js

Summary Get Programming with Haskell leads you through short lessons, examples, and exercises designed to make Haskell your own. It has crystal-clear illustrations and guided practice. You will write and test dozens of interesting programs and dive into custom Haskell modules. You will gain a new perspective on programming plus the practical ability to use Haskell in the everyday world. (The 80 IQ points: not guaranteed.) Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Programming languages often differ only around the edges—a few keywords, libraries, or platform choices. Haskell gives you an entirely new point of view. To the software pioneer Alan Kay, a

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change in perspective can be worth 80 IQ points and Haskellers agree on the dramatic benefits of thinking the Haskell way—thinking functionally, with type safety, mathematical certainty, and more. In this hands-on book, that's exactly what you'll learn to do. What's Inside

Thinking in Haskell Functional programming basics
Programming in types Real-world applications for Haskell About the Reader Written for readers who know one or more programming languages. Table of Contents

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Processing binary files and book data Unit 5 - WORKING WITH TYPE IN A CONTEXT Lesson 27 The Functor type class Lesson 28 A peek at the Applicative type class: using functions in a context Lesson 29 Lists as context: a deeper look at the Applicative type class Lesson 30 Introducing the Monad type class Lesson 31 Making Monads easier with donotation Lesson 32 The list monad and list comprehensions Lesson 33 Capstone: SQL-like queries in Haskell Unit 6 - ORGANIZING CODE AND BUILDING PROJECTS Lesson 34 Organizing Haskell code with modules Lesson 35 Building projects with stack Lesson 36 Property testing with QuickCheck Lesson 37 Capstone: Building a prime-number library Unit 7 - PRACTICAL HASKELL Lesson 38 Errors in Haskell and the Either type Lesson 39 Making HTTP requests in Haskell Lesson 40 Working with JSON data by using Aeson Lesson 41 Using databases in Haskell Lesson 42 Efficient, stateful arrays in Haskell Afterword - What's next? Appendix - Sample answers to exercise

Learn how to build key aspects of web, cloud, and mobile solutions by combining F# with various .NET and open source technologies. With helpful examples, this hands-on book shows you how to tackle concurrency, asynchrony, and other server-side challenges. You'll quickly learn how to be productive with F#, whether you want to integrate the language into your existing web application or use it to create the next Twitter. If you're a mid- to senior-level .NET programmer, you'll discover how this expressive functional-first language helps you write robust, maintainable, and reusable solutions that

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scale easily and target multiple devices. Use F# with ASP.NET MVC, ASP.NET Web API, WCF, Windows Azure, HTML5, CSS3, jQuery Mobile, and other tools Build next-generation ASP.NET MVC 4 web applications, using F# to do the heavy lifting on the server Create WCF SOAP and HTTP web services Develop F# web applications and services that run on Windows Azure Build scalable solutions that allow reuse by mobile and web front-ends Use F# with the WebSharper and Pit frameworks to build end-to-end web stacks

Database-driven sites bring complexity you might not need, but building a site by hand is too much work. Hugo is a static site generator and web development framework that creates content sites quickly without the overhead or dependencies of a dynamic web framework. With Hugo, you use HTML templates and Markdown to build static sites you can host anywhere, letting you use the skills you already have. Develop your own theme using standard HTML and CSS, using Hugo's powerful templating features to organize your site's components. Create your site's content with HTML or Markdown and use Hugo's content templating features to build new content quickly. Build a fully-featured blog with archive pages, tagging, and pagination, and integrate an external commenting system to provide interactivity. Use data from front-matter, site-wide configuration, and external JSON sources to add content, and generate JSON others can use. Integrate JavaScript with your site to create a search engine. Get Hugo working with Webpack so you can leverage the wider web development ecosystem, and explore ways to publish

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your site to various services. Finally, learn how you can move your existing content site to Hugo. Dive in and build your next site with Hugo!

Front-End Development Projects with Vue.js introduces you to Vue 2 and helps you get started with web application development using this popular framework. You'll master the knowledge and skills needed to become an effective front-end developer and apply them to tackle real-world development challenges.

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

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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!

Describes seven Web frameworks, including CanJS, Ring, and Yesod, and offers information on creating applications.

Haskell in Depth unlocks a new level of skill with this challenging language. Going beyond the basics of syntax and structure, this book opens up critical topics like advanced types, concurrency, and data processing. Summary Turn the corner from "Haskell student" to "Haskell developer." Haskell in Depth explores the important language features and programming skills you'll need to build production-quality software using Haskell. And along the way, you'll pick up some interesting insights into why Haskell looks and works the way it does. Get ready to go deep! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Software for high-precision tasks like financial transactions, defense systems, and scientific research must be absolutely, provably correct. As a purely functional programming language, Haskell enforces a mathematically rigorous approach that can lead to concise, efficient, and bug-free code. To

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write such code you'll need deep understanding. You can get it from this book! About the book Haskell in Depth unlocks a new level of skill with this challenging language. Going beyond the basics of syntax and structure, this book opens up critical topics like advanced types, concurrency, and data processing. You'll discover key parts of the Haskell ecosystem and master core design patterns that will transform how you write software. What's inside Building applications, web services, and networking apps Using sophisticated libraries like lens, singletons, and servant Organizing projects with Cabal and Stack Error-handling and testing Pure parallelism for multicore processors About the reader For developers familiar with Haskell basics. About the author Vitaly Bragilevsky has been teaching Haskell and functional programming since 2008. He is a member of the GHC Steering Committee. Table of Contents PART 1 CORE HASKELL 1 Functions and types 2 Type classes 3 Developing an application: Stock quotes PART 2 INTRODUCTION TO APPLICATION DESIGN 4 Haskell development with modules, packages, and projects 5 Monads as practical functionality providers 6 Structuring programs with monad transformers PART 3 QUALITY ASSURANCE 7 Error handling and logging 8 Writing tests 9 Haskell data and code at run time 10 Benchmarking and profiling PART 4 ADVANCED HASKELL 11 Type system advances

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12 Metaprogramming in Haskell 13 More about types PART 5 HASKELL TOOLKIT 14 Data-processing pipelines 15 Working with relational databases 16 Concurrency

This text develops a comprehensive theory of programming languages based on type systems and structural operational semantics. Language concepts are precisely defined by their static and dynamic semantics, presenting the essential tools both intuitively and rigorously while relying on only elementary mathematics. These tools are used to analyze and prove properties of languages and provide the framework for combining and comparing language features. The broad range of concepts includes fundamental data types such as sums and products, polymorphic and abstract types, dynamic typing, dynamic dispatch, subtyping and refinement types, symbols and dynamic classification, parallelism and cost semantics, and concurrency and distribution. The methods are directly applicable to language implementation, to the development of logics for reasoning about programs, and to the formal verification language properties such as type safety. This thoroughly revised second edition includes exercises at the end of nearly every chapter and a new chapter on type refinements.

Summary Functional Programming in Scala is a serious tutorial for programmers looking to learn FP and apply it to the everyday business of coding. The

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book guides readers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples and exercises that open up the world of functional programming. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Functional programming (FP) is a style of software development emphasizing functions that don't depend on program state. Functional code is easier to test and reuse, simpler to parallelize, and less prone to bugs than other code. Scala is an emerging JVM language that offers strong support for FP. Its familiar syntax and transparent interoperability with Java make Scala a great place to start learning FP. About the Book Functional Programming in Scala is a serious tutorial for programmers looking to learn FP and apply it to their everyday work. The book guides readers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples and exercises that open up the world of functional programming. This book assumes no prior experience with functional programming. Some prior exposure to Scala or Java is helpful. What's Inside Functional programming concepts The whys and hows of FP How to write multicore programs Exercises and checks for understanding About the Authors Paul Chiusano and Rúnar Bjarnason are recognized experts in

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functional programming with Scala and are core contributors to the Scalaz library. Table of Contents
PART 1 INTRODUCTION TO FUNCTIONAL PROGRAMMING What is functional programming? Getting started with functional programming in Scala Functional data structures Handling errors without exceptions Strictness and laziness Purely functional state
PART 2 FUNCTIONAL DESIGN AND COMBINATOR LIBRARIES Purely functional parallelism Property-based testing Parser combinators
PART 3 COMMON STRUCTURES IN FUNCTIONAL DESIGN Monoids Monads Applicative and traversable functors
PART 4 EFFECTS AND I/O External effects and I/O Local effects and mutable state Stream processing and incremental I/O

Save time and build fast, functional, and concurrent application using Haskell
About This Book
Comprehensive guide for establishing a strong foundation in Haskell and developing pragmatic code
Create a full fledged web application using Haskell
Work with Lens, Haskell Extensions, and write code for concurrent and distributed applications
Who This Book Is For
This book is targeted at readers who wish to learn the Haskell language. If you are a beginner, Haskell Cookbook will get you started. If you are experienced, it will expand your knowledge base. A basic knowledge of programming will be helpful.
What You Will Learn
Use functional data

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structures and algorithms to solve problems
Understand the intricacies of the type system Create a simple parser for integer expressions with additions Build high-performance web services with Haskell Master mechanisms for concurrency and parallelism in Haskell Perform parsing and handle scarce resources such as filesystem handles Organize your programs by creating your own types and type classes In Detail Haskell is a purely functional language that has the great ability to develop large and difficult, but easily maintainable software. Haskell Cookbook provides recipes that start by illustrating the principles of functional programming in Haskell, and then gradually build up your expertise in creating industrial-strength programs to accomplish any goal. The book covers topics such as Functors, Applicatives, Monads, and Transformers. You will learn various ways to handle state in your application and explore advanced topics such as Generalized Algebraic Data Types, higher kind types, existential types, and type families. The book will discuss the association of lenses with type classes such as Functor, Foldable, and Traversable to help you manage deep data structures. With the help of the wide selection of examples in this book, you will be able to upgrade your Haskell programming skills and develop scalable software idiomatically. Style and approach The book follows a recipe-based approach. Each

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recipe addresses specific problems and issues. The recipes provide discussions and insights to explain these problems.

Haskell is an advanced general purpose programming language. This tutorial covers all aspects of Haskell development from foundations to compiler development.

Monads
Monad Transformers
Language Extensions
Type Classes
Laziness
Prelude
Strings
Applicatives
Error Handling
Advanced

Monads
Quantification
Generalized Algebraic Datatypes
Interpreters
Testing
Type Families
Promotion
Generics
Mathematics
Data Structures
Foreign Function Interface
Concurrency and Parallelism
Graphics
Parsers
Stream Processing
Cryptography
Date and Time
Data Formats and Serialisation
Network and Web Programming
Databases
GHC

Compiler
Profiling
Compiler Development
Template Haskell
Category Theory

This fast-moving guide introduces web application development with Haskell and Yesod, a potent language/framework combination that supports high-performing applications that are modular, type-safe, and concise. Fully updated for Yesod 1.4, this second edition shows you how Yesod handles widgets, forms, persistence, and RESTful content. Author Michael Snoyman also introduces various Haskell tools to supplement your basic knowledge of

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the language. By the time you finish this book, you'll create a production-quality web application with Yesod's ready-to-use scaffolding. You'll also examine several real-world examples, including a blog, a wiki, a JSON web service, and a Sphinx search server. Build a simple application to learn Yesod's foundation datatype and Web Application Interface (WAI) Output HTML, CSS, and Javascript with Shakespearean template languages Get an indepth look at Yesod's core monads for producing cleaner, more modular code Probe Yesod's internal workings: learn the request handling process for a typical application Build forms on top of widgets by implementing the yesod-form declarative API Learn how Yesod and Haskell handle persistence and session data Serve an HTML page and a machine-friendly JSON page from the same URL

If you have a working knowledge of Haskell, this hands-on book shows you how to use the language's many APIs and frameworks for writing both parallel and concurrent programs. You'll learn how parallelism exploits multicore processors to speed up computation-heavy programs, and how concurrency enables you to write programs with threads for multiple interactions. Author Simon Marlow walks you through the process with lots of code examples that you can run, experiment with, and extend. Divided into separate sections on Parallel and Concurrent Haskell, this book also

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includes exercises to help you become familiar with the concepts presented: Express parallelism in Haskell with the Eval monad and Evaluation Strategies Parallelize ordinary Haskell code with the Par monad Build parallel array-based computations, using the Repa library Use the Accelerate library to run computations directly on the GPU Work with basic interfaces for writing concurrent code Build trees of threads for larger and more complex programs Learn how to build high-speed concurrent network servers Write distributed programs that run on multiple machines in a network

This book is devoted to five main principles of algorithm design: divide and conquer, greedy algorithms, thinning, dynamic programming, and exhaustive search. These principles are presented using Haskell, a purely functional language, leading to simpler explanations and shorter programs than would be obtained with imperative languages. Carefully selected examples, both new and standard, reveal the commonalities and highlight the differences between algorithms. The algorithm developments use equational reasoning where applicable, clarifying the applicability conditions and correctness arguments. Every chapter concludes with exercises (nearly 300 in total), each with complete answers, allowing the reader to consolidate their understanding and apply the techniques to a range of problems. The book serves

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students (both undergraduate and postgraduate), researchers, teachers, and professionals who want to know more about what goes into a good algorithm and how such algorithms can be expressed in purely functional terms.

In Haskell from the Very Beginning John Whittington takes a no-prerequisites approach to teaching the basics of a modern general-purpose programming language. Each small, self-contained chapter introduces a new topic, building until the reader can write quite substantial programs. There are plenty of questions and, crucially, worked answers and hints. Haskell from the Very Beginning will appeal both to new programmers, and to experienced programmers eager to explore functional languages such as Haskell. It is suitable both for formal use within an undergraduate or graduate curriculum, and for the interested amateur.

This fast-moving guide introduces web application development with Haskell and Yesod, a potent language/framework combination that supports high-performing applications that are modular, type-safe, and concise. You'll work with several samples to explore the way Yesod handles widgets, forms, persistence, and RESTful content. You also get an introduction to various Haskell tools to supplement your basic knowledge of the language. By the time you finish this book, you'll create a production-quality web application with Yesod's ready-to-use

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scaffolding. You'll also examine several real-world examples, including a blog, a wiki, a JSON web service, and a Sphinx search server. Build a simple application to learn Yesod's foundation datatype and Web Application Interface (WAI) Use Shakespearean template languages for HTML, CSS, and Javascript output Produce cleaner, more modular code by learning how Yesod monads interact Implement the yesod-form declarative API to build forms on top of widgets Learn how Yesod and Haskell store session data and handle persistence Use techniques to serve an HTML page and a machine-friendly JSON page from the same URL Create reusable components for several applications with Yesod subsites

This book teaches functional programming using Haskell and examples drawn from multimedia applications.

Get a practical, hands-on introduction to the Haskell language, its libraries and environment, and to the functional programming paradigm that is fast growing in importance in the software industry. This book contains excellent coverage of the Haskell ecosystem and supporting tools, include Cabal and Stack for managing projects, HUnit and QuickCheck for software testing, the Spock framework for developing web applications, Persistent and Esqueleto for database access, and parallel and distributed programming libraries. You'll see how

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functional programming is gathering momentum, allowing you to express yourself in a more concise way, reducing boilerplate, and increasing the safety of your code. Haskell is an elegant and noise-free pure functional language with a long history, having a huge number of library contributors and an active community. This makes Haskell the best tool for both learning and applying functional programming, and Practical Haskell takes advantage of this to show off the language and what it can do.

What You Will Learn

- Get started programming with Haskell
- Examine the different parts of the language
- Gain an overview of the most important libraries and tools in the Haskell ecosystem
- Apply functional patterns in real-world scenarios
- Understand monads and monad transformers
- Proficiently use laziness and resource management

Who This Book Is For

Experienced programmers who may be new to the Haskell programming language. However, some prior exposure to Haskell is recommended.

Learn how to advance your skill level of Haskell, and use this language for practical web development. This book uses a direct, no nonsense approach, so you no longer need to spend extra time reading the documentation, blog posts, and forums to understand how to use Haskell – all that knowledge is provided in one coherent resource. You'll start by reviewing how multiple facets of web development are done in Haskell, such as routing, building

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HTMLs, interacting with databases, caches, and queues, etc. You'll then move on to using notable libraries, such as "scotty" for routings, "digestive-functor" for input validation, and "postgresql-simple" for interacting with databases. In the later chapters, you'll learn how all of these libraries can be used together by working on a fully functioning project deployed on Heroku. What You'll Learn Set up a productive Haskell development environment Review basic tasks that are encountered when building web applications. Explore how to interact with external systems, such as databases, queues, and RESTful APIs. Build a RESTful API, website, building views and form validation. Who This Book Is For Software developers familiar Haskell and would like to apply the knowledge on real world applications and software developers new to Haskell.

It's all in the name: Learn You a Haskell for Great Good! is a hilarious, illustrated guide to this complex functional language. Packed with the author's original artwork, pop culture references, and most importantly, useful example code, this book teaches functional fundamentals in a way you never thought possible. You'll start with the kid stuff: basic syntax, recursion, types and type classes. Then once you've got the basics down, the real black belt master-class begins: you'll learn to use applicative functors, monads, zippers, and all the other mythical Haskell constructs you've only read about in storybooks. As you work your way through the author's imaginative (and occasionally insane) examples, you'll learn to: –Laugh in the face of side effects as you wield

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purely functional programming techniques –Use the magic of Haskell's "laziness" to play with infinite sets of data –Organize your programs by creating your own types, type classes, and modules –Use Haskell's elegant input/output system to share the genius of your programs with the outside world Short of eating the author's brain, you will not find a better way to learn this powerful language than reading Learn You a Haskell for Great Good!

All software design is composition: the act of breaking complex problems down into smaller problems and composing those solutions. Most developers have a limited understanding of compositional techniques. It's time for that to change. In "Composing Software", Eric Elliott shares the fundamentals of composition, including both function composition and object composition, and explores them in the context of JavaScript. The book covers the foundations of both functional programming and object oriented programming to help the reader better understand how to build and structure complex applications using simple building blocks. You'll learn: Functional programming Object composition How to work with composite data structures Closures Higher order functions Functors (e.g., array.map) Monads (e.g., promises) Transducers Lenses All of this in the context of JavaScript, the most used programming language in the world. But the learning doesn't stop at JavaScript. You'll be able to apply these lessons to any language. This book is about the timeless principles of software composition and its lessons will outlast the hot languages and frameworks of today. Unlike most programming books, this one may still be relevant 20 years from now. This book began life as a popular blog post series that attracted hundreds of thousands of readers and influenced the way software is built at many high growth tech startups and fortune 500 companies

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With modern tools, it is possible to create a production grade, full-stack application using HTML, CSS, and JavaScript alone. The combination of MongoDB, Express, AngularJS, and Node.js has become so popular that it has earned the title MEAN stack -- the subject of this book. This book explores the MEAN stack in detail. We will begin by covering Node.js, as it will lay the groundwork for all of our server-side work. You will learn how to get Node running on your local machine as well as download modules using npm. The key aspects of the Node.js programming model will also be covered. From there, we will move on to MongoDB, where you'll learn how to interact with Mongo from a Node application. You will also learn how to create, retrieve, update, and delete data from a Mongo store. After you have a solid grasp on Node and Mongo, the book will move on to the Express web server. We'll cover the basics of Express applications via topics like routes and middleware. Building on previous chapters, we will cover the integration of Node, Mongo, and Express. Our coverage of the MEAN stack will wrap up with several chapters on AngularJS. These chapters will cover Angular fundamentals like data binding, directives, controllers, routing, and services. In an effort to explore competing technologies, a slight introduction to Ember.js will also be provided. Full stack JavaScript is not fully encompassed by the MEAN stack. There is an entire ecosystem of JavaScript tools to learn about, and this book will introduce a few of them. We will cover task runners Gulp.js and Grunt.js which are extremely useful for automating mundane, repetitive tasks. We'll also cover JSHint, a linting tool used to improve code quality. Linting tools analyze source code and report potential issues - a feature that is especially useful in non-compiled languages like JavaScript.

Summary Elm is more than just a cutting-edge programming

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language, it's a chance to upgrade the way you think about building web applications. Once you get comfortable with Elm's refreshingly different approach to application development, you'll be working with a clean syntax, dependable libraries, and a delightful compiler that essentially eliminates runtime exceptions. Elm compiles to JavaScript, so your code runs in any browser, and Elm's best-in-class rendering speed will knock your socks off. Let's get started! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Simply put, the Elm programming language transforms the way you think about frontend web development. Elm's legendary compiler is an incredible assistant, giving you the precise and user-friendly support you need to work efficiently. Elm applications have small bundle sizes that run faster than JavaScript frameworks and are famously easy to maintain as they grow. The catch? Elm isn't JavaScript, so you'll have some new skills to learn. About the book Elm in Action teaches you the Elm language along with a new approach to coding frontend applications. Chapter by chapter, you'll create a full-featured photo-browsing app, learning as you go about Elm's modular architecture, Elm testing, and how to work seamlessly with your favorite JavaScript libraries. You'll especially appreciate author and Elm core team member Richard Feldman's unique insights, based on his thousands of hours writing production code in Elm. When you're done, you'll have a toolbox of new development skills and a stunning web app for your portfolio. What's inside Scalable design for production web applications Single-page applications in Elm Data modeling in Elm Accessing JavaScript from Elm About the reader For web developers with no prior experience in Elm or functional programming. About the author Richard Feldman is a software engineer at NoRedInk and a well-known member of

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the Elm community. Table of Contents PART 1 - GETTING STARTED 1. Welcome to Elm 2. Your first Elm application 3. Compiler as assistant PART 2 - PRODUCTION-GRADE ELM 4. Talking to servers 5. Talking to JavaScript 6. Testing PART 3 - BUILDING BIGGER 7. Data modeling 8. Single-page applications

Haskell Programming makes Haskell as clear, painless, and practical as it can be, whether you're a beginner or an experienced hacker. Learning Haskell from the ground up is easier and works better. With our exercise-driven approach, you'll build on previous chapters such that by the time you reach the notorious Monad, it'll seem trivial.

This fast-moving guide introduces web application development with Haskell and Yesod, a potent language/framework combination that supports high-performing applications that are modular, type-safe, and concise. You'll work with several samples to explore the way Yesod handles widgets, forms, persistence, and RESTful content. You also get an introduction to various Haskell tools to supplement your basic knowledge of the language. By the time you finish this book, you'll create a production-quality web application with Yesod's ready-to-use scaffolding. You'll also examine several real-world examples, including a blog, a wiki, a JSON web service, and a Sphinx search server. Build a simple application to learn Yesod's foundation datatype and Web Application Interface (WAI) Use Shakespearean template languages for HTML, CSS, and Javascript output Produce cleaner, more modular code by learning how Yesod monads interact Implement the yesod-form declarative API to build forms on top of widgets Learn how Yesod and Haskell store session data and handle persistence Use techniques to serve an HTML page and a machine-friendly JSON page from the same URL Create

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reusable components for several applications with Yesod
subsites.

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