

Developing Web Apps With Haskell And Yesod Safety Driven Web Development

This is the Scala edition of Category Theory for Programmers by Bartosz Milewski. This book contains code snippets in both Haskell and Scala.

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

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.

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 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!

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...

Ideal for learning or reference, this book explains the five main principles of algorithm design and their implementation in Haskell.

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 potentials issues - a feature that is especially useful in non-compiled languages like JavaScript.

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 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 Emmitt 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

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 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.

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 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.

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. 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.

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.

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 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 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

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.

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

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 reusable components for several applications with Yesod subsites

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 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.

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 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

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.

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 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

Go beyond computing basics with the award-winning NEW PERSPECTIVES ON COMPUTER CONCEPTS. Designed to get you up-to-speed on essential computer literacy skills, this market leading text goes deeper, providing technical and practical information relevant to everyday life. NEW PERSPECTIVES ON COMPUTER CONCEPTS 2014 incorporates significant technology trends that affect computing and everyday life; such as concerns for data security, personal privacy, online safety, controversy over digital rights management, interest in open source software and portable applications, and more. In addition, coverage of Microsoft Windows 8 and Office 2013 will introduce you to the exciting new features of Microsoft's next generation of software. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Developing Web Apps with Haskell and Yesod O'Reilly Media

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

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. 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.

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, Webmachine, Yesod, Immutable. 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 Immutable, 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.

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

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

Boost the performance of your Haskell applications using optimization, concurrency, and parallel programming About This Book Explore the benefits of lazy evaluation, compiler features, and tools and libraries designed for high performance Write fast programs at extremely high levels of abstraction Work through practical examples that will help you address the challenges of writing efficient code Who This Book Is For To get the most out of this book, you need to have a working knowledge of reading and writing basic Haskell. No knowledge of performance, optimization, or concurrency is required. What You Will Learn Program idiomatic Haskell that's also surprisingly efficient Improve performance of your code with data parallelism, inlining, and strictness annotations Profile your programs to identify space leaks and missed opportunities for optimization Find out how to choose the most efficient data and control structures Optimize the Glasgow Haskell Compiler and runtime system for specific programs See how to smoothly drop to lower abstractions wherever necessary Execute programming for the GPU with Accelerate Implement programming to easily scale to the cloud with Cloud Haskell In Detail Haskell, with its power to optimize the code and its high performance, is a natural candidate for high performance programming. It is especially well suited to stacking abstractions high with a relatively low performance cost. This book addresses the challenges of writing efficient code with lazy evaluation and techniques often used to optimize the performance of Haskell programs. We open with an in-depth look at the evaluation of Haskell expressions and discuss optimization and benchmarking. You will learn to use parallelism and we'll explore the concept of streaming. We'll demonstrate the benefits of running multithreaded and concurrent applications. Next we'll guide you through various profiling tools that will help you identify performance issues in your program. We'll end our journey by looking at GPGPU, Cloud and Functional Reactive Programming in Haskell. At the very end there is a catalogue of robust library recommendations with code samples. By the end of the book, you will be able to boost the performance of any app and prepare it to stand up to real-world punishment. Style and approach This easy-to-follow guide teaches new practices and techniques to optimize your code, and then moves towards more advanced ways to effectively write efficient Haskell code. Small and simple practical examples will help you test the concepts yourself, and you will be able to easily adapt them for any application.

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

Summary Elm is more than just a cutting-edge programming 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 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 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 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.

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 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

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 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.

Market_Desc: Both undergraduate and masters course students taking modules with titles such as Website Development and Internet Programming. Programmers migrating to the web and general readership interested in developing applications which spread over several technologies. Special Features: · Students will need little previous programming experience.· Includes HTML, CSS and Cookies/Session, JavaScript, DHTML, XML and XSL/T.· Also includes strong and timely coverage of new and important areas such as PHP5, MySQL and mobile technologies.· Focuses on open source and freely available software for use, including Apache server, PHP and MySQL.· Defines the surrounding context allowing students to see how the technologies fit together rather than existing as isolated units.· Strong pedagogical features including workshops and exercises, ultimately leading to the creation of a number of applications at the book s end, which depend upon the student s ingenuity to complete.· Encourages a creative rather than a formal approach to developing applications.· Includes topics such as Website Design Issues, Planning a Website Navigation.· A chapter introducing CGI and Perl Programming. About The Book: Developing Web Applications presents script writing and good programming practice but also allows students to see how the individual technologies fit together. It includes recent technical developments to provide a practical and modern introduction to building web applications. Assuming no prior programming experience, this concise, accessible book ensures that essential concepts on the client side are quickly grasped, and goes on to examine the server environment and available languages, including discussion of dynamic, modern scripting languages such as PHP. Network and security issues are also discussed. The aim of this book is to deliver exactly what is needed to start producing working applications as soon as possible -- and have fun along the way. Ideal for course use or self-study, this book includes practical suggestions for mini-projects which encourage the reader to explore his or her own imaginative solutions, as well as more theoretical end-of-chapter questions. It can also easily be used as a reference work as each section is self-contained, amplifying the key aspects of its particular topic. Most software covered is freely available in the public domain and no particular

development environments are required. It is a direct, contemporary and extremely useful resource for anyone interested in learning how to program applications for the World Wide Web.

Introduces fundamental techniques for reasoning mathematically about functional programs. Ideal for a first- or second-year undergraduate course.

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 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 Lesson 1 Getting started with Haskell Unit 1 - FOUNDATIONS OF FUNCTIONAL PROGRAMMING Lesson 2 Functions and functional programming Lesson 3 Lambda functions and lexical scope Lesson 4 First-class functions Lesson 5 Closures and partial application Lesson 6 Lists Lesson 7 Rules for recursion and pattern matching Lesson 8 Writing recursive functions Lesson 9 Higher-order functions Lesson 10 Capstone: Functional object-oriented programming with robots! Unit 2 - INTRODUCING TYPES Lesson 11 Type basics Lesson 12 Creating your own types Lesson 13 Type classes Lesson 14 Using type classes Lesson 15 Capstone: Secret messages! Unit 3 - PROGRAMMING IN TYPES Lesson 16 Creating types with "and" and "or" Lesson 17 Design by composition—Semigroups and Monoids Lesson 18 Parameterized types Lesson 19 The Maybe type: dealing with missing values Lesson 20 Capstone: Time series Unit 4 - IO IN HASKELL Lesson 21 Hello World!—introducing IO types Lesson 22 Interacting with the command line and lazy I/O Lesson 23 Working with text and Unicode Lesson 24 Working with files Lesson 25 Working with binary data Lesson 26 Capstone: 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

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 reusable components for several applications with Yesod subsites.

This book is a hands-on guide that teaches readers how to use Haskell's tools and libraries to analyze data from real-world sources in an easy-to-understand manner. This book is great for developers who are new to financial data modeling using Haskell. A basic knowledge of functional programming is not required but will be useful. An interest in high frequency finance is essential.

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