Implementing Domain Driven Design

Today, more than ever, building software is hard. Not only we have to chase ever-changing technological trends, but we also have to grasp business domains that we are building the software for. The latter is often overseen, and it explains why so many projects are doomed to fail. After all, how can you build a solution if you don't understand the problem? Through this book, you will learn the Domain-Driven Design (DDD) methodology which provides a set of core patterns, principles, and practices for analyzing business domains, understanding business strategy, and, most importantly, aligning software design with its business needs. These include Ubiquitous Language, Bounded Contexts, Event Storming, and others. You will see how these practices not only lead to robust implementation of business logic, but also to future-proof software design and architecture. You will also learn the relationship between DDD and other methodologies to ensure that you are able to make architectural decisions that will meet the business needs. The final section puts all of this into practice using a real life story of implementing Domain-Driven Design in a startup company. Reading the book will allow you to use DDD for analyzing business domains, aligning software and business strategies, and making socio-technical design decisions. By the end of this book, you will be able to:-Build a shared understanding of a business domain-Analyze a company's business domain and competitive strategy-Decompose a system into bounded contexts-Coordinate the work of multiple teams working together-Gradually start implementing domain-driven design

Domain Driven Design is a vision and approach for dealing with highly complex domains that is based on making the domain itself the main focus of the project, and maintaining a software model that reflects a deep understanding of the domain. This book is a short, quickly-readable summary and introduction to the fundamentals of DDD; it does not introduce any new concepts; it attempts to concisely summarize the essence of what DDD is, drawing mostly Eric Evans' original book, as well other sources since published such as Jimmy Nilsson's Applying Domain Driven Design, and various DDD discussion forums. The main topics covered in the book include: Building Domain Knowledge, The Ubiquitous Language, Model Driven Design, Refactoring Toward Deeper Insight, and Preserving Model Integrity. Also included is an interview with Eric Evans on Domain Driven Design today.

Organizations today often struggle to balance business requirements with ever-increasing volumes of data. Additionally, the demand for leveraging large-scale, real-time data is growing rapidly among the most competitive digital industries. Conventional system architectures may not be up to the task. With this practical guide, you'll learn how to leverage large-scale data usage across the business units in your organization using the principles of event-driven microservices. Author Adam Bellemare takes you through the process of building an event-driven microservice-powered organization. You'll reconsider how data is produced, accessed, and propagated across your organization. Learn powerful yet simple patterns for unlocking the value of this data. Incorporate event-driven design and architectural principles into your own systems. And completely rethink how your organization delivers value by unlocking near-real-time access to data at scale. You'll learn: How to leverage event-driven architectures to deliver exceptional business value The role of microservices in supporting event-driven

designs Architectural patterns to ensure success both within and between teams in your organization Application patterns for developing powerful event-driven microservices Components and tooling required to get your microservice ecosystem off the ground

Master BDD to deliver higher-value software more quickly To develop high-value products quickly, software development teams need better ways to collaborate. Agile methods like Scrum and Kanban are helpful, but they're not enough. Teams need better ways to work inside each sprint or work item. Behavior-driven development (BDD) adds just enough structure for product experts, testers, and developers to collaborate more effectively. Drawing on extensive experience helping teams adopt BDD, Richard Lawrence and Paul Rayner show how to explore changes in system behavior with examples through conversations, how to capture your examples in expressive language, and how to flow the results into effective automated testing with Cucumber. Where most BDD resources focus on test automation, this guide goes deep into how BDD changes team collaboration and what that collaboration looks like day to day. Concrete examples and practical advice will prepare you to succeed with BDD, whatever your context or role. · Learn how to collaborate better by using concrete examples of system behavior · Identify your project's meaningful increment of value so you're always working on something important · Begin experimenting with BDD slowly and at low risk · Move smoothly from informal examples to automated tests in Cucumber · Use BDD to deliver more frequently with greater visibility · Make Cucumber scenarios more expressive to ensure you're building the right thing · Grow a Cucumber suite that acts as high-value living documentation · Sustainably work with complex scenario data · Get beyond the "mini-waterfalls" that often arise on Scrum teams

TypeScript is a typed superset of JavaScript with the potential to solve many of the headaches for which JavaScript is famous. But TypeScript has a learning curve of its own, and understanding how to use it effectively can take time. This book guides you through 62 specific ways to improve your use of TypeScript. Author Dan Vanderkam, a principal software engineer at Sidewalk Labs, shows you how to apply these ideas, following the format popularized by Effective C++ and Effective Java (both from Addison-Wesley). You'll advance from a beginning or intermediate user familiar with the basics to an advanced user who knows how to use the language well. Effective TypeScript is divided into eight chapters: Getting to Know TypeScript TypeScript's Type System Type Inference Type Design Working with any Types Declarations and @types Writing and Running Your Code Migrating to TypeScript

Most recent microservices books fully buy into the hype, starting from the premise that microservices are nearly always the best approach to developing enterprise systems. But that isn't always a safe assumption: in fact, in some cases, it can be disastrous, leading to architectures that serve nobody well. Strategic Microservices and Monoliths helps business decision-makers and technical team members collaborate to clearly understand their strategic problems, and identify their optimal architectural approaches, whether those turns out to be distributed microservices, well-modularized monoliths, or coarser-grade services partway between the two. Writing for executives and IT professionals alike, leading software architecture expert Vaughn Vernon and Tomasz Jaskula guide you through making balanced architecture compositional decisions based on need and purpose rather than popular opinion, so you can maximize business

value and deliver systems that evolve more easily. Throughout, the authors provide realistic application examples, showing how to construct well-designed monoliths that are maintainable and extensible, and how to decompose massively tangled legacy systems into truly effective microservices.

Enterprise Integration Patterns provides an invaluable catalog of sixty-five patterns, with real-world solutions that demonstrate the formidable of messaging and help you to design effective messaging solutions for your enterprise. The authors also include examples covering a variety of different integration technologies, such as JMS, MSMQ, TIBCO ActiveEnterprise, Microsoft BizTalk, SOAP, and XSL. A case study describing a bond trading system illustrates the patterns in practice, and the book offers a look at emerging standards, as well as insights into what the future of enterprise integration might hold. This book provides a consistent vocabulary and visual notation framework to describe large-scale integration solutions across many technologies. It also explores in detail the advantages and limitations of asynchronous messaging architectures. The authors present practical advice on designing code that connects an application to a messaging system, and provide extensive information to help you determine when to send a message, how to route it to the proper destination, and how to monitor the health of a messaging system. If you want to know how to manage, monitor, and maintain a messaging system once it is in use, get this book.

As Python continues to grow in popularity, projects are becoming larger and more complex. Many Python developers are now taking an interest in high-level software design patterns such as hexagonal/clean architecture, event-driven architecture, and the strategic patterns prescribed by domain-driven design (DDD). But translating those patterns into Python isn't always straightforward. With this hands-on guide, Harry Percival and Bob Gregory from MADE.com introduce proven architectural design patterns to help Python developers manage application complexity—and get the most value out of their test suites. Each pattern is illustrated with concrete examples in beautiful, idiomatic Python, avoiding some of the verbosity of Java and C# syntax. Patterns include: Dependency inversion and its links to ports and adapters (hexagonal/clean architecture) Domain-driven design's distinction between entities, value objects, and aggregates Repository and Unit of Work patterns for persistent storage Events, commands, and the message bus Command-query responsibility segregation (CQRS) Event-driven architecture and reactive microservices

This book is a comprehensive collection of chapters focusing on the core areas of computing and their further applications in the real world. Each chapter is a paper presented at the Computing Conference 2021 held on 15-16 July 2021. Computing 2021 attracted a total of 638 submissions which underwent a double-blind peer review process. Of those 638 submissions, 235 submissions have been selected to be included in this book. The goal of this conference is to give a platform to researchers with fundamental contributions and to be a premier venue for academic and industry practitioners to share new ideas and development experiences. We hope that readers find this volume interesting and valuable as it provides the state-of-the-art intelligent methods and techniques for solving real-world problems. We also expect that the conference and its publications is a trigger for further related research and technology improvements in this important subject. .

Annotation Over the past 10 years, distributed systems have become more fine-grained. From the large multi-million line long monolithic applications, we are now seeing the benefits of smaller self-contained services. Rather than heavy-weight, hard to change Service Oriented

Architectures, we are now seeing systems consisting of collaborating microservices. Easier to change, deploy, and if required retire, organizations which are in the right position to take advantage of them are yielding significant benefits. This book takes an holistic view of the things you need to be cognizant of in order to pull this off. It covers just enough understanding of technology, architecture, operations and organization to show you how to move towards finer-grained systems.

Practical Software Architecture Solutions from the Legendary Robert C. Martin (“Uncle Bob”) By applying universal rules of software architecture, you can dramatically improve developer productivity throughout the life of any software system. Now, building upon the success of his best-selling books Clean Code and The Clean Coder, legendary software craftsman Robert C. Martin (“Uncle Bob”) reveals those rules and helps you apply them. Martin’s Clean Architecture doesn’t merely present options. Drawing on over a half-century of experience in software environments of every imaginable type, Martin tells you what choices to make and why they are critical to your success. As you’ve come to expect from Uncle Bob, this book is packed with direct, no-nonsense solutions for the real challenges you’ll face–the ones that will make or break your projects. Learn what software architects need to achieve–and core disciplines and practices for achieving it Master essential software design principles for addressing function, component separation, and data management See how programming paradigms impose discipline by restricting what developers can do Understand what’s critically important and what’s merely a “detail” Implement optimal, high-level structures for web, database, thick-client, console, and embedded applications Define appropriate boundaries and layers, and organize components and services See why designs and architectures go wrong, and how to prevent (or fix) these failures Clean Architecture is essential reading for every current or aspiring software architect, systems analyst, system designer, and software manager–and for every programmer who must execute someone else’s designs. Register your product for convenient access to downloads, updates, and/or corrections as they become available.

This book will show you how to create robust, scalable, highly available and fault-tolerant solutions by learning different aspects of Solution architecture and next-generation architecture design in the Cloud environment.

A complete practitioner's catalog of proven domain services design solutions that can help any organization leverage SOA's full benefits * *Provides a vocabulary of proven SOA design solutions, with concrete examples and code that is easy for architects to adapt and implement. *By Rob Daigneau, one of the industry's leading experts in complex systems integration. *Helps architects and IT leaders accurately set stakeholder expectations for major SOA initiatives. Service-oriented architectures are typically called upon to deliver two general categories of services: enterprise services and domain services. Enterprise services are essentially composite services that typically leverage technologies such as message-oriented middleware. Domain services are the building blocks these composites depend upon. Each service category is best served by a distinct set of design solutions. This is the first book to systematically identify and explain best practice patterns for domain services. Rob Daigneau expands upon the Service Layer concept (covered expertly by Fowler in Patterns of Enterprise Application Architecture) domain services can be used with Enterprise Integration Patterns (made famous by Hohpe and Woolf). Daigneau begins by reviewing SOA concepts, illuminating the distinctions between enterprise and domain services, and identifying key relationships between domain services and other pattern groups. Next, he introduces each essential pattern for creating and delivering domain services, providing a vocabulary of design solutions that architects and other IT professionals can implement by referencing and adapting the concrete examples he supplies.

You want increased customer satisfaction, faster development cycles, and less wasted work.

Domain-driven design (DDD) combined with functional programming is the innovative combo that will get you there. In this pragmatic, down-to-earth guide, you'll see how applying the core principles of functional programming can result in software designs that model real-world requirements both elegantly and concisely - often more so than an object-oriented approach. Practical examples in the open-source F# functional language, and examples from familiar business domains, show you how to apply these techniques to build software that is business-focused, flexible, and high quality. Domain-driven design is a well-established approach to designing software that ensures that domain experts and developers work together effectively to create high-quality software. This book is the first to combine DDD with techniques from statically typed functional programming. This book is perfect for newcomers to DDD or functional programming - all the techniques you need will be introduced and explained. Model a complex domain accurately using the F# type system, creating compilable code that is also readable documentation---ensuring that the code and design never get out of sync. Encode business rules in the design so that you have "compile-time unit tests," and eliminate many potential bugs by making illegal states unrepresentable. Assemble a series of small, testable functions into a complete use case, and compose these individual scenarios into a large-scale design. Discover why the combination of functional programming and DDD leads naturally to service-oriented and hexagonal architectures. Finally, create a functional domain model that works with traditional databases, NoSQL, and event stores, and safely expose your domain via a website or API. Solve real problems by focusing on real-world requirements for your software. What You Need: The code in this book is designed to be run interactively on Windows, Mac and Linux.You will need a recent version of F# (4.0 or greater), and the appropriate .NET runtime for your platform.Full installation instructions for all platforms at fsharp.org.

I want to thank you for checking out the book, "Domain Driven Design: How to Easily Implement Domain Driven Design - A Quick & Simple Guide". This book contains proven steps and strategies on how you can implement the domain-driven design approach in your projects to bring out better results. Through the domain-driven design approach, you and your project team will better understand the domain that you aim to serve and communicate in a common language that can ensure harmony and team work with your group. You will be able to finish the whole design and development process focused on what is truly essential. Thanks again and I hope you enjoy it!

This is an introduction to spiking neurons for advanced undergraduate or graduate students. It can be used with courses in computational neuroscience, theoretical biology, neural modeling, biophysics, or neural networks. It focuses on phenomenological approaches rather than detailed models in order to provide the reader with a conceptual framework. No prior knowledge beyond undergraduate mathematics is necessary to follow the book. Thus it should appeal to students or researchers in physics, mathematics, or computer science interested in biology; moreover it will also be useful for biologists working in mathematical modeling.

As data management and integration continue to evolve rapidly, storing all your data in one place, such as a data warehouse, is no longer scalable. In the very near future, data will need to be distributed and available for several technological solutions. With this practical book, you'll learnhow to migrate your enterprise from a complex and tightly coupled data landscape to a more flexible architecture ready for the modern world of data consumption. Executives, data architects, analytics teams, and compliance and governance staff will learn how to build a modern scalable data landscape using the Scaled Architecture, which you can introduce incrementally without a large upfront investment. Author

Piethein Strengholt provides blueprints, principles, observations, best practices, and patterns to get you up to speed. Examine data management trends, including technological developments, regulatory requirements, and privacy concerns Go deep into the Scaled Architecture and learn how the pieces fit together Explore data governance and data security, master data management, self-service data marketplaces, and the importance of metadata

The authors of this incisive study explore the problems of the ongoing digitization of government, such as the creeping loss of data quality, and how citizens and officials must respond to these complications in the coming years. The iGovernment is running full speed on information networks and digitization, but it is also seriously out of step with existing bureaucracies. iGovernment offers an accurate picture of how the digital technologies are shaping modern governments, and also a powerful corrective for the dissonance between technology and organizational management.“This book will be a valuable resource for researchers and scholars seeking to understand the possibilities, dilemmas, and challenges of bringing the Internet and related technologies to center stage in government and public services”—Helen Margetts,University of Oxford

Data is bigger, arrives faster, and comes in a variety of formats—and it all needs to be processed at scale for analytics or machine learning. But how can you process such varied workloads efficiently? Enter Apache Spark. Updated to include Spark 3.0, this second edition shows data engineers and data scientists why structure and unification in Spark matters. Specifically, this book explains how to perform simple and complex data analytics and employ machine learning algorithms. Through step-by-step walk-throughs, code snippets, and notebooks, you’ll be able to: Learn Python, SQL, Scala, or Java high-level Structured APIs Understand Spark operations and SQL Engine Inspect, tune, and debug Spark operations with Spark configurations and Spark UI Connect to data sources: JSON, Parquet, CSV, Avro, ORC, Hive, S3, or Kafka Perform analytics on batch and streaming data using Structured Streaming Build reliable data pipelines with open source Delta Lake and Spark Develop machine learning pipelines with MLlib and productionize models using MLflow

Domain-Driven Design (DDD) is an approach to software development for complex businesses and other domains. DDD tackles that complexity by focusing the team's attention on knowledge of the domain, picking apart the most tricky, intricate problems with models, and shaping the software around those models. Easier said than done! The techniques of DDD help us approach this systematically. This reference gives a quick and authoritative summary of the key concepts of DDD. It is not meant as a learning introduction to the subject. Eric Evans' original book and a handful of others explain DDD in depth from different perspectives. On the other hand, we often need to scan a topic quickly or get the gist of a particular pattern. That is the purpose of this reference. It is complementary to the more discursive books. The starting point of this text was a

set of excerpts from the original book by Eric Evans, Domain-Driven-Design: Tackling Complexity in the Heart of Software, 2004 - in particular, the pattern summaries, which were placed in the Creative Commons by Evans and the publisher, Pearson Education. In this reference, those original summaries have been updated and expanded with new content. The practice and understanding of DDD has not stood still over the past decade, and Evans has taken this chance to document some important refinements. Some of the patterns and definitions have been edited or rewritten by Evans to clarify the original intent. Three patterns have been added, describing concepts whose usefulness and importance has emerged in the intervening years. Also, the sequence and grouping of the topics has been changed significantly to better emphasize the core principles. This is an up-to-date, quick reference to DDD.

USE THE ACTOR MODEL TO BUILD SIMPLER SYSTEMS WITH BETTER PERFORMANCE AND SCALABILITY Enterprise software development has been much more difficult and failure-prone than it needs to be. Now, veteran software engineer and author Vaughn Vernon offers an easier and more rewarding method to succeeding with Actor model. Reactive Messaging Patterns with the Actor Model shows how the reactive enterprise approach, Actor model, Scala, and Akka can help you overcome previous limits of performance and scalability, and skillfully address even the most challenging non-functional requirements. Reflecting his own cutting-edge work, Vernon shows architects and developers how to translate the longtime promises of Actor model into practical reality. First, he introduces the tenets of reactive software, and shows how the message-driven Actor model addresses all of them–making it possible to build systems that are more responsive, resilient, and elastic. Next, he presents a practical Scala bootstrap tutorial, a thorough introduction to Akka and Akka Cluster, and a full chapter on maximizing performance and scalability with Scala and Akka. Building on this foundation, you'll learn to apply enterprise application and integration patterns to establish message channels and endpoints; efficiently construct, route, and transform messages; and build robust systems that are simpler and far more successful. Coverage Includes How reactive architecture replaces complexity with simplicity throughout the core, middle, and edges The characteristics of actors and actor systems, and how Akka makes them more powerful Building systems that perform at scale on one or many computing nodes Establishing channel mechanisms, and choosing appropriate channels for each application and integration challenge Constructing messages to clearly convey a sender's intent in communicating with a receiver Implementing a Process Manager for your Domain-Driven Designs Decoupling a message's source and destination, and integrating appropriate business logic into its router Understanding the transformations a message may experience in applications and integrations Implementing persistent actors using Event Sourcing and reactive views using CQRS Find unique online training on Domain-Driven Design, Scala, Akka, and other software craftsmanship topics using the

for{comprehension} website at forcomprehension.com.

Methods for managing complex software construction following the practices, principles and patterns of Domain-Driven Design with code examples in C# This book presents the philosophy of Domain-Driven Design (DDD) in a down-to-earth and practical manner for experienced developers building applications for complex domains. A focus is placed on the principles and practices of decomposing a complex problem space as well as the implementation patterns and best practices for shaping a maintainable solution space. You will learn how to build effective domain models through the use of tactical patterns and how to retain their integrity by applying the strategic patterns of DDD. Full end-to-end coding examples demonstrate techniques for integrating a decomposed and distributed solution space while coding best practices and patterns advise you on how to architect applications for maintenance and scale. Offers a thorough introduction to the philosophy of DDD for professional developers Includes masses of code and examples of concept in action that other books have only covered theoretically Covers the patterns of CQRS, Messaging, REST, Event Sourcing and Event-Driven Architectures Also ideal for Java developers who want to better understand the implementation of DDD

Every enterprise application creates data, whether it’s log messages, metrics, user activity, outgoing messages, or something else. And how to move all of this data becomes nearly as important as the data itself. If you’re an application architect, developer, or production engineer new to Apache Kafka, this practical guide shows you how to use this open source streaming platform to handle real-time data feeds. Engineers from Confluent and LinkedIn who are responsible for developing Kafka explain how to deploy production Kafka clusters, write reliable event-driven microservices, and build scalable stream-processing applications with this platform. Through detailed examples, you’ll learn Kafka’s design principles, reliability guarantees, key APIs, and architecture details, including the replication protocol, the controller, and the storage layer. Understand publish-subscribe messaging and how it fits in the big data ecosystem. Explore Kafka producers and consumers for writing and reading messages Understand Kafka patterns and use-case requirements to ensure reliable data delivery Get best practices for building data pipelines and applications with Kafka Manage Kafka in production, and learn to perform monitoring, tuning, and maintenance tasks Learn the most critical metrics among Kafka’s operational measurements Explore how Kafka’s stream delivery capabilities make it a perfect source for stream processing systems

Building software is harder than ever. As a developer, you not only have to chase ever-changing technological trends but also need to understand the business domains behind the software. This practical book provides you with a set of core patterns, principles, and practices for analyzing business domains, understanding business strategy, and, most importantly, aligning software design with its business needs. Author Vlad Khononov shows you how these practices lead to

robust implementation of business logic and help to future-proof software design and architecture. You'll examine the relationship between domain-driven design (DDD) and other methodologies to ensure you make architectural decisions that meet business requirements. You'll also explore the real-life story of implementing DDD in a startup company. With this book, you'll learn how to: Analyze a company's business domain to learn how the system you're building fits its competitive strategy Use DDD's strategic and tactical tools to architect effective software solutions that address business needs Build a shared understanding of the business domains you encounter Decompose a system into bounded contexts Coordinate the work of multiple teams Gradually introduce DDD to brownfield projects

Map concepts and ideas in domain-driven design (DDD) and transpose them into clean, testable, and quality code that is effective alongside the Laravel framework. This book teaches you how to implement the concepts and patterns present in DDD in the real world as a complete web application. With these tactics and concepts in place, you'll engage in a variety of example applications, built from the ground up, and taken directly from real-world domains. Begin by reviewing foundational stepping stones (with small, manageable examples to show proof of concepts as well as illustrations to conceptualize the more complex topics) of both DDD and Laravel. Specifically, such topics as entities, value objects, developing an ubiquitous language, DTOs, and knowledge discovery. Next, you will dive into some more advanced topics of DDD and use these concepts as a guide to make customizations to the default Laravel installation, giving you an understanding of why these alterations are vital to the DDD and Laravel platform. Finally, you will cover the very powerful Eloquent ORM that comes stock with Laravel and understand how it can be utilized to represent entities, handle repositories, and support domain events. Although there is a basic coverage chapter and a setup tutorial for Laravel (along with a high level intro about the components used within it), Domain-Driven Laravel is best suited to readers who have been at least exposed to the framework and have had the opportunity to tinker around with it. What You'll Learn Utilize a blazing-fast rapid development pipeline built from DDD building blocks and facilitated with Laravel Implement value objects, repositories, entities, anti-corruption layers and others using Laravel as a web framework Apply enhanced techniques for quick prototyping of complex requirements and quality results using an iterative and focused approach Create a base framework (Laravel) that can serve as a template to start off any project Gain insight on which details are important to a project’s success and how to acquire the necessary knowledge Who This Book Is For Ideal for for frontend/backend web developers, devops engineers, Laravel framework lovers and PHP developers hoping to learn more about either Domain Driven Design or the possibilities with the Laravel framework. Those with a working knowledge of plain PHP can also gain value from reading this book.

Solve complex business problems by understanding users better, finding the right

problem to solve, and building lean event-driven systems to give your customers what they really want Key Features Apply DDD principles using modern tools such as EventStorming, Event Sourcing, and CQRS Learn how DDD applies directly to various architectural styles such as REST, reactive systems, and microservices Empower teams to work flexibly with improved services and decoupled interactions Book Description Developers across the world are rapidly adopting DDD principles to deliver powerful results when writing software that deals with complex business requirements. This book will guide you in involving business stakeholders when choosing the software you are planning to build for them. By figuring out the temporal nature of behavior-driven domain models, you will be able to build leaner, more agile, and modular systems. You'll begin by uncovering domain complexity and learn how to capture the behavioral aspects of the domain language. You will then learn about EventStorming and advance to creating a new project in .NET Core 2.1; you'll also and write some code to transfer your events from sticky notes to C#. The book will show you how to use aggregates to handle commands and produce events. As you progress, you'll get to grips with Bounded Contexts, Context Map, Event Sourcing, and CQRS. After translating domain models into executable C# code, you will create a frontend for your application using Vue.js. In addition to this, you'll learn how to refactor your code and cover event versioning and migration essentials. By the end of this DDD book, you will have gained the confidence to implement the DDD approach in your organization and be able to explore new techniques that complement what you've learned from the book. What you will learn Discover and resolve domain complexity together with business stakeholders Avoid common pitfalls when creating the domain model Study the concept of Bounded Context and aggregate Design and build temporal models based on behavior and not only data Explore benefits and drawbacks of Event Sourcing Get acquainted with CQRS and to-the-point read models with projections Practice building one-way flow UI with Vue.js Understand how a task-based UI conforms to DDD principles Who this book is for This book is for .NET developers who have an intermediate level understanding of C#, and for those who seek to deliver value, not just write code. Intermediate level of competence in JavaScript will be helpful to follow the UI chapters.

A look at how new technologies can be put to use in the creation of a more just society. Artificial Intelligence (AI) is not likely to make humans redundant. Nor will it create superintelligence anytime soon. But it will make huge advances in the next two decades, revolutionize medicine, entertainment, and transport, transform jobs and markets, and vastly increase the amount of information that governments and companies have about individuals. AI for Good leads off with economist and best-selling author Daron Acemoglu, who argues that there are reasons to be concerned about these developments. AI research today pays too much attention to the technological hurtles ahead without enough attention to its disruptive effects on the fabric of society: displacing workers while failing to

create new opportunities for them and threatening to undermine democratic governance itself. But the direction of AI development is not preordained. Acemoglu argues for its potential to create shared prosperity and bolster democratic freedoms. But directing it to that task will take great effort: It will require new funding and regulation, new norms and priorities for developers themselves, and regulations over new technologies and their applications. At the intersection of technology and economic justice, this book will bring together experts--economists, legal scholars, policy makers, and developers--to debate these challenges and consider what steps tech companies can do take to ensure the advancement of AI does not further diminish economic prospects of the most vulnerable groups of population.

Over the past 20 years, software architectures have significantly contributed to the development of complex and distributed systems. Nowadays, it is recognized that one of the critical problems in the design and development of any complex software system is its architecture, i.e. the organization of its architectural elements. Software Architecture presents the software architecture paradigms based on objects, components, services and models, as well as the various architectural techniques and methods, the analysis of architectural qualities, models of representation of architectural templates and styles, their formalization, validation and testing and finally the engineering approach in which these consistent and autonomous elements can be tackled.

See how Domain-Driven Design (DDD) combines with Jakarta EE MicroProfile or Spring Boot to offer a complete suite for building enterprise-grade applications. In this book you will see how these all come together in one of the most efficient ways to develop complex software. Practical Domain-Driven Design in Enterprise Java starts by building out the Cargo Tracker reference application as a monolithic application using the Jakarta EE platform. By doing so, you will map concepts of DDD (bounded contexts, language, and aggregates) to the corresponding available tools (CDI, JAX-RS, and JPA) within the Jakarta EE platform. Once you have completed the monolithic application, you will walk through the complete conversion of the monolith to a microservices-based architecture, again mapping the concepts of DDD and the corresponding available tools within the MicroProfile platform (config, discovery, and fault tolerance). To finish this section, you will examine the same microservices architecture on the Spring Boot platform. The final set of chapters looks at what the application would be like if you used the CQRS and event sourcing patterns. Here you'll use the Axon framework as the base framework. What You Will Learn Discover the DDD architectural principles and use the DDD design patterns Use the new Eclipse Jakarta EE platform Work with the Spring Boot framework Implement microservices design patterns, including context mapping, logic design, entities, integration, testing, and security Carry out event sourcing Apply CQRS Who This Book Is For Junior developers intending to start working on enterprise Java; senior developers transitioning from monolithic- to

microservices-based architectures; and architects transitioning to a DDD philosophy of building applications.

Provides information on domain-driven design to guild application software for enterprise applications.

Enterprise Patterns and MDA teaches you how to customize any archetype pattern–such as Customer, Product, and Order–to reflect the idiosyncrasies of your own business environment. Because all the patterns work harmoniously together and have clearly documented relationships to each other, you'll come away with a host of reusable solutions to common problems in business-software design. This book shows you how using a pattern or a fragment of a pattern can save you months of work and help you avoid costly errors. You'll also discover how–when used in literate modeling–patterns can solve the difficult challenge of communicating UML models to broad audiences. The configurable patterns can be used manually to create executable code. However, the authors draw on their extensive experience to show you how to tap the significant power of MDA and UML for maximum automation. Not surprisingly, the patterns included in this book are highly valuable; a blue-chip company recently valued a similar, but less mature, set of patterns at hundreds of thousands of dollars. Use this practical guide to increase the efficiency of your designs and to create robust business applications that can be applied immediately in a business setting.

Gain insight into how hexagonal architecture can help to keep the cost of development low over the complete lifetime of an application Key Features Explore ways to make your software flexible, extensible, and adaptable Learn new concepts that you can easily blend with your own software development style Develop the mindset of building maintainable solutions instead of taking shortcuts Book Description We would all like to build software architecture that yields adaptable and flexible software with low development costs. But, unreasonable deadlines and shortcuts make it very hard to create such an architecture. Get Your Hands Dirty on Clean Architecture starts with a discussion about the conventional layered architecture style and its disadvantages. It also talks about the advantages of the domain-centric architecture styles of Robert C. Martin's Clean Architecture and Alistair Cockburn's Hexagonal Architecture. Then, the book dives into hands-on chapters that show you how to manifest a hexagonal architecture in actual code. You'll learn in detail about different mapping strategies between the layers of a hexagonal architecture and see how to assemble the architecture elements into an application. The later chapters demonstrate how to enforce architecture boundaries. You'll also learn what shortcuts produce what types of technical debt and how, sometimes, it is a good idea to willingly take on those debts. After reading this book, you'll have all the knowledge you need to create applications using the hexagonal architecture style of web development. What you will learn Identify potential shortcomings of using a layered architecture Apply methods to enforce architecture boundaries Find out how potential shortcuts can affect the software architecture Produce arguments

for when to use which style of architecture Structure your code according to the architecture Apply various types of tests that will cover each element of the architecture Who this book is for This book is for you if you care about the architecture of the software you are building. To get the most out of this book, you must have some experience with web development. The code examples in this book are in Java. If you are not a Java programmer but can read object-oriented code in other languages, you will be fine. In the few places where Java or framework specifics are needed, they are thoroughly explained.

A comprehensive guide to exploring software architecture concepts and implementing best practices Key Features Enhance your skills to grow your career as a software architect Design efficient software architectures using patterns and best practices Learn how software architecture relates to an organization as well as software development methodology Book Description The Software Architect's Handbook is a comprehensive guide to help developers, architects, and senior programmers advance their career in the software architecture domain. This book takes you through all the important concepts, right from design principles to different considerations at various stages of your career in software architecture. The book begins by covering the fundamentals, benefits, and purpose of software architecture. You will discover how software architecture relates to an organization, followed by identifying its significant quality attributes. Once you have covered the basics, you will explore design patterns, best practices, and paradigms for efficient software development. The book discusses which factors you need to consider for performance and security enhancements. You will learn to write documentation for your architectures and make appropriate decisions when considering DevOps. In addition to this, you will explore how to design legacy applications before understanding how to create software architectures that evolve as the market, business requirements, frameworks, tools, and best practices change over time. By the end of this book, you will not only have studied software architecture concepts but also built the soft skills necessary to grow in this field. What you will learn Design software architectures using patterns and best practices Explore the different considerations for designing software architecture Discover what it takes to continuously improve as a software architect Create loosely coupled systems that can support change Understand DevOps and how it affects software architecture Integrate, refactor, and re-architect legacy applications Who this book is for The Software Architect's Handbook is for you if you are a software architect, chief technical officer (CTO), or senior developer looking to gain a firm grasp of software architecture.

Patterns, Domain-Driven Design (DDD), and Test-Driven Development (TDD) enable architects and developers to create systems that are powerful, robust, and maintainable. Now, there's a comprehensive, practical guide to leveraging all these techniques primarily in Microsoft .NET environments, but the discussions are just as useful for Java developers. Drawing on seminal work by

Martin Fowler (Patterns of Enterprise Application Architecture) and Eric Evans (Domain-Driven Design), Jimmy Nilsson shows how to create real-world architectures for any .NET application. Nilsson illuminates each principle with clear, well-annotated code examples based on C# 1.1 and 2.0. His examples and discussions will be valuable both to C# developers and those working with other .NET languages and any databases–even with other platforms, such as J2EE. Coverage includes · Quick primers on patterns, TDD, and refactoring · Using architectural techniques to improve software quality · Using domain models to support business rules and validation · Applying enterprise patterns to provide persistence support via NHibernate · Planning effectively for the presentation layer and UI testing · Designing for Dependency Injection, Aspect Orientation, and other new paradigms

Vaughn Vernon presents concrete and realistic domain-driven design (DDD) techniques through examples from familiar domains, such as a Scrum-based project management application that integrates with a collaboration suite and security provider. Each principle is backed up by realistic Java examples, and all content is tied together by a single case study of a company charged with delivering a set of advanced software systems with DDD.

Summary Functional and Reactive Domain Modeling teaches you how to think of the domain model in terms of pure functions and how to compose them to build larger abstractions. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Traditional distributed applications won't cut it in the reactive world of microservices, fast data, and sensor networks. To capture their dynamic relationships and dependencies, these systems require a different approach to domain modeling. A domain model composed of pure functions is a more natural way of representing a process in a reactive system, and it maps directly onto technologies and patterns like Akka, CQRS, and event sourcing. About the Book Functional and Reactive Domain Modeling teaches you consistent, repeatable techniques for building domain models in reactive systems. This book reviews the relevant concepts of FP and reactive architectures and then methodically introduces this new approach to domain modeling. As you read, you'll learn where and how to apply it, even if your systems aren't purely reactive or functional. An expert blend of theory and practice, this book presents strong examples you'll return to again and again as you apply these principles to your own projects. What's Inside Real-world libraries and frameworks Establish meaningful reliability guarantees Isolate domain logic from side effects Introduction to reactive design patterns About the Reader Readers should be comfortable with functional programming and traditional domain modeling. Examples use the Scala language. About the Author Software architect Debasish Ghosh was an early adopter of reactive design using Scala and Akka. He's the author of DSLs in Action, published by Manning in 2010. Table of Contents Functional domain modeling: an introduction Scala for functional domain models

Designing functional domain models Functional patterns for domain models Modularization of domain models Being reactive Modeling with reactive streams Reactive persistence and event sourcing Testing your domain model Summary - core thoughts and principles

Real examples written in PHP showcasing DDD Architectural Styles, Tactical Design, and Bounded Context Integration About This Book Focuses on practical code rather than theory Full of real-world examples that you can apply to your own projects Shows how to build PHP apps using DDD principles Who This Book Is For This book is for PHP developers who want to apply a DDD mindset to their code. You should have a good understanding of PHP and some knowledge of DDD. This book doesn't dwell on the theory, but instead gives you the code that you need. What You Will Learn Correctly design all design elements of Domain-Driven Design with PHP Learn all tactical patterns to achieve a fully worked-out Domain-Driven Design Apply hexagonal architecture within your application Integrate bounded contexts in your applications Use REST and Messaging approaches In Detail Domain-Driven Design (DDD) has arrived in the PHP community, but for all the talk, there is very little real code. Without being in a training session and with no PHP real examples, learning DDD can be challenging. This book changes all that. It details how to implement tactical DDD patterns and gives full examples of topics such as integrating Bounded Contexts with REST, and DDD messaging strategies. In this book, the authors show you, with tons of details and examples, how to properly design Entities, Value Objects, Services, Domain Events, Aggregates, Factories, Repositories, Services, and Application Services with PHP. They show how to apply Hexagonal Architecture within your application whether you use an open source framework or your own. Style and approach This highly practical book shows developers how to apply domain-driven design principles to PHP. It is full of solid code examples to work through.

Describes ways to incorporate domain modeling into software development. Domain-Driven Design (DDD) software modeling delivers powerful results in practice, not just in theory, which is why developers worldwide are rapidly moving to adopt it. Now, for the first time, there’s an accessible guide to the basics of DDD: What it is, what problems it solves, how it works, and how to quickly gain value from it. Concise, readable, and actionable, Domain-Driven Design Distilled never buries you in detail–it focuses on what you need to know to get results. Vaughn Vernon, author of the best-selling Implementing Domain-Driven Design, draws on his twenty years of experience applying DDD principles to real-world situations. He is uniquely well-qualified to demystify its complexities, illuminate its subtleties, and help you solve the problems you might encounter. Vernon guides you through each core DDD technique for building better software. You’ll learn how to segregate domain models using the powerful Bounded Contexts pattern, to develop a Ubiquitous Language within an explicitly bounded context, and to help domain experts and developers work together to create that language.

Vernon shows how to use Subdomains to handle legacy systems and to integrate multiple Bounded Contexts to define both team relationships and technical mechanisms. Domain-Driven Design Distilled brings DDD to life. Whether you're a developer, architect, analyst, consultant, or customer, Vernon helps you truly understand it so you can benefit from its remarkable power. Coverage includes What DDD can do for you and your organization–and why it's so important The cornerstones of strategic design with DDD: Bounded Contexts and Ubiquitous Language Strategic design with Subdomains Context Mapping: helping teams work together and integrate software more strategically Tactical design with Aggregates and Domain Events Using project acceleration and management tools to establish and maintain team cadence