# .NET Domain Driven Design With C

## .NET Domain-Driven Design with C#

As the first technical book of its kind, this unique resource walks you through the process of building a real-world application using Domain-Driven Design implemented in C#. Based on a real application for an existing company, each chapter is broken down into specific modules so that you can identify the problem, decide what solution will provide the best results, and then execute that design to solve the problem. With each chapter, you'll build a complete project from beginning to end.

## Hands-On Domain-Driven Design with .NET Core

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 FeaturesApply DDD principles using modern tools such as EventStorming, Event Sourcing, and CQRSLearn how DDD applies directly to various architectural styles such as REST, reactive systems, and microservicesEmpower teams to work flexibly with improved services and decoupled interactionsBook 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 learnDiscover and resolve domain complexity together with business stakeholdersAvoid common pitfalls when creating the domain modelStudy the concept of Bounded Context and aggregateDesign and build temporal models based on behavior and not only dataExplore benefits and drawbacks of Event SourcingGet acquainted with CQRS and to-the-point read models with projectionsPractice building one-way flow UI with Vue.jsUnderstand how a task-based UI conforms to DDD principlesWho 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.

## Professional Enterprise .NET

Comprehensive coverage to help experienced .NET developers create flexible, extensible enterprise application code If you're an experienced Microsoft .NET developer, you'll find in this book a road map to the latest enterprise development methodologies. It covers the tools you will use in addition to Visual Studio, including Spring.NET and nUnit, and applies to development with ASP.NET, C#, VB, Office (VBA), and database. You will find comprehensive coverage of the tools and practices that professional .NET developers need to master in order to build enterprise more flexible, testable, and extensible .NET applications with minimal upfront costs. Helps C#, VB.Net, and ASP.NET developers who wish to migrate both their applications and their own skillsets to newer, more flexible enterprise methodologies Describes each new

pattern or feature along with its benefits, then outlines the pros and cons of its implementation Includes an introduction to enterprise development and a comprehensive overview of the differences between new enterprise patterns and older, traditional Microsoft programming Explains how to implement these patterns by upgrading an existing code base Covers benefits including flexibility, automated testing, extensibility, and separation; modular code; test-driven development, unit test, test automation, and refactoring; inversion of control; and object relational mapping Also covers enterprise design patterns: MVC including Ruby on Rails, Monorail, and ASP.NET MVC, MVP, observer, and more Contains a primer on object-oriented design Professional Enterprise .NET focuses on the often-inevitable compromise between forward-thinking design and the needs of business, helping you build applications that serve both.

## NHibernate with ASP.NET Problem Design Solution

This Wrox Blox demonstrates how to start using NHibernate in line business applications using ASP.NET and VB.NET. Using NHibernate will speed up your application development by removing the need to build your own Data Access Layer (DAL). In addition, you can focus solely on the business problem instead of the infrastructure concerns. Using a simple demo application as an example, this Wrox Blox shows how easy it is to get started with NHibernate and build your DAL in minutes instead of hours. Readers will also see how the POCO pattern enables you to keep your DAL as unobtrusive as possible as well as being interchangeable for future DAL implementations. You will also see how NHibernate has many enterprise patterns built into it, like the Unit of Work pattern and the Identity Map. Table of Contents What Is an Object Relational Mapper? 2 Why NHibernate? 2 Part 1: Getting Started with NHibernate 2 A Quick Demo 2 Part 2: The NHibernate Framework 13 Architecture and Core Concepts 13 Mapping Your Entities: Impedance Mismatch 16 Persisting Business Objects 18 Part 3: Using NHibernate 19 Introducing the Project and Laying out the Solution Framework 19 Designing the Domain Model 23 NHibernate Repository Project: Base Class 39 Managing Products 48 Managing Customers 58 NHibernate Repository Project: Refactoring and Session Management 69 Managing Orders 74 The Database — A Question of Storage 94 Presentation with the Model–View–Presenter Pattern 96 User Interface: ASP.NET 103 Part 4: Other NHibernate Bits and Pieces 113 Other Querying Methods 113 Mapping Inheritance 115 What Kind of SQL Is Being Produced? 118 Wrap Up 119 Scott Millett 120

## Professional ASP.NET Design Patterns

Design patterns are time-tested solutions to recurring problems, letting the designer build programs on solutions that have already proved effective Provides developers with more than a dozen ASP.NET examples showing standard design patterns and how using them helpsbuild a richer understanding of ASP.NET architecture, as well as better ASP.NET applications Builds a solid understanding of ASP.NET architecture that can be used over and over again in many projects Covers ASP.NET code to implement many standard patterns including Model-View-Controller (MVC), ETL, Master-Master Snapshot, Master-Slave-Snapshot, Façade, Singleton, Factory, Single Access Point, Roles, Limited View, observer, page controller, common communication patterns, and more

## Patterns, Principles, and Practices of Domain-Driven Design

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

## Zusammenarbeit in verteilten Projekten: Dekomposition, Barrieren und Lösungen im Kontext der Webentwicklung

DESCRIPTION Architecting ASP.NET Core Applications aims to be a reference guide for building modern, reliable, and scalable web applications. This book guides you from foundational concepts to advanced techniques, ensuring a solid understanding of ASP.NET Core's architecture and capabilities. This book provides a practical guide to mastering ASP.NET Core, from fundamental design principles like SOLID to advanced concepts such as modular architecture, SignalR for real-time communication, and deploying with Docker and Kubernetes. It explains when and how to apply these techniques, offering hands-on examples with repositories for solving real-world challenges. Readers will learn key topics like RESTful API design, Clean Architecture, Domain-Driven Design, Hexagonal Architecture, routing, middleware, CQRS, and modular monoliths. The book also covers Blazor for frontend development, Entity Framework Core for data access, automated testing, security, debugging, and performance tuning, ensuring well-rounded expertise in ASP.NET Core development. By the end of this book, you will be equipped to design and implement sophisticated ASP.NET Core applications, confidently applying architectural principles, best practices, and advanced techniques to build high-quality web solutions. WHAT YOU WILL LEARN ? Design scalable and maintainable applications using popular principles like SOLID, DRY, and KISS. ? Understand the architecture of systems and how to apply these principles in real life. ? Implement secure, high-performance APIs and advanced deployment techniques. ? Use Docker and Kubernetes for modern systems. ? Solve real-world business problems with practical coding examples. ? Build modular architectures with real-time communication using SignalR. WHO THIS BOOK IS FOR This book is for developers and aspiring architects with a basic understanding of C# and ASP.NET Core. Additionally, software design professionals will find this book to be a refresher on contemporary backend development practices. TABLE OF CONTENTS 1. Introduction to ASP.NET Core 2. Basics of ASP.NET Core 3. Architectures and Core Components 4. Designing RESTful APIs 5. Implementing Routing in ASP.NET Core 6. Middleware and Extensibility 7. Architectural Principles 8. GoF Design Patterns 9. CQRS in Architecture 10. Modular Monolith 11. SignalR in Real-time Web Applications 12. Automated Testing 13. Security in ASP.NET Core 14. Securing Web Applications Effectively 15. Error Handling 16. Containerization for Seamless Deployment 17. Building Responsive User Interfaces with Blazor 18. Advanced User Interfaces with Blazor 19. Debugging, Testing, and Performance Tuning

## Patterns für Enterprise-Application-Architekturen

Language Integrated Query (LINQ), as well as the C# 3.0 and VB 9.0 language extensions to support it, is the most import single new feature of Visual Studio 2008 and the .NET Framework 3.x. LINQ is Microsoft's first attempt to define a universal query language for a diverse set of in-memory collections of generic objects, entities persisted in relational database tables, and element and attributes of XML documents or fragments, as well as a wide variety of other data types, such as RSS and Atom syndication feeds. Microsoft invested millions of dollars in Anders Hejlsberg and his C# design and development groups to add new features to C# 3.0—such as lambda expressions, anonymous types, and extension methods—specifically to support LINQ Standard Query Operators (SQOs) and query expressions as a part of the language itself. Corresponding additions to VB 9.0 followed the C# team's lead, but VB's implementation of LINQ to XML offers a remarkable new addition to the language: XML literals. VB's LINQ to XML implementation includes XML literals, which treat well-formed XML documents or fragments as part of the VB language, rather than requiring translation of element and attribute names and values from strings to XML DOM nodes and values. This book concentrates on hands-on development of practical Windows and Web applications that demonstrate C# and VB programming techniques to bring you up to speed on LINQ technologies. The

first half of the book covers LINQ Standard Query Operators (SQOs) and the concrete implementations of LINQ for querying collections that implement generic IEnumerable, IQueryable, or both interfaces. The second half is devoted to the ADO.NET Entity Framework, Entity Data Model, Entity SQL (eSQL) and LINQ to Entities. Most code examples emulate real-world data sources, such as the Northwind sample database running on SQL Server 2005 or 2008 Express Edition, and collections derived from its tables. Code examples are C# and VB Windows form or Web site/application projects not, except in the first chapter, simple command-line projects. You can't gain a feel for the behavior or performance of LINQ queries with \"Hello World\" projects that process arrays of a few integers or a few first and last names. This book is intended for experienced .NET developers using C# or VB who want to gain the maximum advantage from the query-processing capabilities of LINQ implementations in Visual Studio 2008—LINQ to Objects, LINQ to SQL, LINQ to DataSets, and LINQ to XML—as well as the object/relational mapping (O/RM) features of VS 2008 SP1's Entity Framework/Entity Data Model and LINQ to Entities and the increasing number of open-source LINQ implementations by third-party developers. Basic familiarity with generics and other language features introduced by .NET 2.0, the Visual Studio integrated development environment (IDE), and relational database management systems (RDBMSs), especially Microsoft SQL Server 200x, is assumed. Experience with SQL Server's Transact-SQL (T-SQL) query language and stored procedures will be helpful but is not required. Proficiency with VS 2005, .NET 2.0, C# 2.0, or VB 8.0 will aid your initial understanding of the book's C# 3.0 or VB 9.0 code samples but isn't a prerequisite. Microsoft's .NET code samples are primarily written in C#. All code samples in this book's chapters and sample projects have C# and VB versions unless they're written in T-SQL or JavaScript. Professional ADO.NET 3.5: LINQ and the Entity Framework concentrates on programming the System.Linq and System.Linq.Expressions namespaces for LINQ to Objects, System.Data.Linq for LINQ to SQL, System.Data.Linq for LINQ to DataSet, System.Xml.Linq for LINQ to XML, and System.Data.Entity and System.Web.Entity for EF's Entity SQL. \"Taking a New Approach to Data Access in ADO.NET 3.5,\" uses simple C# and VB code examples to demonstrate LINQ to Objects queries against in-memory objects and databinding with LINQ-populated generic List collections, object/relational mapping (O/RM) with LINQ to SQL, joining DataTables with LINQ to DataSets, creating EntitySets with LINQ to Entities, querying and manipulating XML InfoSets with LINQ to XML, and performing queries against strongly typed XML documents with LINQ to XSD. \"Understanding LINQ Architecture and Implementation,\" begins with the namespaces and C# and VB language extensions to support LINQ, LINQ Standard Query Operators (SQOs), expression trees and compiled queries, and a preview of domain-specific implementations. C# and VB sample projects demonstrate object, array, and collection initializers, extension methods, anonymous types, predicates, lambda expressions, and simple query expressions. \"Executing LINQ Query Expressions with LINQ to Objects,\" classifies the 50 SQOs into operator groups: Restriction, Projection, Partitioning, Join, Concatenation, Ordering, Grouping, Set, Conversion, and Equality, and then lists their keywords in C# and VB. VS 2008 SP1 includes C# and VB versions of the LINQ Project Sample Query Explorer, but the two Explorers don't use real-world collections as data sources. This describes a LINQ in-memory object generator (LIMOG) utility program that writes C# 3.0 or VB 9.0 class declarations for representative business objects that are more complex than those used by the LINQ Project Sample Query Explorers. Sample C# and VB queries with these business objects as data sources are more expressive than those using a arrays of a few integers or last names. \"Working with Advanced Query Operators and Expressions,\" introduces LINQ queries against object graphs with entities that have related (associated) entities. This begins with examples of aggregate operators, explains use of the Let temporary local variable operator, shows you how to use Group By with aggregate queries, conduct the equivalent of left outer joins, and take advantage of the Contains() SQO to emulate SQL's IN() function. You learn how to compile queries for improved performance, and create mock object classes for testing without the overhead of queries against relational persistence stores. \"Using LINQ to SQL and the LinqDataSource,\" introduces LINQ to SQL as Microsoft's first O/RM tool to reach released products status and shows you how to autogenerate class files for entity types with the graphical O/R Designer or command-line SqlMetal.exe. This also explains how to edit *.dbml mapping files in the Designer or XML Editor, instantiate DataContext objects, and use LINQ to SQL as a Data Access Layer (DAL) with T-SQL queries or stored procedures. Closes with a tutorial for using the ASP.NET LinqDataSource control with Web sites or applications. \"Querying DataTables with LINQ to DataSets,\" begins with a comparison of DataSet and DataContext objects and features, followed by a

description of the DataSetExtensions. Next comes querying untyped and typed DataSets, creating lookup lists, and generating LinqDataViews for databinding with the AsDataView() method. This ends with a tutorial that shows you how to copy LINQ query results to DataTables. \"Manipulating Documents with LINQ to XML,\" describes one of LINQ most powerful capabilities: managing XML Infosets. This demonstrates that LINQ to XML has query and navigation capabilities that equal or surpasses XQuery 1.0 and XPath 2.0. It also shows LINQ to XML document transformation can replace XQuery and XSLT 1.0+ in the majority of common use cases. You learn how to use VB 9.0's XML literals to constructs XML documents, use GroupJoin() to produce hierarchical documents, and work with XML namespaces in C# and VB. \"Exploring Third-Party and Emerging LINQ Implementations,\" describes Microsoft's Parallel LINQ (also called PLINQ) for taking advantage of multiple CPU cores in LINQ to Objects queries, LINQ to REST for translating LINQ queries into Representational State Transfer URLs that define requests to a Web service with the HTML GET, POST, PUT, and DELETE methods, and Bart De Smet's LINQ to Active Directory and LINQ to SharePoint third-party implementations. \"Raising the Level of Data Abstraction with the Entity Data Model,\" starts with a guided tour of the development of EDM and EF as an O/RM tool and heir apparent to ADO.NET DataSets, provides a brief description of the entity-relationship (E-R) data model and diagrams, and then delivers a detailed analysis of EF architecture. Next comes an introduction to the Entity SQL (eSQL) language, eSQL queries, client views, and Object Services, including the ObjectContext, MetadataWorkspace, and ObjectStateManager. Later chapters describe eSQL and these objects in greater detail. Two C# and VB sample projects expand on the eSQL query and Object Services sample code. \"Defining Conceptual, Mapping, and Storage Schema Layers,\" provides detailed insight into the structure of the *.edmx file that generates the *.ssdl (storage schema data language), *.msl (mapping schema language), and *.csdl files at runtime. You learn how to edit the *.edmx file manually to accommodate modifications that the graphic EDM Designer can’t handle. You learn how to implement the Table-per-Hierarchy (TPH) inheritance model and traverse the MetadataWorkspace to obtain property values. Four C# and VB sample projects demonstrate mapping, substituting stored procedures for queries, and TPH inheritance. \"Introducing Entity SQL,\" examines EF's new eSQL dialect that adds keywords to address the differences between querying entities and relational tables. You learn to use Zlatko Michaelov's eBlast utility to write and analyze eSQL queries, then dig into differences between eSQL and T-SQL SELECT queries. (eSQL v1 doesn't support INSERT, UPDATE, DELETE and other SQL Data Manipulation Language constructs). You execute eSQL queries against the EntityClient, measure the performance hit of eSQL compared to T-SQL, execute parameterize eSQL queries, and use SQL Server Compact 3.5 as a data store. C# and VB Sample projects demonstrate the programming techniques. \"Taking Advantage of Object Services and LINQ to Entities,\" concentrates manipulating the Object Services API's ObjectContext. It continues with demonstrating use of partial classes for the ModelNameEntities and EntityName objects, executing eSQL ObjectQuerys, and deferred or eager loading of associated entities, including ordering and filtering the associated entities. Also covers instructions for composing QueryBuilder methods for ObjectQuerys, LINQ to Entities queries, and parameterizing ObjectQuerys. \"Updating Entities and Complex Types,\" shows you how to perform create, update, and delete (CUD) operations on EntitySets and manage optimistic concurrency conflicts. It starts with a detailed description of the ObjectContext.ObjectStateManager and its child objects, which perform object identification and change tracking operations with EntityKeys. This also covers validation of create and update operations, optimizing the DataContext lifetime, performing updates with stored procedures, and working with complex types. \"Binding Data Controls to the ObjectContext\

## Architecting ASP.NET Core Applications

Design scalable and high-performance enterprise applications using the latest features of C# 9 and .NET 5 Key FeaturesGain fundamental and comprehensive software architecture knowledge and the skillset to create fully modular appsDesign high-performance software systems using the latest features of .NET 5 and C# 9Solve scalability problems in web apps using enterprise architecture patternsBook Description Software architecture is the practice of implementing structures and systems that streamline the software development process and improve the quality of an app. This fully revised and expanded second edition, featuring the latest features of .NET 5 and C# 9, enables you to acquire the key skills, knowledge, and best practices

required to become an effective software architect. This second edition features additional explanation of the principles of Software architecture, including new chapters on Azure Service Fabric, Kubernetes, and Blazor. It also includes more discussion on security, microservices, and DevOps, including GitHub deployments for the software development cycle. You will begin by understanding how to transform user requirements into architectural needs and exploring the differences between functional and non-functional requirements. Next, you will explore how to carefully choose a cloud solution for your infrastructure, along with the factors that will help you manage your app in a cloud-based environment. Finally, you will discover software design patterns and various software approaches that will allow you to solve common problems faced during development. By the end of this book, you will be able to build and deliver highly scalable enterprise-ready apps that meet your organization’s business requirements. What you will learnUse different techniques to overcome real-world architectural challenges and solve design consideration issuesApply architectural approaches such as layered architecture, service-oriented architecture (SOA), and microservicesLeverage tools such as containers, Docker, Kubernetes, and Blazor to manage microservices effectivelyGet up to speed with Azure tools and features for delivering global solutionsProgram and maintain Azure Functions using C# 9 and its latest featuresUnderstand when it is best to use test-driven development (TDD) as an approach for software developmentWrite automated functional test casesGet the best of DevOps principles to enable CI/CD environmentsWho this book is for This book is for engineers and senior software developers aspiring to become architects or looking to build enterprise applications with the .NET Stack. Basic familiarity with C# and .NET is required to get the most out of this book.

## Professional ADO.NET 3.5 with LINQ and the Entity Framework

Adopt an effortless approach to avoid the hassles of complex concurrency and scaling patterns when building distributed applications in .NET Key Features • Explore the Orleans cross-platform framework for building robust, scalable, and distributed applications • Handle concurrency, fault tolerance, and resource management without complex programming patterns • Work with essential components such as grains and silos to write scalable programs with ease Book Description Building distributed applications in this modern era can be a tedious task as customers expect high availability, high performance, and improved resilience. With the help of this book, you'll discover how you can harness the power of Microsoft Orleans to build impressive distributed applications. Distributed .NET with Microsoft Orleans will demonstrate how to leverage Orleans to build highly scalable distributed applications step by step in the least possible time and with minimum effort. You'll explore some of the key concepts of Microsoft Orleans, including the Orleans programming model, runtime, virtual actors, hosting, and deployment. As you advance, you'll become well-versed with important Orleans assets such as grains, silos, timers, and persistence. Throughout the book, you'll create a distributed application by adding key components to the application as you progress through each chapter and explore them in detail. By the end of this book, you'll have developed the confidence and skills required to build distributed applications using Microsoft Orleans and deploy them in Microsoft Azure. What you will learn • Get to grips with the different cloud architecture patterns that can be leveraged for building distributed applications • Manage state and build a custom storage provider • Explore Orleans key design patterns and understand when to reuse them • Work with different classes that are created by code generators in the Orleans framework • Write unit tests for Orleans grains and silos and create mocks for different parts of the system • Overcome traditional challenges of latency and scalability while building distributed applications Who this book is for This book is for .NET developers and software architects looking for a simplified guide for creating distributed applications, without worrying about complex programming patterns. Intermediate web developers who want to build highly scalable distributed applications will also find this book useful. A basic understanding of .NET Classic or .NET Core with C# and Azure will be helpful.

## Software Architecture with C# 9 and .NET 5

Modellgetriebene Entwicklung befasst sich mit der Erstellung kompletter Softwaresysteme aus Modellen. Das Buch stellt einen praxisorientierten Leitfaden für modellgetriebene Entwicklung dar und richtet sich dabei an Architekten, Entwickler sowie technische Projektleiter. Obwohl die Model-Driven Architecture

(MDA) der OMG einen hohen Stellenwert bei den Betrachtungen einnimmt, betrachtet das Buch auch allgemeine Aspekte modellgetriebener Entwicklung. Das Buch ist dreigeteilt in eine Einführung, einen praktischen Leitfaden mit einem ausführlichen Fallbeispiel sowie zusätzliche Kapitel, die bestimmte Aspekte der Thematik genauer beleuchten.

## Distributed .NET with Microsoft Orleans

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.

## Modellgetriebene Softwareentwicklung

Elevate your career by mastering key .NET tools and skills, including debugging, source code management, testing, cloud-native development, intelligent apps and more. Purchase of the print or Kindle book includes a free PDF eBook. Key Features Coverage of key .NET tools and skills including refactoring, source code management, debugging, memory troubleshooting, and more Practical guidance on using code editors effectively, implementing best practices, and protecting data Explore cutting-edge techniques like building intelligent apps, cloud native development with .NET Aspire, and Docker containerization Book DescriptionUnlock the full potential of .NET development with Tools and Skills for .NET 8. Dive into source code management using Git and learn how to navigate projects while ensuring version control. Discover advanced debugging techniques and troubleshooting strategies to identify and resolve issues, and gain practical insights on documenting your code, APIs, and services, fostering project clarity and maintainability. Delve into the world of cryptography, ensuring confidentiality and integrity throughout your development lifecycle. Elevate your skills as you explore cutting-edge topics such as building intelligent apps using custom LLM-based chat services, mastering dependency injection, optimizing performance through testing, and Docker containerization. Harness the power of cloud-native development with .NET Aspire, unlocking the benefits of modern cloud platforms. With guidance on software architecture best practices, this book empowers you to build robust, scalable and maintainable applications. Advance your career with invaluable insights on job readiness and interview preparation, positioning yourself as a top-tier candidate in today's competitive job market. Whether you're a seasoned .NET professional or an aspiring developer looking to enhance your skills, this book is your ultimate companion on the journey to .NET mastery.What you will learn Make the most of code editor tools for efficient development Learn advanced debugging techniques and troubleshooting strategies Understand how to protect data and applications using cryptography Build a custom LLM-based chat service Discover how to master dependency injection Optimize performance through benchmarking and testing Delve into cloud-native development using .NET Aspire Advance your career with advice on job readiness and interviews Who this book is for .NET professionals seeking to enhance their expertise, as well as aspiring developers aiming to advance their careers in the field. This book caters to individuals eager to master essential .NET tools, refine their development practices, explore advanced techniques and cutting-edge tools, and prepare themselves for job opportunities and interviews in the competitive landscape of .NET development

## Domain-Driven Design Quickly

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

## Tools and Skills for .NET 8

“For software developers of all experience levels looking to improve their results, and design and implement domain-driven enterprise applications consistently with the best current state of professional practice, Implementing Domain-Driven Design will impart a treasure trove of knowledge hard won within the DDD and enterprise application architecture communities over the last couple decades.” –Randy Stafford, Architect At-Large, Oracle Coherence Product Development “This book is a must-read for anybody looking to put DDD into practice.” –Udi Dahan, Founder of NServiceBus Implementing Domain-Driven Design presents a top-down approach to understanding domain-driven design (DDD) in a way that fluently connects strategic patterns to fundamental tactical programming tools. Vaughn Vernon couples guided approaches to implementation with modern architectures, highlighting the importance and value of focusing on the business domain while balancing technical considerations. Building on Eric Evans’ seminal book, Domain-Driven Design, the author presents practical DDD techniques through examples from familiar domains. Each principle is backed up by realistic Java examples–all applicable to C# developers–and all content is tied together by a single case study: the delivery of a large-scale Scrum-based SaaS system for a multitenant environment. The author takes you far beyond “DDD-lite” approaches that embrace DDD solely as a technical toolset, and shows you how to fully leverage DDD’s “strategic design patterns” using Bounded Context, Context Maps, and the Ubiquitous Language. Using these techniques and examples, you can reduce time to market and improve quality, as you build software that is more flexible, more scalable, and more tightly aligned to business goals. Coverage includes Getting started the right way with DDD, so you can rapidly gain value from it Using DDD within diverse architectures, including Hexagonal, SOA, REST, CQRS, Event-Driven, and Fabric/Grid-Based Appropriately designing and applying Entities–and learning when to use Value Objects instead Mastering DDD’s powerful new Domain Events technique Designing Repositories for ORM, NoSQL, and other databases

## Applying Domain-Driven Design and Patterns

h2\u003e Kommentare, Formatierung, Strukturierung Fehler-Handling und Unit-Tests Zahlreiche Fallstudien, Best Practices, Heuristiken und Code Smells Clean Code - Refactoring, Patterns, Testen und Techniken für sauberen Code Aus dem Inhalt: Lernen Sie, guten Code von schlechtem zu unterscheiden Sauberen Code schreiben und schlechten Code in guten umwandeln Aussagekräftige Namen sowie gute Funktionen, Objekte und Klassen erstellen Code so formatieren, strukturieren und kommentieren, dass er bestmöglich lesbar ist Ein vollständiges Fehler-Handling implementieren, ohne die Logik des Codes zu verschleiern Unit-Tests schreiben und Ihren Code testgesteuert entwickeln Selbst schlechter Code kann funktionieren. Aber wenn der Code nicht sauber ist, kann er ein Entwicklungsunternehmen in die Knie zwingen. Jedes Jahr gehen unzählige Stunden und beträchtliche Ressourcen verloren, weil Code schlecht geschrieben ist. Aber das muss nicht sein. Mit Clean Code präsentiert Ihnen der bekannte Software-Experte Robert C. Martin ein revolutionäres Paradigma, mit dem er Ihnen aufzeigt, wie Sie guten Code schreiben und schlechten Code überarbeiten. Zusammen mit seinen Kollegen von Object Mentor destilliert er die besten Praktiken der agilen Entwicklung von sauberem Code zu einem einzigartigen Buch. So können Sie sich die

Erfahrungswerte der Meister der Software-Entwicklung aneignen, die aus Ihnen einen besseren Programmierer machen werden – anhand konkreter Fallstudien, die im Buch detailliert durchgearbeitet werden. Sie werden in diesem Buch sehr viel Code lesen. Und Sie werden aufgefordert, darüber nachzudenken, was an diesem Code richtig und falsch ist. Noch wichtiger: Sie werden herausgefordert, Ihre professionellen Werte und Ihre Einstellung zu Ihrem Beruf zu überprüfen. Clean Code besteht aus drei Teilen:Der erste Teil beschreibt die Prinzipien, Patterns und Techniken, die zum Schreiben von sauberem Code benötigt werden. Der zweite Teil besteht aus mehreren, zunehmend komplexeren Fallstudien. An jeder Fallstudie wird aufgezeigt, wie Code gesäubert wird – wie eine mit Problemen behaftete Code-Basis in eine solide und effiziente Form umgewandelt wird. Der dritte Teil enthält den Ertrag und den Lohn der praktischen Arbeit: ein umfangreiches Kapitel mit Best Practices, Heuristiken und Code Smells, die bei der Erstellung der Fallstudien zusammengetragen wurden. Das Ergebnis ist eine Wissensbasis, die beschreibt, wie wir denken, wenn wir Code schreiben, lesen und säubern. Dieses Buch ist ein Muss für alle Entwickler, Software-Ingenieure, Projektmanager, Team-Leiter oder Systemanalytiker, die daran interessiert sind, besseren Code zu produzieren. Über den Autor: Robert C. »Uncle Bob« Martin entwickelt seit 1970 professionell Software. Seit 1990 arbeitet er international als Software-Berater. Er ist Gründer und Vorsitzender von Object Mentor, Inc., einem Team erfahrener Berater, die Kunden auf der ganzen Welt bei der Programmierung in und mit C++, Java, C#, Ruby, OO, Design Patterns, UML sowie Agilen Methoden und eXtreme Programming helfen.

## Implementing Domain-Driven Design

Become a professional .NET developer by learning expert techniques for building enterprise-grade applications Key FeaturesExplore the advanced features of C# and .NET 5 to enhance your code and productivityFollow clear and easy instructions for building an end-to-end enterprise applicationLearn how to build scalable web applications and host them on the cloudBook Description .NET Core is one of the most popular programming platforms in the world for an increasingly large community of developers thanks to its excellent cross-platform support. This book will show you how to confidently use the features of .NET 5 with C# 9 to build robust enterprise applications. Throughout the book, you'll work on creating an enterprise app and adding a key component to the app with each chapter, before ?nally getting it ready for testing and deployment. You'll learn concepts relating to advanced data structures, the Entity Framework Core, parallel programming, and dependency injection. As you progress, you'll cover various authentication and authorization schemes provided by .NET Core to make your apps and APIs secure. Next, you'll build web apps using ASP.NET Core 5 and deploy them on the cloud while working with various cloud components using Azure. The book then shows you how to use the latest Microsoft Visual Studio 2019 and C# 9 to simplify developer tasks, and also explores tips and tricks in Visual Studio 2019 to improve your productivity. Later, you'll discover various testing techniques such as unit testing and performance testing as well as di?erent methods to deploy enterprise apps. By the end of this book, you'll be able to create enterprise apps using the powerful features of .NET 5 and deploy them on the cloud. What you will learnDesign enterprise apps by making the most of the latest features of .NET 5Discover di?erent layers of an app, such as the data layer, API layer, and web layerExplore end-to-end architecture, implement an enterprise web app using .NET and C# 9, and deploy the app on AzureFocus on the core concepts of web application development such as dependency injection, caching, logging, con?guration, and authentication, and implement them in .NET 5Integrate the new .NET 5 health and performance check APIs with your appUnderstand how .NET 5 works and contribute to the .NET 5 platformWho this book is for If you are a developer, architect, or senior programmer who wants to leverage the features of .NET 5 and the C# language, as well as grasp essential techniques to build your skills, then this C# .NET 5 book is for you. Beginner to intermediate-level knowledge of the .NET framework and C# programming is required to understand the concepts covered in this book more effectively.

## Clean Code - Refactoring, Patterns, Testen und Techniken für sauberen Code

A comprehensive guide to every important component of C# and .NET 6 required to build robust enterprise

web applications Key Features • Explore the advanced features of C# and .NET 6 to enhance your code and productivity • Follow clear and easy instructions for building an end-to-end enterprise application • Learn how to build scalable web applications and host them on the cloud Book Description Building production-ready enterprise applications can be a challenging task due to the overabundance of tools and their different versions that make app development complex. This book simplifies the process with an end-to-end road map for building enterprise applications from scratch using the latest features of .NET Core 6 and C# 10. Throughout the book, you'll work on creating an enterprise app, adding a key component to the app with each chapter, before finally getting it ready for testing and deployment. You'll learn concepts relating to advanced data structures, the Entity Framework Core, parallel programming, and dependency injection. As you progress, you'll cover various authentication and authorization schemes provided by .NET Core to make your apps and APIs secure. The book then shows you how the latest Microsoft Visual Studio and C# 10 help you simplify developer tasks and shares tips and tricks in Visual Studio to improve your productivity. You'll discover various testing techniques, such as unit testing and performance testing, as well as different methods to deploy enterprise apps. By the end of this book, you'll be able to create enterprise apps using the powerful features of .NET 6 and deploy them to the cloud while working with various cloud components using Azure. What you will learn • Design enterprise apps by making the most of the latest features of .NET 6 • Discover different layers of an app, such as the data layer, API layer, and web layer • Explore end-to-end architecture by implementing an enterprise web app using .NET and C# 10 and deploying it on Azure • Focus on the core concepts of web application development and implement them in .NET 6 • Integrate the new .NET 6 health and performance check APIs into your app • Explore MAUI and build an application targeting multiple platforms - Android, iOS, and Windows Who this book is for If you are a developer, architect, or senior programmer, this book will show you how to leverage the features of .NET 6 and the C# language, as well as help you grasp essential techniques to build your skills.

## Enterprise Application Development with C# 9 and .NET 5

Implement modern design patterns that leverage domain-driven data, to achieve resiliency and scalability for data-dependent applications Key Features Learn the tenets of event-driven architecture, coupled with reliable design patterns to enhance your knowledge of distributed systems and build a foundation for professional growth Understand how to translate business goals and drivers into a domain model that can be used to develop an app that enables those goals and drivers Identify areas to enhance development and ensure operational support through the architectural design process Book DescriptionThis book will guide you through various hands-on practical examples for implementing event-driven microservices architecture using C# 11 and .NET 7. It has been divided into three distinct sections, each focusing on different aspects of this implementation. The first section will cover the new features of .NET 7 that will make developing applications using EDA patterns easier, the sample application that will be used throughout the book, and how the core tenets of domain-driven design (DDD) are implemented in .NET 7. The second section will review the various components of a local environment setup, the containerization of code, testing, deployment, and the observability of microservices using an EDA approach. The third section will guide you through the need for scalability and service resilience within the application, along with implementation details related to elastic and autoscale components. You'll also cover how proper telemetry helps to automatically drive scaling events. In addition, the topic of observability is revisited using examples of service discovery and microservice inventories. By the end of this book, you'll be able to identify and catalog domains, events, and bounded contexts to be used for the design and development of a resilient microservices architecture.What you will learn Explore .NET 7 and how it enables the development of applications using EDA Understand messaging protocols and producer/consumer patterns and how to implement them in .NET 7 Test and deploy applications written in .NET 7 and designed using EDA principles Account for scaling and resiliency in microservices Collect and learn from telemetry at the platform and application level Get to grips with the testing and deployment of microservices Who this book is forThis book will help .NET developers and architects looking to leverage or pivot to microservices while using a domain-driven event model.

## Enterprise Application Development with C# 10 and .NET 6

Develop your programming skills by exploring essential topics such as code reviews, implementing TDD and BDD, and designing APIs to overcome code inefficiency, redundancy, and other problems arising from bad code Key FeaturesWrite code that cleanly integrates with other systems while maintaining well-defined software boundariesUnderstand how coding principles and standards enhance software qualityLearn how to avoid common errors while implementing concurrency or threadingBook Description Traditionally associated with developing Windows desktop applications and games, C# is now used in a wide variety of domains, such as web and cloud apps, and has become increasingly popular for mobile development. Despite its extensive coding features, professionals experience problems related to efficiency, scalability, and maintainability because of bad code. Clean Code in C# will help you identify these problems and solve them using coding best practices. The book starts with a comparison of good and bad code, helping you understand the importance of coding standards, principles, and methodologies. You'll then get to grips with code reviews and their role in improving your code while ensuring that you adhere to industry-recognized coding standards. This C# book covers unit testing, delves into test-driven development, and addresses cross-cutting concerns. You'll explore good programming practices for objects, data structures, exception handling, and other aspects of writing C# computer programs. Once you've studied API design and discovered tools for improving code quality, you'll look at examples of bad code and understand which coding practices you should avoid. By the end of this clean code book, you'll have the developed skills you need in order to apply industry-approved coding practices to write clean, readable, extendable, and maintainable C# code. What you will learnWrite code that allows software to be modified and adapted over timeImplement the fail-pass-refactor methodology using a sample C# console applicationAddress cross-cutting concerns with the help of software design patternsWrite custom C# exceptions that provide meaningful informationIdentify poor quality C# code that needs to be refactoredSecure APIs with API keys and protect data using Azure Key VaultImprove your code's performance by using tools for profiling and refactoringWho this book is for This coding book is for C# developers, team leads, senior software engineers, and software architects who want to improve the efficiency of their legacy systems. A strong understanding of C# programming is required.

## Implementing Event-Driven Microservices Architecture in .NET 7

Domain-Driven Design (DDD) richtet den Fokus in der Softwareentwicklung auf das Wesentliche: die Domäne. Die Domäne wird als Modell in die Software übertragen. Damit entwickeln Sie Software in hoher Qualität, die lange hält, den Anwender zufriedenstellt und die Basis für Microservices bildet. Dieses Buch bietet einen kompakten Einstieg in DDD. Die wesentlichen Konzepte, wie die Entwicklung einer Ubiquitous Language, das Aufteilen der Domäne in Bounded Contexts und die Konstruktion innerhalb von Bounded Contexts, werden vermittelt. Außerdem wird die Anbindung von Legacy-Systemen behandelt. Die Themen im Einzelnen: - Strategisches Design mit Bounded Contexts und der Ubiquitous Language - Strategisches Design mit Subdomains - Strategisches Design mit Context Mapping - Taktisches Design mit Aggregates - Taktisches Design mit Domain Events Auch auf Techniken zur Beschleunigung von Design und das Management von Projekten wird eingegangen. Insbesondere wird erläutert, wie Event Storming, DDD in einem agilen Projekt und die Modellierung mit Timebox funktionieren. Der Leser findet in diesem Buch viele konkrete Handlungsvorschläge für die Praxis und wird so befähigt, die Zusammenarbeit von Entwicklern und Domain Experts sowie zwischen Teams zu fördern. Als Extra befindet sich ein Glossar mit den wichtigsten DDD-Begriffen auf den Umschlaginnenseiten.

## Clean Code in C#

The ASP.NET MVC framework is the latest evolution of Microsoft's ASP.NET web platform. It introduces a radical high–productivity programming model, promotes cleaner code architecture, supports test–driven development, and provides powerful extensibility, combined with all the benefits of ASP.NET 3.5. ASP.NET MVC Framework Preview is a first look at this technology's main features, designed to give you a head start getting to grips with this powerful new technology.

## Domain-Driven Design kompakt

Author Steven Sanderson has seen the ASP.NET MVC Framework mature from the start, so his experience, combined with comprehensive coverage of all the new features, including those in the official MVC development toolkit, offers the clearest understanding of how this exciting new framework can improve your coding efficiency. With this book, you'll gain invaluable up-to-date knowledge of security, deployment, and interoperability challenges. The ASP.NET MVC 2 Framework introduces a radical high-productivity programming model that promotes cleaner code architecture, test-driven development, and powerful extensibility, combined with all the benefits of ASP.NET 3.5. In this book, the core model-view-controller (MVC) architectural concepts are not simply explained or discussed in isolation, but are demonstrated in action. You'll work through an extended tutorial to create a working e-commerce web application that combines ASP.NET MVC with C# language features and unit-testing best practices. By gaining this invaluable, practical experience, you'll discover MVC's strengths and weaknesses for yourself—and put your best-learned theory into practice.

## ASP.NET MVC Framework Preview

This course balances theory with practical implementation. You'll learn through real-world examples, starting with the fundamentals and moving to advanced CQRS techniques. Each concept is accompanied by hands-on exercises to solidify your understanding.Learn the CQRS pattern through hands-on examples. Understand how to design scalable systems by separating commands and queries, and implement best practices for improved performance and flexibility. Key Features A comprehensive introduction to the CQRS pattern for building scalable systems In-depth explanation of the separation between commands and queries Detailed coverage of event sourcing and data consistency techniques Book DescriptionThis course offers an in-depth exploration of the Command Query Responsibility Segregation (CQRS) pattern, a powerful architecture design that separates read and write operations to achieve greater scalability and performance in software systems. You'll begin by understanding the core principles behind CQRS and why it is essential for handling complex, high-traffic applications. Throughout the course, we'll work through real-world examples that demonstrate how to apply CQRS to achieve a cleaner and more efficient codebase. Next, we will guide you through the practical aspects of implementing CQRS in a variety of use cases, focusing on how it enhances system maintainability and performance. You'll learn to distinguish between commands and queries effectively, and how to manage data consistency across distributed systems using techniques like event sourcing and eventual consistency. By the end of the course, you will have a comprehensive understanding of CQRS and its benefits. You'll be able to implement it in your own projects, whether you're building new applications or improving legacy systems. With a focus on scalability, maintainability, and performance, this course equips you with the skills needed to take on complex architectural challenges confidently.What you will learn Understand the core principles of the CQRS pattern Separate read and write operations effectively in system design Implement event sourcing to ensure data consistency Manage eventual consistency in distributed systems Apply CQRS to real-world, scalable applications Integrate CQRS with other architectural patterns Who this book is for This course is ideal for software developers, solution architects, and technical leads who are looking to enhance their knowledge of scalable system design. It is particularly suited for professionals working on high-traffic, data-intensive applications where performance and maintainability are critical. Additionally, developers familiar with domain-driven design, microservices, or event-driven architectures will find this course highly relevant. While prior knowledge of CQRS is not required, a foundational understanding of database design and system workflows will be beneficial.

## Pro ASP.NET MVC 2 Framework

Design scalable and high-performance enterprise applications using the latest features of C# 10 and .NET 6 Key FeaturesGain comprehensive software architecture knowledge and the skillset to create fully modular appsSolve scalability problems in web apps using enterprise architecture patternsMaster new developments in front-end architecture and the application of AI for software architectsBook Description Software architecture is the practice of implementing structures and systems that streamline the software development

process and improve the quality of an app. This fully revised and expanded third edition, featuring the latest features of .NET 6 and C# 10, enables you to acquire the key skills, knowledge, and best practices required to become an effective software architect. Software Architecture with C# 10 and .NET 6, Third Edition features new chapters that describe the importance of the software architect, microservices with ASP.NET Core, and analyzing the architectural aspects of the front-end in the applications, including the new approach of .NET MAUI. It also includes a new chapter focused on providing a short introduction to artificial intelligence and machine learning using ML.NET, and updated chapters on Azure Kubernetes Service, EF Core, and Blazor. You will begin by understanding how to transform user requirements into architectural needs and exploring the differences between functional and non-functional requirements. Next, you will explore how to choose a cloud solution for your infrastructure, taking into account the factors that will help you manage a cloud-based app successfully. Finally, you will analyze and implement software design patterns that will allow you to solve common development problems. By the end of this book, you will be able to build and deliver highly scalable enterprise-ready apps that meet your business requirements. What you will learnUse proven techniques to overcome real-world architectural challengesApply architectural approaches such as layered architectureLeverage tools such as containers to manage microservices effectivelyGet up to speed with Azure features for delivering global solutionsProgram and maintain Azure Functions using C# 10Understand when it is best to use test-driven development (TDD)Implement microservices with ASP.NET Core in modern architecturesEnrich your application with Artificial IntelligenceGet the best of DevOps principles to enable CI/CD environmentsWho this book is for This book is for engineers and senior software developers aspiring to become architects or looking to build enterprise applications with the .NET Stack. Basic familiarity with C# and .NET is required to get the most out of this book.

## CQRS by Example

Explore the world of .NET design patterns and bring the benefits that the right patterns can offer to your toolkit today About This Book Dive into the powerful fundamentals of .NET framework for software development The code is explained piece by piece and the application of the pattern is also showcased. This fast-paced guide shows you how to implement the patterns into your existing applications Who This Book Is For This book is for those with familiarity with .NET development who would like to take their skills to the next level and be in the driver's seat when it comes to modern development techniques. Basic object-oriented C# programming experience and an elementary familiarity with the .NET framework library is required. What You Will Learn Put patterns and pattern catalogs into the right perspective Apply patterns for software development under C#/.NET Use GoF and other patterns in real-life development scenarios Be able to enrich your design vocabulary and well articulate your design thoughts Leverage object/functional programming by mixing OOP and FP Understand the reactive programming model using Rx and RxJs Writing compositional code using C# LINQ constructs Be able to implement concurrent/parallel programming techniques using idioms under .NET Avoiding pitfalls when creating compositional, readable, and maintainable code using imperative, functional, and reactive code. In Detail Knowing about design patterns enables developers to improve their code base, promoting code reuse and making their design more robust. This book focuses on the practical aspects of programming in .NET. You will learn about some of the relevant design patterns (and their application) that are most widely used. We start with classic object-oriented programming (OOP) techniques, evaluate parallel programming and concurrency models, enhance implementations by mixing OOP and functional programming, and finally to the reactive programming model where functional programming and OOP are used in synergy to write better code. Throughout this book, we'll show you how to deal with architecture/design techniques, GoF patterns, relevant patterns from other catalogs, functional programming, and reactive programming techniques. After reading this book, you will be able to convincingly leverage these design patterns (factory pattern, builder pattern, prototype pattern, adapter pattern, facade pattern, decorator pattern, observer pattern and so on) for your programs. You will also be able to write fluid functional code in .NET that would leverage concurrency and parallelism! Style and approach This tutorial-based book takes a step-by-step approach. It covers the major patterns and explains them in a detailed manned along with code examples.

## Entwurfsmuster

Learn C# with Beginning C# Object-Oriented Programming and you'll be thinking about program design in the right way from day one. Whether you want to work with .NET for the web or desktop, or for Windows 8 on any device, Dan Clark's accessible, quick-paced guide will give you the foundation you need for a successful future in C# programming. In this book you will: Master the fundamentals of object-oriented programming Work through a case study to see how C# and OOP work in a real-world application Develop techniques and best practices that lead to efficient, reusable, elegant code Discover how to transform a simple model of an application into a fully-functional C# project. With more than 30 fully hands-on activities, Beginning C# Object-Oriented Programming teaches you how to design a user interface, implement your business logic, and integrate your application with a relational database for data storage. Along the way, you will explore the .NET Framework, ASP.NET and WinRT. In addition, you will develop desktop, mobile and web-based user interfaces, and service-oriented programming skills, all using Microsoft's industry-leading Visual Studio 2012, C#, the Entity Framework, and more. Read this book and let Dan Clark guide you in your journey to becoming a confident C# programmer.

## Software Architecture with C# 10 and .NET 6

As you work your way through An Introduction to Object-Oriented Programming with Visual Basic .NET, you'll learn how to analyze the business requirements of an application, model the objects and relationships involved in the solution design and, finally, implement the solution using Visual Basic .NET. Along the way you'll also learn the fundamentals of software design, the Unified Modeling Language (UML), object-oriented programming, and Visual Basic .NET. An Introduction to Object-Oriented Programming with Visual Basic .NET is logically organized into three parts. Part One delves into object-oriented programming methodology and design, concepts that transcend a particular programming language. The concepts presented are important to the success of an object-oriented programming solution regardless of the implementation language chosen. At the conclusion of this part, a case study walks you through the design of a solution based on a real-world scenario. Part Two looks at how object-oriented programming is implemented in Visual Basic .NET. You will explore the structure of classes, class hierarchies, inheritance, and interfaces. The .NET Framework is introduced along with the Visual Studio integrated development environment (IDE). Part Three returns to the case study introduced at the end of Part One. Using the knowledge gained in Part Two, programmers will transform the design into a functional VB .NET application. The application includes a graphical user interface, a business logic class library, and integration with a back-end database.

## .NET Design Patterns

Verhaltensregeln für professionelle Programmierer Erfolgreiche Programmierer haben eines gemeinsam: Die Praxis der Software-Entwicklung ist ihnen eine Herzensangelegenheit. Auch wenn sie unter einem nicht nachlassenden Druck arbeiten, setzen sie sich engagiert ein. Software-Entwicklung ist für sie eine Handwerkskunst. In Clean Coder stellt der legendäre Software-Experte Robert C. Martin die Disziplinen, Techniken, Tools und Methoden vor, die Programmierer zu Profis machen. Dieses Buch steckt voller praktischer Ratschläge und behandelt alle wichtigen Themen vom professionellen Verhalten und Zeitmanagement über die Aufwandsschätzung bis zum Refactoring und Testen. Hier geht es um mehr als nur um Technik: Es geht um die innere Haltung. Martin zeigt, wie Sie sich als Software-Entwickler professionell verhalten, gut und sauber arbeiten und verlässlich kommunizieren und planen. Er beschreibt, wie Sie sich schwierigen Entscheidungen stellen und zeigt, dass das eigene Wissen zu verantwortungsvollem Handeln verpflichtet. In diesem Buch lernen Sie: Was es bedeutet, sich als echter Profi zu verhalten Wie Sie mit Konflikten, knappen Zeitplänen und unvernünftigen Managern umgehen Wie Sie beim Programmieren im Fluss bleiben und Schreibblockaden überwinden Wie Sie mit unerbittlichem Druck umgehen und Burnout vermeiden Wie Sie Ihr Zeitmanagement optimieren Wie Sie für Umgebungen sorgen, in denen Programmierer und Teams wachsen und sich wohlfühlen Wann Sie Nein sagen sollten – und wie Sie das anstellen Wann Sie Ja sagen sollten – und was ein Ja wirklich bedeutet Großartige Software ist etwas Bewundernswertes: Sie ist leistungsfähig, elegant, funktional und erfreut bei der Arbeit sowohl den

Entwickler als auch den Anwender. Hervorragende Software wird nicht von Maschinen geschrieben, sondern von Profis, die sich dieser Handwerkskunst unerschütterlich verschrieben haben. Clean Coder hilft Ihnen, zu diesem Kreis zu gehören. Über den Autor: Robert C. Uncle Bob Martin ist seit 1970 Programmierer und bei Konferenzen in aller Welt ein begehrter Redner. Zu seinen Büchern gehören Clean Code – Refactoring, Patterns, Testen und Techniken für sauberen Code und Agile Software Development: Principles, Patterns, and Practices. Als überaus produktiver Autor hat Uncle Bob Hunderte von Artikeln, Abhandlungen und Blogbeiträgen verfasst. Er war Chefredakteur bei The C++ Report und der erste Vorsitzende der Agile Alliance. Martin gründete und leitet die Firma Object Mentor, Inc., die sich darauf spezialisiert hat, Unternehmen bei der Vollendung ihrer Projekte behilflich zu sein.

## Beginning C# Object-Oriented Programming

DESCRIPTION Microsoft recently released .NET 8, a fresh and exciting release with lots of new features and performance enhancements. In this book, we will cover several frameworks such as WinForms, WPF, Windows App SDK, Blazor, and MAUI. This book will begin with a tour of the .NET technology, including its versions and support. You will also discover how .NET evolved into a unified development platform and be introduced to a variety of desktop frameworks. The upcoming chapter will be devoted exclusively to discussing the new features and improvements in .NET 8, together with the features that are now available in the C# 12 version. Since we now have a solid grasp of .NET 8, we can get started in chapter three by using the .NET Command Line Interface (CLI) commands to create new projects and solutions. We will study this by examining several desktop application frameworks from chapters 4 to 8. The following two chapters will cover a variety of application design patterns and best practices. Upon completion, readers will have a thorough understanding of various native desktop application development techniques, as well as the most recent C# features and how they integrate into existing design approaches. KEY FEATURES ? Learn about the new features of .NET 8 and C# 12, and using them in programming. ? Learn how to create numerous native desktop applications with .NET 8. ? Understand application architectural topics such as microservices, gRPC, design patterns, and best practices. WHAT YOU WILL LEARN ? Familiarize yourself with new features and improvements in .NET 8, together with the features that are now available in the C# 12 version. ? Understanding CLI commands and creating projects using them. ? Using Windows Forms, WPF, and Windows App SDK concepts along with real-time use-cases. ? Understanding how mobile apps can be built using the .NET MAUI platform. ? Achieve the potential of the Blazor framework along with new changes and features introduced since .NET 8. ? Exploring various architecture and design patterns along with best practices. WHO THIS BOOK IS FOR This book is for software developers, UI/UX designers, and .NET enthusiasts seeking to create cutting-edge desktop applications, as this book provides the essential knowledge and practical guidance to excel in .NET 8 desktop development. TABLE OF CONTENTS 1. Introduction to .NET 8 2. Exploring .NET 8’s Features 3. Working with Command Line Interface 4. Working with Windows Forms 5. Working with Windows Presentation Foundation 6. Working with Multi-platform App UI 7. Working with Windows App SDK 8. Working with Blazor 9. Application Architecture 10. Best Practices

## Datenintensive Anwendungen designen

This volume of Advances in Intelligent Systems and Computing highlights key scientific achievements and innovations in all areas of automation, informatization, computer science, and artificial intelligence. It gathers papers presented at the IITI 2017, the Second International Conference on Intelligent Information Technologies for Industry, which was held in Varna, Bulgaria on September 14–16, 2017. The conference was jointly co-organized by Technical University of Varna (Bulgaria), Technical University of Sofia (Bulgaria), VSB Technical University of Ostrava (Czech Republic) and Rostov State Transport University (Russia). The IITI 2017 brought together international researchers and industrial practitioners interested in the development and implementation of modern technologies for automation, informatization, computer science, artificial intelligence, transport and power electrical engineering. In addition to advancing both fundamental research and innovative applications, the conference is intended to establish a new dissemination platform and an international network of researchers in these fields.

## An Introduction to Object-Oriented Programming with Visual Basic .NET

With the clarity and precision intrinsic to the Test-Driven Development (TDD) process itself, experts James Newkirk and Alexei Vorontsov demonstrate how to implement TDD principles and practices to drive lean, efficient coding—and better design. The best way to understand TDD is to see it in action, and Newkirk and Vorontsov walk step by step through TDD and refactoring in an n-tier, .NET-connected solution. And, as members of the development team for NUnit, a leading unit-testing framework for Microsoft .NET, the authors can offer matchless insights on testing in this environment—ultimately making their expertise your own. Test first—and drive ambiguity out of the development process: Document your code with tests, rather than paper Use test lists to generate explicit requirements and completion criteria Refactor—and improve the design of existing code Alternate programmer tests with customer tests Change how you build UI code—a thin layer on top of rigorously tested code Use tests to make small, incremental changes—and minimize the debugging process Deliver software that’s verifiable, reliable, and robust

## Clean Coder

The promise of software factories is to streamline and automate software development, and thus to produce higher-quality software more efficiently. The key idea is to promote systematic reuse at all levels and exploit economies of scope, which translates into concrete savings in planning, development, and maintenance efforts. However, the theory behind software factories can be overwhelming, because it spans many disciplines of software development. On top of that, software factories typically require significant investments into reusable assets. This book was written in order to demystify the software factories paradigm by guiding you through a practical case study, from the early conception phase of building a software factory to delivering a ready-made software product. The authors provide you with a hands-on example covering each of the four pillars of software factories: software product lines, architectural frameworks, model-driven development, and guidance in context. While the ideas behind software factories are platform independent, the Microsoft .NET platform, together with recent technologies such as DSL Tools and the Smart Client Baseline Architecture Toolkit, makes an ideal foundation. A study shows the different facets and caveats and demonstrates how each of these technologies becomes part of a comprehensive factory. Software factories are a top candidate for revolutionizing software development. This book will give you a great starting point to understanding the concepts behind it and ultimately applying this knowledge to your own software projects. Contributions by Jack Greenfield, Wojtek Kozaczynski Foreword by Douglas C. Schmidt, Jack Greenfield, Jorgen Kazmeier and Eugenio Pace.

## Native Desktop Applications with .NET 8

\"[This] is a book about design in the .NET world, driven in an agile manner and infused with the products of the enterprise patterns community. [It] shows you how to begin applying such things as TDD, object relational mapping, and DDD to .NET projects ... techniques that many developers think are the key to future software development ... As the technology gets more capable and sophisticated, it becomes more important to understand how to use it well. This book is a valuable step toward advancing that understanding.\"--Martin Fowler, author of Refactoring and Patterns of Enterprise Application 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.

## Proceedings of the Second International Scientific Conference “Intelligent Information Technologies for Industry” (IITI’17)

A software architect’s digest of core practices, pragmatically applied Designing effective architecture is your best strategy for managing project complexity–and improving your results. But the principles and practices of software architecting–what the authors call the “science of hard decisions”–have been evolving for cloud, mobile, and other shifts. Now fully revised and updated, this book shares the knowledge and real-world perspectives that enable you to design for success–and deliver more successful solutions. In this fully updated Second Edition, you will: Learn how only a deep understanding of domain can lead to appropriate architecture Examine domain-driven design in both theory and implementation Shift your approach to code first, model later–including multilayer architecture Capture the benefits of prioritizing software maintainability See how readability, testability, and extensibility lead to code quality Take a user experience (UX) first approach, rather than designing for data Review patterns for organizing business logic Use event sourcing and CQRS together to model complex business domains more effectively Delve inside the persistence layer, including patterns and implementation.

## Test-Driven Development in Microsoft .NET

Architect and design highly scalable, robust, clean and highly performant applications in .NET Core About This Book Incorporate architectural soft-skills such as DevOps and Agile methodologies to enhance program-level objectives Gain knowledge of architectural approaches on the likes of SOA architecture and microservices to provide traceability and rationale for architectural decisions Explore a variety of practical use cases and code examples to implement the tools and techniques described in the book Who This Book Is For This book is for experienced .NET developers who are aspiring to become architects of enterprise-grade applications, as well as software architects who would like to leverage .NET to create effective blueprints of applications. What You Will Learn Grasp the important aspects and best practices of application lifecycle management Leverage the popular ALM tools, application insights, and their usage to monitor performance, testability, and optimization tools in an enterprise Explore various authentication models such as social media-based authentication, 2FA and OpenID Connect, learn authorization techniques Explore Azure with various solution approaches for Microservices and Serverless architecture along with Docker containers Gain knowledge about the recent market trends and practices and how they can be achieved with .NET Core and Microsoft tools and technologies In Detail If you want to design and develop enterprise applications using .NET Core as the development framework and learn about industry-wide best practices and guidelines, then this book is for you. The book starts with a brief introduction to enterprise architecture, which will help you to understand what enterprise architecture is and what the key components are. It will then teach you about the types of patterns and the principles of software development, and explain the various aspects of distributed computing to keep your applications effective and scalable. These chapters act as a catalyst to start the practical implementation, and design and develop applications using different architectural approaches, such as layered architecture, service oriented architecture, microservices and cloud-specific solutions. Gradually, you will learn about the different approaches and models of the Security framework and explore various authentication models and authorization techniques, such as social media-based authentication and safe storage using app secrets. By the end of the book, you will get to know the concepts and usage of the emerging fields, such as DevOps, BigData, architectural practices, and Artificial Intelligence. Style and approach Filled with examples and use cases, this guide takes a no-nonsense approach to show you the best tools and techniques required to become a successful software architect.

## Practical Software Factories in .NET

Applying Domain-driven Design and Patterns

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