

Building Serverless Web Applications Develop Scalable Web Apps Using The Serverless Framework On Aws

Build Azure functions and integrate them with Azure Cosmos DB data models

DESCRIPTION This book provides examples to start with Azure functions and Azure Cosmos DB. It demonstrates the features available in both of the mentioned Azure services and discusses them in detail with some real-world examples. Reading a csv file and write to a Cosmos DB table store, Read emails using Microsoft Graph API and save them in a Cosmos DB, Cosmos DB trigger function to send SMS notifications to clients, A queue trigger to create new nodes in the Cosmos DB graph data store are some of them. You will be able to see the above case studies with code samples implemented in C# .NET Core, TypeScript, and Python. It consists of a very basic example, two intermediate samples, then and an advanced level one. You will experience the triggers and input/output bindings available for a function, like queue trigger, blob trigger, and Cosmos DB trigger to name a few. Also, you will be able to see some interesting features available in Azure functions like performance optimizations, scalability of a function app, geographical distribution of the function in different locations, error handling, writing unit tests for the functions to avoid breaking changes, how

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to ensure a function app is secure, and then how to deploy a function, and monitor and troubleshoot a function app. At the end of this book, you will gain strong experience in using Azure functions and how to manage serverless applications seamlessly without any failure with utmost performance. KEY FEATURES ? Expert-led coverage on integrating Azure functions ? Industry-proven examples and best practices on implementation of Azure Cosmos DB ? Learn to work on performance optimization and error handling ? Integration of Azure function with other Azure services WHAT YOU WILL LEARN ? You will be able to create an Azure function and integrate it with many Azure services including the Azure Cosmos DB ? You will get experience implementing a function using programming languages like C# .NET Core, TypeScript, and Python. ? You will get hands-on experience on the performance optimizing of a function, how to scale them, how to apply security to the function app, error handling and testing in a function. WHO THIS BOOK IS FOR This book is for developers who want to get the knowledge and experience in Azure Functions and Azure Cosmos DB. If you have a programming knowledge of .NET, TypeScript, Python, or any other programming language, it will be enough to understand the concepts and samples in this book. If you have worked with a cloud technology or have experience in any of the Azure cloud services, then it

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will be a definite advantage. TABLE OF CONTENTS 1. Beginning Azure Function Apps 2. Your First Azure Function App 3. Let's Get Started with Cosmos DB 4. Structure Your Data in Cosmos DB 5. Your First Cosmos DB 6. Serverless Design Patterns 7. Performance and Scalability of a Function App 8. Geo-Distribution in a Function App 9. Error Handling and Testing 10. Secure Your Function App 11. Deployments in a Function App 12. Monitor and Troubleshoot Function Apps 13. Azure Functions with Cosmos DB Table API 14. Azure Functions with Cosmos DB SQL API 15. Cosmos DB Trigger in Azure Function 16. Azure Functions with Cosmos DB Gremlin API

Start developing Azure Functions and building simple solutions for serverless computing without worrying about infrastructure. With the increased need for deploying serverless computing, Azure Functions integrates with other Azure resources. This book is a quick reference and consists of a practical and problem-driven approach with the latest technology. Guided by step-by-step explanations and sample projects, you'll set up, build, and deploy Azure Functions to get the most out of this compute-on-demand service. After a foundational introduction to Azure Functions you'll prepare a development environment to serve and process an IoT Telemetry system, create Microservices, and monitor Azure Functions services to get application insights. What You'll Learn Review the Interaction

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between Azure Functions and Azure data services Apply Azure Functions in web applications and build interaction systems for mobile applications Develop a serverless micro-service Serve and process IoT Telemetry systems Monitor Azure Functions services and get application insights Who This Book Is For Developers, students, professionals and anyone interested in Azure Function technology and the Azure platform.

Build interactive dashboards and storytelling reports at scale with the cloud-native BI tool - Amazon QuickSight, including embedded analytics and ML-powered insights Key Features Understand how to set up Amazon QuickSight, manage data sources, and build and share dashboards Learn the advanced features of Amazon Quicksight to develop interactive and embedded dashboards Manage and monitor dashboards using the QuickSight API and other AWS services such as Amazon CloudTrail Book Description The adoption of cloud-native BI tools, like Amazon QuickSight, enables organizations to gather insights from data at scale. This book is a practical guide to performing simple-to-advanced tasks with Amazon QuickSight. You'll begin by learning QuickSight's fundamental concepts and how to configure data sources. Next, you'll be introduced to the main analysis-building functionality of QuickSight to develop visuals and dashboards. The book will also demonstrate how to develop and

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share interactive dashboards with parameters and on-screen controls. Advanced filtering options with URL actions will then be covered, before learning how to set up alerts and scheduled reports. Later, you'll explore the Insights visual type in QuickSight using both existing insights and by building custom insights. Further chapters will show you how to add machine learning insights such as forecasting capabilities, analyzing time series data, adding narratives, and outlier detection to your dashboards. You'll also explore patterns to automate operations and look closer into the API actions that allow us to control settings. Finally, you'll learn advanced topics such as embedded dashboards and multitenancy. By the end of this book, you'll be well-versed with QuickSight's BI and analytics functionalities that will help you create BI apps with ML capabilities. What you will learn

- Understand the wider AWS analytics ecosystem and how QuickSight fits within it
- Set up and configure data sources with Amazon QuickSight
- Include custom controls and add interactivity to your BI application using parameters
- Add ML insights such as forecasting, anomaly detection, and narratives
- Explore patterns to automate operations using QuickSight APIs
- Create interactive dashboards and storytelling with Amazon QuickSight
- Design an embedded multi-tenant analytics architecture
- Focus on data permissions and how to manage Amazon QuickSight operations

Who this book is for This book is for business intelligence (BI)

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developers and data analysts who are looking to create interactive dashboards using data from Lake House on AWS with Amazon QuickSight. This book will also be useful for anyone who wants to learn Amazon QuickSight in depth using practical examples. You will need to be familiar with general data visualization concepts, however, no prior experience with Amazon QuickSight is required. With a new generation of services and frameworks, frontend and mobile developers can use their existing skill set to build full stack applications by leveraging the cloud. Developers can build robust applications with production-ready features such as authentication, APIs, data layers, machine learning, chatbots, and AR scenes more easily than ever by taking advantage of these new serverless and cloud technologies. This practical guide explains how. Nader Dabit, developer advocate at Amazon Web Services, shows developers how to build full stack applications using React, AWS, GraphQL, and the Amplify Framework. You'll learn how to create and incorporate services into your client applications while exploring general best practices, deployment strategies, continuous integration and delivery, and rich media management along the way. Learn how to build applications that solve real problems Understand what is (and is not) possible when using these technologies Examine how authentication works—and learn the difference between authentication and authorization

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Discover how serverless functions work and why they're important Use GraphQL in your application—and learn why it's important Learn how to build full stack applications on AWS

Design, develop, build, and deliver an end-to-end serverless architecture by leveraging Azure services, frameworks, and tools. This book offers a holistic approach, guiding you through the design and development of a Twitter Bot application, while leveraging Azure Functions. Integrating Serverless Architecture begins with an overview of serverless computing and getting started with Azure Functions. Here, you will create a Twitter bot function which scans Twitter for the latest tweets and makes use of dependency injection. Further, you will learn about Azure Cosmos DB where you will cover its change feed mechanism and the repository pattern. You will create a Cosmos DB trigger-based tweet notifier function, which will broadcast the latest tweets to connected clients. You will explore the basics of Azure Service Bus and create a tweet scheduler function, which will prioritize different keywords for the Twitter bot function. Along the way, you will debug, deliver, and test the functions in the Azure environment. This book shows you how to secure your Azure Function secrets with the help of Azure Key Vault. To further your understanding of the technology, you will learn logging and exception handling in Azure Functions. Later in the book, you will

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build a Twitter bot web application by using ASP.NET Core and Materialize CSS, which will interact with several HTTP-based Azure Functions. The Twitter bot web application allows users to log in through the Twitter Identity Provider, subscribe to different keywords/hashtags, and browse the latest tweets based on subscriptions. You will get started with SignalR Service and integrate it with Azure Functions and web applications. Towards the end you will go through app service authentication on Azure Functions and discover how to configure continuous integration and delivery to Azure Functions. After reading this book, you will be able to understand the steps involved in design, development, and delivery of a workflow using Azure Functions. What You Will Learn Design and develop a Twitter bot application using Azure Functions with Azure Web App Service as the front end Leverage Azure Cosmos DB as data storage and trigger notifications using its change feed mechanism Store and retrieve secrets from Azure Key Vault Integrate Azure Functions with Azure SignalR Service to broadcast real-time messages Secure Azure Functions by enabling Twitter identity authentication using built-in App Service authentication Build a continuous integration and continuous delivery pipeline for Azure Functions using Visual Studio Team Services (VSTS) Who This Book Is For Developers, software engineers, and architects who design and manage infrastructures and build

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applications by leveraging Microsoft cloud services.

A new generation of serverless tools, including Claudia.js, make it radically easier to set up serverless web applications so users can focus on what their app does instead of meddling with infrastructure configuration and deployment. Serverless Applications with Node.js walks readers through building serverless apps on AWS using JavaScript. They'll learn to simplify the design and development process so they can focus on getting their application deployed as fast as possible without sacrificing quality. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

A hands-on guide to creating, monitoring, and tuning a high performance Spring web application Key Features Understand common performance pitfalls and improve your application's performance Build and deploy strategies for complex applications using the microservice architecture Understand internals of JVM - the core of all Java Runtime Environments Book Description While writing an application, performance is paramount. Performance tuning for real-world applications often involves activities geared toward detecting bottlenecks. The recent release of Spring 5.0 brings major advancements in the rich API provided by the Spring framework, which means developers need to master its tools and techniques to achieve high performance applications. Hands-On High

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Performance with Spring 5 begins with the Spring framework's core features, exploring the integration of different Spring projects. It proceeds to evaluate various Spring specifications to identify those adversely affecting performance. You will learn about bean wiring configurations, aspect-oriented programming, database interaction, and Hibernate to focus on the metrics that help identify performance bottlenecks. You will also look at application monitoring, performance optimization, JVM internals, and garbage collection optimization. Lastly, the book will show you how to leverage the microservice architecture to build a high performance and resilient application. By the end of the book, you will have gained an insight into various techniques and solutions to build and troubleshoot high performance Spring-based applications. What you will learn

- Master programming best practices and performance improvement with bean wiring
- Analyze the performance of various AOP implementations
- Explore database interactions with Spring to optimize design and configuration
- Solve Hibernate performance issues and traps
- Leverage multithreading and concurrent programming to improve application performance
- Gain a solid foundation in JVM performance tuning using various tools
- Learn the key concepts of the microservice architecture and how to monitor them
- Perform Spring Boot performance tuning, monitoring, and health checks

Who this book is for If you're

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a Spring developer who'd like to build high performance applications and have more control over your application's performance in production and development, this book is for you. Some familiarity with Java, Maven, and Eclipse is necessary. Building and hosting microservices without servers using AWS Lambda

KEY FEATURES ? Learn end-to-end development of microservices using .NET Core and AWS Lambda. ? Learn a new way of hosting the .NET Core Web API on the AWS Lambda serverless platform. ? Mastering microservices using .NET Core and AWS Lambda.

DESCRIPTION Building Modern Serverless Web APIs introduces you to the serverless paradigm of the Web API application, its advantages, and presents you the modern approach of developing the Web API. The book makes efficient use of AWS Lambda services to develop efficient, scalable, and cost-effective API solutions. The book begins with a quick introduction to microservices, its characteristics, and current challenges faced in developing and implementing them. The book explores core concepts of ASP.NET Core and some important AWS services that are commonly used to build microservices using AWS. It explores and provides real hands-on microservice patterns and some of the best practices used in designing the serverless architecture. Furthermore, the book covers end-to-end demonstration of an application where you will learn to develop, build, deploy, and monitor

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microservices on AWS Lambda using .NET Core 3.1. By the end of this book, you will be proficient in developing microservices with AWS Lambda and become a self-starter to build your own secure microservices. WHAT YOU WILL LEARN ? Learn about microservices, their characteristics, patterns, and where to use them. ? Understand popular microservice design patterns being used with the serverless architecture. ? Learn about the ASP.NET Core Web API and its hosting strategies for building serverless microservices. ? Learn about Amazon Web Services and the services commonly used to build microservices. ? Discover how to configure authorization and authentication to secure microservices in AWS. ? Learn about AWS services available for Continuous Deployment and Integration to deploy microservices. WHO THIS BOOK IS FOR This book is for a seasoned .NET developer or AWS practitioner who wants to learn about the microservices architecture, patterns, and how to deploy using AWS Lambda. TABLE OF CONTENTS 1. Microservices: Its Characteristics and Challenges 2. Introduction to the ASP.NET Core Web API 3. Introduction to AWS Services 4. Microservices Patterns 5. The Serverless Paradigm 6. Communication Patterns and Service Discovery 7. Collaborating between Microservices 8. Distributed Monitoring 9. Security 10. Continuous Integration and Deployment 11. AWS Best Practices

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Learn how to build a real-world serverless application in the cloud that's reliable, secure, maintainable, and scalable. If you have experience building web applications on traditional infrastructure, this hands-on guide shows you how to get started with Cloud Run, a container-based serverless product on Google Cloud. Through the course of this book, you'll learn how to deploy several example applications that highlight different parts of the serverless stack on Google Cloud. Combining practical examples with fundamentals, this book will appeal to developers who are early in their learning journey as well as experienced practitioners. Build a serverless application with Google Cloud Run Learn approaches for building containers with (and without) Docker Explore Google Cloud's managed relational database: Cloud SQL Use HTTP sessions to make every user's experience unique Explore identity and access management (IAM) on Cloud Run Provision Google Cloud resources using Terraform Learn how to handle background task scheduling on Cloud Run Move your service from Cloud Run to Knative Serving with little effort Take your Python machine learning ideas and create serverless web applications accessible by anyone with an Internet connection. Some of the most popular serverless cloud providers are covered in this book—Amazon, Microsoft, Google, and PythonAnywhere. You will work through a series of common Python data science

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problems in an increasing order of complexity. The practical projects presented in this book are simple, clear, and can be used as templates to jump-start many other types of projects. You will learn to create a web application around numerical or categorical predictions, understand the analysis of text, create powerful and interactive presentations, serve restricted access to data, and leverage web plugins to accept credit card payments and donations. You will get your projects into the hands of the world in no time. Each chapter follows three steps: modeling the right way, designing and developing a local web application, and deploying onto a popular and reliable serverless cloud provider. You can easily jump to or skip particular topics in the book. You also will have access to Jupyter notebooks and code repositories for complete versions of the code covered in the book.

What You'll Learn

- Extend your machine learning models using simple techniques to create compelling and interactive web dashboards
- Leverage the Flask web framework for rapid prototyping of your Python models and ideas
- Create dynamic content powered by regression coefficients, logistic regressions, gradient boosting machines, Bayesian classifications, and more
- Harness the power of TensorFlow by exporting saved models into web applications
- Create rich web dashboards to handle complex real-time user input with JavaScript and Ajax to yield interactive and tailored content
- Create dashboards with paywalls to offer subscription-based access
- Access API data such as Google Maps, OpenWeather, etc.
- Apply different approaches to make sense of text data and return customized

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intelligence Build an intuitive and useful recommendation site to add value to users and entice them to keep coming back Utilize the freemium offerings of Google Analytics and analyze the results Take your ideas all the way to your customer's plate using the top serverless cloud providers Who This Book Is For Those with some programming experience with Python, code editing, and access to an interpreter in working order. The book is geared toward entrepreneurs who want to get their ideas onto the web without breaking the bank, small companies without an IT staff, students wanting exposure and training, and for all data science professionals ready to take things to the next level.

3.5 Hours of Video Instruction on AWS Lambda and Serverless Applications Overview More than 3.5 hours of practical video instruction on AWS Lambda--Amazon's Functions-as-a-Service technology--and how to build Serverless applications. The aim throughout this course is not to give you just cookie cutter examples but instead to give you a thorough understanding of the Lambda platform and programming model, so you'll have confidence building your own Serverless applications. Description Serverless is a new cloud computing approach to architecting and building applications. It enables faster delivery of business value and reduced operational cost and complexity, together with virtually limitless and effortless scaling. The core technology class of a Serverless architecture is Functions-as-a-Service, and the most mature Functions-as-a-Service product is Lambda, from Amazon Web Services. AWS Lambda

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LiveLessons is designed to give you a thorough understanding of the Lambda platform and programming model, so you'll have confidence building your own Serverless applications. Although AWS Lambda natively supports several languages, including Javascript, Python and C#, this video tutorial uses Java and its Java Virtual Machine as the development language and runtime for all examples. The video starts off by introducing Serverless and answering the question, "What is Lambda?" It explains Serverless fundamentals and compares the different Serverless technology classes of Backend-as-a-Service and Functions-as-a-Service, as well as the benefits and limitations of Serverless. Next, Roberts and Chapin review the necessary environment prerequisites before showing you how to code and execute your first Lambda function. They then drill down into some details of the Lambda model and show you how to build a Lambda-backed web application using API Gateway. Finally, the course covers some additional theory to give you a more advanced understanding of AWS Lambda. Roberts and Chapin close by looking more holistically at Serverless architectures and providing a detailed overview of Serverless technology beyond AWS Lambda, including a range of examples of how Serverless architectures are built in the real world. AWS Lambda LiveLessons consists of seven lessons totaling more than 4 hours of instruction. The videos feature easy-to-understand explanations of key concepts, realistic examples, and demonstrations of industrial-grade deployments. View the link resources...

A practical, real-world introduction to AWS tools and concepts Amazon Web Services

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for Mobile Developers: Building Apps with AWS presents a professional view of cloud computing and AWS for experienced iOS/Android developers and technical/solution architects. Cloud computing is a rapidly expanding ecosystem, and working professionals need a practical resource to bring them up-to-date on tools that are rapidly becoming indispensable; this book helps expand your skill set by introducing you to AWS offerings that can make your job easier, with a focus on real-world application. Author and mobile applications developer Abhishek Mishra shows you how to create IAM accounts and try out some of the most popular services, including EC2, Lambda, Mobile Analytics, Device Farm, and more. You'll build a chat application in both Swift (iOS) and Java (Android), running completely off AWS Infrastructure to explore SDK installation, Xcode, Cognito authentication, DynamoDB, Amazon SNS Notifications, and other useful tools. By actually using the tools as you learn about them, you develop a more intuitive understanding that feels less like a shift and more like a streamlined integration. If you have prior experience with Swift or Java and a solid knowledge of web services, this book can help you quickly take your skills to the next level with a practical approach to learning that translates easily into real-world use. Understand the key concepts of AWS as applied to both iOS and Android developers Explore major AWS offerings for mobile developers, including DynamoDB, RDS, EC2, SNS, Cognito, and more Learn what people are talking about when they use buzzwords like PaaS, IaaS, SaaS, and APaaS Work through explanations by building apps that tie

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into the AWS ecosystem Any job is easier with the right tools, and Amazon Web Services for Mobile Developers: Building Apps with AWS gets you acquainted with an ever-expanding toolkit for mobile app development.

Master serverless architectures in Python and their implementation, with Zappa on three different frameworks. Key Features Scalable serverless Python web services using Django, Flask, and Pyramid. Learn Asynchronous task execution on AWS Lambda and scheduling using Zappa. Implementing Zappa in a Docker container. Book Description Serverless applications are becoming very popular these days, not just because they save developers the trouble of managing the servers, but also because they provide several other benefits such as cutting heavy costs and improving the overall performance of the application. This book will help you build serverless applications in a quick and efficient way. We begin with an introduction to AWS and the API gateway, the environment for serverless development, and Zappa. We then look at building, testing, and deploying apps in AWS with three different frameworks--Flask, Django, and Pyramid. Setting up a custom domain along with SSL certificates and configuring them with Zappa is also covered. A few advanced Zappa settings are also covered along with securing Zappa with AWS VPC. By the end of the book you will have mastered using three frameworks to build robust and cost-efficient serverless apps in Python. What you will learn Build, test, and deploy a simple web service using AWS CLI Integrate Flask-based Python applications, via AWS CLI configuration Design

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Rest APIs integrated with Zappa for Flask and Django Create a project in the Pyramid framework and configure it with Zappa Generate SSL Certificates using Amazon Certificate Manager Configure custom domains with AWS Route 53 Create a Docker container similar to AWS Lambda Who this book is for Python Developers who are interested in learning how to develop fast and highly scalable serverless applications in Python, will find this book useful

Leverage Jamstack principles, techniques, and best practices to build dynamic websites and web apps focused on speed, security, and accessibility Key Features Understand how JavaScript integrates with reusable application program interfaces (APIs) and browser markup to build a serverless web application Gain a solid understanding of static site development with Gatsby and its importance in Jamstack Find out how to deploy a Jamstack event website directly from GitHub using Netlify Book Description Jamstack (JavaScript, API, and Markup) enables web developers to create and publish modern and maintainable websites and web apps focused on speed, security, and accessibility by using tools such as Gatsby, Sanity, and Netlify. Developers working with Jamstack will be able to put their knowledge to good use with this practical guide to static site generation and content management. This Jamstack book takes a hands-on approach to implementation and related methodologies that will have you up and running with modern web development in no time. Complete with step-by-step explanations of essential concepts, practical examples, and self-assessment

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questions, you'll begin by building an event and venue schema structure, and then expand the functionality, exploring all that the Jamstack has to offer. You'll learn how an example Jamstack is built, build structured content using Sanity to create a schema, use GraphQL to expose the content, and employ Gatsby to build an event website using page and template components and Tailwind CSS Framework. Lastly, you'll deploy the website to both, a Netlify server and the Microsoft Static Web Apps Service, and interact with it using Amazon Alexa. By the end of this book, you'll have gained the knowledge and skills you need to install, configure, build, extend, and deploy a simple events website using Jamstack. What you will learn Discover the Jamstack approach and build speedy, secure, and accessible websites and web apps with its component technologies Build an events website by using the Jamstack and the Gatsby static site generator Create and modify your templates and pages to build creative web apps Build, modify, and extend structured content schemas in Sanity Understand Gatsby plugins, project structure, and files, and how it can be used to build Jamstack apps Find out how GatsbyJS uses GraphQL to source content Who this book is for This book is for web developers looking to implement Jamstack practically. JavaScript developers who want to build modern speedy and secure web apps will also find this book useful. Familiarity with JavaScript and Database programming is assumed. Don't waste your time building an application server. See how to build low-cost, low-maintenance, highly available, serverless single page web applications that scale into

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the millions of users at the click of a button. Build well-tested single page apps that are safe from malicious attacks and adapt to any device or network connected to the web. Avoid messing around with middle-tier infrastructure and get right to the web app your customers want. You don't need to manage your own servers to build powerful web applications--the Internet will do that for you. This book will show you how to create a single page app that runs entirely on web services, scales to millions of users, and costs less per day than a cup of coffee. Using a web browser, a prepared workspace, and your favorite editor, you'll build a complete single page web application, step by step. Deploy your application quickly using Amazon S3. Learn the fundamental technologies behind modern single page apps, and use web standards to create lean web applications that can take advantage of the newest technologies. Connect with providers like Google and Facebook to manage user identities. Read and write user data directly from the browser using a web service database. Learn how to defend your application against common security threats. Whether you've never built a web application before or you're a seasoned web developer who's just looking for an alternative to complex server-side web frameworks, this book describes a simple approach to building serverless web applications that you can easily apply or adapt for your own projects. What You Need: To follow the tutorial in this book, you'll need a computer with a web browser. You'll also need a text editor and a git client. Building this web application will require some sort of development web server. You can use your

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own, or you can also use the one included with the tutorial's prepared workspace. The included web server requires Ruby 2.0, although we also suggest few alternatives. To get started quickly, you need a basic understanding of HTML, CSS, and JavaScript. If you're new to these topics, you can get up to speed using links we'll provide in the Introduction.

Build, secure, and deploy real-world serverless applications in AWS and peek into the serverless cloud offerings from Azure, Google Cloud, and IBM Cloud Key Features Build serverless applications with AWS Lambda, AWS CloudFormation and AWS CloudWatch Perform data analytics and natural language processing(NLP)on the AWS serverless platform Explore various design patterns and best practices involved in serverless computing Book Description Managing physical servers will be a thing of the past once you're able to harness the power of serverless computing. If you're already prepped with the basics of serverless computing, Serverless Programming Cookbook will help you take the next step ahead. This recipe-based guide provides solutions to problems you might face while building serverless applications. You'll begin by setting up Amazon Web Services (AWS), the primary cloud provider used for most recipes. The next set of recipes will cover various components to build a Serverless application including REST APIs, database, user management, authentication, web hosting, domain registration, DNS management, CDN, messaging, notifications and monitoring. The book also introduces you to the latest technology trends such as Data Streams,

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Machine Learning and NLP. You will also see patterns and practices for using various services in a real world application. Finally, to broaden your understanding of Serverless computing, you'll also cover getting started guides for other cloud providers such as Azure, Google Cloud Platform and IBM cloud. By the end of this book, you'll have acquired the skills you need to build serverless applications efficiently using various cloud offerings. What you will learn Serverless computing in AWS and explore services with other clouds Develop full-stack apps with API Gateway, Cognito, Lambda and DynamoDB Web hosting with S3, CloudFront, Route 53 and AWS Certificate Manager SQS and SNS for effective communication between microservices Monitoring and troubleshooting with CloudWatch logs and metrics Explore Kinesis Streams, Amazon ML models and Alexa Skills Kit Who this book is for For developers looking for practical solutions to common problems while building a serverless application, this book provides helpful recipes. To get started with this intermediate-level book, knowledge of basic programming is a must.

"In this course, through practical working examples, you will learn about the serverless concepts and AWS Lambda's serverless framework and how to work with its components effectively. The primary goal of serverless apps is to reduce backend clutter and to focus on the code and not on the server. We will show you how to build popular applications that follow this principle."--Resource description page.

Build, deploy, test, and run cloud-native serverless applications using AWS Lambda

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and other popular AWS services Key Features Learn how to write, run, and deploy serverless applications in Amazon Web Services Make the most of AWS Lambda functions to build scalable and cost-efficient systems Build and deploy serverless applications with Amazon API Gateway and AWS Lambda functions Book Description Serverless computing is a way to run your code without having to provision or manage servers. Amazon Web Services provides serverless services that you can use to build and deploy cloud-native applications. Starting with the basics of AWS Lambda, this book takes you through combining Lambda with other services from AWS, such as Amazon API Gateway, Amazon DynamoDB, and Amazon Step Functions. You'll learn how to write, run, and test Lambda functions using examples in Node.js, Java, Python, and C# before you move on to developing and deploying serverless APIs efficiently using the Serverless Framework. In the concluding chapters, you'll discover tips and best practices for leveraging Serverless Framework to increase your development productivity. By the end of this book, you'll have become well-versed in building, securing, and running serverless applications using Amazon API Gateway and AWS Lambda without having to manage any servers. What you will learn Understand the core concepts of serverless computing in AWS Create your own AWS Lambda functions and build serverless APIs using Amazon API Gateway Explore best practices for developing serverless applications at scale using Serverless Framework Discover the DevOps patterns in a modern CI/CD pipeline with AWS CodePipeline Build

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serverless data processing jobs to extract, transform, and load data Enforce resource tagging policies with continuous compliance and AWS Config Create chatbots with natural language understanding to perform automated tasks Who this book is for This AWS book is for cloud architects and developers who want to build and deploy serverless applications using AWS Lambda. A basic understanding of AWS is required to get the most out of this book.

"Serverless applications have been transforming web development for the last few years. They help you manage the complexity of today's applications and tackle the demands of today's users in a way, unlike any other previous serverless framework. This course will take you through serverless applications using AWS Lambda. In this course, you'll build a Slack bot to manage tasks. Slack users will be able to send tasks to the bot, get all pending tasks in the Slack channel from the bot, and complete individual tasks; when a task gets close to the due date the service will send a reminder to Slack. The course will teach you to write your first serverless application with events and triggers. Moving ahead, you will learn to deploy your application to the cloud and study the tools used in creating applications. Use this course to finally get to grips with a serverless application, and become a more confident and smarter developer. The course will help you understand what serverless applications are and how you can use them to build a production-ready application."--Resource description page.

With a new generation of services and frameworks, frontend and mobile developers can use their existing skill set to build full stack applications by leveraging the cloud. Developers can build robust applications with production-ready features such as authentication, APIs, data

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layers, machine learning, chatbots, and AR scenes more easily than ever by taking advantage of these new serverless and cloud technologies. This practical guide explains how. Nader Dabit, developer advocate at Amazon Web Services, shows developers how to build full stack applications using React, AWS, GraphQL, and the Amplify Framework. You'll learn how to create and incorporate services into your client applications while exploring general best practices, deployment strategies, continuous integration and delivery, and rich media management along the way. Learn how to build applications that solve real problems Understand what is (and isn't) possible when using these technologies Examine how authentication works--and learn the difference between authentication and authorization Discover how serverless functions work and why they're important Use GraphQL in your application--and learn why it's important Learn how to build full stack applications on AWS Take your Python skills to the next level to develop scalable, real-world applications for local as well as cloud deployment Key Features All code examples have been tested with Python 3.7 and Python 3.8 and are expected to work with any future 3.x release Learn how to build modular and object-oriented applications in Python Discover how to use advanced Python techniques for the cloud and clusters Book Description Python is a multipurpose language that can be used for multiple use cases. Python for Geeks will teach you how to advance in your career with the help of expert tips and tricks. You'll start by exploring the different ways of using Python optimally, both from the design and implementation point of view. Next, you'll understand the life cycle of a large-scale Python project. As you advance, you'll focus on different ways of creating an elegant design by modularizing a Python project and learn best practices and design patterns for using Python. You'll also discover how to scale out Python

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beyond a single thread and how to implement multiprocessing and multithreading in Python. In addition to this, you'll understand how you can not only use Python to deploy on a single machine but also use clusters in private as well as in public cloud computing environments. You'll then explore data processing techniques, focus on reusable, scalable data pipelines, and learn how to use these advanced techniques for network automation, serverless functions, and machine learning. Finally, you'll focus on strategizing web development design using the techniques and best practices covered in the book. By the end of this Python book, you'll be able to do some serious Python programming for large-scale complex projects. What you will learn

- Understand how to design and manage complex Python projects
- Strategize test-driven development (TDD) in Python
- Explore multithreading and multiprocessing in Python
- Use Python for data processing with Apache Spark and Google Cloud Platform (GCP)
- Deploy serverless programs on public clouds such as GCP
- Use Python to build web applications and application programming interfaces
- Apply Python for network automation and serverless functions
- Get to grips with Python for data analysis and machine learning

Who this book is for
This book is for intermediate-level Python developers in any field who are looking to build their skills to develop and manage large-scale complex projects. Developers who want to create reusable modules and Python libraries and cloud developers building applications for cloud deployment will also find this book useful. Prior experience with Python will help you get the most out of this book.

If you are a web application developer interested in using AngularJS for a real-life project, then this book is for you. As a prerequisite, knowledge of JavaScript and HTML is expected, and a working knowledge of AngularJS is preferred.

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Companies everywhere are moving everyday business processes over to the cloud, and AI is increasingly being given the reins in these tasks. As this massive digital transformation continues, the combination of serverless computing and AI promises to become the de facto standard for business-to-consumer platform development—and developers who can design, develop, implement, and maintain these systems will be in high demand! AI as a Service is a practical handbook to building and implementing serverless AI applications, without bogging you down with a lot of theory. Instead, you'll find easy-to-digest instruction and two complete hands-on serverless AI builds in this must-have guide! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Build an end-to-end application from development to production by binding Angular with Firebase in this complete guide to web application development Key Features Build a real-time production-ready web application by leveraging the features of Angular as front end and Firebase as the back end Learn more about authentication, databases, and security with Firebase Learn how to grow your application user base using Google analytics and how to make your application PWA compliant. Book Description This book is a complete package for you to build real-time web applications. You will build an end-to-end social networking web application from development to production with Angular as the frontend and Firebase as the backend. You will create an application called Friends with authentication, friends, and chat features. During the process, you'll use Firebase authentication to register new users and Firebase database to store your extra user data. You'll take a look at how to store and retrieve your user's images from Firebase storage. Then, you'll create a real-time chat module with the Firebase database. Next, you'll secure your database using Firebase security, make your

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application live with Firebase hosting, and develop your application with analytics. Moving on, you'll take a look at how to create web pages using bootstrap with HTML, CSS, and TypeScript. You will use the angularfire2 library API in Angular services to interact with Firebase and write unit tests using the Jasmine framework that will help you to write a production-ready application. You'll also discover various debugging techniques to troubleshoot any bug in your application. Finally, you'll make your application Progressive Web Applications compliant. By the end of this book, you'll be able to confidently build any complex application. What you will learn Understand the core concepts of Angular framework Create web pages with Angular as front end and Firebase as back end Develop a real-time social networking application Make your application live with Firebase hosting Engage your user using Firebase cloud messaging Grow your application with Google analytics Learn about Progressive Web App Who this book is for This book is for JavaScript developers who have some previous knowledge of the Angular framework and want to start developing serverless applications with Angular and Firebase. If you are looking for a more practical and less theory-based approach to learn these concepts, then this book is for you.

This book constitutes the refereed proceedings of the 19th International Conference on Product-Focused Software Process Improvement, PROFES 2018, held in Wolfsburg, Germany, in November 2018. The 16 revised full papers and 8 short papers presented together with 10 workshop papers and 2 industry talks were carefully reviewed and selected from 65 submissions. The papers are organized in the following topical sections: processes and methods; empirical studies in industry; testing; measurement and monitoring; and global software engineering and scaling. Further relevant topics were added by the events co-located

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with PROFES 2018, the Second International Workshop on Managing Quality in Agile and Rapid Software Development Processes (QUASD) and the Third Workshop on Hybrid Software and System Development Approaches (HELENA).

Learn to build, secure, deploy, and manage your serverless application in Golang with AWS Lambda Key Features Implement AWS lambda to build scalable and cost-efficient applications in Go Design and set the data flow between cloud services and custom business logic Learn to design Lambda functions using real-world examples and implementation scenarios Book Description Serverless architecture is popular in the tech community due to AWS Lambda. Go is simple to learn, straightforward to work with, and easy to read for other developers; and now it's been heralded as a supported language for AWS Lambda. This book is your optimal guide to designing a Go serverless application and deploying it to Lambda. This book starts with a quick introduction to the world of serverless architecture and its benefits, and then delves into AWS Lambda using practical examples. You'll then learn how to design and build a production-ready application in Go using AWS serverless services with zero upfront infrastructure investment. The book will help you learn how to scale up serverless applications and handle distributed serverless systems in production. You will also learn how to log and test your application. Along the way, you'll also discover how to set up a CI/CD pipeline to automate the deployment process of your Lambda functions. Moreover, you'll learn how to troubleshoot and monitor your apps in near real-time with services such as AWS CloudWatch and X-ray. This book will also teach you how to secure the access with AWS Cognito. By the end of this book, you will have mastered designing, building, and deploying a Go serverless application. What you will learn Understand how AWS Lambda works and use it to create an application

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Understand how to scale up serverless applications Design a cost-effective serverless application in AWS Build a highly scalable and fault-tolerant CI/CD pipeline Understand how to troubleshoot and monitor serverless apps in AWS Discover the working of APIs and single page applications Build a production-ready serverless application in Go Who this book is for This book is for Go developers who would like to learn about serverless architecture. Go programming knowledge is assumed. DevOps and Solution Architects who are interested in building serverless applications in Go can also choose this book.

Choose the right architecture and design it using design patterns to create a serverless application that cuts costs and is easily scalable Key Features Design enterprise ready serverless applications that effortlessly meet your customers' requirements Effectively deploy, manage, monitor, and orchestrate serverless applications using AWS Use Cloud9 to provision a secured development environment in the cloud Book Description Serverless is a cloud computing execution model where the cloud provider dynamically manages the allocation and provisioning of servers. Many companies have started using serverless architectures to cut costs and improve scalability. Hands-On Serverless Applications with Kotlin is your one-stop guide to designing serverless architectures for your applications with AWS and Kotlin. To start with, you'll explore the fundamentals of serverless architecture and how AWS Lambda functions work. You will then learn to design, build, secure, and deploy your application to production. In addition to these activities, you'll understand how to implement non-functional requirements such as auditing and logging. Moving on, you'll discover how to scale up and orchestrate serverless applications using an open source framework and handle distributed serverless systems in production. By the end of the book, you'll have gained the knowledge

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needed to build scalable and cost-efficient Kotlin applications with a serverless framework. What you will learn Design a serverless architecture Use AWS Lambda to contain your serverless API Explore the various ways to keep serverless apps safe and secure Understand how a serverless API allows you to use huge infrastructure and cut costs Discover how to handle distributed systems in Kotlin Design the data flow between cloud services and custom business logic Secure your Kotlin AWS serverless application Master Kotlin design patterns for serverless applications Who this book is for Hands-On Serverless Applications with Kotlin is for you if you are a Kotlin developer who wants to learn about serverless architectures. It is assumed that you have some knowledge of Kotlin programming and AWS.

Build rich and collaborative applications using client-side code with React, Redux, and Firebase Key Features 1) A practical guide covering the full stack for web development with React 16 and Firebase 2) Leverage the power of Firebase Cloud Storage, messaging, functions, OAuth, and database security to develop serverless web applications. 3) Develop high-performance applications without the hassle of setting up complex web infrastructure. Book Description ReactJS is a wonderful framework for UI development. Firebase as a backend with React is a great choice as it is easy, powerful, and provides great developer experience. It removes a lot of boilerplate code from your app and allows you to focus on your app to get it out quickly to users. Firebase with React is also a good choice for Most Viable Product (MVP) development. This book provides more practical insights rather than just theoretical concepts and includes basic to advanced examples - from hello world to a real-time seat booking app

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and Helpdesk application This book will cover the essentials of Firebase and React.js and will take you on a fast-paced journey through building real-time applications with Firebase features such as Cloud Storage, Cloud Function, Hosting and the Realtime Database. We will learn how to secure our application by using Firebase authentication and database security rules. We will leverage the power of Redux to organize data in the front-end, since Redux attempts to make state mutations predictable by imposing certain restrictions on how and when updates can happen. Towards the end of the book you will have improved your React skills by realizing the potential of Firebase to create real-time serverless web applications. What you will learn Install powerful React.js and Firebase tools to make development much more efficient Create React components with Firebase to save and retrieve the data in real-time Use Firebase Authentication to make your React user interface secure Develop React and Firebase applications with Redux integration Firebase database security rules Firebase Cloud Storage Integration to upload and store data on the cloud Create a complete real-time application with React and firebase Using Firebase Cloud messaging and Cloud functions with React Firebase Cloud Storage integration with React Who this book is for This book is for JavaScript developers who have some previous knowledge of React and want to develop serverless, full-stack applications but without the hassle of setting up a complex infrastructure.

Don't waste your energy thinking about servers; use AWS to build enterprise-grade

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serverless applications. Key Features Learn how to quickly and easily go serverless Explore AWS and Lambda: the first building blocks of serverless applications on AWS Study different approaches to deploy and maintain serverless applications Book Description Serverless Architecture with AWS begins with an introduction to the serverless model and helps you get started with AWS and Lambda. You'll also get to grips with other capabilities of the AWS Serverless Platform and see how AWS supports enterprise-grade serverless applications with and without Lambda. This book will guide you in deploying your first serverless project and exploring the capabilities of serverless Amazon Athena, an interactive query service that makes it easy to analyze data in Amazon Simple Storage Service (S3 Amazon) using standard SQL. You'll also learn about AWS Glue, a fully managed ETL service that makes categorizing data easy and cost-effective. You'll study how Amazon Kinesis makes it possible to unleash the potential of real-time data insights and analytics with capabilities such as video streams, data streams, data firehose, and data analytics. Last but not least, you'll be equipped to combine Amazon Kinesis capabilities with AWS Lambda to create lightweight serverless architectures. By the end of the book, you will be ready to create and run your first serverless application that takes advantage of the high availability, security, performance, and scalability of AWS. What you will learn Explore AWS services for supporting a serverless environment Set up AWS services to make applications scalable and highly available Deploy a static website with a serverless

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architecture Build your first serverless web application Study the changes in a deployed serverless web application Apply best practices to ensure overall security, availability, and reliability Who this book is for This book is for you if you want to develop serverless applications and have some prior coding experience. Though no prior experience of AWS is needed, basic knowledge of Java or Node.js will be an added advantage. Build scalable, efficient, and highly available web apps using AWS About This Book* Get an in-depth understanding of the Serverless framework* Build a complete serverless web application end to end* Monitor performance, timeouts, efficiency, errors, and costs in your app Who This Book Is For If you're looking to learn more about scalable and cost-efficient architectures, this book is for you. Basic knowledge of Node.js skills or familiarity with cloud services is required. The book only assumes prior knowledge of Node.js. For other topics, we cover the basics. What you will learn* Get a grasp of the pros and cons of going serverless and how it fits in with microservices architecture* Discover how you can use the building blocks of AWS to your advantage and get a brief comparison with other major players* Set up the environment and create a basic app with the Serverless framework* Build a sample application with a front end using AngularJS as a SPA* Develop the Node.js backend to handle requests and connect to a Firebase database* Implement the publish-subscribe pattern to handle notifications in a serverless application* Secure your applications with authentication and authorization* Define the workflow to test and deploy your app In Detail The growth

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of serverless computing has been a game changer, with several companies adopting it to reduce management costs and to improve scalability. This book will equip you with the knowledge needed to build your own serverless apps by showing you how to set up different services while making your application scalable, highly available, and efficient. We begin by giving you an idea of what it means to go serverless, followed by a brief comparison of the major players and why AWS stands out. From here, we show you how to use the basic services of AWS, run Lambda functions, and estimate costs. Next, you will configure AWS SDK credentials, learn basic commands, and add plugins. We even show you how to build your front end using AngularJS, how to handle requests with development of the backend, and handle live notifications using Amazon Simple Notification Service. We go on to describe how you can secure an application with authentication and authorization. We also show you how to monitor the performance, efficiency, errors, and costs. Finally, we will teach you how to test and deploy your application.

There are varying ways one can pursue starting a new or converting an existing project to a Serverless architecture. One of the many arguments heard is that developers typically don't know where to begin. This book is intended for those seeking to leverage the Serverless Framework with a project written in Node.js. Expanding on the AWS Serverless App tutorial series, this book provides a step-by-step guide for building Node.js Serverless projects on AWS. It aims to solve one of the more predominant

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causes of delaying the transition to Serverless by providing engineers with an outline of where to begin on their Serverless journey. Example projects are provided to demonstrate several avenues that can be taken as well as some housekeeping items like formatting and building the continuous integration and delivery pipeline. Readers also get end-of-chapter quizzes, cheat sheets, and access to the full source code from the examples in this book.

Learn how to develop a serverless app on Amazon Web Services (AWS). This course covers how to work with Lambda, DynamoDB, S3, Postman, and API gateway services, from setup to testing.

Serverless computing is radically changing the way we build and deploy applications. With cloud providers running servers and managing machine resources, companies now can focus solely on the application's business logic and functionality. This hands-on book shows experienced programmers how to build and deploy scalable machine learning and deep learning models using serverless architectures with Microsoft Azure. You'll learn step-by-step how to code machine learning into your projects using Python and pre-trained models that include tools such as image recognition, speech recognition, and classification. You'll also examine issues around deployment and continuous delivery including scaling, security, and monitoring. This book is divided into four parts: Cloud-based development: learn the basics of serverless computing with machine learning, functions as a service (FaaS), and the use of APIs Adding

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intelligence: create serverless applications using Azure Functions; learn how to use pre-built machine-learning and deep-learning models Deployment and continuous delivery: get up to speed with Azure Kubernetes Service, as well as Azure Security Center, and Azure Monitoring Application examples: deliver data at the edge, build conversational interfaces, and use convolutional neural networks for image classification

Building Serverless Web Applications

Build scalable, efficient, and highly available web apps using AWS About This Book Get an in-depth understanding of the serverless model Build a complete serverless web application end to end Learn how to use the Serverless Framework to improve your productivity Who This Book Is For If you're looking to learn more about scalable and cost-efficient architectures, this book is for you. Basic knowledge of Node.js skills or familiarity with cloud services is required. For other topics, we cover the basics. What You Will Learn Get a grasp of the pros and cons of going serverless and its use cases Discover how you can use the building blocks of AWS to your advantage Set up the environment and create a basic app with the Serverless Framework Host static files on S3 and CloudFront with HTTPS support Build a sample application with a frontend using React as an SPA Develop the Node.js backend to handle requests and connect to a SimpleDB database Secure your applications with authentication and authorization Implement the publish-subscribe pattern to handle notifications in a serverless application Create tests, define the workflow for deployment, and monitor your app In

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Detail This book will equip you with the knowledge needed to build your own serverless apps by showing you how to set up different services while making your application scalable, highly available, and efficient. We begin by giving you an idea of what it means to go serverless, exploring the pros and cons of the serverless model and its use cases. Next, you will be introduced to the AWS services that will be used throughout the book, how to estimate costs, and how to set up and use the Serverless Framework. From here, you will start to build an entire serverless project of an online store, beginning with a React SPA frontend hosted on AWS followed by a serverless backend with API Gateway and Lambda functions. You will also learn to access data from a SimpleDB database, secure the application with authentication and authorization, and implement serverless notifications for browsers using AWS IoT. This book will describe how to monitor the performance, efficiency, and errors of your apps and conclude by teaching you how to test and deploy your applications. Style and approach This book takes a step-by-step approach on how to use the Serverless Framework and AWS services to build Serverless Applications. It will give you a hands-on feeling, allowing you to practice while reading. It provides a brief introduction of concepts while keeping the focus on the practical skills required to develop applications.

Develop powerful cross-platform applications with Xamarin About This Book Write native cross-platform applications with Xamarin Design user interfaces that can be

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shared across Android, iOS, and Windows Phone using Xamarin.Forms Practical cross-platform development strategies Who This Book Is For If you are a developer with experience in C# and are just getting into mobile development, this is the book for you. This book will give you a head start with cross-platform development and will be the most useful to developers who have experience with desktop applications or the web. What You Will Learn Apple's MVC design pattern The Android activity lifecycle Share C# code across platforms and call native Objective-C or Java libraries from C# Create a real web service back end in Windows Azure using SQL Azure as database storage Set up third-party libraries such as NuGet and Objective Sharpie in many different ways, and port a desktop .NET library to Xamarin Use Xamarin.Mobile for camera, contacts, and location In Detail Xamarin is a leading cross-platform application development tool used by top companies such as Coca-Cola, Honeywell, and Alaska Airlines to build apps. Version 4 features significant updates to the platform including the release of Xamarin.Forms 2.0 and improvements have been made to the iOS and Android designers. Xamarin was acquired by Microsoft so it is now a part of the Visual Studio family. This book will show you how to build applications for iOS, Android, and Windows. You will be walked through the process of creating an application that comes complete with a back-end web service and native features such as GPS location, camera, push notifications, and other core features. Additionally, you'll learn how to use external libraries with Xamarin and Xamarin.Forms to create user interfaces. This book

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also provides instructions for Visual Studio and Windows. This edition has been updated with new screenshots and detailed steps to provide you with a holistic overview of the new features in Xamarin 4. Style and approach This book offers a tutorial style approach to teach you the skills required to develop end-to-end cross-platform solutions with Xamarin.

A complete end-to-end guide to implement Azure Functions and serverless orchestration with the help of various use cases. KEY FEATURES ? Step-by-step guide along with code snippets and screenshots to master the topics. ? Easy handbook to brush up the fundamental concepts and advanced topics of Serverless computing. ? Includes real use-cases and numerous scenarios on creating Azure functions, its security, deployment, and troubleshooting them. ? Understand how to monitor, troubleshoot, and perform advanced level diagnostics on Azure functions. DESCRIPTION Serverless is the current ongoing trend in the cloud industry that allows you to focus on code without worrying about the underlying infrastructure and helps in cost optimizations by providing pay for what you use. This book provides a practical mentoring with a step-by-step guide on how to create and work on Azure functions. You will be benefited with various use cases, illustrations, and visual representation to address complex problems around serverless computing. The book will help you to

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integrate Azure functions with other Azure services, seamlessly, without the need of writing much code. The book brings exclusive coverage on managing the deployment and security of the Azure functions. You will learn how to use different methods to monitor the Azure functions and how to perform correct diagnostics and troubleshooting without the use of any third-party integrations. Towards the end of this book, you also learn to create rich dashboards and visualizations using Power BI to monitor and run analytics on Azure functions.

WHAT YOU WILL LEARN ? Learn to easily create Azure functions using multiple tools and options. ? Learn to use triggers and bindings for integrating Azure functions with other Azure services. ? Get to know how to orchestrate the serverless workflow using Azure Durable functions. ? Learn to practice security mechanisms to secure Azure functions in the production environment. ? Learn to build CD pipelines for deploying Azure functions using DevOps tools.

WHO THIS BOOK IS FOR This book is for developers, DevOps engineers, technical specialists, architects and consultants at all levels, who want to build and deploy serverless applications with Azure functions. Some prior experience with C# (for developers) and fundamental Microsoft Azure services will help you to make the most of this book. However, the book is intended for each type of cloud-specific role.

TABLE OF CONTENTS

1. Overview of Azure and Serverless Computing
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Introduction to Azure Functions 3. Creating Your First Function 4. Azure Functions Triggers and Bindings 5. Durable Functions and Orchestration 6. Configuring Security for Azure Functions Security 7. Continuous Deployment for Azure Functions 8. Troubleshooting and Monitoring Azure Functions

Go beyond the basics of Rust and build web and serverless cloud applications. The applications explained in this practical book include web sites, RESTful APIs, a real-time web chat application, and frontend application with WebAssembly. Each chapter is organized in the following format: what this kind of application looks like; requirements for the example program; an introduction to the Rust libraries used; step-by-step implementation of the example program, including common pitfalls and best practices; and a brief comparison of libraries and frameworks in the same domain. This book will open your eyes to the world of practical web applications of Rust. After reading the book, you will be able to apply your Rust knowledge to build your own web projects.

What You Will Learn

- Build dynamic websites with databases
- Build RESTful APIs
- Write a WebSocket server that can power a real-time chat app in Rust
- Discover the benefits of serverless computing using Amazon Web Service's Rust support
- Compile Rust to WebAssembly for high-performance frontend applications

Who This Book Is For

A reader with basic Rust knowledge, wishing to learn more about how to apply

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Rust in a real-world scenario. A developer who is evaluating the possibility to build their next project in Rust.

Serverless architectures allow you to build and run applications and services without having to manage the infrastructure. Many companies have adopted this architecture to save cost and improve scalability. This book will help you design serverless architectures for your applications with AWS and Python.

Learn the basics of serverless computing and how to develop event-driven architectures with the three major cloud platforms: Amazon Web Services, Microsoft Azure, and Google Cloud. This hands-on guide dives into the foundations of serverless computing, its use cases, and how to apply it using developer tools such as Node.js, Visual Studio Code, Postman, and Serverless Framework. You will apply the fundamentals of serverless technology from the ground up, and come away with a greater understanding of its power and how to make it work for you. This book teaches you how to quickly and securely develop applications without the hassle of configuring and maintaining infrastructure. You will learn how to harness serverless technology to rapidly reduce production time and minimize your costs, while still having the freedom to customize your code, without hindering functionality. Upon completion, you will have the knowledge and resources to build your own serverless application hosted in AWS, Azure, or

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Google Cloud and will have experienced the benefits of event-driven technology for yourself. What You'll Learn Gain a deeper understanding of serverless computing and when to use it Use development tools such as Node.js, Postman, and VS code to quickly set up your serverless development environment and produce applications Apply triggers to your serverless functions that best suit the architecture for the problem the functions are solving Begin building applications across cloud providers that utilize the power of serverless technology Understand best development practices with serverless computing to maintain scalable and practical solutions Code with an agnostic approach to cloud providers to minimize provider dependency Who This Book Is For Any developer looking to expand current knowledge of serverless computing, its applications, and how to architect serverless solutions, or someone just beginning in these areas Build scalable, reliable, and cost-effective applications with a serverless architecture About This Book Design a real-world serverless application from scratch Learn about AWS Lambda function and how to use Lambda functions to glue other AWS Services Use the Java programming language and well-known design patterns. Although Java is used for the examples in this book, the concept is applicable across all languages Learn to migrate your JAX-RS application to AWS Lambda and API Gateway Who This Book Is For This book is for

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developers and software architects who are interested in designing on the back end. Since the book uses Java to teach concepts, knowledge of Java is required.

What You Will Learn

- Learn to form microservices from bigger Softwares
- Orchestrate and scale microservices
- Design and set up the data flow between cloud services and custom business logic
- Get to grips with cloud provider's APIs, limitations, and known issues
- Migrate existing Java applications to a serverless architecture
- Acquire deployment strategies
- Build a highly available and scalable data persistence layer
- Unravel cost optimization techniques

In Detail

Over the past years, all kind of companies from start-ups to giant enterprises started their move to public cloud providers in order to save their costs and reduce the operation effort needed to keep their shops open. Now it is even possible to craft a complex software system consisting of many independent micro-functions that will run only when they are needed without needing to maintain individual servers. The focus of this book is to design serverless architectures, and weigh the advantages and disadvantages of this approach, along with decision factors to consider. You will learn how to design a serverless application, get to know that key points of services that serverless applications are based on, and known issues and solutions. The book addresses key challenges such as how to slice out the core functionality of the software to be distributed in different cloud

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services and cloud functions. It covers basic and advanced usage of these services, testing and securing the serverless software, automating deployment, and more. By the end of the book, you will be equipped with knowledge of new tools and techniques to keep up with this evolution in the IT industry. Style and approach The book takes a pragmatic approach, showing you all the examples you need to build efficient serverless applications.

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