

Aws Iot Developer Guide Github

Break down the misconceptions of the Internet of Things by examining the different security building blocks available in Intel Architecture (IA) based IoT platforms. This open access book reviews the threat pyramid, secure boot, chain of trust, and the SW stack leading up to defense-in-depth. The IoT presents unique challenges in implementing security and Intel has both CPU and Isolated Security Engine capabilities to simplify it. This book explores the challenges to secure these devices to make them immune to different threats originating from within and outside the network. The requirements and robustness rules to protect the assets vary greatly and there is no single blanket solution approach to implement security. Demystifying Internet of Things Security provides clarity to industry professionals and provides an overview of different security solutions. What You'll Learn Secure devices, immunizing them against different threats originating from inside and outside the network. Gather an overview of the different security building blocks available in Intel Architecture (IA) based IoT platforms. Understand the threat pyramid, secure boot, chain of trust, and the software stack leading up to defense-in-depth. Who This Book Is For Strategists, developers, architects, and managers in the embedded and Internet of Things (IoT) space trying to understand and implement the security in the IoT devices/platforms.

5G Core Networks: Powering Digitalization provides an overview of the 5G Core network architecture, as well as giving descriptions of cloud technologies and the key concepts in the 3GPP rel-15/16 specifications. Written by the authors who are heavily involved in development of the 5G standards and who wrote the successful book on EPC and 4G Packet Networks, this book provides an authoritative reference on the technologies and standards of the 3GPP 5G Core network. Content includes: An overview of the 5G Core Architecture The Stand-Alone and Non-Stand-Alone Architectures Detailed presentation of 5G Core key concepts An overview of 5G Radio and Cloud technologies Learn The differences between the 5G Core network and previous core network generations How the interworking with previous network standards is defined Why certain functionality has been included and what is beyond the scope of 5G Core How the specifications relate to state-of-the-art web-scale concepts and virtualization technologies Details of the protocol and service descriptions Examples of network deployment options Provides a clear, concise and comprehensive view of 5GS/5GC Written by established experts in the 5GS/5GC standardization process, all of whom have extensive experience and understanding of its goals, history and vision Covers potential service and operator scenarios for each architecture Explains the Service Based Architecture, Network Slicing and support of Edge Computing, describing the benefits they will bring Explains what options and parts of the standards will initially be deployed in real networks, along with their migration paths

The increase in connected devices in the internet of things (IoT) is leading to an exponential increase in the data that an organization is required to manage. To successfully utilize IoT in businesses, big data analytics are necessary in order to efficiently sort through the increased data. The combination of big data and IoT can thus enable new monitoring services and powerful processing of sensory data streams. The Handbook of Research on Big Data and the IoT is a pivotal reference source that provides vital research on emerging trends and recent innovative applications of big data and IoT, challenges facing organizations and the implications of these technologies on society, and best practices for their implementation. While highlighting topics such as bootstrapping, data fusion, and graph mining, this publication is ideally designed for IT specialists, managers, policymakers, analysts, software engineers, academicians, and researchers.

Comprehensive, interactive exam preparation and so much more The AWS Certified SysOps Administrator Official Study Guide: Associate Exam is a comprehensive exam preparation resource. This book bridges the gap between exam preparation and real-world readiness, covering exam objectives while guiding you through hands-on exercises based on situations you'll likely encounter as an AWS Certified SysOps Administrator. From deployment, management, and operations to migration, data flow, cost control, and beyond, this guide will help you internalize the processes and best practices associated with AWS. The Sybex interactive online study environment gives you access to invaluable preparation aids, including an assessment test that helps you focus your study on areas most in need of review, and chapter tests to help you gauge your mastery of the material. Electronic flashcards make it easy to study anytime, anywhere, and a bonus practice exam gives you a sneak preview so you know what to expect on exam day. Cloud computing offers businesses a cost-effective, instantly scalable IT infrastructure. The AWS Certified SysOps Administrator - Associate credential shows that you have technical expertise in deployment, management, and operations on AWS. Study exam objectives Gain practical experience with hands-on exercises Apply your skills to real-world scenarios Test your understanding with challenging review questions Earning your AWS Certification is much more than just passing an exam—you must be able to perform the duties expected of an AWS Certified SysOps Administrator in a real-world setting. This book does more than coach you through the test: it trains you in the tools, procedures, and thought processes to get the job done well. If you're serious about validating your expertise and working at a higher level, the AWS Certified SysOps Administrator Official Study Guide: Associate Exam is the resource you've been seeking.

Our Architect Team has created this Book with Great care and most of the latest technologies are covered One can learn from the questions itself as they are well detailed. THESE CHALLENGES ARE NOT A COLLECTION OF REGULAR INTERVIEW QUESTIONS SCRAPPED FROM WEB Interview Questions from the below Topics. 1. Blockchain 2. Microservices 3. Docker 4. Kubernetes 5. Reactive 6. Spring Boot 7. Apache Spark 8. AI-ML-DL 9. JHipster 10. Advanced JDBC 11. MySQL 12. JShell 13. Appium 14. Elastic search 15. Mockito 16. PowerMock 17. Regex 18. MongoDB 19. SQL 20. Redis 21. Generic 22. JDK 23. Scrum – Agile 24. Quantum 25. Serverless 26. Security 27. Android 28. Selenium 29. JWT 30. Hacking 31. Capacity Planning 32. Postman 33. Progressive 34. BDD 35. Swagger 36. Jmeter 37. Logging 38. Concurrency 39. Linux 40. RaspberryPI 41. Arduino 42. Terms 43. Charts 44. Tomcat 45. Kotlin 46. Architectures 47. Hibernate 48. GIT 49. Web Development 50. Softwares and Libraries 51. AWS 52. AZURE Functions 53. Maven 54. HyperLedger 55. HTTP/2 56. WireShark 57. IOT 58. ELK 59. Graffana 60. Wildfly 61. Software Design 62. Jenkins 63. SonarQube 64. Patterns AntiPatterns 65. Famous and Useful Softwares 66. FAAS 67. Quartz This book constitutes revised and selected papers from the Second International Congress on High-Performance Computing and Big Data Analysis, TopHPC 2019, held in Tehran, Iran, in April 2019. The 37 full papers and 2 short papers presented in this volume were carefully reviewed and selected from a total of 103 submissions. The papers in the volume are organized according to the following topical headings: deep learning; big data analytics; Internet of Things.- data mining, neural network and genetic algorithms; performance issues and quantum computing.

Know how Smart TVs, Smart Cars, Smart Homes, and Smart Cities are changing the World! DESCRIPTION The Internet of Things (IoT) not only connect people but will connect 'smart' homes, appliances, cars, offices, factories, cities, basically the world. This book discusses how smart cities strive to deploy and interconnect infrastructures and services to guarantee that the authorities and citizens have access to reliable and global customized services. The book describes a wide range of topics present in the design, development, and running of smart cities, ranging from big data management, Internet of Things, and sustainable urban planning. The technical aspects of smart cities enabled primarily by the Internet of Things, the socio-economic motivations and impact of smart city development are covered in this book. KEY FEATURES Learn to successfully create, launch and manage the Internet of Things services Know the process of specifying, implementing, and deploying IoT services Learn the fundamentals of IoT services, building blocks and the key factors Learn the fast track approach to IoT Learn a dual perspective on the Internet of Things and ubiquitous computing Know detailed coverage of the underlying architecture, framework and state of the art methodologies WHAT WILL YOU LEARN The purpose of this book is to help you to work with cities and learn to develop them into smart cities. You will learn to develop a plan and learn what a smart city is, how to plan the smart city infrastructure and from where do you start while developing the smart city. You will learn what kind of planning is involved and about permitting, rent, acquisition, construction planning, with whom should you work? You can learn all this and more from case studies and deployment planning described in the book. WHOM THIS BOOK IS FOR Students studying IoT in universities and who want to know the fundamentals of the IoT business. For business executives and IoT startups. Table of Contents 1. Introduction 2. RFID and WSN: The Beginning 3. Interoperability of IoT Devices and Sensor (Semantic) Web 4. Cloud's Internet of Things (IoT) 5. IoT and Edge Computing 6. IoT - Big Data Convergence with IoT Data 7. Introduction to (Big Data) Internet of Things Analytics and Streams 8. Operability Among IoT Clouds and Semantics 9. Edge and Analytics 10. To Conclude 11. Abbreviation 12. Bibliography Conferences Proceedings of 20th European Conference on Cyber Warfare and Security

Neural networks are getting smaller. Much smaller. The OK Google team, for example, has run machine learning models that are just 14 kilobytes in size-small enough to work on the digital signal processor in an Android phone. With this practical book, you'll learn about TensorFlow Lite for Microcontrollers, a miniscule machine learning library that allows you to run machine learning algorithms on tiny hardware. Authors Pete Warden and Daniel Situnayake explain how you can train models that are small enough to fit into any environment, including small embedded devices that can run for a year or more on a single coin cell battery. Ideal for software and hardware developers who want to build embedded devices using machine learning, this guide shows you how to create a TinyML project step-by-step. No machine learning or microcontroller experience is necessary. Learn practical machine learning applications on embedded devices, including simple uses such as speech recognition and gesture detection Train models such as speech, accelerometer, and image recognition, you can deploy on Arduino and other embedded platforms Understand how to work with Arduino and ultralow-power microcontrollers Use techniques for optimizing latency, energy usage, and model and binary size. 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 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.

Learn practical uses for some of the hottest tech applications trending among technology professionals We are living in an era of digital revolution. On the horizon, many emerging digital technologies are being developed at a breathtaking speed. Whether we like it or not, whether we are ready or not, digital technologies are going to penetrate more and more, deeper and deeper, into every aspect of our lives. This is going to fundamentally change how we live, how we work, and how we socialize. Java, as a modern high-level programming language, is an excellent tool for helping us to learn these digital technologies, as well as to develop digital applications, such as IoT, AI, Cybersecurity, Blockchain and more. Practical Java Programming uses Java as a tool to help you learn these new digital technologies and to be better prepared for the future changes. Gives you a brief overview for getting started with Java Programming Dives into how you can apply your new knowledge to some of the biggest trending applications today Helps you understand how to program Java to interact with operating systems, networking, and mobile applications Shows you how Java can be used

in trending tech applications such as IoT (Internet of Things), AI (Artificial Intelligence), Cybersecurity, and Blockchain Get ready to find out firsthand how Java can be used for connected home devices, healthcare, the cloud, and all the hottest tech applications.

API Security in Action teaches you how to create secure APIs for any situation. By following this hands-on guide you'll build a social network API while mastering techniques for flexible multi-user security, cloud key management, and lightweight cryptography. Summary A web API is an efficient way to communicate with an application or service. However, this convenience opens your systems to new security risks. API Security in Action gives you the skills to build strong, safe APIs you can confidently expose to the world. Inside, you'll learn to construct secure and scalable REST APIs, deliver machine-to-machine interaction in a microservices architecture, and provide protection in resource-constrained IoT (Internet of Things) environments. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology APIs control data sharing in every service, server, data store, and web client. Modern data-centric designs—including microservices and cloud-native applications—demand a comprehensive, multi-layered approach to security for both private and public-facing APIs. About the book API Security in Action teaches you how to create secure APIs for any situation. By following this hands-on guide you'll build a social network API while mastering techniques for flexible multi-user security, cloud key management, and lightweight cryptography. When you're done, you'll be able to create APIs that stand up to complex threat models and hostile environments. What's inside Authentication Authorization Audit logging Rate limiting Encryption About the reader For developers with experience building RESTful APIs. Examples are in Java. About the author Neil Madden has in-depth knowledge of applied cryptography, application security, and current API security technologies. He holds a Ph.D. in Computer Science. Table of Contents PART 1 - FOUNDATIONS 1 What is API security? 2 Secure API development 3 Securing the Natter API PART 2 - TOKEN-BASED AUTHENTICATION 4 Session cookie authentication 5 Modern token-based authentication 6 Self-contained tokens and JWTs PART 3 - AUTHORIZATION 7 OAuth2 and OpenID Connect 8 Identity-based access control 9 Capability-based security and macaroons PART 4 - MICROSERVICE APIS IN KUBERNETES 10 Microservice APIs in Kubernetes 11 Securing service-to-service APIs PART 5 - APIS FOR THE INTERNET OF THINGS 12 Securing IoT communications 13 Securing IoT APIs

This is the ultimate guide to protect your data on the web. From passwords to opening emails, everyone knows what they should do but do you do it?'A must read for anyone looking to upskill their cyber awareness,' Steve Durbin, Managing Director, Information Security ForumTons of malicious content floods the internet which can compromise your system and your device, be it your laptop, tablet or phone. •How often do you make payments online? •Do you have children and want to ensure they stay safe online? •How often do you sit at a coffee shop and log onto their free WIFI? •How often do you use social media on the train or bus? If you believe using an antivirus software will keep devices safe... you are wrong. This book will guide you and provide solutions to avoid common mistakes and to combat cyber attacks.This Guide covers areas such as: •Building resilience into our IT Lifestyle •Online Identity •Cyber Abuse: Scenarios and Stories •Protecting Devices •Download and share •Gaming, gamble and travel •Copycat websites •I Spy and QR Codes •Banking, apps and Passwords Includes chapters from Nick Wilding, General Manager at AXELOS, Tim Mitchell, Content Director at Get Safe Online, Maureen Kendal, Director at Cybercare, Nick Ioannou, Founder of Boolean Logical, and CYBERAWARE.'Conquer the Web is a full and comprehensive read for anyone wanting to know more about cyber-security. It takes it time to explain the many acronyms and jargon that are associated with our industry, and goes into detail where necessary.' Sarah Jane MD of Layer8 Ltd'Online fraud, cyber bullying, identity theft and these are the unfortunate by products of the cyber age. The challenge is how do we protect ourselves in the online world? Conquer the Web provides practical guidance in an easy to understand language that allows readers to take a small number of steps that will greatly increase their online security. A must read for anyone looking to upskill their cyber awareness.' Steve Durbin MD of Information Security Forum Limited

This book introduces a new approach to embedded development, grounded in modern, industry-standard JavaScript. Using the same language that powers web browsers and Node.js, the Moddable SDK empowers IoT developers to apply many of the same tools and techniques used to build sophisticated websites and mobile apps. The Moddable SDK enables you to unlock the full potential of inexpensive microcontrollers like the ESP32 and ESP8266. Coding for these microcontrollers in C or C++ with the ESP-IDF and Arduino SDKs works for building basic products but doesn't scale to handle the increasingly complex IoT products that customers expect. The Moddable SDK adds the lightweight XS JavaScript engine to those traditional environments, accelerating development with JavaScript while keeping the performance benefits of a native SDK. Building user interfaces and communicating over the network are two areas where JavaScript really shines. IoT Development for ESP32 and ESP8266 with JavaScript shows you how to build responsive touch screen user interfaces using the Piu framework. You'll learn how easy it is to securely send and receive JSON data over Wi-Fi with elegant JavaScript APIs for common IoT protocols, including HTTP/HTTPS, WebSocket, MQTT, and mDNS. You'll also learn how to integrate common sensors and actuators, Bluetooth Low Energy (BLE), file systems, and more into your projects, and you'll see firsthand how JavaScript makes it easier to combine these diverse technologies. If you're an embedded C or C++ developer who has never worked in JavaScript, don't worry. This book includes an introduction to the JavaScript language just for embedded developers experienced with C or C++. What You'll Learn Building, installing, and debugging JavaScript projects on the ESP32 and ESP8266 Using modern JavaScript for all aspects of embedded development with the Moddable SDK Developing IoT products with animated user interfaces, touch input, networking, BLE, sensors, actuators, and more Who This Book Is For Professional embedded developers who want the speed, flexibility, and power of web development in their embedded software work Makers who want a faster, easier way to build their hobby projects Web developers working in JavaScript who want to extend their skills to

hardware products

This book gathers the outcomes of the 6th ACIS International Conference on Computational Science/Intelligence & Applied Informatics (CSII 2019), which was held on May 29–31, 2019 in Honolulu, Hawaii. The aim of the conference was to bring together researchers and scientists, businesspeople and entrepreneurs, teachers, engineers, computer users, and students to discuss the various fields of computer science and to share their experiences and exchange new ideas and information in a meaningful way. Further, they presented research results on all aspects (theory, applications and tools) of computer and information science, and discussed the practical challenges encountered in their work and the solutions they adopted to overcome them. The book highlights the best papers from those accepted for presentation at the conference. They were chosen based on review scores submitted by members of the program committee and underwent further rigorous rounds of review. From this second round, 15 of the conference's most promising papers were selected for this Springer (SCI) book and not the conference proceedings. We eagerly await the important contributions that we know these authors will make to the field of computer and information science.

The Definitive Guide to Arm® Cortex®-M23 and Cortex-M33 Processors focuses on the Armv8-M architecture and the features that are available in the Cortex-M23 and Cortex-M33 processors. This book covers a range of topics, including the instruction set, the programmer's model, interrupt handling, OS support, and debug features. It demonstrates how to create software for the Cortex-M23 and Cortex-M33 processors by way of a range of examples, which will enable embedded software developers to understand the Armv8-M architecture. This book also covers the TrustZone® technology in detail, including how it benefits security in IoT applications, its operations, how the technology affects the processor's hardware (e.g., memory architecture, interrupt handling, etc.), and various other considerations in creating secure software. Presents the first book on Armv8-M Architecture and its features as implemented in the Cortex-M23 and Cortex-M33 processors Covers TrustZone technology in detail Includes examples showing how to create software for Cortex-M23/M33 processors

Machine learning is a potential solution to resolve bottleneck issues in VLSI via optimizing tasks in the design process. This book aims to provide the latest machine-learning-based methods, algorithms, architectures, and frameworks designed for VLSI design. The focus is on digital, analog, and mixed-signal design techniques, device modeling, physical design, hardware implementation, testability, reconfigurable design, synthesis and verification, and related areas. Chapters include case studies as well as novel research ideas in the given field. Overall, the book provides practical implementations of VLSI design, IC design, and hardware realization using machine learning techniques.

Features: Provides the details of state-of-the-art machine learning methods used in VLSI design Discusses hardware implementation and device modeling pertaining to machine learning algorithms Explores machine learning for various VLSI architectures and reconfigurable computing Illustrates the latest techniques for device size and feature optimization Highlights the latest case studies and reviews of the methods used for hardware implementation This book is aimed at researchers, professionals, and graduate students in VLSI, machine learning, electrical and electronic engineering, computer engineering, and hardware systems.

Learn how to deploy and test Linux-based Docker containers with the help of real-world use cases Key Features Understand how to make a deployment workflow run smoothly with Docker containers Learn Docker and DevOps concepts such as continuous integration and continuous deployment (CI/CD) Gain insights into using various Docker tools and libraries Book Description Docker is the de facto standard for containerizing apps, and with an increasing number of software projects migrating to containers, it is crucial for engineers and DevOps teams to understand how to build, deploy, and secure Docker environments effectively. Docker for Developers will help you understand Docker containers from scratch while taking you through best practices and showing you how to address security concerns. Starting with an introduction to Docker, you'll learn how to use containers and VirtualBox for development. You'll explore how containers work and develop projects within them after you've explored different ways to deploy and run containers. The book will also show you how to use Docker containers in production in both single-host set-ups and in clusters and deploy them using Jenkins, Kubernetes, and Spinnaker. As you advance, you'll get to grips with monitoring, securing, and scaling Docker using tools such as Prometheus and Grafana. Later, you'll be able to deploy Docker containers to a variety of environments, including the cloud-native Amazon Elastic Kubernetes Service (Amazon EKS), before finally delving into Docker security concepts and best practices. By the end of the Docker book, you'll be able to not only work in a container-driven environment confidently but also use Docker for both new and existing projects. What you will learn Get up to speed with creating containers and understand how they work Package and deploy your containers to a variety of platforms Work with containers in the cloud and on the Kubernetes platform Deploy and then monitor the health and logs of running containers Explore best practices for working with containers from a security perspective Become familiar with scanning containers and using third-party security tools and libraries Who this book is for If you're a software engineer new to containerization or a DevOps engineer responsible for deploying Docker containers in the cloud and building DevOps pipelines for container-based projects, you'll find this book useful. This Docker containers book is also a handy reference guide for anyone working with a Docker-based DevOps ecosystem or interested in understanding the security implications and best practices for working in container-driven environments.

The official study guide for the AWS certification specialty exam The AWS Certified Advanced Networking Official Study Guide – Specialty Exam helps to ensure your preparation for the AWS Certified Advanced Networking – Specialty Exam. Expert review of AWS fundamentals align with the exam objectives, and detailed explanations of key exam topics merge with real-world scenarios to help you build the robust knowledge base you need to succeed on the exam—and in the field as an AWS Certified Networking specialist. Coverage includes the design, implementation, and deployment of cloud-based solutions; core AWS services implementation and knowledge of architectural best practices; AWS service architecture design and maintenance; networking automation; and more. You also get one year of free access to Sybex's online interactive learning environment and study tools, which features flashcards, a glossary, chapter tests, practice exams, and a test bank to help you track your progress and gauge your readiness as exam day grows near. The AWS credential validates your skills surrounding AWS and hybrid IT network architectures at scale. The exam assumes existing competency with advanced networking tasks, and assesses your ability to apply deep technical knowledge to the design and implementation of AWS services. This book provides comprehensive review and extensive opportunities for practice, so you can polish your skills and approach exam day with confidence. Study key exam essentials with expert insight Understand how AWS skills translate to real-world solutions Test your knowledge with challenging review questions Access online study tools, chapter tests, practice exams, and more Technical expertise in cloud computing, using AWS, is in high demand, and the AWS certification shows employers that you have the knowledge and skills needed to deliver practical, forward-looking cloud-based solutions. The AWS Certified Advanced Networking Official Study Guide – Specialty Exam helps you learn what you need to take this next big step for your career.

Practical Java Programming for IoT, AI, and Blockchain John Wiley & Sons

Summary Camel in Action, Second Edition is the most complete Camel book on the market. Written by core developers of Camel and the

authors of the highly acclaimed first edition, this book distills their experience and practical insights so that you can tackle integration tasks like a pro. Forewords by James Strachan and Dr. Mark Little Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Apache Camel is a Java framework that implements enterprise integration patterns (EIPs) and comes with over 200 adapters to third-party systems. A concise DSL lets you build integration logic into your app with just a few lines of Java or XML. By using Camel, you benefit from the testing and experience of a large and vibrant open source community. About the Book Camel in Action, Second Edition is the definitive guide to the Camel framework. It starts with core concepts like sending, receiving, routing, and transforming data. It then goes in depth on many topics such as how to develop, debug, test, deal with errors, secure, scale, cluster, deploy, and monitor your Camel applications. The book also discusses how to run Camel with microservices, reactive systems, containers, and in the cloud. What's Inside Coverage of all relevant EIPs Camel microservices with Spring Boot Camel on Docker and Kubernetes Error handling, testing, security, clustering, monitoring, and deployment Hundreds of examples in Java and XML About the Reader Readers should be familiar with Java. This book is accessible to beginners and invaluable to experts. About the Author Claus Ibsen is a senior principal engineer working for Red Hat specializing in cloud and integration. He has worked on Apache Camel for the last nine years where he heads the project. Claus lives in Denmark. Jonathan Anstey is an engineering manager at Red Hat and a core Camel contributor. He lives in Newfoundland, Canada. Table of Contents Part 1 - First steps Meeting Camel Routing with Camel Part 2 - Core Camel Transforming data with Camel Using beans with Camel Enterprise integration patterns Using components Part 3 - Developing and testing Microservices Developing Camel projects Testing RESTful web services Part 4 - Going further with Camel Error handling Transactions and idempotency Parallel processing Securing Camel Part 5 - Running and managing Camel Running and deploying Camel Management and monitoring Part 6 - Out in the wild Clustering Microservices with Docker and Kubernetes Camel tooling Bonus online chapters Available at <https://www.manning.com/books/camel-in-?action-second-edition> and in electronic versions of this book: Reactive Camel Camel and the IoT by Henryk Konsek

This book focuses on all the technologies involved in improving the teaching and learning process of some of the sensor-based IoT topics, such as virtual sensors, simulated data acquisition, virtual and remote labs for IoT sensing, gamification experiences and innovative teaching materials, among others. In particular, the articles inside the book show excellent works about hot topics, such as: - Remote labs for IoT teaching, including the full development cycle. - Practical guides for IoT cybersecurity. - Innovative multimodal learning analytics architecture that builds on software-defined networks and network function virtualization principles. - Problem-based learning experiences using designed complex sensor-based IoT ecosystems with sensors, actuators, microcontrollers, plants, soils and irrigation systems. - Block-based programming extensions to facilitate the creation of mobile apps for smart learning experiences. The articles published in this book present only some of the most important topics about sensor-based IoT learning and teaching. However, the selected papers offer significant studies and promising environments.

NB-IoT is the Internet of Things (IoT) technology used for cellular communication. NB-IoT devices deliver much better capability and performance, such as: increased area coverage of up to one kilometer; a massive number of devices—up to 200,000—per a single base-station area; longer battery lifetime of ten years; and better indoor and outdoor coverage for areas with weak signal, such as underground garages. The cellular NB-IoT technology is a challenging technology to use and understand. With more than 30 projects presented in this book, covering many use cases and scenarios, this book provides hands-on and practical experience of how to use the cellular NB-IoT for smart applications using Arduino™, Amazon Cloud, Google Maps, and charts. The book starts by explaining AT commands used to configure the NB-IoT modem; data serialization and deserialization; how to set up the cloud for connecting NB-IoT devices; setting up rules, policy, security certificates, and a NoSQL database on the cloud; how to store and read data in the cloud; how to use Google Maps to visualize NB-IoT device geo-location; and how to use charts to visualize sensor datasets. Projects for Arduino are presented in four parts. The first part explains how to connect the device to the mobile operator and cellular network; perform communication using different network protocols, such as TCP, HTTP, SSL, or MQTT; how to use GPS for geo-location applications; and how to upgrade NB-IoT modem firmware over the air. The second part explains the microcontroller unit and how to build and run projects, such as a 7-segment display or a real-time clock. The third part explains how NB-IoT can be used with sensor devices, such as ultrasonic and environmental sensors. Finally, the fourth part explains how NB-IoT can be used to control actuators, such as stepper motors and relays. This book is a unique resource for understanding practical uses of the NB-IoT technology and serves as a handbook for technical and non-technical readers who are looking for practicing and exercising the cellular NB-IoT technology. The book can be used by engineers, students, researchers, system integrators, mobile operators' technical staff, and electronics enthusiasts. To download the software which can be used with the book, go to: <https://github.com/5ghub/NB-IoT> About the Author: Hossam Fattah is a technology expert in 4G/5G wireless systems and networking. He received his Ph.D. in Electrical and Computer Engineering from University of British Columbia, Vancouver, Canada in 2003. He received his Master of Applied Science in Electrical and Computer Engineering from University of Victoria, Victoria, Canada in 2000. He completed his B.Sc. degree in Computers and Systems Engineering from Al-Azhar University, Cairo, Egypt in 1995. Between 2003 and 2011, he was in academia and industry, including Texas A&M University. Between 2011 and 2013, he was with Spirent Communications, NJ, USA. Since 2013, he has been with Microsoft, USA. He is also an affiliate associate professor at University of Washington, Tacoma, WA, USA, teaching graduate courses on IoT and distributed systems and collaborating on 5G research and innovations. He has had many patents and technical publications in conferences and journals. He is a registered professional Engineer with the Association of Professional Engineers, British Columbia, Canada. He is the author of the recent book 5G LTE Narrowband Internet of Things (NB-IoT). His research interest is in wireless communications and radio networks and protocols, cellular quality of service, radio resource management, traffic and packet scheduling, network analytics, and mobility.

Learn how to program the Internet of Things with this hands-on guide. By breaking down IoT programming complexities in step-by-step, building-block fashion, author and educator Andy King shows you how to design and build your own full-stack, end-to-end IoT solution—from device to cloud. This practical book walks you through tooling, development environment setup, solution design, and implementation. You'll learn how a typical IoT ecosystem works, as well as how to tackle integration challenges that crop up when implementing your own IoT solution. Whether you're an engineering student learning the basics of the IoT, a tech-savvy executive looking to better understand the nuances of IoT technology stacks, or a programmer building your own smart house solution, this practical book will help you get started. Design an end-to-end solution that implements an IoT use case Set up an IoT-centric development and testing environment Organize your software design by creating abstractions in Python and Java Use MQTT, CoAP, and other protocols to connect IoT devices and services Create a custom JSON-based data format that's consumable across a range of platforms and services Use cloud services to support your IoT ecosystem and provide business value for stakeholders

ASP.NET Core 5 for Beginners is a practical guide for developers for building dynamic and powerful web applications with the ASP.NET Core framework and C#. From basic ASP terminologies to creating a single-page application, and from testing and maintaining the app to deploying it on the cloud, this book covers everything you need to get started. Prepare for the evolving technology components of Cisco's revised CCIE and CCDE written exams The changes Cisco made to its expert-level CCIE and CCDE certifications allow candidates to link their core technology expertise with

based devices design. University level students, researchers and practitioners will also find the latest innovation in technology and newer approaches relevant to the IIoT from a distributed computing perspective.

This effective self-study system delivers complete coverage of every topic on the AWS Certified Developer Associate Exam Take the challenging AWS Certified Developer Associate Exam with confidence using the comprehensive information contained in this effective test preparation guide. Written by an Amazon Web Services certified expert and experienced trainer, AWS Certified Developer Associate All-in-One Exam Guide (Exam DVA-C01) covers every subject on the exam and clearly explains how to create, deploy, migrate, monitor, and debug cloud-native applications. Designed to help you pass the exam with ease, this guide also serves as an ideal on-the-job reference. Covers all topics on the exam, including: Getting started with AWS Journey AWS high availability and fault tolerance Working with cloud storage Authentication and authorization Creating SQL and NoSQL databases in AWS Cloud AWS application integration and management Developing cloud-native applications in AWS Building, deploying, and debugging cloud applications Electronic content includes: 130 practice questions Test engine containing full-length practice exams and customizable quizzes

Explore different aspects of building modular microservices such as development, testing, maintenance, and deployment using the Micronaut framework Key Features Learn how to build scalable, fast, and resilient microservices with this concise guide Explore the many advantages of using reflection-free, compile-time dependency injections and aspect-oriented programming Build cloud-native applications easily with the Micronaut framework Book Description The open source Micronaut® framework is a JVM-based toolkit designed to create microservices quickly and easily. This book will help full-stack and Java developers build modular, high-performing, and reactive microservice-based apps using the Micronaut framework. You'll start by building microservices and learning about the core components, such as ahead-of-time compilation, reflection-less dependency injection, and reactive baked-in HTTP clients and servers. Next, you will work on a real-time microservice application and learn how to integrate Micronaut projects with different kinds of relational and non-relational databases. You'll also learn how to employ different security mechanisms to safeguard your microservices and integrate microservices using event-driven architecture in the Apache Kafka ecosystem. As you advance, you'll get to grips with automated testing and popular testing tools. The book will help you understand how you can easily handle microservice concerns in Micronaut projects, such as service discovery, API documentation, distributed configuration management, fallbacks, and circuit breakers. Finally, you'll explore the deployment and maintenance aspects of microservices and get up to speed with the Internet of Things (IoT) using the Framework. By the end of this book, you'll be able to build, test, deploy, and maintain your own microservice apps using the framework. What you will learn Understand why the Micronaut framework is best suited for building microservices Build web endpoints and services in the Micronaut framework Safeguard microservices using Session, JWT, and OAuth in Micronaut projects Get to grips with event-driven architecture in Micronaut applications Discover how to automate testing at various levels using built-in tools and testing frameworks Deploy your microservices to containers and cloud platforms Become well-versed with distributed logging, tracing, and monitoring in Micronaut projects Get hands-on with the IoT using Alexa and the Micronaut framework Who this book is for This book is for developers who have been building microservices on traditional frameworks such as Spring Boot and are looking for a faster alternative. Intermediate-level knowledge of Java programming and implementing web services development in Java is required.

Written by all-star security experts, Practical IoT Hacking is a quick-start conceptual guide to testing and exploiting IoT systems and devices. Drawing from the real-life exploits of five highly regarded IoT security researchers, Practical IoT Hacking teaches you how to test IoT systems, devices, and protocols to mitigate risk. The book begins by walking you through common threats and a threat modeling framework. You'll develop a security testing methodology, discover the art of passive reconnaissance, and assess security on all layers of an IoT system. Next, you'll perform VLAN hopping, crack MQTT authentication, abuse UPnP, develop an mDNS poisoner, and craft WS-Discovery attacks. You'll tackle both hardware hacking and radio hacking, with in-depth coverage of attacks against embedded IoT devices and RFID systems. You'll also learn how to:

- Write a DICOM service scanner as an NSE module
- Hack a microcontroller through the UART and SWD interfaces
- Reverse engineer firmware and analyze mobile companion apps
- Develop an NFC fuzzer using Proxmark3
- Hack a smart home by jamming wireless alarms, playing back IP camera feeds, and controlling a smart treadmill

The tools and devices you'll use are affordable and readily available, so you can easily practice what you learn. Whether you're a security researcher, IT team member, or hacking hobbyist, you'll find Practical IoT Hacking indispensable in your efforts to hack all the things REQUIREMENTS: Basic knowledge of Linux command line, TCP/IP, and programming

This book presents the combined proceedings of the 8th International Conference on Computer Science and its Applications (CSA-16) and the 11st International Conference on Ubiquitous Information Technologies and Applications (CUTE 2016), both held in Bangkok, Thailand, December 19 - 21, 2016. The aim of these two meetings was to promote discussion and interaction among academics, researchers and professionals in the field of ubiquitous computing technologies. These proceedings reflect the state-of-the-art in the development of computational methods, involving theory, algorithm, numerical simulation, error and uncertainty analysis and novel application of new processing techniques in engineering, science, and other disciplines related to ubiquitous computing.

Strategically design, troubleshoot, and automate Docker containers from development to deployment About This Book Utilize current and emergent technologies for effective Docker orchestration and management A step-by-step guide to diagnosing and fixing problems with Docker containers. Who This Book Is For This book is intended for seasoned solutions architects, developers, and programmers, system engineers, and administrators to help you troubleshoot common areas of Docker containerization. If you are looking to build production-ready Docker containers for automated

deployment, you will be able to master and troubleshoot both the basic functions and the advanced features of Docker. Advanced familiarity with the Linux command line syntax, unit testing, the Docker Registry, Github, and leading container hosting platforms and Cloud Service Providers (CSP) are the prerequisites. What You Will Learn Install Docker ecosystem tools and services, Microservices and N-tier applications Create re-usable, portable containers with help of automation tools Network and inter-link containers Attach volumes securely to containers Consume and troubleshoot Docker APIs Troubleshooting issue of Docker deployment in Public cloud Ease the process of container management with Kubernetes In Detail This book will traverse some common best practices to for complex application scenarios where troubleshooting can be successfully employed to provide the repeatable processes and advantages that containers can deliver. This book will be a practical guide showing how to fix real-life issues related to installation, memory, Dockerfile syntax, connection, authorization, networking and so on in Docker. This book will also teach how to solve errors that occur during advanced setup and administration and deployment in a step-by-step fashion. By sequentially working through the real-world production scenarios in each chapter throughout the book, you will gain insight into and mastery of common areas not only for effective troubleshooting, but ways and means to avoid troubleshooting in the first place. This book will also cover tips and tricks that make the workflow easier. Style and approach An easy-to-follow guide full of interactive examples of real-world development and deployment scenarios. Ample screenshots, workflows, complementary tools, and related terminal commands are provided to address a wide range of practical and situational applications.

As a Patient - Would you like a "Patient Listener"? Are you tired of Medicine/Treatment "Trial and Error", at your expense? Are you tired of being shuffled from one Doctor to another? Do you want to "get better" and "stay better"? As a Doctor – Would you like more good information from Patients, relevant to their symptoms? Would you like to help Patients "get better" and "stay better"? Are you open to venturing out of your "comfort zone" in diagnosing and treating patients? Do you sometimes wonder if there is more to diagnosing/treating than what you were taught in Medical School? As a Health/Medical Innovator, Inventor, Engineer, Writer, other Creative Person – Are you looking for some new ideas? Would you like to "Interface" with the "Dr. Within" each of us? As an Insurance Company - Would you like to "pay out" less? If you answered yes to any of the above, maybe this book is for you. This book describes the Concepts of a "Patient Listener" and a "Super Symptom Checker" – Human, Computer, and/or Computer-Assisted Human – Considering the "Big Picture" around Health and/or Symptoms. This book is about 250 pages, a little over half written text. The remainder contains many Reference Links, from which you can build upon and learn from. The author of this book has set up Discussion Groups for this book to help others share, network, collaborate, etc. *** Use of the Information in this book may help the Patient, Doctor, and/or Others "Get Better". Some common Side Effects may include: A better understanding of what affects Health and Symptoms, Seeing the big picture surrounding Symptoms, Better health, less dependence on medication/treatment, generally "feeling better", Experiencing less perceived stress, more contentment with self and life, Perceiving more control of your life, in general, realizing there are always options no matter what, New insights on what could be done to make "it" better. Note - Continued Use of the Information in this book may result in "Staying Better". Ask your Doctor if "Getting Better" and "Staying Better" are right for you. :-)

MacGyver science is the creative use of equipment for purposes that were not originally intended by the developer as well as the scientist's own development of sensors or technology for problems where commercially available solutions fall short. Following the successful MacGyver conference sessions in the past years it is time to combine all our ideas, opinions and new research in an article collection. This is a call for papers for all MacGyver earth scientists— present your tools, processes, proof of concepts, designs, open source components, failures and successes, data sets, and emerging technologies, and contribute your part to this exciting collection. Even if your new tools, prototypes or method has been described as part of the method section of a broader publication, we invite you to write a separate publication in our collection that focusses solely on the new tool, processes, proof of concepts, designs, open source components, etc. Summary Serverless Applications with Node.js walks you through building serverless apps on AWS using JavaScript. Inside, you'll discover what Claudia.js brings to the table as you build and deploy a scalable event-based serverless application, based around a pizzeria that's fully integrated with AWS services, including Lambda and API Gateway. Each chapter is filled with exercises, examples, tips, and more to make sure you're ready to bring what you've learned into your own work. Foreword by Gojko Adzic. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The benefits of cloud-hosted serverless web apps are undeniable: lower complexity, quicker time to market, and easier scalability than traditional, server-dependent designs. And thanks to JavaScript support in AWS Lambda and powerful new serverless API tools like the Claudia.js library, you can build and deploy serverless apps end to end without learning a new language. About the Book Serverless Applications with Node.js teaches you to design and build serverless web apps on AWS using JavaScript, Node, and Claudia.js. You'll master the basics of writing AWS Lambda functions, along with core serverless patterns like API Gateway. Along the way, you'll practice your new skills by building a working chatbot and a voice assistant with Amazon Alexa. You'll also discover techniques for migrating existing apps to a serverless platform. What's inside Authentication and database storage Asynchronous functions Interesting real-world examples Developing serverless microservices About the Reader For web developers comfortable with JavaScript and Node.js. About the Author Slobodan Stojanovi? and Aleksandar Simovi? are AWS Serverless Heroes and core contributors to the Claudia.js project. They are also coauthors of Desole, an open source serverless errortracking tool, and the lead developers of Claudia Bot Builder. Table of Contents PART 1 - Serverless pizzeria Introduction to serverless with Claudia Building your first serverless API Asynchronous work is easy, we Promise() Pizza delivery: Connecting an external service Houston, we have a problem! Level up your API Working with files PART 2 - Let's talk When pizza is one message away: Chatbots Typing... Async and delayed responses Jarvis,

I mean Alexa, order me a pizza Paying for pizza Migrating to serverless Real-world case studies appendix A - Installation and configuration appendix B - Facebook Messenger, Twilio, and Alexa configuration appendix C - Stripe and MongoDB setup appendix D - The pizza recipe

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