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PD1VCD - EUGENE SAWYER

Learn to build powerful machine learning models quickly and deploy large-scale predictive applications About This Book Design, engineer and deploy scalable machine learning solutions with the power of Python Take command of Hadoop and Spark with Python for effective machine learning on a map reduce framework Build state-of-the-art models and develop personalized recommendations to perform machine learning at scale Who This Book Is For This book is for anyone who intends to work with large and complex data sets. Familiarity with basic Python and machine learning concepts is recommended. Working knowledge in statistics and computational mathematics would also be helpful. What You Will Learn Apply the most scalable machine learning algorithms Work with modern state-of-the-art large-scale machine learning techniques Increase predictive accuracy with deep learning and scalable data-handling techniques Improve your work by combining the MapReduce framework with Spark Build powerful ensembles at scale Use data streams to train linear and non-linear predictive models from extremely large datasets using a single machine In Detail Large Python machine learning projects involve new problems associated with specialized machine learning architectures and designs that many data scientists have yet to tackle. But finding algorithms and designing and building platforms that deal with large sets of data is a growing need. Data scientists have to manage and maintain increasingly complex data projects, and with the rise of big data comes an increasing demand for computational and algorithmic efficiency. Large Scale Machine Learning with Python uncovers a new wave of machine learning algorithms that meet scalability demands together with a high predictive accuracy. Dive into scalable machine learning and the three forms of scalability. Speed up algorithms that can be used on a desktop computer with tips on parallelization and memory allocation. Get to grips with new algorithms that are specifically designed for large projects and can handle bigger files, and learn about machine learning in big data environments. We will also cover the most effective machine learning techniques on a map reduce framework in Hadoop and Spark in Python. Style and Approach This efficient and practical title is stuffed full of the techniques, tips and tools you need to ensure your large scale Python machine learning runs swiftly and seamlessly. Large-scale machine learning tackles a different issue to what is currently on the market. Those working with Hadoop clusters and in data intensive environments can now learn effective ways of building powerful machine learning models from prototype to production. This book is written in a style that programmers from other languages (R, Julia, Java, Matlab) can follow.

Building desktop applications doesn't have to be difficult. Using Python & Qt5 you can create fully functional desktop apps in minutes. This is the 5th Edition of Create GUI Applications, updated for 2021 & PySide6 Starting from the very basics, this book takes you on a tour of the key features of PySide6 you can use to build real-life applications. Learn the fundamental building blocks of PySide6 applications — Widgets, Layouts & Signals and learn how PySide uses the event loop to handle and respond to user input. Design beautiful UIs with Qt Designer and customize the look and feel of your applications with Qt Style Sheets and custom widgets. Use Qt's MVC-like ModelViews framework to connect data sources to your widgets, including SQL databases, numpy and pandas data tables, to build-data driven application. Visualize data using matplotlib & PyQtGraph and connect with external data sources to build live dashboards. Learn how to use threads and processes to manage long-running tasks and communicate with external services. Parse data and visualize the output in logs and progress bars. The book includes usability and architectural tips to help you build maintainable and usable PySide6 applications from the start. - 665 pages of hands-on PySide6 exercises - 211 code examples to experiment with - Includes 4 example apps - Compatible with Python 3.6+ - Code free to reuse in your own projects

Pandas has rapidly become one of Python's most popular data analysis libraries. With pandas you

can efficiently sort, analyze, filter and munge almost any type of data. In Pandas in Action, a friendly and example-rich introduction, author Boris Paskhaver shows you how to master this versatile tool and take the next steps in your data science career. about the technology Anyone who's used spreadsheet software will find pandas familiar. While its column-based grids might remind you of Excel or Google Sheets, pandas is more flexible and far more powerful. It can efficiently perform operations on millions of rows and be used in tandem with other Python libraries for statistics, machine learning, and more. And best of all, using pandas doesn't mean sacrificing user productivity or needing to write tons of complex code. It's clean, intuitive, and fast. about the book Pandas in Action makes it easy to dive into Python-based data analysis. You'll learn to use pandas to automate repetitive spreadsheet functionality and derive insight from data by sorting columns, filtering data subsets, and creating multi-leveled indices. Each chapter is a self-contained tutorial, letting you dip in when you need to troubleshoot tricky problems. Best of all, you won't be learning from sterile or randomly created data. You'll start with a variety of datasets that are big, small, incomplete, broken, and messy and learn how to clean and format them for proper analysis. what's inside Import a CSV, identify issues with its data structures, and convert it to the proper format Sort, filter, pivot, and draw conclusions from a dataset and its subsets Identify trends from text-based and time-based data Organize, group, merge, and join separate datasets Real-world datasets that are easy to download and explore about the reader For readers experienced with spreadsheet software who know the basics of Python. about the author Boris Paskhaver is a software engineer, Agile consultant, and educator. His six programming courses on Udemy have amassed 236,000 students, with an average course rating of 4.59 out of 5. He first used Python and the pandas library to derive a variety of business insights at the world's #1 jobs site, Indeed.com.

Macroeconomic policy is one of the most important policy domains, and the tools of macroeconomics are among the most valuable for policy makers. Yet there has been, up to now, a wide gulf between the level at which macroeconomics is taught at the undergraduate level and the level at which it is practiced. At the same time, doctoral-level textbooks are usually not targeted at a policy audience, making advanced macroeconomics less accessible to current and aspiring practitioners. This book, born out of the Masters course the authors taught for many years at the Harvard Kennedy School, fills this gap. It introduces the tools of dynamic optimization in the context of economic growth, and then applies them to a wide range of policy questions – ranging from pensions, consumption, investment and finance, to the most recent developments in fiscal and monetary policy. It does so with the requisite rigor, but also with a light touch, and an unyielding focus on their application to policy-making, as befits the authors' own practical experience. Advanced Macroeconomics: An Easy Guide is bound to become a great resource for graduate and advanced undergraduate students, and practitioners alike.

Class-tested and coherent, this textbook teaches classical and web information retrieval, including web search and the related areas of text classification and text clustering from basic concepts. It gives an up-to-date treatment of all aspects of the design and implementation of systems for gathering, indexing, and searching documents; methods for evaluating systems; and an introduction to the use of machine learning methods on text collections. All the important ideas are explained using examples and figures, making it perfect for introductory courses in information retrieval for advanced undergraduates and graduate students in computer science. Based on feedback from extensive classroom experience, the book has been carefully structured in order to make teaching more natural and effective. Slides and additional exercises (with solutions for lecturers) are also available through the book's supporting website to help course instructors prepare their lectures.

More than 80 recipes to help you leverage the various extensibility features available for Microsoft Dynamics and solve problems easily About This Book Customize, configure, and extend the vanilla

features of Dynamics 365 to deliver bespoke CRM solutions fit for any organization Implement business logic using point-and-click configuration, plugins, and client-side scripts with MS Dynamics 365 Built a DevOps pipeline as well as Integrate Dynamics 365 with Azure and other platforms Who This Book Is For This book is for developers, administrators, consultants, and power users who want to learn about best practices when extending Dynamics 365 for enterprises. You are expected to have a basic understand of the Dynamics CRM/365 platform. What You Will Learn Customize, configure, and extend Microsoft Dynamics 365 Create business process automation Develop client-side extensions to add features to the Dynamics 365 user interface Set up a security model to securely manage data with Dynamics 365 Develop and deploy clean code plugins to implement a wide range of custom behaviors Use third-party applications, tools, and patterns to integrate Dynamics 365 with other platforms Integrate with Azure, Java, SSIS, PowerBI, and Octopus Deploy Build an end-to-end DevOps pipeline for Dynamics 365 In Detail Microsoft Dynamics 365 is a powerful tool. It has many unique features that empower organisations to bridge common business challenges and technology pitfalls that would usually hinder the adoption of a CRM solution. This book sets out to enable you to harness the power of Dynamics 365 and cater to your unique circumstances. We start this book with a no-code configuration chapter and explain the schema, fields, and forms modeling techniques. We then move on to server-side and client-side custom code extensions. Next, you will see how best to integrate Dynamics 365 in a DevOps pipeline to package and deploy your extensions to the various SDLC environments. This book also covers modern libraries and integration patterns that can be used with Dynamics 365 (Angular, 3 tiers, and many others). Finally, we end by highlighting some of the powerful extensions available. Throughout we explain a range of design patterns and techniques that can be used to enhance your code quality; the aim is that you will learn to write enterprise-scale quality code. Style and approach This book takes a recipe-based approach, delivering practical examples and use cases so that you can identify the best possible approach to extend your Dynamics 365 deployment and tackle your specific business problems.

Building desktop applications doesn't have to be difficult. Using Python & Qt5 you can create fully functional desktop apps in minutes. This is the 4th Edition of Create GUI Applications, updated for 2020 & PySide2 Starting from the very basics, this book takes you on a tour of the key features of PySide you can use to build real-life applications. Learn the fundamental building blocks of PySide applications — Widgets, Layouts & Signals and learn how PySide uses the event loop to handle and respond to user input. Design beautiful UIs with Qt Designer and customize the look and feel of your applications with Qt Style Sheets and custom widgets. Use Qt's MVC-like ModelViews framework to connect data sources to your widgets, including SQL databases, numpy and pandas data tables, to build-data driven application. Visualize data using matplotlib & PyQtGraph and connect with external data sources to build live dashboards. Learn how to use threads and processes to manage long-running tasks and communicate with external services. Parse data and visualize the output in logs and progress bars. The book includes usability and architectural tips to help you build maintainable and usable PySide2 applications from the start. Finally, once your application is ready to be released, discover how to package it up into professional-quality installers, ready to ship. The book includes - 665 pages of hands-on PySide2 exercises - 211 code examples to experiment with - Includes 4 example apps - Compatible with Python 3.4+ - Code free to reuse in your own projects This textbook describes recent advances in genomics and bioinformatics and provides numerous examples of genome data analysis that illustrate its relevance to real world problems and will improve the reader's bioinformatics skills. Basic data preprocessing with normalization and filtering, primary pattern analysis, and machine learning algorithms using R and Python are demonstrated for gene-expression microarrays, genotyping microarrays, next-generation sequencing data, epigenomic data, and biological network and semantic analyses. In addition, detailed attention is devoted

ed to integrative genomic data analysis, including multivariate data projection, gene-metabolic pathway mapping, automated biomolecular annotation, text mining of factual and literature databases, and integrated management of biomolecular databases. The textbook is primarily intended for life scientists, medical scientists, statisticians, data processing researchers, engineers, and other beginners in bioinformatics who are experiencing difficulty in approaching the field. However, it will also serve as a simple guideline for experts unfamiliar with the new, developing subfield of genomic analysis within bioinformatics.

A gentle introduction to genetic algorithms. Genetic algorithms revisited: mathematical foundations. Computer implementation of a genetic algorithm. Some applications of genetic algorithms. Advanced operators and techniques in genetic search. Introduction to genetics-based machine learning. Applications of genetics-based machine learning. A look back, a glance ahead. A review of combinatorics and elementary probability. Pascal with random number generation for fortran, basic, and cobol programmers. A simple genetic algorithm (SGA) in pascal. A simple classifier system(SCS) in pascal. Partition coefficient transforms for problem-coding analysis.

Games and activities that teach kids ages 10+ to code with Python Learning to code isn't as hard as it sounds—you just have to get started! Coding for Kids: Python starts kids off right with 50 fun, interactive activities that teach them the basics of the Python programming language. From learning the essential building blocks of programming to creating their very own games, kids will progress through unique lessons packed with helpful examples—and a little silliness! Kids will follow along by starting to code (and debug their code) step by step, seeing the results of their coding in real time. Activities at the end of each chapter help test their new knowledge by combining multiple concepts. For young programmers who really want to show off their creativity, there are extra tricky challenges to tackle after each chapter. All kids need to get started is a computer and this book. This beginner's guide to Python for kids includes: 50 Innovative exercises—Coding concepts come to life with game-based exercises for creating code blocks, drawing pictures using a prewritten module, and more. Easy-to-follow guidance—New coders will be supported by thorough instructions, sample code, and explanations of new programming terms. Engaging visual lessons—Colorful illustrations and screenshots for reference help capture kids' interest and keep lessons clear and simple. Encourage kids to think independently and have fun learning an amazing new skill with this coding book for kids.

Google and YouTube use Python because it's highly adaptable, easy to maintain, and allows for rapid development. If you want to write high-quality, efficient code that's easily integrated with other languages and tools, this hands-on book will help you be productive with Python quickly -- whether you're new to programming or just new to Python. It's an easy-to-follow self-paced tutorial, based on author and Python expert Mark Lutz's popular training course. Each chapter contains a stand-alone lesson on a key component of the language, and includes a unique Test Your Knowledge section with practical exercises and quizzes, so you can practice new skills and test your understanding as you go. You'll find lots of annotated examples and illustrations to help you get started with Python 3.0. Learn about Python's major built-in object types, such as numbers, lists, and dictionaries Create and process objects using Python statements, and learn Python's general syntax model Structure and reuse code using functions, Python's basic procedural tool Learn about Python modules: packages of statements, functions, and other tools, organized into larger components Discover Python's object-oriented programming tool for structuring code Learn about the exception-handling model, and development tools for writing larger programs Explore advanced Python tools including decorators, descriptors, metaclasses, and Unicode processing

A practical approach to conquering the complexities of Microservices using the Python tooling ecosystem About This Book A very useful guide for Python developers who are shifting to the new microservices-based development A concise, up-to-date guide to building efficient and lightweight microservices in Python using Flask, Tox, and other tools Learn to use Docker containers, CoreOS, and Amazon Web Services to deploy your services Who This Book Is For This book is for developers who have basic knowledge of Python, the command line, and HTTP-based application principles, and those who want to learn how to build, test, scale, and manage Python 3 microservices. No prior experience of writing microservices in Python is assumed. What You Will Learn Explore what microservices are and how to design them Use Python 3, Flask, Tox, and other tools to build your services using best practices Learn how to use a TDD approach Discover how to document your microservices Configure and package your code in the best way Interact with other services Secure, monitor, and scale your services Deploy your services in Docker containers, CoreOS, and Amazon Web Services In Detail We often deploy our web applications into the cloud, and our code needs to

interact with many third-party services. An efficient way to build applications to do this is through microservices architecture. But, in practice, it's hard to get this right due to the complexity of all the pieces interacting with each other. This book will teach you how to overcome these issues and craft applications that are built as small standard units, using all the proven best practices and avoiding the usual traps. It's a practical book: you'll build everything using Python 3 and its amazing tooling ecosystem. You will understand the principles of TDD and apply them. You will use Flask, Tox, and other tools to build your services using best practices. You will learn how to secure connections between services, and how to script Nginx using Lua to build web application firewall features such as rate limiting. You will also familiarize yourself with Docker's role in microservices, and use Docker containers, CoreOS, and Amazon Web Services to deploy your services. This book will take you on a journey, ending with the creation of a complete Python application based on microservices. By the end of the book, you will be well versed with the fundamentals of building, designing, testing, and deploying your Python microservices. Style and approach This book is a linear, easy-to-follow guide on how to best design, write, test, and deploy your microservices. It includes real-world examples that will help Python developers create their own Python microservice using the most efficient methods.

From the world's most renowned security technologist, Bruce Schneier, this 20th Anniversary Edition is the most definitive reference on cryptography ever published and is the seminal work on cryptography. Cryptographic techniques have applications far beyond the obvious uses of encoding and decoding information. For developers who need to know about capabilities, such as digital signatures, that depend on cryptographic techniques, there's no better overview than Applied Cryptography, the definitive book on the subject. Bruce Schneier covers general classes of cryptographic protocols and then specific techniques, detailing the inner workings of real-world cryptographic algorithms including the Data Encryption Standard and RSA public-key cryptosystems. The book includes source-code listings and extensive advice on the practical aspects of cryptography implementation, such as the importance of generating truly random numbers and of keeping keys secure. ". . . the best introduction to cryptography I've ever seen. . . .The book the National Security Agency wanted never to be published. . . ." -Wired Magazine ". . .monumental . . . fascinating . . . comprehensive . . . the definitive work on cryptography for computer programmers . . ." -Dr. Dobbs' Journal ". . .easily ranks as one of the most authoritative in its field." -PC Magazine The book details how programmers and electronic communications professionals can use cryptography-the technique of enciphering and deciphering messages-to maintain the privacy of computer data. It describes dozens of cryptography algorithms, gives practical advice on how to implement them into cryptographic software, and shows how they can be used to solve security problems. The book shows programmers who design computer applications, networks, and storage systems how they can build security into their software and systems. With a new Introduction by the author, this premium edition will be a keepsake for all those committed to computer and cyber security.

Use Traefik as a load balancer or a reverse proxy for microservices-based architecture. This book covers Traefik integration for microservices architecture concerns such as service discovery, telemetry, and resiliency. The book focuses on building an in-depth understanding of Traefik. It starts with the fundamentals of Traefik, including different load balancing algorithms available, and failure handling for application resiliency. Examples are included for the failure scenarios. TLS support is explained, including scenarios of TLS termination and TLS forwarding. Traefik supports TLS termination using Let's Encrypt. Traefik deployment in prominent microservices ecosystems is discussed, including Docker and Kubernetes. Traefik is a language-neutral component. This book presents examples of its deployment with Java-based microservices. The examples in the book show Traefik integration with Jaeger/Zipkin, Prometheus, Grafana, and FluentD. Also covered is Traefik for Python-based services and Java-based services deployed in the Kubernetes cluster. By the end of the book, you will confidently know how to deploy and integrate Traefik into prominent microservices ecosystems. What You Will Learn Understand Traefik basics and its components Explore different load balancing scenarios and TLS termination Configure service discovery, circuit breakers, timeouts, and throttling Monitor Traefik using Prometheus and request tracing Who This Book Is For Developers and project managers who have developed microservices and are deploying them in cloud and on-premise environments with Kubernetes or Docker. The book is not specifically written for any particular programming language. The examples presented use Java or Python.

Build real-world Artificial Intelligence applications with Python to intelligently interact with the world around you About This Book Step into the amazing world of intelligent apps using this comprehensive guide Enter the world of Artificial Intelligence, explore it, and create your own applica-

tions Work through simple yet insightful examples that will get you up and running with Artificial Intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world Artificial Intelligence applications. This book is friendly to Python beginners, but being familiar with Python would be useful to play around with the code. It will also be useful for experienced Python programmers who are looking to use Artificial Intelligence techniques in their existing technology stacks. What You Will Learn Realize different classification and regression techniques Understand the concept of clustering and how to use it to automatically segment data See how to build an intelligent recommender system Understand logic programming and how to use it Build automatic speech recognition systems Understand the basics of heuristic search and genetic programming Develop games using Artificial Intelligence Learn how reinforcement learning works Discover how to build intelligent applications centered on images, text, and time series data See how to use deep learning algorithms and build applications based on it In Detail Artificial Intelligence is becoming increasingly relevant in the modern world where everything is driven by technology and data. It is used extensively across many fields such as search engines, image recognition, robotics, finance, and so on. We will explore various real-world scenarios in this book and you'll learn about various algorithms that can be used to build Artificial Intelligence applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of Artificial Intelligence, you will learn how to develop various building blocks using different data mining techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an intelligence layer to any application that's based on images, text, stock market, or some other form of data, this exciting book on Artificial Intelligence will definitely be your guide! Style and approach This highly practical book will show you how to implement Artificial Intelligence. The book provides multiple examples enabling you to create smart applications to meet the needs of your organization. In every chapter, we explain an algorithm, implement it, and then build a smart application.

Deep learning is the most interesting and powerful machine learning technique right now. Top deep learning libraries are available on the Python ecosystem like Theano and TensorFlow. Tap into their power in a few lines of code using Keras, the best-of-breed applied deep learning library. In this Ebook, learn exactly how to get started and apply deep learning to your own machine learning projects.

This IBM Redpaper publication presents and positions the DS8910F Model 993 storage system. This modular system can be integrated into a 16U contiguous space of an IBM z15TM model T02 or IBM z14@ Model ZR1 with Feature Code 0937 and IBM LinuxONE III model LT2 or LinuxONE Rockhopper II model LR1 with Feature Code 0938. The DS8910F Model 993 allows you to take advantage of the performance boost of all-flash systems and advanced features while limiting data center footprint and power infrastructure requirements.

Reviews the current state of knowledge of neutrino masses and the related question of neutrino oscillations. After an overview of the theory of neutrino masses and mixings, detailed accounts are given of the laboratory limits on neutrino masses, astrophysical and cosmological constraints on those masses, experimental results on neutrino oscillations, the theoretical interpretation of those results, and theoretical models of neutrino masses and mixings. The book concludes with an examination of the potential of long-baseline experiments. This is an essential reference text for workers in elementary-particle physics, nuclear physics, and astrophysics.

The book provides an application-oriented overview of functional analysis, with extended and accessible presentations of key concepts such as spline basis functions, data smoothing, curve registration, functional linear models and dynamic systems Functional data analysis is put to work in a wide a range of applications, so that new problems are likely to find close analogues in this book The code in R and Matlab in the book has been designed to permit easy modification to adapt to new data structures and research problems

Secure Your Wireless Networks the Hacking Exposed Way Defend against the latest pervasive and devastating wireless attacks using the tactical security information contained in this comprehensive volume. Hacking Exposed Wireless reveals how hackers zero in on susceptible networks and peripherals, gain access, and execute debilitating attacks. Find out how to plug security holes in Wi-Fi/802.11 and Bluetooth systems and devices. You'll also learn how to launch wireless exploits from Metasploit, employ bulletproof authentication and encryption, and sidestep insecure wireless hotspots. The book includes vital details on new, previously unpublished attacks alongside real-world countermeasures. Understand the concepts behind RF electronics, Wi-Fi/802.11, and Blue-

tooth Find out how hackers use NetStumbler, WiSPY, Kismet, KisMAC, and AiroPeek to target vulnerable wireless networks Defend against WEP key brute-force, aircrack, and traffic injection hacks Crack WEP at new speeds using Field Programmable Gate Arrays or your spare PS3 CPU cycles Prevent rogue AP and certificate authentication attacks Perform packet injection from Linux Launch DoS attacks using device driver-independent tools Exploit wireless device drivers using the Metasploit 3.0 Framework Identify and avoid malicious hotspots Deploy WPA/802.11i authentication and encryption using PEAP, FreeRADIUS, and WPA pre-shared keys

Written for statisticians, computer scientists, geographers, research and applied scientists, and others interested in visualizing data, this book presents a unique foundation for producing almost every quantitative graphic found in scientific journals, newspapers, statistical packages, and data visualization systems. It was designed for a distributed computing environment, with special attention given to conserving computer code and system resources. While the tangible result of this work is a Java production graphics library, the text focuses on the deep structures involved in producing quantitative graphics from data. It investigates the rules that underlie pie charts, bar charts, scatterplots, function plots, maps, mosaics, and radar charts. These rules are abstracted from the work of Bertin, Cleveland, Kosslyn, MacEachren, Pinker, Tufte, Tukey, Tobler, and other theorists of quantitative graphics.

Learn how to build dynamic web applications with Express, a key component of the Node/JavaScript development stack. In this hands-on guide, author Ethan Brown teaches you the fundamentals through the development of a fictional application that exposes a public website and a RESTful API. You'll also learn web architecture best practices to help you build single-page, multi-page, and hybrid web apps with Express. Express strikes a balance between a robust framework and no framework at all, allowing you a free hand in your architecture choices. With this book, frontend and backend engineers familiar with JavaScript will discover new ways of looking at web development. Create webpage templating system for rendering dynamic data Dive into request and response objects, middleware, and URL routing Simulate a production environment for testing and development Focus on persistence with document databases, particularly MongoDB Make your resources available to other programs with RESTful APIs Build secure apps with authentication, authorization, and HTTPS Integrate with social media, geolocation, and other third-party services Implement a plan for launching and maintaining your app Learn critical debugging skills This book covers Express 4.0.

Deep learning neural networks have become easy to define and fit, but are still hard to configure. Discover exactly how to improve the performance of deep learning neural network models on your predictive modeling projects. With clear explanations, standard Python libraries, and step-by-step tutorial lessons, you'll discover how to better train your models, reduce overfitting, and make more accurate predictions.

Alan Cooper calls for a Software Revolution - his best-selling book now in trade paperback with new foreword and afterword.

This book comprehensively describes an end-to-end Internet of Things (IoT) architecture that is comprised of devices, network, compute, storage, platform, applications along with management and security components. It is organized into five main parts, comprising of a total of 11 chapters. Part I presents a generic IoT reference model to establish a common vocabulary for IoT solutions. This includes a detailed description of the Internet protocol layers and the Things (sensors and actuators) as well as the key business drivers to realize the IoT vision. Part II focuses on the IoT requirements that impact networking protocols and provides a layer-by-layer walkthrough of the protocol stack with emphasis on industry progress and key gaps. Part III introduces the concept of Fog computing and describes the drivers for the technology, its constituent elements, and how it relates and differs from Cloud computing. Part IV discusses the IoT services platform, the cornerstone of the solution followed by the Security functions and requirements. Finally, Part V provides a treatment of the topic of connected ecosystems in IoT along with practical applications. It then surveys the latest IoT standards and discusses the pivotal role of open source in IoT. "Faculty will find well-crafted questions and answers at the end of each chapter, suitable for review and in classroom discussion topics. In addition, the material in the book can be used by engineers and technical leaders looking to gain a deep technical understanding of IoT, as well as by managers and business leaders looking to gain a competitive edge and understand innovation opportunities for the future." Dr. Jim Spohrer, IBM "This text provides a very compelling study of the IoT space and achieves a very good balance between engineering/technology focus and business context. As

such, it is highly-recommended for anyone interested in this rapidly-expanding field and will have broad appeal to a wide cross-section of readers, i.e., including engineering professionals, business analysts, university students, and professors." Professor Nasir Ghani, University of South Florida The Fortran 2003 Handbook is a definitive and comprehensive guide to Fortran 2003 and its use. Fortran 2003, the latest standard version of Fortran, has many excellent features that assist the programmer in writing efficient, portable and maintainable programs. This all-inclusive volume offers a reader-friendly, easy-to-follow and informal description of Fortran 2003, and has been developed to provide not only a readable explanation of features, but also some rationale for the inclusion of features and their use. This highly versatile handbook is intended for anyone who wants a comprehensive survey of Fortran 2003.

This book highlights the many and varied catalytic activities of O2-dependent heme-iron enzymes, including monooxygenases and cytochrome P450, dioxygenases, oxidases and model heme systems required for postgraduate students and researchers in biochemistry and metallobiology. Created for developers of all skill levels to find the essentials of common operations combined with the fastest reference guide for writing code. This handy 6 page laminated guide is a concise desk-top reference to key concepts behind Python logic, syntax, and operation. Expertly written to concisely cover the planning of a program written in Python, assigning your first variables, importing other libraries, formatting output strings, and creating classes. Beginning students or seasoned programmers will find this tool a perfect go-to for reference to those core concepts. This unbeatable value makes it easy to add this reference to your programmer's toolbox. 6 page laminated guide includes: Working with Python Using Python Code Importing Modules Scope (Indentation) Naming Conventions Reserved Keywords Comments Writing Code Basics Making Variables Types Console Error Handling Saving & Loading Files Coding Structures Math Operators (int, float & complex) List Operations (list, tuple & dict) Strings Statements Functions Dictionaries Using Structures String Formatting String Methods Escape Sequences Bool Characters Writing Boolean Statements Recursion & Iteration Classes Coding Concepts Inheritance Generators Polymorphism Lambda Expressions

Build your own secret laboratory with 30 coding and electronic projects! The BBC micro:bit is a tiny, cheap, yet surprisingly powerful computer that you can use to build cool things and experiment with code. The 30 simple projects and experiments in this book will show you how to use the micro:bit to build a secret science lab complete with robots, door alarms, lie detectors, and more--as you learn basic coding and electronics skills. Here are just some of the projects you'll build: A "light guitar" you can play just by moving your fingers A working lie detector A self-watering plant care system A two-wheeled robot A talking robotic head with moving eyes A door alarm made with magnets Learn to code like a Mad Scientist!

Have you ever wanted to learn computer programming but were afraid it would be too difficult for you? Or perhaps you already know other programming languages, and are now interested in learning C#. C# is part of the .Net framework and is intended to be a simple general-purpose programming language that can be used to develop different types of applications, including console, windows, web and mobile apps.

Data pipelines are the foundation for success in data analytics. Moving data from numerous diverse sources and transforming it to provide context is the difference between having data and actually gaining value from it. This pocket reference defines data pipelines and explains how they work in today's modern data stack. You'll learn common considerations and key decision points when implementing pipelines, such as batch versus streaming data ingestion and build versus buy. This book addresses the most common decisions made by data professionals and discusses foundational concepts that apply to open source frameworks, commercial products, and homegrown solutions. You'll learn: What a data pipeline is and how it works How data is moved and processed on modern data infrastructure, including cloud platforms Common tools and products used by data engineers to build pipelines How pipelines support analytics and reporting needs Considerations for pipeline maintenance, testing, and alerting

You must understand the algorithms to get good (and be recognized as being good) at machine learning. In this Ebook, finally cut through the math and learn exactly how machine learning algorithms work, then implement them from scratch, step-by-step.

Unlock deeper insights into Machine Learning with this vital guide to cutting-edge predictive analytics About This Book Leverage Python's most powerful open-source libraries for deep learning, data wrangling, and data visualization Learn effective strategies and best practices to improve and optimize machine learning systems and algorithms Ask - and answer - tough questions of your data

with robust statistical models, built for a range of datasets Who This Book Is For If you want to find out how to use Python to start answering critical questions of your data, pick up Python Machine Learning - whether you want to get started from scratch or want to extend your data science knowledge, this is an essential and unmissable resource. What You Will Learn Explore how to use different machine learning models to ask different questions of your data Learn how to build neural networks using Keras and Theano Find out how to write clean and elegant Python code that will optimize the strength of your algorithms Discover how to embed your machine learning model in a web application for increased accessibility Predict continuous target outcomes using regression analysis Uncover hidden patterns and structures in data with clustering Organize data using effective pre-processing techniques Get to grips with sentiment analysis to delve deeper into textual and social media data In Detail Machine learning and predictive analytics are transforming the way businesses and other organizations operate. Being able to understand trends and patterns in complex data is critical to success, becoming one of the key strategies for unlocking growth in a challenging contemporary marketplace. Python can help you deliver key insights into your data - its unique capabilities as a language let you build sophisticated algorithms and statistical models that can reveal new perspectives and answer key questions that are vital for success. Python Machine Learning gives you access to the world of predictive analytics and demonstrates why Python is one of the world's leading data science languages. If you want to ask better questions of data, or need to improve and extend the capabilities of your machine learning systems, this practical data science book is invaluable. Covering a wide range of powerful Python libraries, including scikit-learn, Theano, and Keras, and featuring guidance and tips on everything from sentiment analysis to neural networks, you'll soon be able to answer some of the most important questions facing you and your organization. Style and approach Python Machine Learning connects the fundamental theoretical principles behind machine learning to their practical application in a way that focuses you on asking and answering the right questions. It walks you through the key elements of Python and its powerful machine learning libraries, while demonstrating how to get to grips with a range of statistical models.

Build dynamic, data-driven websites and modern web applications with Flask About This Book Discover the most popular Flask resources on the web with ease Familiarize yourself with third-party libraries commonly used with Flask Create a fast, interactive, and secure web app with this hands-on guide Who This Book Is For This book is for anyone who wants to develop their knowledge of Python into something that can be used on the web. Flask follows the Python design principles and can be easily understood by anyone who knows Python, and even by those who do not. What You Will Learn Create your web pages to add modularity and flexibility to your web app using templates Store and retrieve relational data using SQLAlchemy Develop schema migrations with Alembic Produce an admin section using flask-admin Build RESTful APIs using Flask-Restless Simulate requests and sessions using the Flask test client Make Ajax requests from Jinja2 templates In Detail Flask is a small and powerful web development framework for Python. It does not presume or force a developer to use a particular tool or library. Flask supports extensions that can add application features as if they were implemented in Flask itself. Flask's main task is to build web applications quickly and with less code. With its lightweight and efficient web development framework, Flask combines rapid development and clean, simple design. This book will take you through the basics of learning how to apply your knowledge of Python to the web. Starting with the creation of a "Hello world" Flask app, you will be introduced to the most common Flask APIs and Flask's interactive debugger. You will learn how to store and retrieve blog posts from a relational database using an ORM and also to map URLs to views. Furthermore, you will walk through template blocks, inheritance, file uploads, and static assets. You will learn to authenticate users, build log in/log out functionality, and add an administrative dashboard for the blog. Moving on, you will discover how to make Ajax requests from the template and see how the Mock library can simplify testing complex interactions. Finally, you will learn to deploy Flask applications securely and in an automated, repeatable manner, and explore some of the most popular Flask resources on the web. Style and approach A comprehensive guide packed with real-world examples and popular use cases; starting with basic overviews and diving into the practical aspects of Flask Framework.

Presents a guide for beginners on the fundamentals of computer programming using the Python language.

This book introduces machine learning methods in finance. It presents a unified treatment of machine learning and various statistical and computational disciplines in quantitative finance, such as financial econometrics and discrete time stochastic control, with an emphasis on how theory and

hypothesis tests inform the choice of algorithm for financial data modeling and decision making. With the trend towards increasing computational resources and larger datasets, machine learning has grown into an important skillset for the finance industry. This book is written for advanced graduate students and academics in financial econometrics, mathematical finance and applied statistics, in addition to quants and data scientists in the field of quantitative finance. Machine Learning in Finance: From Theory to Practice is divided into three parts, each part covering theory and appli-

cations. The first presents supervised learning for cross-sectional data from both a Bayesian and frequentist perspective. The more advanced material places a firm emphasis on neural networks, including deep learning, as well as Gaussian processes, with examples in investment management and derivative modeling. The second part presents supervised learning for time series data, arguably the most common data type used in finance with examples in trading, stochastic volatility and fixed income modeling. Finally, the third part presents reinforcement learning and its applications in trading, investment and wealth management. Python code examples are provided to sup-

port the readers' understanding of the methodologies and applications. The book also includes more than 80 mathematical and programming exercises, with worked solutions available to instructors. As a bridge to research in this emergent field, the final chapter presents the frontiers of machine learning in finance from a researcher's perspective, highlighting how many well-known concepts in statistical physics are likely to emerge as important methodologies for machine learning in finance.