

Dive Into Python

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Python Cookbook - David Beazley 2013-05-10

If you need help writing programs in Python 3, or want to update older Python 2 code, this book is just the ticket. Packed with practical recipes written and tested with Python 3.3, this unique cookbook is for experienced Python programmers who want to focus on modern tools and idioms. Inside, you'll find complete recipes for more than a dozen topics, covering the core Python language as well as tasks common to a wide variety of application domains. Each recipe contains code samples you can use in your projects right away, along with a discussion about how and why the solution works. Topics include: Data Structures and Algorithms Strings and Text Numbers, Dates, and Times Iterators and Generators Files and I/O Data Encoding and Processing Functions Classes and Objects Metaprogramming Modules and Packages Network and Web Programming Concurrency Utility Scripting and System Administration Testing, Debugging, and Exceptions C Extensions

Python Scripting for Computational Science - Hans Petter Langtangen 2013-03-14

Scripting with Python makes you productive and increases the reliability of your scientific work. Here, the author teaches you how to develop tailored, flexible, and efficient working environments built from small programs (scripts) written in Python. The focus is on examples and applications of relevance to computational science: gluing existing applications and tools, e.g. for automating simulation, data analysis, and visualization; steering simulations and computational experiments; equipping programs with graphical user interfaces; making computational Web services; creating interactive interfaces with a Maple/Matlab-like syntax to numerical applications in C/C++ or Fortran; and building flexible object-oriented programming interfaces to existing C/C++ or Fortran libraries.

Mathematics for Machine Learning - Marc Peter Deisenroth 2020-04-23

The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression, principal component analysis, Gaussian mixture models and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding. Programming tutorials are offered on the book's web site.

Data Science from Scratch - Joel Grus 2015-04-14

Data science libraries, frameworks, modules, and toolkits are great for doing data science, but they're also a good way to dive into the discipline without actually understanding data science. In this book, you'll learn how many of the most fundamental data science tools and algorithms

work by implementing them from scratch. If you have an aptitude for mathematics and some programming skills, author Joel Grus will help you get comfortable with the math and statistics at the core of data science, and with hacking skills you need to get started as a data scientist. Today's messy glut of data holds answers to questions no one's even thought to ask. This book provides you with the know-how to dig those answers out. Get a crash course in Python Learn the basics of linear algebra, statistics, and probability—and understand how and when they're used in data science Collect, explore, clean, munge, and manipulate data Dive into the fundamentals of machine learning Implement models such as k-nearest Neighbors, Naive Bayes, linear and logistic regression, decision trees, neural networks, and clustering Explore recommender systems, natural language processing, network analysis, MapReduce, and databases

Programming with MicroPython - Nicholas H. Tollervey 2017-09-25

It's an exciting time to get involved with MicroPython, the re-implementation of Python 3 for microcontrollers and embedded systems. This practical guide delivers the knowledge you need to roll up your sleeves and create exceptional embedded projects with this lean and efficient programming language. If you're familiar with Python as a programmer, educator, or maker, you're ready to learn—and have fun along the way. Author Nicholas Tollervey takes you on a journey from first steps to advanced projects. You'll explore the types of devices that run MicroPython, and examine how the language uses and interacts with hardware to process input, connect to the outside world, communicate wirelessly, make sounds and music, and drive robotics projects. Work with MicroPython on four typical devices: PyBoard, the micro:bit, Adafruit's Circuit Playground Express, and ESP8266/ESP32 boards Explore a framework that helps you generate, evaluate, and evolve embedded projects that solve real problems Dive into practical MicroPython examples: visual feedback, input and sensing, GPIO, networking, sound and music, and robotics Learn how idiomatic MicroPython helps you express a lot with the minimum of resources Take the next step by getting involved with the Python community *Learning Python* - Mark Lutz 2009-10-06

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

Learning Python - Mark Lutz 2013-06-12

Get a comprehensive, in-depth introduction to the core Python language with this hands-on book. Based on author Mark Lutz's popular training course, this updated fifth edition will help you quickly write efficient, high-quality code with Python. It's an ideal way to begin, whether you're new to programming or a professional developer versed in other languages. Complete with quizzes, exercises, and helpful illustrations, this easy-to-follow, self-paced tutorial gets you started with both Python 2.7 and 3.3—the latest releases in the 3.X and 2.X lines—plus all other releases in common use today. You'll also learn some advanced language features that recently have become more common in Python code. Explore Python's major built-in object types such as numbers, lists, and dictionaries Create and process objects with Python statements, and learn Python's general syntax model Use functions to avoid code redundancy and package code for reuse Organize statements, functions, and other tools into larger components with modules Dive into classes: Python's object-oriented programming tool for structuring code Write large programs with Python's exception-handling model and development tools Learn advanced Python tools, including decorators, descriptors, metaclasses, and Unicode processing

Effective Python - Brett Slatkin 2015

Effective Python will help students harness the full power of Python to write exceptionally robust, efficient, maintainable, and well-performing code. Utilizing the concise, scenario-driven style pioneered in Scott Meyers's best-selling Effective C++, Brett Slatkin brings together 53 Python best practices, tips, shortcuts, and realistic code examples from expert programmers. Each section contains specific, actionable guidelines organized into items, each with carefully worded advice supported by detailed technical arguments and illuminating examples.

Programming in Python 3 - Mark Summerfield 2008-12-16

Python 3 is the best version of the language yet: It is more powerful, convenient, consistent, and expressive than ever before. Now, leading Python programmer Mark Summerfield demonstrates how to write code that takes full advantage of Python 3's features and idioms. The first book written from a completely "Python 3" viewpoint, *Programming in Python 3* brings together all the knowledge you need to write any program, use any standard or third-party Python 3 library, and create new library modules of your own. Summerfield draws on his many years of Python experience to share deep insights into Python 3 development you won't find anywhere else. He begins by illuminating Python's "beautiful heart": the eight key elements of Python you need to write robust, high-performance programs. Building on these core elements, he introduces new topics designed to strengthen your practical expertise—one concept and hands-on example at a time. This book's coverage includes Developing in Python using procedural, object-oriented, and functional programming paradigms Creating custom packages and modules Writing and reading binary, text, and XML files, including optional compression, random access, and text and XML parsing Leveraging advanced data types, collections, control structures, and functions Spreading program workloads across multiple processes and threads Programming SQL databases and key-value DBM files Utilizing Python's regular expression mini-language and module Building usable, efficient, GUI-based applications Advanced programming techniques, including generators, function and class decorators, context managers, descriptors, abstract base classes, metaclasses, and more *Programming in Python 3* serves as both tutorial and language reference, and it is accompanied by extensive downloadable example code—all of it tested with the final version of Python 3 on Windows, Linux, and Mac OS X.

Dive Into Python - Mark Pilgrim 2004-11-05

* Quick start to learning python—very example oriented approach * Book has its own Web site established by the author: <http://diveintopython.org/> Author is well known in the Open Source community and the book has a unique quick approach to learning an object oriented language.

Dive Into Deep Learning - Joanne Quinn 2019-07-15

The leading experts in system change and learning, with their school-based partners around the world, have created this essential companion to their runaway best-seller, *Deep Learning: Engage the World Change the World*. This hands-on guide provides a roadmap for building capacity in teachers, schools, districts, and systems to design deep learning, measure progress, and assess conditions needed to activate and sustain innovation. *Dive Into Deep Learning: Tools for Engagement* is rich with resources educators need to construct and drive meaningful deep learning experiences in order to develop the kind of mindset and know-how that is crucial to becoming a problem-solving change agent in our global society. Designed in full color, this easy-to-use guide is loaded with tools, tips, protocols, and real-world examples. It includes: • A framework for deep learning that provides a pathway to develop the six global competencies needed to flourish in a complex world — character, citizenship, collaboration, communication, creativity, and critical thinking. • Learning progressions to help educators analyze student work and measure progress. • Learning design rubrics, templates and examples for incorporating the four elements of learning design: learning partnerships, pedagogical practices, learning environments, and leveraging digital. • Conditions rubrics, teacher self-assessment tools, and planning guides to help educators build, mobilize, and sustain deep learning in schools and districts. Learn about, improve, and expand your world of learning. Put the joy back into learning for students and adults alike. Dive into deep learning to create learning experiences that give purpose, unleash student potential, and transform not only learning, but life itself.

Machine Learning with Python Cookbook - Chris Albon 2018-03-09

This practical guide provides nearly 200 self-contained recipes to help you solve machine learning challenges you may encounter in your daily work. If you're comfortable with Python and its libraries, including pandas and scikit-learn, you'll be able to address specific problems such as loading data, handling text or numerical data, model selection, and dimensionality reduction and many other topics. Each recipe includes code that you can copy and paste into a toy dataset to ensure that it actually works. From there, you can insert, combine, or adapt the code to help construct your application. Recipes also include a discussion that explains the solution and provides meaningful context. This cookbook takes you beyond theory and concepts by providing the nuts and bolts you need to construct working machine learning applications. You'll find recipes for: Vectors, matrices, and arrays Handling numerical and categorical data, text, images, and dates and times Dimensionality reduction using feature extraction or feature selection Model evaluation and selection Linear and logical regression, trees and forests, and k-nearest neighbors Support vector machines (SVM), naïve Bayes, clustering, and neural networks Saving and loading trained models

Python Basics - Dan Bader 2021-03-16

Make the Leap From Beginner to Intermediate in Python... *Python Basics: A Practical Introduction to Python 3 Your Complete Python Curriculum-With Exercises, Interactive Quizzes, and Sample Projects* What should you learn about Python in the beginning to get a strong foundation? With *Python Basics*, you'll not only cover the core concepts you really need to know, but you'll also learn them in the most efficient order with the help of practical exercises and interactive quizzes. You'll know enough to be dangerous with Python, fast! Who Should Read This Book If you're new to Python, you'll get a practical, step-by-step roadmap on developing your foundational skills. You'll be introduced to each concept and language feature in a logical order. Every step in this curriculum is explained and illustrated with short, clear code samples. Our goal with this book is to educate, not to impress or intimidate. If you're familiar with some basic programming concepts, you'll get a clear and well-tested introduction to Python. This is a practical introduction to Python that jumps right into the meat and potatoes without sacrificing substance. If you have prior experience with languages like VBA, PowerShell, R, Perl, C, C++, C#, Java, or Swift the numerous exercises within each chapter will fast-track your progress. If you're a seasoned developer, you'll get a Python 3 crash course that brings you up to speed with

modern Python programming. Mix and match the chapters that interest you the most and use the interactive quizzes and review exercises to check your learning progress as you go along. If you're a self-starter completely new to coding, you'll get practical and motivating examples. You'll begin by installing Python and setting up a coding environment on your computer from scratch, and then continue from there. We'll get you coding right away so that you become competent and knowledgeable enough to solve real-world problems, fast. Develop a passion for programming by solving interesting problems with Python every day! If you're looking to break into a coding or data-science career, you'll pick up the practical foundations with this book. We won't just dump a boat load of theoretical information on you so you can "sink or swim"-instead you'll learn from hands-on, practical examples one step at a time. Each concept is broken down for you so you'll always know what you can do with it in practical terms. If you're interested in teaching others "how to Python," this will be your guidebook. If you're looking to stoke the coding flame in your coworkers, kids, or relatives-use our material to teach them. All the sequencing has been done for you so you'll always know what to cover next and how to explain it. What Python Developers Say About The Book: "Go forth and learn this amazing language using this great book." - Michael Kennedy, Talk Python "The wording is casual, easy to understand, and makes the information flow well." - Thomas Wong, Pythonista "I floundered for a long time trying to teach myself. I slogged through dozens of incomplete online tutorials. I snoozed through hours of boring screencasts. I gave up on countless cruffy books from big-time publishers. And then I found Real Python. The easy-to-follow, step-by-step instructions break the big concepts down into bite-sized chunks written in plain English. The authors never forget their audience and are consistently thorough and detailed in their explanations. I'm up and running now, but I constantly refer to the material for guidance." - Jared Nielsen, Pythonista

Thinking in Pandas - Hannah Stepanek 2020-06-05
Understand and implement big data analysis solutions in pandas with an emphasis on performance. This book strengthens your intuition for working with pandas, the Python data analysis library, by exploring its underlying implementation and data structures. Thinking in Pandas introduces the topic of big data and demonstrates concepts by looking at exciting and impactful projects that pandas helped to solve. From there, you will learn to assess your own projects by size and type to see if pandas is the appropriate library for your needs. Author Hannah Stepanek explains how to load and normalize data in pandas efficiently, and reviews some of the most commonly used loaders and several of their most powerful options. You will then learn how to access and transform data efficiently, what methods to avoid, and when to employ more advanced performance techniques. You will also go over basic data access and munging in pandas and the intuitive dictionary syntax. Choosing the right DataFrame format, working with multi-level DataFrames, and how pandas might be improved upon in the future are also covered. By the end of the book, you will have a solid understanding of how the pandas library works under the hood. Get ready to make confident decisions in your own projects by utilizing pandas—the right way. What You Will Learn Understand the underlying data structure of pandas and why it performs the way it does under certain circumstances Discover how to use pandas to extract, transform, and load data correctly with an emphasis on performance Choose the right DataFrame so that the data analysis is simple and efficient. Improve performance of pandas operations with other Python libraries Who This Book Is For Software engineers with basic programming skills in Python keen on using pandas for a big data analysis project. Python software developers interested in big data.

Beginning Python - Magnus Lie Hetland 2006-11-07

* Totalling 900 pages and covering all of the topics important to new and intermediate users, Beginning Python is intended to be the most comprehensive book on the Python ever written. * The 15 sample projects in Beginning Python are attractive to novice programmers interested in learning by creating applications of timely interest, such as a P2P file-sharing application, Web-based bulletin-board, and an arcade game similar to the classic Space Invaders. * The author

Magnus Lie Hetland, PhD, is author of Apress' well-received 2002 title, Practical Python, ISBN: 1-59059-006-6. He's also author of the popular online guide, Instant Python Hacking (<http://www.hetland.org>), from which both Practical Python and Beginning Python are based. *Dive Into Python* - Mark Pilgrim 2014-01-15

The Rust Programming Language (Covers Rust 2018) - Steve Klabnik 2019-09-03

The official book on the Rust programming language, written by the Rust development team at the Mozilla Foundation, fully updated for Rust 2018. The Rust Programming Language is the official book on Rust: an open source systems programming language that helps you write faster, more reliable software. Rust offers control over low-level details (such as memory usage) in combination with high-level ergonomics, eliminating the hassle traditionally associated with low-level languages. The authors of The Rust Programming Language, members of the Rust Core Team, share their knowledge and experience to show you how to take full advantage of Rust's features--from installation to creating robust and scalable programs. You'll begin with basics like creating functions, choosing data types, and binding variables and then move on to more advanced concepts, such as: • Ownership and borrowing, lifetimes, and traits • Using Rust's memory safety guarantees to build fast, safe programs • Testing, error handling, and effective refactoring • Generics, smart pointers, multithreading, trait objects, and advanced pattern matching • Using Cargo, Rust's built-in package manager, to build, test, and document your code and manage dependencies • How best to use Rust's advanced compiler with compiler-led programming techniques You'll find plenty of code examples throughout the book, as well as three chapters dedicated to building complete projects to test your learning: a number guessing game, a Rust implementation of a command line tool, and a multithreaded server. New to this edition: An extended section on Rust macros, an expanded chapter on modules, and appendixes on Rust development tools and editions.

Dive Into Python 3 - Mark Pilgrim 2009-11-06

Mark Pilgrim's Dive Into Python 3 is a hands-on guide to Python 3 and its differences from Python 2. As in the original book, Dive Into Python, each chapter starts with a real, complete code sample, proceeds to pick it apart and explain the pieces, and then puts it all back together in a summary at the end. This book includes: Example programs completely rewritten to illustrate powerful new concepts now available in Python 3: sets, iterators, generators, closures, comprehensions, and much more A detailed case study of porting a major library from Python 2 to Python 3 A comprehensive appendix of all the syntactic and semantic changes in Python 3 This is the perfect resource for you if you need to port applications to Python 3, or if you like to jump into languages fast and get going right away.

The Quick Python Book - Vernon L. Ceder 2010

Introduces the programming language's syntax, control flow, and basic data structures and covers its interaction with applications and management of large collections of code.

Fast Python - Chris Conlan 2020-05-31

Fast Python aggressively rehashes the basics of Python programming in order to dispel myths and misconceptions about how to write fast code. Readers equipped with the lessons from this book will be able to test, diagnose, and optimize out performance bottlenecks in their own work. For each algorithm discussed, readers will walk through numerous progressively faster methods of programming it, all while picking up bits of fundamental knowledge about time complexity, memory efficiency, data structures, multi-threading, and vectorization. As such, this book is relevant to veterans looking refresh their methods and to computer science students navigating Algorithms 101. This book maintains a high standard of reproducibility. All of the graphics, tables, and code profiles contained in this book are fully reproducible and available to anyone in a public GitHub repository.

HTML5: Up and Running - Mark Pilgrim 2010-08-06

If you don't know about the new features available in HTML5, now's the time to find out. This

book provides practical information about how and why the latest version of this markup language will significantly change the way you develop for the Web. HTML5 is still evolving, yet browsers such as Safari, Mozilla, Opera, and Chrome already support many of its features -- and mobile browsers are even farther ahead. HTML5: Up & Running carefully guides you through the important changes in this version with lots of hands-on examples, including markup, graphics, and screenshots. You'll learn how to use HTML5 markup to add video, offline capabilities, and more -- and you'll be able to put that functionality to work right away. Learn new semantic elements, such as `<video>`, `<canvas>`, and Meet Canvas, a 2D drawing surface you can program with JavaScript Embed video in your web pages without third-party plugins Use Geolocation to let web application visitors share their physical location Take advantage of local storage capacity that goes way beyond cookies Build offline web applications that work after network access is disconnected Learn about several new input types for web forms Create your own custom vocabularies in HTML5 with microdata

Dive Into Python - Mark Pilgrim 2004-07-12

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Test-Driven Development with Python - Harry Percival 2017-08-02

By taking you through the development of a real web application from beginning to end, the second edition of this hands-on guide demonstrates the practical advantages of test-driven development (TDD) with Python. You'll learn how to write and run tests before building each part of your app, and then develop the minimum amount of code required to pass those tests. The result? Clean code that works. In the process, you'll learn the basics of Django, Selenium, Git, jQuery, and Mock, along with current web development techniques. If you're ready to take your Python skills to the next level, this book—updated for Python 3.6—clearly demonstrates how TDD encourages simple designs and inspires confidence. Dive into the TDD workflow, including the unit test/code cycle and refactoring Use unit tests for classes and functions, and functional tests for user interactions within the browser Learn when and how to use mock objects, and the pros and cons of isolated vs. integrated tests Test and automate your deployments with a staging server Apply tests to the third-party plugins you integrate into your site Run tests automatically by using a Continuous Integration environment Use TDD to build a REST API with a front-end Ajax interface

Earth Observation Using Python - Rebekah B. Esmaili 2021-08-24

Learn basic Python programming to create functional and effective visualizations from earth observation satellite data sets Thousands of satellite datasets are freely available online, but scientists need the right tools to efficiently analyze data and share results. Python has easy-to-learn syntax and thousands of libraries to perform common Earth science programming tasks. Earth Observation Using Python: A Practical Programming Guide presents an example-driven collection of basic methods, applications, and visualizations to process satellite data sets for Earth science research. Gain Python fluency using real data and case studies Read and write common scientific data formats, like netCDF, HDF, and GRIB2 Create 3-dimensional maps of dust, fire, vegetation indices and more Learn to adjust satellite imagery resolution, apply quality control, and handle big files Develop useful workflows and learn to share code using version control Acquire skills using online interactive code available for all examples in the book The American Geophysical Union promotes discovery in Earth and space science for the benefit of humanity. Its publications disseminate scientific knowledge and provide resources for researchers, students, and professionals. Find out more about this book from this Q&A with the Author

Learn Python 3 the Hard Way - Zed A. Shaw 2017-06-26

You Will Learn Python 3! Zed Shaw has perfected the world's best system for learning Python 3. Follow it and you will succeed—just like the millions of beginners Zed has taught to date! You

bring the discipline, commitment, and persistence; the author supplies everything else. In Learn Python 3 the Hard Way, you'll learn Python by working through 52 brilliantly crafted exercises. Read them. Type their code precisely. (No copying and pasting!) Fix your mistakes. Watch the programs run. As you do, you'll learn how a computer works; what good programs look like; and how to read, write, and think about code. Zed then teaches you even more in 5+ hours of video where he shows you how to break, fix, and debug your code—live, as he's doing the exercises. Install a complete Python environment Organize and write code Fix and break code Basic mathematics Variables Strings and text Interact with users Work with files Looping and logic Data structures using lists and dictionaries Program design Object-oriented programming Inheritance and composition Modules, classes, and objects Python packaging Automated testing Basic game development Basic web development It'll be hard at first. But soon, you'll just get it—and that will feel great! This course will reward you for every minute you put into it. Soon, you'll know one of the world's most powerful, popular programming languages. You'll be a Python programmer. This Book Is Perfect For Total beginners with zero programming experience Junior developers who know one or two languages Returning professionals who haven't written code in years Seasoned professionals looking for a fast, simple, crash course in Python 3

Deep Learning for Coders with fastai and PyTorch - Jeremy Howard 2020-06-29

Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

Learn More Python 3 the Hard Way - Zed A. Shaw 2017-09-01

Transform Your Ideas into High-Quality Python Code! Zed Shaw has perfected the world's best system for becoming a truly effective Python 3.x developer. Follow it and you will succeed—just like the tens of millions of programmers he's already taught. You bring the discipline, commitment, and persistence; the author supplies everything else. In Learn Python 3 the Hard Way, Zed Shaw taught you the basics of Programming with Python 3. Now, in Learn More Python 3 the Hard Way, you'll go far beyond the basics by working through 52 brilliantly crafted projects. Each one helps you build a key practical skill, combining demos to get you started and challenges to deepen your understanding. Zed then teaches you even more in 12 hours of online videos, where he shows you how to break, fix, and debug your code. First, you'll discover how to analyze a concept, idea, or problem to implement in software. Then, step by step, you'll learn to design solutions based on your analyses and implement them as simply and elegantly as possible. Throughout, Shaw stresses process so you can get started and build momentum, creativity to solve new problems, and quality so you'll build code people can rely on. Manage complex projects with a programmer's text editor Leverage the immense power of data structures Apply algorithms to process your data structures Master indispensable text parsing and processing techniques Use SQL to efficiently and logically model stored data Learn powerful command-line tools and skills Combine multiple practices in complete projects It'll be hard at first. But soon, you'll just get it—and that will feel great! This course will reward you for every minute you put into it. Soon, you'll go beyond merely writing code that runs: you'll craft high-

quality Python code that solves real problems. You'll be a serious Python programmer. Perfect for Everyone Who's Already Started Working with Python, including Junior Developers and Seasoned Python Programmers Upgrading to Python 3.6+ Register your product at informit.com/register for convenient access to downloads, updates, and/or corrections as they become available.

Statistical Inference via Data Science: A ModernDive into R and the Tidyverse - Chester Ismay 2019-12-23

Statistical Inference via Data Science: A ModernDive into R and the Tidyverse provides a pathway for learning about statistical inference using data science tools widely used in industry, academia, and government. It introduces the tidyverse suite of R packages, including the ggplot2 package for data visualization, and the dplyr package for data wrangling. After equipping readers with just enough of these data science tools to perform effective exploratory data analyses, the book covers traditional introductory statistics topics like confidence intervals, hypothesis testing, and multiple regression modeling, while focusing on visualization throughout. Features: ● Assumes minimal prerequisites, notably, no prior calculus nor coding experience ● Motivates theory using real-world data, including all domestic flights leaving New York City in 2013, the Gapminder project, and the data journalism website, FiveThirtyEight.com ● Centers on simulation-based approaches to statistical inference rather than mathematical formulas ● Uses the infer package for "tidy" and transparent statistical inference to construct confidence intervals and conduct hypothesis tests via the bootstrap and permutation methods ● Provides all code and output embedded directly in the text; also available in the online version at moderndive.com This book is intended for individuals who would like to simultaneously start developing their data science toolbox and start learning about the inferential and modeling tools used in much of modern-day research. The book can be used in methods and data science courses and first courses in statistics, at both the undergraduate and graduate levels.

Fluent Python - Luciano Ramalho 2015-07-30

Python's simplicity lets you become productive quickly, but this often means you aren't using everything it has to offer. With this hands-on guide, you'll learn how to write effective, idiomatic Python code by leveraging its best—and possibly most neglected—features. Author Luciano Ramalho takes you through Python's core language features and libraries, and shows you how to make your code shorter, faster, and more readable at the same time. Many experienced programmers try to bend Python to fit patterns they learned from other languages, and never discover Python features outside of their experience. With this book, those Python programmers will thoroughly learn how to become proficient in Python 3. This book covers: Python data model: understand how special methods are the key to the consistent behavior of objects Data structures: take full advantage of built-in types, and understand the text vs bytes duality in the Unicode age Functions as objects: view Python functions as first-class objects, and understand how this affects popular design patterns Object-oriented idioms: build classes by learning about references, mutability, interfaces, operator overloading, and multiple inheritance Control flow: leverage context managers, generators, coroutines, and concurrency with the concurrent.futures and asyncio packages Metaprogramming: understand how properties, attribute descriptors, class decorators, and metaclasses work

Mission Python - Sean McManus 2018-10-16

Program a graphical adventure game in this hands-on, beginner-friendly introduction to coding in the Python language. Launch into coding with Mission Python, a space-themed guide to building a complete computer game in Python. You'll learn programming fundamentals like loops, strings, and lists as you build Escape!, an exciting game with a map to explore, items to collect, and tricky logic puzzles to solve. As you work through the book, you'll build exercises and mini-projects, like making a spacewalk simulator and creating an astronaut's safety checklist that will put your new Python skills to the test. You'll learn how to use Pygame Zero, a free resource that lets you add graphics and sound effects to your creations, and you'll get useful

game-making tips, such as how to design fun puzzles and intriguing maps. Before you know it, you'll have a working, awesome game to stump your friends with (and some nifty coding skills, too!). You can follow this book using a Raspberry Pi or a Microsoft Windows PC, and the 3D graphics and sound effects you need are provided as a download.

CPython Internals - Anthony Shaw 2021-05-05

Get your guided tour through the Python 3.9 interpreter: Unlock the inner workings of the Python language, compile the Python interpreter from source code, and participate in the development of CPython. Are there certain parts of Python that just seem like magic? This book explains the concepts, ideas, and technicalities of the Python interpreter in an approachable and hands-on fashion. Once you see how Python works at the interpreter level, you can optimize your applications and fully leverage the power of Python. By the End of the Book You'll Be Able To: Read and navigate the CPython 3.9 interpreter source code. You'll deeply comprehend and appreciate the inner workings of concepts like lists, dictionaries, and generators. Make changes to the Python syntax and compile your own version of CPython, from scratch. You'll customize the Python core data types with new functionality and run CPython's automated test suite. Master Python's memory management capabilities and scale your Python code with parallelism and concurrency. Debug C and Python code like a true professional. Profile and benchmark the performance of your Python code and the runtime. Participate in the development of CPython and know how to contribute to future versions of the Python interpreter and standard library. How great would it feel to give back to the community as a "Python Core Developer?" With this book you'll cover the critical concepts behind the internals of CPython and how they work with visual explanations as you go along. Each page in the book has been carefully laid out with beautiful typography, syntax highlighting for code examples. What Python Developers Say About The Book: "It's the book that I wish existed years ago when I started my Python journey. [...]" After reading this book your skills will grow and you will be able solve even more complex problems that can improve our world." - Carol Willing, CPython Core Developer & Member of the CPython Steering Council "CPython Internals is a great (and unique) resource for anybody looking to take their knowledge of Python to a deeper level." - Dan Bader, Author of Python Tricks "There are a ton of books on Python which teach the language, but I haven't really come across anything that would go about explaining the internals to those curious minded." - Milan Patel, Vice President at (a major investment bank)

Programming Computer Vision with Python - Jan Erik Solem 2012-06-19

If you want a basic understanding of computer vision's underlying theory and algorithms, this hands-on introduction is the ideal place to start. You'll learn techniques for object recognition, 3D reconstruction, stereo imaging, augmented reality, and other computer vision applications as you follow clear examples written in Python. Programming Computer Vision with Python explains computer vision in broad terms that won't bog you down in theory. You get complete code samples with explanations on how to reproduce and build upon each example, along with exercises to help you apply what you've learned. This book is ideal for students, researchers, and enthusiasts with basic programming and standard mathematical skills. Learn techniques used in robot navigation, medical image analysis, and other computer vision applications Work with image mappings and transforms, such as texture warping and panorama creation Compute 3D reconstructions from several images of the same scene Organize images based on similarity or content, using clustering methods Build efficient image retrieval techniques to search for images based on visual content Use algorithms to classify image content and recognize objects Access the popular OpenCV library through a Python interface

Pro Python - Marty Alchin 2014-12-22

You've learned the basics of Python, but how do you take your skills to the next stage? Even if you know enough to be productive, there are a number of features that can take you to the next level in Python. Pro Python, Second Edition explores concepts and features normally left to experimentation, allowing you to be even more productive and creative. In addition to pure code

concerns, Pro Python develops your programming techniques and approaches, which will help make you a better Python programmer. This book will improve not only your code but also your understanding and interaction with the many established Python communities. This book takes your Python knowledge and coding skills to the next level. It shows you how to write clean, innovative code that will be respected by your peers. With this book, make your code do more with introspection and meta-programming. And learn and later use the nuts and bolts of an application, tier-by-tier as a complex case study along the way. For more information, including a link to the source code referenced in the book, please visit <http://propython.com/>.

Mastering Python - Rick van Hattem 2016-04-29

Master the art of writing beautiful and powerful Python by using all of the features that Python 3.5 offers About This Book Become familiar with the most important and advanced parts of the Python code style Learn the trickier aspects of Python and put it in a structured context for deeper understanding of the language Offers an expert's-eye overview of how these advanced tasks fit together in Python as a whole along with practical examples Who This Book Is For Almost anyone can learn to write working script and create high quality code but they might lack a structured understanding of what it means to be 'Pythonic'. If you are a Python programmer who wants to code efficiently by getting the syntax and usage of a few intricate Python techniques exactly right, this book is for you. What You Will Learn Create a virtualenv and start a new project Understand how and when to use the functional programming paradigm Get familiar with the different ways the decorators can be written in Understand the power of generators and coroutines without digressing into lambda calculus Create metaclasses and how it makes working with Python far easier Generate HTML documentation out of documents and code using Sphinx Learn how to track and optimize application performance, both memory and cpu Use the multiprocessing library, not just locally but also across multiple machines Get a basic understanding of packaging and creating your own libraries/applications In Detail Python is a dynamic programming language. It is known for its high readability and hence it is often the first language learned by new programmers. Python being multi-paradigm, it can be used to achieve the same thing in different ways and it is compatible across different platforms. Even if you find writing Python code easy, writing code that is efficient, easy to maintain, and reuse is not so straightforward. This book is an authoritative guide that will help you learn new advanced methods in a clear and contextualised way. It starts off by creating a project-specific environment using venv, introducing you to different Pythonic syntax and common pitfalls before moving on to cover the functional features in Python. It covers how to create different decorators, generators, and metaclasses. It also introduces you to functools.wraps and coroutines and how they work. Later on you will learn to use asyncio module for asynchronous clients and servers. You will also get familiar with different testing systems such as py.test, doctest, and unittest, and debugging tools such as Python debugger and faulthandler. You will learn to optimize application performance so that it works efficiently across multiple machines and Python versions. Finally, it will teach you how to access C functions with a simple Python call. By the end of the book, you will be able to write more advanced scripts and take on bigger challenges. Style and Approach This book is a comprehensive guide that covers advanced features of the Python language, and communicate them with an authoritative understanding of the underlying rationale for how, when, and why to use them.

Serious Python - Julien Danjou 2018-12-31

An indispensable collection of practical tips and real-world advice for tackling common Python problems and taking your code to the next level. Features interviews with high-profile Python developers who share their tips, tricks, best practices, and real-world advice gleaned from years of experience. Sharpen your Python skills as you dive deep into the Python programming language with Serious Python. You'll cover a range of advanced topics like multithreading and memorization, get advice from experts on things like designing APIs and dealing with databases, and learn Python internals to help you gain a deeper understanding of the language itself.

Written for developers and experienced programmers, Serious Python brings together over 15 years of Python experience to teach you how to avoid common mistakes, write code more efficiently, and build better programs in less time. As you make your way through the book's extensive tutorials, you'll learn how to start a project and tackle topics like versioning, layouts, coding style, and automated checks. You'll learn how to package your software for distribution, optimize performance, use the right data structures, define functions efficiently, pick the right libraries, build future-proof programs, and optimize your programs down to the bytecode. You'll also learn how to: - Make and use effective decorators and methods, including abstract, static, and class methods - Employ Python for functional programming using generators, pure functions, and functional functions - Extend flake8 to work with the abstract syntax tree (AST) to introduce more sophisticated automatic checks into your programs - Apply dynamic performance analysis to identify bottlenecks in your code - Work with relational databases and effectively manage and stream data with PostgreSQL If you've been looking for a way to take your Python skills from good to great, Serious Python will help you get there. Learn from the experts and get seriously good at Python with Serious Python!

Lightweight Django - Julia Elman 2014-11-03

How can you take advantage of the Django framework to integrate complex client-side interactions and real-time features into your web applications? Through a series of rapid application development projects, this hands-on book shows experienced Django developers how to include REST APIs, WebSockets, and client-side MVC frameworks such as Backbone.js into new or existing projects. Learn how to make the most of Django's decoupled design by choosing the components you need to build the lightweight applications you want. Once you finish this book, you'll know how to build single-page applications that respond to interactions in real time. If you're familiar with Python and JavaScript, you're good to go. Learn a lightweight approach for starting a new Django project Break reusable applications into smaller services that communicate with one another Create a static, rapid prototyping site as a scaffold for websites and applications Build a REST API with django-rest-framework Learn how to use Django with the Backbone.js MVC framework Create a single-page web application on top of your REST API Integrate real-time features with WebSockets and the Tornado networking library Use the book's code-driven examples in your own projects

Dive Into Algorithms - Bradford Tuckfield 2021-01-05

Dive Into Algorithms is a broad introduction to algorithms using the Python Programming Language. Dive Into Algorithms is a wide-ranging, Pythonic tour of many of the world's most interesting algorithms. With little more than a bit of computer programming experience and basic high-school math, you'll explore standard computer science algorithms for searching, sorting, and optimization; human-based algorithms that help us determine how to catch a baseball or eat the right amount at a buffet; and advanced algorithms like ones used in machine learning and artificial intelligence. You'll even explore how ancient Egyptians and Russian peasants used algorithms to multiply numbers, how the ancient Greeks used them to find greatest common divisors, and how Japanese scholars in the age of samurai designed algorithms capable of generating magic squares. You'll explore algorithms that are useful in pure mathematics and learn how mathematical ideas can improve algorithms. You'll learn about an algorithm for generating continued fractions, one for quick calculations of square roots, and another for generating seemingly random sets of numbers. You'll also learn how to: • Use algorithms to debug code, maximize revenue, schedule tasks, and create decision trees • Measure the efficiency and speed of algorithms • Generate Voronoi diagrams for use in various geometric applications • Use algorithms to build a simple chatbot, win at board games, or solve sudoku puzzles • Write code for gradient ascent and descent algorithms that can find the maxima and minima of functions • Use simulated annealing to perform global optimization • Build a decision tree to predict happiness based on a person's characteristics Once you've finished this book you'll understand how to code and implement important algorithms as well as

how to measure and optimize their performance, all while learning the nitty-gritty details of today's most powerful algorithms.

Practical Python - Magnus Lie Hetland 2002

Dive Into Systems - Suzanne J. Matthews 2022-09-20

Dive into Systems is a vivid introduction to computer organization, architecture, and operating systems that is already being used as a classroom textbook at more than 25 universities. This textbook is a crash course in the major hardware and software components of a modern computer system. Designed for use in a wide range of introductory-level computer science classes, it guides readers through the vertical slice of a computer so they can develop an understanding of the machine at various layers of abstraction. Early chapters begin with the basics of the C programming language often used in systems programming. Other topics explore the architecture of modern computers, the inner workings of operating systems, and the assembly languages that translate human-readable instructions into a binary representation that the computer understands. Later chapters explain how to optimize code for various

architectures, how to implement parallel computing with shared memory, and how memory management works in multi-core CPUs. Accessible and easy to follow, the book uses images and hands-on exercise to break down complicated topics, including code examples that can be modified and executed.

Let Over Lambda - Doug Hoyte 2008

Let Over Lambda is one of the most hardcore computer programming books out there. Starting with the fundamentals, it describes the most advanced features of the most advanced language: Common Lisp. Only the top percentile of programmers use lisp and if you can understand this book you are in the top percentile of lisp programmers. If you are looking for a dry coding manual that re-hashes common-sense techniques in whatever langue du jour, this book is not for you. This book is about pushing the boundaries of what we know about programming. While this book teaches useful skills that can help solve your programming problems today and now, it has also been designed to be entertaining and inspiring. If you have ever wondered what lisp or even programming itself is really about, this is the book you have been looking for.