

Python 3 Object Oriented Programming Dusty Phillips

Python 3 Object-oriented Programming

Unleash the power of Python 3 objects About This Book Stop writing scripts and start architecting programs Learn the latest Python syntax and libraries A practical, hands-on tutorial that teaches you all about abstract design patterns and how to implement them in Python 3 Who This Book Is For If you're new to object-oriented programming techniques, or if you have basic Python skills and wish to learn in depth how and when to correctly apply object-oriented programming in Python to design software, this is the book for you. What You Will Learn Implement objects in Python by creating classes and defining methods Separate related objects into a taxonomy of classes and describe the properties and behaviors of those objects via the class interface Extend class functionality using inheritance Understand when to use object-oriented features, and more importantly when not to use them Discover what design patterns are and why they are different in Python Uncover the simplicity of unit testing and why it's so important in Python Grasp common concurrency techniques and pitfalls in Python 3 Exploit object-oriented programming in key Python technologies such as Kivy and Django. Object-oriented programming concurrently with asyncio In Detail Python 3 is more versatile and easier to use than ever. It runs on all major platforms in a huge array of use cases. Coding in Python minimizes development time and increases productivity in comparison to other languages. Clean, maintainable code is easy to both read and write using Python's clear, concise syntax. Object-oriented programming is a popular design paradigm in which data and behaviors are encapsulated in such a way that they can be manipulated together. Many modern programming languages utilize the powerful concepts behind object-oriented programming and Python is no exception. Starting with a detailed analysis of object-oriented analysis and design, you will use the Python programming language to clearly grasp key concepts from the object-oriented paradigm. This book fully explains classes, data encapsulation, inheritance, polymorphism, abstraction, and exceptions with an emphasis

on when you can use each principle to develop well-designed software. You'll get an in-depth analysis of many common object-oriented design patterns that are more suitable to Python's unique style. This book will not just teach Python syntax, but will also build your confidence in how to program. You will also learn how to create maintainable applications by studying higher level design patterns. Following this, you'll learn the complexities of string and file manipulation, and how Python distinguishes between binary and textual data. Not one, but two very powerful automated testing systems will be introduced in the book. After you discover the joy of unit testing and just how easy it can be, you'll study higher level libraries such as database connectors and GUI toolkits and learn how they uniquely apply object-oriented principles. You'll learn how these principles will allow you to make greater use of key members of the Python eco-system such as Django and Kivy. This new edition includes all the topics that made Python 3 Object-oriented Programming an instant Packt classic. It's also packed with updated content to reflect recent changes in the core Python library and covers modern third-party packages that were not available on the Python 3 platform when the book was first published. Style and approach Throughout the book you will learn key object-oriented programming techniques demonstrated by comprehensive case studies in the context of a larger project.

Python 3 Object Oriented Programming

Harness the power of Python 3 objects.

Python 3 Object-Oriented Programming.

Uncover modern Python with this guide to Python data structures, design patterns, and effective object-oriented techniques Key Features In-depth analysis of many common object-oriented design patterns that are more suitable to Python's unique style Learn the latest Python syntax and libraries Explore abstract design patterns and implement them in Python 3.8 Book Description Object-oriented programming (OOP) is a popular design paradigm in which data and behaviors are encapsulated in such a way that they can be manipulated together. This third edition of Python 3 Object-Oriented Programming fully explains classes, data encapsulation, and exceptions with an emphasis on when you can use each principle to

develop well-designed software. Starting with a detailed analysis of object-oriented programming, you will use the Python programming language to clearly grasp key concepts from the object-oriented paradigm. You will learn how to create maintainable applications by studying higher level design patterns. The book will show you the complexities of string and file manipulation, and how Python distinguishes between binary and textual data. Not one, but two very powerful automated testing systems, unittest and pytest, will be introduced in this book. You'll get a comprehensive introduction to Python's concurrent programming ecosystem. By the end of the book, you will have thoroughly learned object-oriented principles using Python syntax and be able to create robust and reliable programs confidently.

What you will learn

- Implement objects in Python by creating classes and defining methods
- Grasp common concurrency techniques and pitfalls in Python 3
- Extend class functionality using inheritance
- Understand when to use object-oriented features, and more importantly when not to use them
- Discover what design patterns are and why they are different in Python
- Uncover the simplicity of unit testing and why it is so important in Python
- Explore concurrent object-oriented programming

Who this book is for

If you're new to object-oriented programming techniques, or if you have basic Python skills and wish to learn in depth how and when to correctly apply OOP in Python, this is the book for you. If you are an object-oriented programmer for other languages or seeking a leg up in the new world of Python 3.8, you too will find this book a useful introduction to Python. Previous experience with Python 3 is not necessary.

Python 3 Object-oriented Programming

About This Book Stop writing scripts and start architecting programs. Learn the latest Python syntax and libraries. A practical, hands-on tutorial that teaches you all about abstract design patterns and how to implement them in Python 3.

Who This Book Is For If you're new to object-oriented programming techniques, or if you have basic Python skills and wish to learn in depth when to correctly apply object-oriented programming in Python to design software, this is the book for you.

What You Will Learn

- Implement objects in Python by creating classes and defining methods
- Separate related objects into a taxonomy of classes and describe the properties and behaviors of those objects via the class interface
- Extend class functionality by using inheritance
- Understand when to use object-oriented features, and more importantly, when not to use them
- Discover

what design patterns are and why they are different in Python Uncover the simplicity of unit testing and why it's so important in Python Grasp common concurrency techniques and pitfalls in Python 3 Explore the new AsyncIO module for developing massively concurrent network systems In Detail Python 3 Object-oriented Programming, Second Edition, explains classes, data encapsulation, inheritance, polymorphism, abstraction, and exceptions with an emphasis on when you can use each principle to develop well-designed software. It will not only guide you to create maintainable applications by studying higher level design patterns but will also help you grasp the complexities of string and file manipulation, and how Python distinguishes between binary and textual data. As a bonus, you will also discover the joys of unit testing and the complexities of concurrent programming. This book is packed with updated content to reflect recent changes to the core Python library that were not available when the highly rated first edition was originally published. It has also been restructured and reorganized to improve the flow of knowledge and enhance the reading experience.

Python Object-Oriented Programming

A comprehensive guide to exploring modern Python through data structures, design patterns, and effective object-oriented techniques Key Features Build an intuitive understanding of object-oriented design, from introductory to mature programs Learn the ins and outs of Python syntax, libraries, and best practices Examine a machine-learning case study at the end of each chapter Book Description Object-oriented programming (OOP) is a popular design paradigm in which data and behaviors are encapsulated in such a way that they can be manipulated together. Python Object-Oriented Programming, Fourth Edition dives deep into the various aspects of OOP, Python as an OOP language, common and advanced design patterns, and hands-on data manipulation and testing of more complex OOP systems. These concepts are consolidated by open-ended exercises, as well as a real-world case study at the end of every chapter, newly written for this edition. All example code is now compatible with Python 3.9+ syntax and has been updated with type hints for ease of learning. Steven and Dusty provide a comprehensive, illustrative tour of important OOP concepts, such as inheritance, composition, and polymorphism, and explain how they work together with Python's classes and data structures to facilitate good design. In addition, the book also

features an in-depth look at Python's exception handling and how functional programming intersects with OOP. Two very powerful automated testing systems, unittest and pytest, are introduced. The final chapter provides a detailed discussion of Python's concurrent programming ecosystem. By the end of the book, you will have a thorough understanding of how to think about and apply object-oriented principles using Python syntax and be able to confidently create robust and reliable programs. What you will learn

- Implement objects in Python by creating classes and defining methods
- Extend class functionality using inheritance
- Use exceptions to handle unusual situations cleanly
- Understand when to use object-oriented features, and more importantly, when not to use them
- Discover several widely used design patterns and how they are implemented in Python
- Uncover the simplicity of unit and integration testing and understand why they are so important
- Learn to statically type check your dynamic code
- Understand concurrency with asyncio and how it speeds up programs

Who this book is for If you are new to object-oriented programming techniques, or if you have basic Python skills and wish to learn how and when to correctly apply OOP principles in Python, this is the book for you. Moreover, if you are an object-oriented programmer coming from other languages or seeking a leg up in the new world of Python, you will find this book a useful introduction to Python. Minimal previous experience with Python is necessary.

Mastering Object-oriented Python

This book follows a standard tutorial approach with approximately 750 code samples spread through the 19 chapters. This amounts to over 5,900 lines of code that illustrate each concept. This book is aimed at programmers who have already learned the basics of object-oriented Python and need to write more sophisticated, flexible code that integrates seamlessly with the rest of Python. This book assumes a computer science background, with experience of common Python design patterns.

Python: Journey from Novice to Expert

Learn core concepts of Python and unleash its power to script highest quality Python programs

About This Book

Develop a strong set of programming skills with Python that you will be able to express in any

situation, on every platform, thanks to Python's portability Stop writing scripts and start architecting programs by applying object-oriented programming techniques in Python Learn the trickier aspects of Python and put it in a structured context for deeper understanding of the language Who This Book Is For This course is meant for programmers who wants to learn Python programming from a basic to an expert level. The course is mostly self-contained and introduces Python programming to a new reader and can help him become an expert in this trade. What You Will Learn Get Python up and running on Windows, Mac, and Linux in no time Grasp the fundamental concepts of coding, along with the basics of data structures and control flow Understand when to use the functional or the object-oriented programming approach Extend class functionality using inheritance Exploit object-oriented programming in key Python technologies, such as Kivy and Django Understand how and when to use the functional programming paradigm Use the multiprocessing library, not just locally but also across multiple machines In Detail Python is a dynamic and powerful programming language, having its application in a wide range of domains. It has an easy-to-use, simple syntax, and a powerful library, which includes hundreds of modules to provide routines for a wide range of applications, thus making it a popular language among programming enthusiasts. This course will take you on a journey from basic programming practices to high-end tools and techniques giving you an edge over your peers. It follows an interesting learning path, divided into three modules. As you complete each one, you'll have gained key skills and get ready for the material in the next module. The first module will begin with exploring all the essentials of Python programming in an easy-to-understand way. This will lay a good foundation for those who are interested in digging deeper. It has a practical and example-oriented approach through which both the introductory and the advanced topics are explained. Starting with the fundamentals of programming and Python, it ends by exploring topics, like GUIs, web apps, and data science. In the second module you will learn about object oriented programming techniques in Python. Starting with a detailed analysis of object-oriented technique and design, you will use the Python programming language to clearly grasp key concepts from the object-oriented paradigm. This module fully explains classes, data encapsulation, inheritance, polymorphism, abstraction, and exceptions with an emphasis on when you can use each principle to develop well-designed software. With a good foundation of Python you will move onto the third module which is a comprehensive tutorial covering advanced features of the Python language. Start by creating a project-specific environment using venv. This will introduce you

to various Pythonic syntax and common pitfalls before moving onto functional features and advanced concepts, thereby gaining an expert level knowledge in programming and teaching how to script highest quality Python programs. Style and approach This course follows a theory-cum-practical approach having all the ingredients that will help you jump into the field of Python programming as a novice and grow-up as an expert. The aim is to create a smooth learning path that will teach you how to get started with Python and carry out expert-level programming techniques at the end of course.

Creating Apps in Kivy

Build mobile apps efficiently with Kivy, the Python-powered graphical toolkit for creating natural user interfaces with elegant multitouch support. With this hands-on guide, you'll learn step-by-step how to build and deploy a complete Kivy app for iOS and Android devices. If you're just beginning to work with Python, but are reasonably familiar with its syntax, you're ready to go. Each chapter includes exercises, using examples that run on Python 3 and Python 2.7. Learn how Kivy simplifies mobile development with its cross-platform API and domain-specific Kv language, and why this free and open source toolkit is ideal for commercial products. Design custom widgets with the Kv language Delve into Kivy events, event handlers, and properties Dynamically change which Kivy widgets are displayed Understand and apply iterative development principles Create basic animations, using Canvas and graphics primitives Store local data with Kivy's powerful key value store Add basic gestures to switch between app views Improve your app's usability with Kivy's built-in widgets Deploy the app to your Android or iOS device, using Buildozer

Python: Master the Art of Design Patterns

Ensure your code is sleek, efficient and elegant by mastering powerful Python design patterns About This Book Learn all about abstract design patterns and how to implement them in Python 3 Understand the structural, creational, and behavioral Python design patterns Get to know the context and application of design patterns to solve real-world problems in software architecture, design, and application development Discover how to simplify Design Pattern implementation using the power of Python

3 Who This Book Is For If you have basic Python skills and wish to learn in depth how to correctly apply appropriate design patterns, this course is tailor made for you. What You Will Learn Discover what design patterns are and how to apply them to writing Python Implement objects in Python by creating classes and defining methods Separate related objects into a taxonomy of classes and describe the properties and behaviors of those objects via the class interface Understand when to use object-oriented features, and more importantly when not to use them Get to know proven solutions to common design issues Explore the design principles that form the basis of software design, such as loose coupling, the Hollywood principle, and the Open Close principle, among others Use Structural Design Patterns and find out how objects and classes interact to build larger applications Improve the productivity and code base of your application using Python design patterns Secure an interface using the Proxy pattern In Detail Python is an object-oriented scripting language that is used in everything from data science to web development. Known for its simplicity, Python increases productivity and minimizes development time. Through applying essential software engineering design patterns to Python, Python code becomes even more efficient and reusable from project to project. This learning path takes you through every traditional and advanced design pattern best applied to Python code, building your skills in writing exceptional Python. Divided into three distinct modules, you'll go from foundational to advanced concepts by following a series of practical tutorials. Start with the bedrock of Python programming – the object-oriented paradigm. Rethink the way you work with Python as you work through the Python data structures and object-oriented techniques essential to modern Python programming. Build your confidence as you learn Python syntax, and how to use OOP principles with Python tools such as Django and Kivy. In the second module, run through the most common and most useful design patterns from a Python perspective. Progress through Singleton patterns, Factory patterns, Facade patterns and more all with detailed hands-on guidance. Enhance your professional abilities in in software architecture, design, and development. In the final module, run through the more complex and less common design patterns, discovering how to apply them to Python coding with the help of real-world examples. Get to grips with the best practices of writing Python, as well as creating systems architecture and troubleshooting issues. This Learning Path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the following Packt products: Python 3 Object-Oriented Programming - Second Edition by Dusty Phillips Learning Python Design Patterns - Second Edition by Chetan Giridhar Mastering

Python Design Patterns by Sakis Kasampalis Style and approach Advance your Python code through three distinct modules that each build on preceding content. Get the complete coverage of Python design patterns you need to write elegant and efficient code that's reusable and powerful.

Programming in Python 3

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.

Object-oriented Programming in Python

This book presents a balanced and flexible approach to the incorporation

of object-oriented principles in introductory courses using Python. Familiarizes readers with the terminology of object-oriented programming, the concept of an object's underlying state information, and its menu of available behaviors. Includes an exclusive, easy-to-use custom graphics library that helps readers grasp both basic and more advanced concepts. Lays the groundwork for transition to other languages such as Java and C++. For those interested in learning more about object-oriented programming using Python.

Getting Started with Python

Harness the power of Python objects and data structures to implement algorithms for analyzing your data and efficiently extracting information
Key FeaturesTurn your designs into working software by learning the Python syntaxWrite robust code with a solid understanding of Python data structuresUnderstand when to use the functional or the OOP approachBook Description This Learning Path helps you get comfortable with the world of Python. It starts with a thorough and practical introduction to Python. You'll quickly start writing programs, building websites, and working with data by harnessing Python's renowned data science libraries. With the power of linked lists, binary searches, and sorting algorithms, you'll easily create complex data structures, such as graphs, stacks, and queues. After understanding cooperative inheritance, you'll expertly raise, handle, and manipulate exceptions. You will effortlessly integrate the object-oriented and not-so-object-oriented aspects of Python, and create maintainable applications using higher level design patterns. Once you've covered core topics, you'll understand the joy of unit testing and just how easy it is to create unit tests. By the end of this Learning Path, you will have built components that are easy to understand, debug, and can be used across different applications. This Learning Path includes content from the following Packt products: Learn Python Programming - Second Edition by Fabrizio RomanoPython Data Structures and Algorithms by Benjamin BakaPython 3 Object-Oriented Programming by Dusty PhillipsWhat you will learnUse data structures and control flow to write codeUse functions to bundle together a sequence of instructionsImplement objects in Python by creating classes and defining methodsDesign public interfaces using abstraction, encapsulation and information hidingRaise, define, and manipulate exceptions using special error objectsCreate bulletproof and reliable software by writing unit testsLearn the common programming

patterns and algorithms used in PythonWho this book is for If you are relatively new to coding and want to write scripts or programs to accomplish tasks using Python, or if you are an object-oriented programmer for other languages and seeking a leg up in the world of Python, then this Learning Path is for you. Though not essential, it will help you to have basic knowledge of programming and OOP.

Learn Python Programming

Get up and running with Python 3.9 through concise tutorials and practical projects in this fully updated third edition. Purchase of the print or Kindle book includes a free eBook in PDF format. Key FeaturesExtensively revised with richer examples, Python 3.9 syntax, and new chapters on APIs and packaging and distributing Python codeDiscover how to think like a Python programmerLearn the fundamentals of Python through real-world projects in API development, GUI programming, and data scienceBook Description Learn Python Programming, Third Edition is both a theoretical and practical introduction to Python, an extremely flexible and powerful programming language that can be applied to many disciplines. This book will make learning Python easy and give you a thorough understanding of the language. You'll learn how to write programs, build modern APIs, and work with data by using renowned Python data science libraries. This revised edition covers the latest updates on API management, packaging applications, and testing. There is also broader coverage of context managers and an updated data science chapter. The book empowers you to take ownership of writing your software and become independent in fetching the resources you need. You will have a clear idea of where to go and how to build on what you have learned from the book. Through examples, the book explores a wide range of applications and concludes by building real-world Python projects based on the concepts you have learned. What you will learnGet Python up and running on Windows, Mac, and LinuxWrite elegant, reusable, and efficient code in any situationAvoid common pitfalls like duplication, complicated design, and over-engineeringUnderstand when to use the functional or object-oriented approach to programmingBuild a simple API with FastAPI and program GUI applications with TkinterGet an initial overview of more complex topics such as data persistence and cryptographyFetch, clean, and manipulate data, making efficient use of Python's built-in data structuresWho this book is for This book is for everyone who wants to learn Python from scratch, as

well as experienced programmers looking for a reference book. Prior knowledge of basic programming concepts will help you follow along, but it's not a prerequisite.

A Concise Introduction to Programming in Python

A Concise Introduction to Programming in Python, Second Edition provides a hands-on and accessible introduction to writing software in Python, with no prior programming experience required. The Second Edition was thoroughly reorganized and rewritten based on classroom experience to incorporate: A spiral approach, starting with turtle graphics, and then revisiting concepts in greater depth using numeric, textual, and image data Clear, concise explanations written for beginning students, emphasizing core principles A variety of accessible examples, focusing on key concepts Diagrams to help visualize new concepts New sections on recursion and exception handling, as well as an earlier introduction of lists, based on instructor feedback The text offers sections designed for approximately one class period each, and proceeds gradually from procedural to object-oriented design. Examples, exercises, and projects are included from diverse application domains, including finance, biology, image processing, and textual analysis. It also includes a brief "How-To" sections that introduce optional topics students may be interested in exploring. The text is written to be read, making it a good fit in flipped classrooms. Designed for either classroom use or self-study, all example programs and solutions to odd-numbered exercises (except for projects) are available at: <http://www.central.edu/go/conciseintro/>.

The Python Apprentice

Learn the Python skills and culture you need to become a productive member of any Python project. About This Book Taking a practical approach to studying Python A clear appreciation of the sequence-oriented parts of Python Emphasis on the way in which Python code is structured Learn how to produce bug-free code by using testing tools Who This Book Is For The Python Apprentice is for anyone who wants to start building, creating and contributing towards a Python project. No previous knowledge of Python is required, although at least some familiarity with programming in another language is helpful. What You Will Learn Learn the language of

Python itself Get a start on the Python standard library Learn how to integrate 3rd party libraries Develop libraries on your own Become familiar with the basics of Python testing In Detail Experienced programmers want to know how to enhance their craft and we want to help them start as apprentices with Python. We know that before mastering Python you need to learn the culture and the tools to become a productive member of any Python project. Our goal with this book is to give you a practical and thorough introduction to Python programming, providing you with the insight and technical craftsmanship you need to be a productive member of any Python project. Python is a big language, and it's not our intention with this book to cover everything there is to know. We just want to make sure that you, as the developer, know the tools, basic idioms and of course the ins and outs of the language, the standard library and other modules to be able to jump into most projects. Style and approach We introduce topics gently and then revisit them on multiple occasions to add the depth required to support your progression as a Python developer. We've worked hard to structure the syllabus to avoid forward references. On only a few occasions do we require you to accept techniques on trust, before explaining them later; where we do, it's to deliberately establish good habits.

Programming in Python

An interactive way to introduce the world of Python Programming KEY FEATURES Detailed comparisons and differentiation of python language from other most popular languages C/C++/Java. Authentic and extensive set of programming illustrations in every chapter of the book. Broad study on all the programming constructs of the python programming language such as native data types, looping, decision making, exception handling, file handling etc. Broad study of Python Object Oriented Programming features with illustrations. Numerous review questions and exercises at the end of every chapter. DESCRIPTION This Book is meant for wide range of readers who wish to learn the basics of Python programming language. It can be helpful for students, programmers, researchers, and software developers. The basic concepts of python programming are dealt in detail. The various concepts of python language such as object-oriented features, operators, native data types, control structures, functions, exception handling, file handling, etc are discussed in detail with the authentic programming illustration of each. presently, python programming is a hot

topic among academician's researchers, and program developers. As a result, the book is designed to give an in-depth knowledge of programming in python. This book can be used as handbook as well as a guide for students of all computer science stream at any grade beginning from 10+1 to Research in PhD. To conclude, we hope that the readers will find this book a helpful guide and valuable source of information about python programming. WHAT WILL YOU LEARN Python Data Types, Input Output Operators and Expressions Control Structures Python Functions, Modules Exception Handling File Management, Classes and Objects Inheritance, Python Operator Overloading Ê WHO THIS BOOK IS FOR Students, Programmers, researchers, and software developers who wish to learn the basics of Python programming language. Ê Table of Contents 1. Introduction to Python Language 2. Python Data Types and Input Output 3. Operators and Expressions 4. Control Structures 5. Python Native Data Types 6. Python Functions 7. Python Modules 8. Exception Handling 9. File Management in Python 10. Classes and Objects 11. Inheritance 12. Python Operator Overloading

Hacking Happy

Fed up with the latest and greatest time management system? You're optimizing the wrong variable. It's time to start hacking your own happiness for happier hacking. This book will motivate you to maximize your levels of happiness rather than false incentives like efficiency or productivity. It guides you through tested psychological techniques. Each chapter is an analogy to a programming or systems administration concept to help you grok it quickly. You'll start with unit tests for your life, then design a specification using scrum methodology. You'll learn how to log and debug the thoughts that cause negative feelings. Various algorithms, design patterns and sysadmin tools are adapted for use in happiness hacking. Start optimizing for happiness today!

Learning Python Design Patterns

Leverage the power of Python design patterns to solve real-world problems in software architecture and design About This Book Understand the structural, creational, and behavioral Python design patterns Get to know the context and application of design patterns to solve real-world problems

in software architecture, design, and application development Get practical exposure through sample implementations in Python v3.5 for the design patterns featured Who This Book Is For This book is for Software architects and Python application developers who are passionate about software design. It will be very useful to engineers with beginner level proficiency in Python and who love to work with Python 3.5 What You Will Learn Enhance your skills to create better software architecture Understand proven solutions to commonly occurring design issues Explore the design principles that form the basis of software design, such as loose coupling, the Hollywood principle and the Open Close principle among others Delve into the object-oriented programming concepts and find out how they are used in software applications Develop an understanding of Creational Design Patterns and the different object creation methods that help you solve issues in software development Use Structural Design Patterns and find out how objects and classes interact to build larger applications Focus on the interaction between objects with the command and observer patterns Improve the productivity and code base of your application using Python design patterns In Detail With the increasing focus on optimized software architecture and design it is important that software architects think about optimizations in object creation, code structure, and interaction between objects at the architecture or design level. This makes sure that the cost of software maintenance is low and code can be easily reused or is adaptable to change. The key to this is reusability and low maintenance in design patterns. Building on the success of the previous edition, Learning Python Design Patterns, Second Edition will help you implement real-world scenarios with Python's latest release, Python v3.5. We start by introducing design patterns from the Python perspective. As you progress through the book, you will learn about Singleton patterns, Factory patterns, and Facade patterns in detail. After this, we'll look at how to control object access with proxy patterns. It also covers observer patterns, command patterns, and compound patterns. By the end of the book, you will have enhanced your professional abilities in software architecture, design, and development. Style and approach This is an easy-to-follow guide to design patterns with hands-on examples of real-world scenarios and their implementation in Python v3.5. Each topic is explained and placed in context, and for the more inquisitive, there are more details on the concepts used.

Mastering Python Design Patterns

Exploit various design patterns to master the art of solving problems using Python Key Features Master the application design using the core design patterns and latest features of Python 3.7 Learn tricks to solve common design and architectural challenges Choose the right plan to improve your programs and increase their productivity Book Description Python is an object-oriented scripting language that is used in a wide range of categories. In software engineering, a design pattern is an elected solution for solving software design problems. Although they have been around for a while, design patterns remain one of the top topics in software engineering, and are a ready source for software developers to solve the problems they face on a regular basis. This book takes you through a variety of design patterns and explains them with real-world examples. You will get to grips with low-level details and concepts that show you how to write Python code, without focusing on common solutions as enabled in Java and C++. You'll also find sections on corrections, best practices, system architecture, and its designing aspects. This book will help you learn the core concepts of design patterns and the way they can be used to resolve software design problems. You'll focus on most of the Gang of Four (GoF) design patterns, which are used to solve everyday problems, and take your skills to the next level with reactive and functional patterns that help you build resilient, scalable, and robust applications. By the end of the book, you'll be able to efficiently address commonly faced problems and develop applications, and also be comfortable working on scalable and maintainable projects of any size. What you will learn Explore Factory Method and Abstract Factory for object creation Clone objects using the Prototype pattern Make incompatible interfaces compatible using the Adapter pattern Secure an interface using the Proxy pattern Choose an algorithm dynamically using the Strategy pattern Keep the logic decoupled from the UI using the MVC pattern Leverage the Observer pattern to understand reactive programming Explore patterns for cloud-native, microservices, and serverless architectures Who this book is for This book is for intermediate Python developers. Prior knowledge of design patterns is not required to enjoy this book.

Python Cookbook

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

Open Data Structures

Introduction -- Array-based lists -- Linked lists -- Skiplists -- Hash tables -- Binary trees -- Random binary search trees -- Scapegoat trees -- Red-black trees -- Heaps -- Sorting algorithms -- Graphs -- Data structures for integers -- External memory searching.

Mastering Python

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.

Learning Object-Oriented Programming

Learning Object-Oriented Programming is an easy-to-follow guide full of hands-on examples of solutions to common problems with object-oriented code in Python, JavaScript, and C#. It starts by helping you to recognize objects from real-life scenarios and demonstrates that working with them makes it simpler to write code that is easy to understand and reuse. You will learn to protect and hide data with the data encapsulation features of Python, JavaScript, and C#. You will explore how to maximize code reuse

by writing code capable of working with objects of different types, and discover the advantage of duck typing in both Python and JavaScript, while you work with interfaces and generics in C#. With a fair understanding of interfaces, multiple inheritance, and composition, you will move on to refactor existing code and to organize your source for easy maintenance and extension. Learning Object-Oriented Programming will help you to make better, stronger, and reusable code.

C and Python Applications

Solve problems by embedding Python code in a C programs, SQL methods, Python sockets. This book uses rudimentary mathematics and basic programming to create practical Python applications for embedding. You'll start with an introduction to C and Python, assuming a fundamental understanding of what programming is. You will also review the basics of the database management language, SQL. You will learn how to use SQL from a C program and from a Python program. C and Python have different programming strengths, and you will learn how to write a Python program embedded within a C program to profit from the strength of each, in one program. Finally, you will explore how socket programs enable two computers to communicate with each other. Here the book covers basic server-client, basic threaded, and basic chat programs./div What You Will Learn Review basic Python and C coding Understand the methods of embedding Python code within a C program Create typical programs in Python and C using SDK Work with socket applications in Python Who This Book Is For Programmers and computational modelers with at least some prior experience with programming in C and Python as well as programming in general.

Python: Real-World Data Science

Unleash the power of Python and its robust data science capabilities About This Book Unleash the power of Python 3 objects Learn to use powerful Python libraries for effective data processing and analysis Harness the power of Python to analyze data and create insightful predictive models Unlock deeper insights into machine learning with this vital guide to cutting-edge predictive analytics Who This Book Is For Entry-level analysts who want to enter in the data science world will find this course very useful

to get themselves acquainted with Python's data science capabilities for doing real-world data analysis. What You Will Learn Install and setup Python Implement objects in Python by creating classes and defining methods Get acquainted with NumPy to use it with arrays and array-oriented computing in data analysis Create effective visualizations for presenting your data using Matplotlib Process and analyze data using the time series capabilities of pandas Interact with different kind of database systems, such as file, disk format, Mongo, and Redis Apply data mining concepts to real-world problems Compute on big data, including real-time data from the Internet Explore how to use different machine learning models to ask different questions of your data In Detail The Python: Real-World Data Science course will take you on a journey to become an efficient data science practitioner by thoroughly understanding the key concepts of Python. This learning path is divided into four modules and each module are a mini course in their own right, and as you complete each one, you'll have gained key skills and be ready for the material in the next module. The course begins with getting your Python fundamentals nailed down. After getting familiar with Python core concepts, it's time that you dive into the field of data science. In the second module, you'll learn how to perform data analysis using Python in a practical and example-driven way. The third module will teach you how to design and develop data mining applications using a variety of datasets, starting with basic classification and affinity analysis to more complex data types including text, images, and graphs. Machine learning and predictive analytics have become the most important approaches to uncover data gold mines. In the final module, we'll discuss the necessary details regarding machine learning concepts, offering intuitive yet informative explanations on how machine learning algorithms work, how to use them, and most importantly, how to avoid the common pitfalls. Style and approach This course includes all the resources that will help you jump into the data science field with Python and learn how to make sense of data. The aim is to create a smooth learning path that will teach you how to get started with powerful Python libraries and perform various data science techniques in depth.

Functional Python Programming

Create succinct and expressive implementations with functional programming in Python Key Features Learn how to choose between imperative and functional approaches based on expressiveness, clarity,

and performance Get familiar with complex concepts such as monads, concurrency, and immutability Apply functional Python to common Exploratory Data Analysis (EDA) programming problems Book Description If you're a Python developer who wants to discover how to take the power of functional programming (FP) and bring it into your own programs, then this book is essential for you, even if you know next to nothing about the paradigm. Starting with a general overview of functional concepts, you'll explore common functional features such as first-class and higher-order functions, pure functions, and more. You'll see how these are accomplished in Python 3.6 to give you the core foundations you'll build upon. After that, you'll discover common functional optimizations for Python to help your apps reach even higher speeds. You'll learn FP concepts such as lazy evaluation using Python's generator functions and expressions. Moving forward, you'll learn to design and implement decorators to create composite functions. You'll also explore data preparation techniques and data exploration in depth, and see how the Python standard library fits the functional programming model. Finally, to top off your journey into the world of functional Python, you'll at look at the PyMonad project and some larger examples to put everything into perspective. What you will learn Use Python's generator functions and generator expressions to work with collections in a non-strict (or lazy) manner Utilize Python library modules including itertools, functools, multiprocessing, and concurrent features to ensure efficient functional programs Use Python strings with object-oriented suffix notation and prefix notation Avoid stateful classes with families of tuples Design and implement decorators to create composite functions Use functions such as max(), min(), map(), filter(), and sorted() Write higher-order functions Who this book is for This book is for Python developers who would like to perform Functional programming with Python. Python Programming knowledge is assumed.

Expert Python Programming

Gain a deep understanding of building, maintaining, packaging, and shipping robust Python applications Key FeaturesDiscover the new features of Python, such as dictionary merge, the zoneinfo module, and structural pattern matchingCreate manageable code to run in various environments with different sets of dependenciesImplement effective Python data structures and algorithms to write, test, and optimize

codeBook Description This new edition of Expert Python Programming provides you with a thorough understanding of the process of building and maintaining Python apps. Complete with best practices, useful tools, and standards implemented by professional Python developers, this fourth edition has been extensively updated. Throughout this book, you'll get acquainted with the latest Python improvements, syntax elements, and interesting tools to boost your development efficiency. The initial few chapters will allow experienced programmers coming from different languages to transition to the Python ecosystem. You will explore common software design patterns and various programming methodologies, such as event-driven programming, concurrency, and metaprogramming. You will also go through complex code examples and try to solve meaningful problems by bridging Python with C and C++, writing extensions that benefit from the strengths of multiple languages. Finally, you will understand the complete lifetime of any application after it goes live, including packaging and testing automation. By the end of this book, you will have gained actionable Python programming insights that will help you effectively solve challenging problems. What you will learnExplore modern ways of setting up repeatable and consistent Python development environmentsEffectively package Python code for community and production useLearn modern syntax elements of Python programming, such as f-strings, enums, and lambda functionsDemystify metaprogramming in Python with metaclassesWrite concurrent code in PythonExtend and integrate Python with code written in C and C++Who this book is for The Python programming book is intended for expert programmers who want to learn Python's advanced-level concepts and latest features. Anyone who has basic Python skills should be able to follow the content of the book, although it might require some additional effort from less experienced programmers. It should also be a good introduction to Python 3.9 for those who are still a bit behind and continue to use other older versions.

Expert Python Programming

Refine your Python programming skills and build professional grade applications with this comprehensive guide Key FeaturesCreate manageable code that can run in various environments with different sets of dependenciesImplement effective Python data structures and algorithms to write optimized codeDiscover the exciting new features of

Python 3.7Book Description Python is a dynamic programming language that's used in a wide range of domains thanks to its simple yet powerful nature. Although writing Python code is easy, making it readable, reusable, and easy to maintain is challenging. Complete with best practices, useful tools, and standards implemented by professional Python developers, the third edition of Expert Python Programming will help you overcome this challenge. The book will start by taking you through the new features in Python 3.7. You'll then learn the advanced components of Python syntax, in addition to understanding how to apply concepts of various programming paradigms, including object-oriented programming, functional programming, and event-driven programming. This book will also guide you through learning the best naming practices, writing your own distributable Python packages, and getting up to speed with automated ways of deploying your software on remote servers. You'll discover how to create useful Python extensions with C, C++, Cython, and CFFI. Furthermore, studying about code management tools, writing clear documentation, and exploring test-driven development will help you write clean code. By the end of the book, you will have become an expert in writing efficient and maintainable Python code. What you will learnExplore modern ways of setting up repeatable and consistent development environmentsPackage Python code effectively for community and production useLearn modern syntax elements of Python programming such as f-strings, enums, and lambda functionsDemystify metaprogramming in Python with metaclassesWrite concurrent code in PythonExtend Python with code written in different languagesIntegrate Python with code written in different languagesWho this book is for This book will appeal to you if you're a programmer looking to take your Python knowledge to the next level by writing efficient code and learning the latest features of version 3.7 and above.

Software Architecture with Python

Architect and design highly scalable, robust, clean, and highly performant applications in Python About This Book Identify design issues and make the necessary adjustments to achieve improved performance Understand practical architectural quality attributes from the perspective of a practicing engineer and architect using Python Gain knowledge of architectural principles and how they can be used to provide accountability and rationale for architectural decisions Who This Book Is For This book is

for experienced Python developers who are aspiring to become the architects of enterprise-grade applications or software architects who would like to leverage Python to create effective blueprints of applications. What You Will Learn Build programs with the right architectural attributes Use Enterprise Architectural Patterns to solve scalable problems on the Web Understand design patterns from a Python perspective Optimize the performance testing tools in Python Deploy code in remote environments or on the Cloud using Python Secure architecture applications in Python In Detail This book starts off by explaining how Python fits into an application architecture. As you move along, you will understand the architecturally significant demands and how to determine them. Later, you'll get a complete understanding of the different architectural quality requirements that help an architect to build a product that satisfies business needs, such as maintainability/reusability, testability, scalability, performance, usability, and security. You will use various techniques such as incorporating DevOps, Continuous Integration, and more to make your application robust. You will understand when and when not to use object orientation in your applications. You will be able to think of the future and design applications that can scale proportionally to the growing business. The focus is on building the business logic based on the business process documentation and which frameworks are to be used when. We also cover some important patterns that are to be taken into account while solving design problems as well as those in relatively new domains such as the Cloud. This book will help you understand the ins and outs of Python so that you can make those critical design decisions that not just live up to but also surpass the expectations of your clients. Style and approach Filled with examples and use cases, this guide takes a no-nonsense approach to help you with everything it takes to become a successful software architect.

Object-Oriented Python

Power up your Python with object-oriented programming and learn how to write powerful, efficient, and re-usable code. Object-Oriented Python is an intuitive and thorough guide to mastering object-oriented programming from the ground up. You'll cover the basics of building classes and creating objects, and put theory into practice using the pygame package with clear examples that help visualize the object-oriented style. You'll explore the key concepts of object-oriented programming — encapsulation,

polymorphism, and inheritance — and learn not just how to code with objects, but the absolute best practices for doing so. Finally, you'll bring it all together by building a complex video game, complete with full animations and sounds. The book covers two fully functional Python code packages that will speed up development of graphical user interface (GUI) programs in Python.

Beyond the Basic Stuff with Python

BRIDGE THE GAP BETWEEN NOVICE AND PROFESSIONAL You've completed a basic Python programming tutorial or finished Al Sweigart's bestseller, *Automate the Boring Stuff with Python*. What's the next step toward becoming a capable, confident software developer? Welcome to *Beyond the Basic Stuff with Python*. More than a mere collection of advanced syntax and masterful tips for writing clean code, you'll learn how to advance your Python programming skills by using the command line and other professional tools like code formatters, type checkers, linters, and version control. Sweigart takes you through best practices for setting up your development environment, naming variables, and improving readability, then tackles documentation, organization and performance measurement, as well as object-oriented design and the Big-O algorithm analysis commonly used in coding interviews. The skills you learn will boost your ability to program—not just in Python but in any language. You'll learn: Coding style, and how to use Python's Black auto-formatting tool for cleaner code Common sources of bugs, and how to detect them with static analyzers How to structure the files in your code projects with the Cookiecutter template tool Functional programming techniques like lambda and higher-order functions How to profile the speed of your code with Python's built-in `timeit` and `cProfile` modules The computer science behind Big-O algorithm analysis How to make your comments and docstrings informative, and how often to write them How to create classes in object-oriented programming, and why they're used to organize code Toward the end of the book you'll read a detailed source-code breakdown of two classic command-line games, the Tower of Hanoi (a logic puzzle) and Four-in-a-Row (a two-player tile-dropping game), and a breakdown of how their code follows the book's best practices. You'll test your skills by implementing the program yourself. Of course, no single book can make you a professional software developer. But *Beyond the Basic Stuff with Python* will get you further down that path and make you a better

programmer, as you learn to write readable code that's easy to debug and perfectly Pythonic Requirements: Covers Python 3.6 and higher

Mastering Concurrency in Python

Immerse yourself in the world of Python concurrency and tackle the most complex concurrent programming problems

Key Features

- Explore the core syntaxes, language features and modern patterns of concurrency in Python
- Understand how to use concurrency to keep data consistent and applications responsive
- Utilize application scaffolding to design highly-scalable programs

Book Description

Python is one of the most popular programming languages, with numerous libraries and frameworks that facilitate high-performance computing. Concurrency and parallelism in Python are essential when it comes to multiprocessing and multithreading; they behave differently, but their common aim is to reduce the execution time. This book serves as a comprehensive introduction to various advanced concepts in concurrent engineering and programming. Mastering Concurrency in Python starts by introducing the concepts and principles in concurrency, right from Amdahl's Law to multithreading programming, followed by elucidating multiprocessing programming, web scraping, and asynchronous I/O, together with common problems that engineers and programmers face in concurrent programming. Next, the book covers a number of advanced concepts in Python concurrency and how they interact with the Python ecosystem, including the Global Interpreter Lock (GIL). Finally, you'll learn how to solve real-world concurrency problems through examples. By the end of the book, you will have gained extensive theoretical knowledge of concurrency and the ways in which concurrency is supported by the Python language

What you will learn

- Explore the concepts of concurrency in programming
- Explore the core syntax and features that enable concurrency in Python
- Understand the correct way to implement concurrency
- Abstract methods to keep the data consistent in your program
- Analyze problems commonly faced in concurrent programming
- Use application scaffolding to design highly-scalable programs

Who this book is for

This book is for developers who wish to build high-performance applications and learn about single-core, multicore programming or distributed concurrency. Some experience with Python programming language is assumed.

Python Programming with Design Patterns

Improve Your Python Code with Modern Object-Oriented Design Patterns
To write clean, efficient, maintainable code, developers everywhere turn to design patterns. Now there's a Python-specific patterns guide that's friendly and practical enough for every Python developer, regardless of experience. Best-selling patterns author James W. Cooper presents visual, example-driven explanations of 23 proven patterns for writing superior object-oriented code. Through clear and intuitive code samples, he introduces modern techniques for creating Python objects that interact effectively in powerful, flexible programs. Python newcomers--including those moving from other languages--will find a succinct introduction designed to get them up to speed fast. Cooper's wide-ranging patterns coverage addresses abstract classes, multiple inheritance, GUI programming and widgets, graphical classes, drawing and plotting, math, databases, Python decorators, images, threads, iterators, creating executable code, and more. Throughout, his informal visual presentation makes patterns far easier to work with--so you can confidently build sophisticated programs that use Python's rich capabilities. Review the essentials of Python objects and visual programming Learn what design patterns are, and how they help you write better code Use creational patterns to enhance flexibility and avoid unnecessary complexity Apply structural patterns to ensure that program elements work together well in large programs Optimize communication between objects with behavioral patterns.

Mastering GUI Programming with Python

An advanced guide to creating powerful high-performance GUIs for modern, media-rich applications in various domains such as business and game development
Key Features
Gain comprehensive knowledge of Python GUI development using PyQt 5.12
Explore advanced topics including multithreaded programming, 3D animation, and SQL databases
Build cross-platform GUIs for Windows, macOS, Linux, and Raspberry Pi
Book Description
PyQt5 has long been the most powerful and comprehensive GUI framework available for Python, yet there is a lack of cohesive resources available for Python programmers to learn how to use it. This book will be your comprehensive guide to exploring GUI development with PyQt5. You will get started with an introduction to PyQt5, before going on

to develop stunning GUIs with modern features. You will learn how to build forms using QWidgets and delve into important aspects of GUI development such as layouts, size policies, and event-driven programming. Moving ahead, you'll discover PyQt5's most powerful features through chapters on audio-visual programming with QtMultimedia, database-driven software with QtSQL, and web browsing with QtWebEngine. Next, in-depth coverage of multithreading and asynchronous programming will help you run tasks asynchronously and build high-concurrency processes with ease. In later chapters, you'll gain insights into QOpenGLWidget, along with mastering techniques for creating 2D graphics with QPainter. You'll also explore PyQt on a Raspberry Pi and interface it with remote systems using QtNetwork. Finally, you will learn how to distribute your applications using setuptools and PyInstaller. By the end of this book, you will have the skills you need to develop robust GUI applications using PyQt. What you will learn

Get to grips with the inner workings of PyQt5
Understand how elements in a GUI application communicate with signals and slots
Study techniques for styling an application
Explore database-driven applications with the QtSQL module
Create 2D graphics with QPainter
Delve into 3D graphics with QOpenGLWidget
Build network and web-aware applications with QtNetwork and QtWebEngine

Who this book is for This book is for programmers who want to create attractive, functional, and powerful GUIs using the Python language. You'll also find this book useful if you are a student, professional, or anyone who wants to start exploring GUIs. Although prior knowledge of the Python language is assumed, experience with PyQt, Qt, or GUI programming is not required.

Clean Code in Python

Getting the most out of Python to improve your codebase

Key Features

- Save maintenance costs by learning to fix your legacy codebase
- Learn the principles and techniques of refactoring
- Apply microservices to your legacy systems by implementing practical techniques

Book Description Python is currently used in many different areas such as software construction, systems administration, and data processing. In all of these areas, experienced professionals can find examples of inefficiency, problems, and other perils, as a result of bad code. After reading this book, readers will understand these problems, and more importantly, how to correct them. The book begins by describing the basic elements of writing clean code

and how it plays an important role in Python programming. You will learn about writing efficient and readable code using the Python standard library and best practices for software design. You will learn to implement the SOLID principles in Python and use decorators to improve your code. The book delves more deeply into object oriented programming in Python and shows you how to use objects with descriptors and generators. It will also show you the design principles of software testing and how to resolve software problems by implementing design patterns in your code. In the final chapter we break down a monolithic application to a microservice one, starting from the code as the basis for a solid platform. By the end of the book, you will be proficient in applying industry approved coding practices to design clean, sustainable and readable Python code. What you will learn

- Set up tools to effectively work in a development environment
- Explore how the magic methods of Python can help us write better code
- Examine the traits of Python to create advanced object-oriented design
- Understand removal of duplicated code using decorators and descriptors
- Effectively refactor code with the help of unit tests
- Learn to implement the SOLID principles in Python

Who this book is for This book will appeal to team leads, software architects and senior software engineers who would like to work on their legacy systems to save cost and improve efficiency. A strong understanding of Programming is assumed.

Architecture Patterns with Python

As Python continues to grow in popularity, projects are becoming larger and more complex. Many Python developers are now taking an interest in high-level software design patterns such as hexagonal/clean architecture, event-driven architecture, and the strategic patterns prescribed by domain-driven design (DDD). But translating those patterns into Python isn't always straightforward. With this hands-on guide, Harry Percival and Bob Gregory from MADE.com introduce proven architectural design patterns to help Python developers manage application complexity—and get the most value out of their test suites. Each pattern is illustrated with concrete examples in beautiful, idiomatic Python, avoiding some of the verbosity of Java and C# syntax. Patterns include: Dependency inversion and its links to ports and adapters (hexagonal/clean architecture) Domain-driven design's distinction between entities, value objects, and aggregates Repository and Unit of Work patterns for persistent storage Events, commands, and the message bus Command-query responsibility

segregation (CQRS) Event-driven architecture and reactive microservices

Advanced Python Programming

Create distributed applications with clever design patterns to solve complex problems

Key Features

- Set up and run distributed algorithms on a cluster using Dask and PySpark
- Master skills to accurately implement concurrency in your code
- Gain practical experience of Python design patterns with real-world examples

Book Description

This Learning Path shows you how to leverage the power of both native and third-party Python libraries for building robust and responsive applications. You will learn about profilers and reactive programming, concurrency and parallelism, as well as tools for making your apps quick and efficient. You will discover how to write code for parallel architectures using TensorFlow and Theano, and use a cluster of computers for large-scale computations using technologies such as Dask and PySpark. With the knowledge of how Python design patterns work, you will be able to clone objects, secure interfaces, dynamically choose algorithms, and accomplish much more in high performance computing. By the end of this Learning Path, you will have the skills and confidence to build engaging models that quickly offer efficient solutions to your problems. This Learning Path includes content from the following Packt products:

- Python High Performance - Second Edition by Gabriele Lanaro
- Mastering Concurrency in Python by Quan Nguyen
- Mastering Python Design Patterns by Sakis Kasampalis

What you will learn

- Use NumPy and pandas to import and manipulate datasets
- Achieve native performance with Cython and Numba
- Write asynchronous code using asyncio and RxPy
- Design highly scalable programs with application scaffolding
- Explore abstract methods to maintain data consistency
- Clone objects using the prototype pattern
- Use the adapter pattern to make incompatible interfaces compatible
- Employ the strategy pattern to dynamically choose an algorithm

Who this book is for

This Learning Path is specially designed for Python developers who want to build high-performance applications and learn about single core and multi-core programming, distributed concurrency, and Python design patterns. Some experience with Python programming language will help you get the most out of this Learning Path.

Python for Developers

Master python programming language in easy steps DESCRIPTION It is said that learning Python is easy, but if a learner did not get the right path, then things can get complicated. This book is designed in such a way that you start from basics, followed by advance levels and then move on to some industry-related modules. The initial chapters are written in a simple manner; some chapters are of advance level. Start from the data structure of Python, such as string, list, tuple, and dictionary. The function and module chapter will let you know how to organize a large code. The built-in functions and modules like collections will give you greater flexibility to write efficient codes. The "time" chapter is very important when we deal with time-related things. The mid-chapter contains the advance chapters such as regular expressions, interaction with OS, and multithreading. These chapters are helpful when we want to search the pattern, run the OS commands, and execute the program in parallel. The last chapters are specially designed from an industry point of view. In order to ensure a high quality of code, we use config-parser to avoid hard-coding and logger to log the events. In the multiprocessing and subprocess chapter, you will learn creation, execution, and communication between the processes. KEY FEATURES Start from basics of Python Control statement, loop structure, break, continue, and pass statement Detailed description of Python data types: string, tuple, list, and dictionary with the help of example Organizing code using function, modules, and packages Saving text and complex data in text, pickle, and JSON files Learn the use of time and time zones Parallel execution with the help of threading, multiprocessing, and subprocessing Helpful modules for industry WHAT WILL YOU LEARN Python for developers is created by taking beginner and intermediate programmers. The book starts from scratch and takes you to the advanced level. After learning advance levels, you will learn parallel programming using multithreading, multiprocessing, and sub-processing. The book will provide information on modules which will be helpful from industry perspective. The book also contains the question for the preparation of the interview. You will also learn the difference between Python 2.7 and Python 3.7. Some of the chapters include an advance part, which will give an in-depth knowledge of the chapters. WHO THIS BOOK IS FOR This book is for whoever wants to learn Python and aspires to become a developer or work on projects. Beginners can read this book easily; however, a little knowledge about the programming concepts would be helpful. Basic knowledge of computers would suffice. Table of Contents 1. Introduction to Python 2. Python Operators 3. Control statements and

loop 4. Strings 5. List and tuple 6. Dictionary and sets 7. Functions 8. Modules 9. Exception handling 10. File handling 11. Collection 12. Random modules and built-in function 13. Time 14. Regular expression 15. Operating system interfaces 16. Class 17. Threads 18. Queue 19. Multiprocessing and Subprocess 20. Useful Modules

Learn Python Programming

Learn the fundamentals of Python (3.7) and how to apply it to data science, programming, and web development. Fully updated to include hands-on tutorials and projects. Key Features Learn the fundamentals of Python programming with interactive projects Apply Python to data science with tools such as IPython and Jupyter Utilize Python for web development and build a real-world app using Django Book Description Learn Python Programming is a quick, thorough, and practical introduction to Python - an extremely flexible and powerful programming language that can be applied to many disciplines. Unlike other books, it doesn't bore you with elaborate explanations of the basics but gets you up-and-running, using the language. You will begin by learning the fundamentals of Python so that you have a rock-solid foundation to build upon. You will explore the foundations of Python programming and learn how Python can be manipulated to achieve results. Explore different programming paradigms and find the best approach to a situation; understand how to carry out performance optimization and effective debugging; control the flow of a program; and utilize an interchange format to exchange data. You'll also walk through cryptographic services in Python and understand secure tokens. Learn Python Programming will give you a thorough understanding of the Python language. You'll learn how to write programs, build websites, and work with data by harnessing Python's renowned data science libraries. Filled with real-world examples and projects, the book covers various types of applications, and concludes by building real-world projects based on the concepts you have learned. What you will learn Get Python up and running on Windows, Mac, and Linux Explore fundamental concepts of coding using data structures and control flow Write elegant, reusable, and efficient code in any situation Understand when to use the functional or OOP approach Cover the basics of security and concurrent/asynchronous programming Create bulletproof, reliable software by writing tests Build a simple website in Django Fetch, clean, and manipulate data Who this book is for Learn Python Programming is for

individuals with relatively little experience in coding or Python. It's also ideal for aspiring programmers who need to write scripts or programs to accomplish tasks. The book shows you how to create a full-fledged application.

A Python Book

This document is a self learning document for a course in Python programming. This course contains (1) a part for beginners, (2) a discussion of several advanced topics that are of interest to Python programmers, and (3) a Pythonworkbook with lots of exercises.

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tastrophe_creativity_and-the__renewal__of_civilization.pdf)

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