

# Kivy Cookbook

The next step in the information age is to gain insights from the deluge of data coming our way. Data mining provides a way of finding this insight, and Python is one of the most popular languages for data mining, providing both power and flexibility in analysis. This book teaches you to design and develop data mining applications using a variety of datasets, starting with basic classification and affinity analysis. Next, we move on to more complex data types including text, images, and graphs. In every chapter, we create models that solve real-world problems. There is a rich and varied set of libraries available in Python for data mining. This book covers a large number, including the IPython Notebook, pandas, scikit-learn and NLTK. Each chapter of this book introduces you to new algorithms and techniques. By the end of the book, you will gain a large insight into using Python for data mining, with a good knowledge and understanding of the algorithms and implementations.

Enhance your skills in developing multi-touch applications with Kivy About This Book Create most diverse apps and learn how to distribute them with the help of the Kivy framework Explore Kivy API to develop user interfaces and control multi-touch events Step-by-step recipes that provide deeper understanding of the Kivy 1.9.0 framework Build and use your own events, widgets and gestures using features and tools in Kivy Who This Book Is For This book is intended for developers who want to use features of the Kivy framework and develop multi-touch applications. Prior experience with Kivy is not required, although familiarity with Python is expected. What You Will Learn Access widgets defined inside Kv language in your Python code Handle Kivy events to control widgets, touches, the mouse, the keyboard, and animations

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Recognize touch shapes and detecting multi-tapping Create custom events and declare properties Organizing your layouts while working with the ActionBar Store and retrieve the coordinate space context Create your own shader and render in a framebuffer Leverage Factory objects, multi-touch in iOS and multi-touch in Android In Detail Kivy is an open-source Python library for rapid development of applications that make use of innovative user interfaces, such as multi-touch apps. It is a promising Python framework to develop UI and UX apps in a cross-platform environment, under the Python philosophy. Kivy Cookbook is a practical book that will guide you through the Kivy framework to develop apps and get your apps ready for distribution in App Store and Android devices. You will start off with installing Kivy and building your interfaces. You will learn how to work the accelerometer and create custom events. Then, you will understand how to use the basics, buttons, labels and text inputs and manipulate the widget tree. Next, you will be able to work with manipulating instructions, create an atlas and layouts. Moving on, you will learn packing for Windows and packing for iOS, and use TestDrive. By the end of the book, you will have learnt in detail the relevant features and tools in Kivy and how to create portable packages to distribute your apps in the most used platforms. Style and approach This is an easy-to-follow practical guide packed with graspable recipes that cover important tasks to be performed while developing multi-touch applications with Kivy. All the code used in each recipe is explained in detail. Collection of essays on the following issues: music and the liberal education, work and performance, the world of opera, music and the history of ideas, music and emotion, and music alone.

With Bluetooth Low Energy (BLE), smart devices are about to become even smarter. This

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practical guide demonstrates how this exciting wireless technology helps developers build mobile apps that share data with external hardware, and how hardware engineers can gain easy and reliable access to mobile operating systems. This book provides a solid, high-level overview of how devices use BLE to communicate with each other. You'll learn useful low-cost tools for developing and testing BLE-enabled mobile apps and embedded firmware and get examples using various development platforms—including iOS and Android for app developers and embedded platforms for product designers and hardware engineers. Understand how data is organized and transferred by BLE devices Explore BLE's concepts, key limitations, and network topology Dig into the protocol stack to grasp how and why BLE operates Learn how BLE devices discover each other and establish secure connections Set up the tools and infrastructure for BLE application development Get examples for connecting BLE to iPhones, iPads, Android devices, and sensors Develop code for a simple device that transmits heart rate data to a mobile device

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

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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*! Written for developers who want build applications using Twisted, this book presents a task-oriented look at this open source, Python- based technology.

*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+

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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

Summary Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Machine learning has made remarkable progress in recent years. We went from near-unusable speech and image recognition, to near-human accuracy. We went from machines that couldn't beat a serious Go player, to defeating a world champion. Behind this progress is deep learning—a combination of engineering advances, best practices, and theory that enables a wealth of previously impossible smart applications. About the Book Deep Learning with Python introduces the field

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of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. You'll explore challenging concepts and practice with applications in computer vision, natural-language processing, and generative models. By the time you finish, you'll have the knowledge and hands-on skills to apply deep learning in your own projects. What's Inside Deep learning from first principles Setting up your own deep-learning environment Image-classification models Deep learning for text and sequences Neural style transfer, text generation, and image generation About the Reader Readers need intermediate Python skills. No previous experience with Keras, TensorFlow, or machine learning is required. About the Author François Chollet works on deep learning at Google in Mountain View, CA. He is the creator of the Keras deep-learning library, as well as a contributor to the TensorFlow machine-learning framework. He also does deep-learning research, with a focus on computer vision and the application of machine learning to formal reasoning. His papers have been published at major conferences in the field, including the Conference on Computer Vision and Pattern Recognition (CVPR), the Conference and Workshop on Neural Information Processing Systems (NIPS), the International Conference on Learning Representations (ICLR), and others. Table of Contents PART 1 - FUNDAMENTALS OF DEEP LEARNING What is deep learning? Before we begin: the mathematical building blocks of neural networks Getting started with neural networks Fundamentals of machine learning PART 2 - DEEP LEARNING IN PRACTICE Deep learning for computer vision Deep learning for text and sequences Advanced deep-learning best practices Generative deep learning Conclusions appendix A - Installing Keras and its dependencies on Ubuntu appendix

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B - Running Jupyter notebooks on an EC2 GPU instance

This book is a best fit for backend developers with a basic knowledge of Drupal's APIs and some experience using the command line. Perhaps you already worked on one or two Drupal projects, but have never dived deep into Drush's toolset. In any case, this book will give you a lot of advice by covering real-world challenges in Drupal projects that can be solved using Drush.

Create robust and extensible iOS apps using the advanced features of Swift 2  
About This Book Get up to speed with the new features of Swift 2 by following the exhaustive examples in this book Specialize in developing real iOS apps, and 2D and 3D videogames using Swift and Cocoapods Learn how to build server API apps to feed your iOS client apps Who This Book Is For This book is ideal for those who want to learn to develop app in Swift, starting the right way. Whether you are an expert Objective-C programmer or are new to this platform, you'll quickly grasp the code of real world apps, and discover how to use Swift effectively. Prior experience in development for Apple devices would be helpful, but is not mandatory. What You Will Learn Create a server in Swift to deliver JSON data to an iOS app Take advantage of Cocoapods to use third-party libraries Use a clean and effective architecture to decrease complexity and speed up development Take advantage of the most useful parts of the iOS SDK Build

games with SpriteKit and SceneKit Develop an app running on the cloud to act as an API server for your client's apps In Detail Swift is no longer the unripe language it was when launched by Apple at WWDC14, now it's a powerful and ready-for-production programming language that has empowered most new released apps. Swift is a user-friendly language with a smooth learning curve; it is safe, robust, and really flexible. Swift 2 is more powerful than ever; it introduces new ways to solve old problems, more robust error handling, and a new programming paradigm that favours composition over inheritance. Swift 2 by Example is a fast-paced, practical guide to help you learn how to develop iOS apps using Swift. Through the development of seven different iOS apps and one server app, you'll find out how to use either the right feature of the language or the right tool to solve a given problem. We begin by introducing you to the latest features of Swift 2, further kick-starting your app development journey by building a guessing game app, followed by a memory game. It doesn't end there, with a few more apps in store for you: a to-do list, a beautiful weather app, two games: Flappy Swift and Cube Runner, and finally an ecommerce app to top everything off. By the end of the book, you'll be able to build well-designed apps, effectively use AutoLayout, develop videogames, and build server apps. Style and approach These easy-to-follow tutorials show you how to build real-world apps. The

difficulty and complexity level increases chapter by chapter. Each chapter is dedicated to build a new app, beginning from a basic and unstyled app through to a full 3D game. The last two chapters show you how to build a complete client-server ecommerce app right from scratch.

Start building Python-based Android applications using Kivy with Android Studio. Through in-depth examples, this book teaches you everything you need to create your first Android application in Python and publish on Google Play. Building Android Apps in Python Using Kivy with Android Studio takes you through the basics of Kivy by discussing its application structure, widgets, and event handling. The KV language is then introduced for separating the logic and GUI by adding widgets within a KV file. You will then learn how to utilize Android camera using Kivy, build the HTTP server using Flask, and create and manage multiple screens to help you design your own applications. Through detailed step-by-step instructions, you will create your first multi-level cross-platform game that includes animation and sound effects. Following this, the process of converting the Kivy application into an Android application using Buildozer and Python-4-Android is covered in detail. You will then learn how to edit the generated Android Studio project into Android Studio by adding extensions to the original application. The widgets added in Kivy could be handled within Android

Studio. Moreover, Android views could be added to enrich the Kivy application. The resulting Android application created with Kivy can be hosted on Google Play to download and install as a regular Android application. At the end, this book will give you the basic knowledge of Kivy needed to build cross-platform Android applications, produce an Android Studio project, and understand how it all works in detail. What You Will Learn Build cross-platform applications from scratch using Kivy in detail Create a cross-platform interactive multi-level game from the ground up Examine the pipeline of building an Android app from the Python Kivy app Understand the structure of the Android Studio project produced by Kivy Recognize how to extend the application within Android Studio by adding more Android views to the application main activity. Who This Book Is For Python developers with no previous experience in Kivy who are looking to create their first Android application completely in Python.

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.

The Hitchhiker's Guide to Python takes the journeyman Pythonista to true expertise. More than any other language, Python was created with the philosophy of simplicity and parsimony. Now 25 years old, Python has become the primary or secondary language (after SQL) for many business users. With popularity comes diversity—and possibly dilution. This guide, collaboratively written by over a hundred members of the Python community, describes best practices currently used by package and application developers. Unlike other books for this audience, The Hitchhiker's Guide is light on reusable code and heavier on design philosophy, directing the reader to excellent sources that already exist.

Learn the concepts of time series from traditional to bleeding-edge techniques. This book uses comprehensive examples to clearly illustrate statistical approaches and methods of analyzing time series data and its utilization in the real world. All the code is available in Jupyter notebooks. You'll begin by reviewing time series fundamentals, the structure of time series data, pre-processing, and how to craft the features through data wrangling. Next, you'll

look at traditional time series techniques like ARMA, SARIMAX, VAR, and VARMA using trending framework like StatsModels and pmdarima. The book also explains building classification models using sktime, and covers advanced deep learning-based techniques like ANN, CNN, RNN, LSTM, GRU and Autoencoder to solve time series problem using Tensorflow. It concludes by explaining the popular framework fbprophet for modeling time series analysis. After reading Hands -On Time Series Analysis with Python, you'll be able to apply these new techniques in industries, such as oil and gas, robotics, manufacturing, government, banking, retail, healthcare, and more. What You'll Learn:

- Explains basics to advanced concepts of time series
- How to design, develop, train, and validate time-series methodologies
- What are smoothing, ARMA, ARIMA, SARIMA, SRIMAX, VAR, VARMA techniques in time series and how to optimally tune parameters to yield best results
- Learn how to leverage bleeding-edge techniques such as ANN, CNN, RNN, LSTM, GRU, Autoencoder to solve both Univariate and multivariate problems by using two types of data preparation methods for time series.
- Univariate and multivariate problem solving using fbprophet.

Who This Book Is For Data scientists, data analysts, financial analysts, and stock market researchers

Python is a powerful programming language that's easy to learn and fun to play

with. But once you've gotten a handle on the basics, what do you do next? Python Playground is a collection of imaginative programming projects that will inspire you to use Python to make art and music, build simulations of real-world phenomena, and interact with hardware like the Arduino and Raspberry Pi. You'll learn to use common Python tools and libraries like numpy, matplotlib, and pygame to do things like:

- Generate Spirograph-like patterns using parametric equations and the turtle module
- Create music on your computer by simulating frequency overtones
- Translate graphical images into ASCII art
- Write an autostereogram program that produces 3D images hidden beneath random patterns
- Make realistic animations with OpenGL shaders by exploring particle systems, transparency, and billboard techniques
- Construct 3D visualizations using data from CT and MRI scans
- Build a laser show that responds to music by hooking up your computer to an Arduino

Programming shouldn't be a chore. Have some solid, geeky fun with Python Playground. The projects in this book are compatible with both Python 2 and 3.

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 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.

Over 60 recipes to help you design interactive, smart, and cross-platform GUI applications Key Features Get succinct QT solutions to pressing GUI programming problems in Python Learn how to effectively implement reactive programming Build customized applications that are robust and reliable Book Description PyQt is one of the best cross-platform interface toolkits currently available; it's stable, mature, and completely native. If you want control over all aspects of UI elements, PyQt is what you need. This book will guide you through every concept necessary to create fully functional GUI applications using PyQt, with only a few lines of code. As you expand your GUI using more widgets, you will cover networks, databases, and graphical libraries that greatly enhance its functionality. Next, the book guides you in using Qt Designer to design user interfaces and implementing and testing dialogs, events, the clipboard, and drag

and drop functionality to customize your GUI. You will learn a variety of topics, such as look and feel customization, GUI animation, graphics rendering, implementing Google Maps, and more. Lastly, the book takes you through how Qt5 can help you to create cross-platform apps that are compatible with Android and iOS. You will be able to develop functional and appealing software using PyQt through interesting and fun recipes that will expand your knowledge of GUIs

What you will learn

- Use basic Qt components, such as a radio button, combo box, and sliders
- Use QSpinBox and sliders to handle different signals generated on mouse clicks
- Work with different Qt layouts to meet user interface requirements
- Create custom widgets and set up customizations in your GUI
- Perform asynchronous I/O operations and thread handling in the Python GUI
- Employ network concepts, internet browsing, and Google Maps in UI
- Use graphics rendering and implement animation in your GUI
- Make your GUI application compatible with Android and iOS devices

Who this book is for

If you're an intermediate Python programmer wishing to enhance your coding skills by writing powerful GUIs in Python using PyQt, this is the book for you.

Gain comprehensive insights into programming practices, and code portability and reuse to build flexible and maintainable apps using object-oriented principles

Key Features

- Extend core OOP techniques to increase integration of classes

created with Python Explore various Python libraries for handling persistence and object serialization Learn alternative approaches for solving programming problems, with different attributes to address your problem domain Book Description Object-oriented programming (OOP) is a relatively complex discipline to master, and it can be difficult to see how general principles apply to each language's unique features. With the help of the latest edition of Mastering Objected-Oriented Python, you'll be shown how to effectively implement OOP in Python, and even explore Python 3.x. Complete with practical examples, the book guides you through the advanced concepts of OOP in Python, and demonstrates how you can apply them to solve complex problems in OOP. You will learn how to create high-quality Python programs by exploring design alternatives and determining which design offers the best performance. Next, you'll work through special methods for handling simple object conversions and also learn about hashing and comparison of objects. As you cover later chapters, you'll discover how essential it is to locate the best algorithms and optimal data structures for developing robust solutions to programming problems with minimal computer processing. Finally, the book will assist you in leveraging various Python features by implementing object-oriented designs in your programs. By the end of this book, you will have learned a number of alternate approaches with

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different attributes to confidently solve programming problems in Python. What you will learn Explore a variety of different design patterns for the `__init__()` method Learn to use Flask to build a RESTful web service Discover SOLID design patterns and principles Use the features of Python 3's abstract base Create classes for your own applications Design testable code using `pytest` and fixtures Understand how to design context managers that leverage the 'with' statement Create a new type of collection using standard library and design techniques Develop new number types above and beyond the built-in classes of numbers Who this book is for This book is for developers who want to use Python to create efficient programs. A good understanding of Python programming is required to make the most out of this book. Knowledge of concepts related to object-oriented design patterns will also be useful. This book is intended for programmers who are comfortable with the Python language and who want to build desktop and mobile applications with rich GUI in Python with minimal hassle. Knowledge of Kivy is not strictly required—every aspect of the framework is described when it's first used. 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.

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.

Over 80 object-oriented recipes to help you create mind-blowing GUIs in Python  
About This Book Use object-oriented programming to develop amazing GUIs in Python  
Create a working GUI project as a central resource for developing your Python GUIs  
Packed with easy-to-follow recipes to help you develop code using the latest released version of Python  
Who This Book Is For If you are a Python programmer with intermediate level knowledge of GUI programming and want to learn how to create beautiful, effective, and responsive GUIs using the freely available Python GUI frameworks, this book is for you.  
What You Will Learn  
Create amazing GUIs with Python's built-in Tkinter module  
Customize the GUIs by using layout managers to arrange the GUI widgets  
Advance to an object-oriented programming style using Python  
Develop beautiful charts using the free Matplotlib Python module  
Use threading in a networked environment to make the GUIs responsive  
Discover ways to connect the GUIs to a database  
Understand how unit tests can be created and internationalize the GUI  
Extend the GUIs with free Python frameworks using best practices  
In Detail Python is a multi-domain, interpreted programming language. It is a widely used general-purpose, high-level programming language. It is often used as a scripting language because of its forgiving syntax and compatibility with a wide variety of different eco-systems.

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Its flexible syntax enables developers to write short scripts while at the same time, they can use object-oriented concepts to develop very large projects. Python GUI Programming Cookbook follows a task-based approach to help you create beautiful and very effective GUIs with the least amount of code necessary. This book uses the simplest programming style, using the fewest lines of code to create a GUI in Python, and then advances to using object-oriented programming in later chapters. If you are new to object-oriented programming (OOP), this book will teach you how to take advantage of the OOP coding style in the context of creating GUIs written in Python. Throughout the book, you will develop an entire GUI application, building recipe upon recipe, connecting the GUI to a database. In the later chapters, you will explore additional Python GUI frameworks, using best practices. You will also learn how to use threading to ensure your GUI doesn't go unresponsive. By the end of the book, you will be an expert in Python GUI programming to develop a common set of GUI applications. Style and approach Every recipe in this programming cookbook solves a problem you might encounter in your programming career. At the same time, most of the recipes build on each other to create an entire, real-life GUI application. This book offers ten chapters dealing with Costa Rican traditional knowledge. Each chapter presents a transcription from a talk given to an interdisciplinary

audience at Universidad de Costa Rica. The chapters address the links between knowledge and culture in a variety of cases, including black, indigenous and "white" knowledge in both rural and city contexts, with an emphasis on gender issues. This book is the first of its class and its transcriptions have been annotated for easier reading. All social scientists interested in Latin American culture or in cognitive topics in general will benefit from reading it.

Learn web scraping and crawling techniques to access unlimited data from any web source in any format. With this practical guide, you'll learn how to use Python scripts and web APIs to gather and process data from thousands—or even millions—of web pages at once. Ideal for programmers, security professionals, and web administrators familiar with Python, this book not only teaches basic web scraping mechanics, but also delves into more advanced topics, such as analyzing raw data or using scrapers for frontend website testing. Code samples are available to help you understand the concepts in practice. Learn how to parse complicated HTML pages Traverse multiple pages and sites Get a general overview of APIs and how they work Learn several methods for storing the data you scrape Download, read, and extract data from documents Use tools and techniques to clean badly formatted data Read and write natural languages Crawl through forms and logins Understand how to scrape JavaScript Learn

image processing and text recognition

The concept of genius intrigues us. Artistic geniuses have something other people don't have. In some cases that something seems to be a remarkable kind of inspiration that permits the artist to exceed his own abilities. It is as if the artist is suddenly possessed, as if some outside force flows through them at the moment of creation. In other cases genius seems best explained as a natural gift. The artist is the possessor of an extra talent that enables the production of masterpiece after masterpiece. This book explores the concept of artistic genius and how it came to be symbolised by three great composers of the modern era: Handel, Mozart, and Beethoven.

Build smart cybersecurity systems with the power of machine learning and deep learning to protect your corporate assets

**Key Features**

- Identify and predict security threats using artificial intelligence
- Develop intelligent systems that can detect unusual and suspicious patterns and attacks
- Learn how to test the effectiveness of your AI cybersecurity algorithms and tools

**Book Description**

Today's organizations spend billions of dollars globally on cybersecurity. Artificial intelligence has emerged as a great solution for building smarter and safer security systems that allow you to predict and detect suspicious network activity, such as phishing or unauthorized intrusions. This cybersecurity book presents and demonstrates popular and successful AI approaches and models that you can adapt to detect potential attacks and protect your corporate systems. You'll learn about the role of machine learning and neural networks, as well as

deep learning in cybersecurity, and you'll also learn how you can infuse AI capabilities into building smart defensive mechanisms. As you advance, you'll be able to apply these strategies across a variety of applications, including spam filters, network intrusion detection, botnet detection, and secure authentication. By the end of this book, you'll be ready to develop intelligent systems that can detect unusual and suspicious patterns and attacks, thereby developing strong network security defenses using AI. What you will learn

- Detect email threats such as spamming and phishing using AI
- Categorize APT, zero-days, and polymorphic malware samples
- Overcome antivirus limits in threat detection
- Predict network intrusions and detect anomalies with machine learning
- Verify the strength of biometric authentication procedures with deep learning
- Evaluate cybersecurity strategies and learn how you can improve them

Who this book is for If you're a cybersecurity professional or ethical hacker who wants to build intelligent systems using the power of machine learning and AI, you'll find this book useful. Familiarity with cybersecurity concepts and knowledge of Python programming is essential to get the most out of this book.

The FreeBSD Handbook is a comprehensive FreeBSD tutorial and reference. It covers installation, day-to-day use of FreeBSD, and much more, such as the Ports collection, creating a custom kernel, security topics, the X Window System, how to use FreeBSD's Linux binary compatibility, and how to upgrade your system from source using the 'make world' command, to name a few.

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Master efficient parallel programming to build powerful applications using Python About This Book Design and implement efficient parallel software Master new programming techniques to address and solve complex programming problems Explore the world of parallel programming with this book, which is a go-to resource for different kinds of parallel computing tasks in Python, using examples and topics covered in great depth Who This Book Is For Python Parallel Programming Cookbook is intended for software developers who are well versed with Python and want to use parallel programming techniques to write powerful and efficient code. This book will help you master the basics and the advanced of parallel computing. What You Will Learn Synchronize multiple threads and processes to manage parallel tasks Implement message passing communication between processes to build parallel applications Program your own GPU cards to address complex problems Manage computing entities to execute distributed computational tasks Write efficient programs by adopting the event-driven programming model Explore the cloud technology with Django and Google App Engine Apply parallel programming techniques that can lead to performance improvements In Detail Parallel programming techniques are required for a developer to get the best use of all the computational resources available today and to build efficient software systems. From multi-core to GPU systems up to the distributed architectures, the high computation of programs throughout requires the use of programming tools and software libraries. Because of this, it is becoming increasingly important to know what

the parallel programming techniques are. Python is commonly used as even non-experts can easily deal with its concepts. This book will teach you parallel programming techniques using examples in Python and will help you explore the many ways in which you can write code that allows more than one process to happen at once. Starting with introducing you to the world of parallel computing, it moves on to cover the fundamentals in Python. This is followed by exploring the thread-based parallelism model using the Python threading module by synchronizing threads and using locks, mutex, semaphores queues, GIL, and the thread pool. Next you will be taught about process-based parallelism where you will synchronize processes using message passing along with learning about the performance of MPI Python Modules. You will then go on to learn the asynchronous parallel programming model using the Python asyncio module along with handling exceptions. Moving on, you will discover distributed computing with Python, and learn how to install a broker, use Celery Python Module, and create a worker. You will also understand the StarCluster framework, Pycsp, Scoop, and Disco modules in Python. Further on, you will learn GPU programming with Python using the PyCUDA module along with evaluating performance limitations. Next you will get acquainted with the cloud computing concepts in Python, using Google App Engine (GAE), and building your first application with GAE. Lastly, you will learn about grid computing concepts in Python and using PyGlobus toolkit, GFTP and GASS COPY to transfer files, and service monitoring in PyGlobus. Style and approach A step-by-step

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guide to parallel programming using Python, with recipes accompanied by one or more programming examples. It is a practically oriented book and has all the necessary underlying parallel computing concepts.

Find out how to create visually stunning and feature-rich applications by empowering Python's built-in Tkinter GUI toolkit

### Key Features

Explore Tkinter's powerful features to easily design and customize your GUI application

### Learn the basics of 2D and 3D animation in GUI applications.

Learn to integrate stunning Data Visualizations using Tkinter Canvas and Matplotlib.

### Book Description

Tkinter is a lightweight, portable, and easy-to-use graphical toolkit available in the Python Standard Library, widely used to build Python GUIs due to its simplicity and availability. This book teaches you to design and build graphical user interfaces that are functional, appealing, and user-friendly using the powerful combination of Python and Tkinter. After being introduced to Tkinter, you will be guided step-by-step through the application development process. Over the course of the book, your application will evolve from a simple data-entry form to a complex data management and visualization tool while maintaining a clean and robust design. In addition to building the GUI, you'll learn how to connect to external databases and network resources, test your code to avoid errors, and maximize performance using asynchronous programming. You'll make the most of Tkinter's cross-platform availability by learning how to maintain compatibility, mimic platform-native look and feel, and build executables for deployment across popular computing

platforms. By the end of this book, you will have the skills and confidence to design and build powerful high-end GUI applications to solve real-world problems. What you will learn Implement the tools provided by Tkinter to design beautiful GUIs Discover cross-platform development through minor customizations in your existing application Visualize graphs in real time as data comes in using Tkinter's animation capabilities Use PostgreSQL authentication to ensure data security for your application Write unit tests to avoid regressions when updating code Who this book is for This book will appeal to developers and programmers who would like to build GUI-based applications. Knowledge of Python is a prerequisite.

Get to grips with object-oriented programming in Swift to efficiently build powerful real-world applications About This Book Leverage the most efficient object-oriented design patterns in your Swift applications Write robust, safer, and better code using the blueprints that generate objects Build a platform with object-oriented code by using real-world elements and represent them in your app Who This Book Is For If you are an iOS developer who has a basic idea of object-oriented programming and want to incorporate its concepts with Swift to optimize your application's code and create reusable and easily to understand building blocks, then this book is for you. This is a very useful resource for developers who want to shift from Objective C, C#, Java, Python, JavaScript, or other object-oriented languages to Swift What You Will Learn Build solid, stable, and reliable applications using Swift Work with encapsulation,

abstraction, and polymorphism using Swift 2.0 Customize constructors and destructors based on your needs Develop Swift 2.0 with classes, instances, properties, and methods Take advantage of generic code to maximize code reuse and generalize behaviors Use state of inheritance, specialization, and the possibility to overload members Write high quality object-oriented code to build apps for iOS or Mac OS X In Detail Object-Oriented Programming (OOP) is a programming paradigm based on the concept of objects; these are data structures that contain data in the form of fields, often known as attributes and code. Objects are everywhere, and so it is very important to recognize elements, known as objects, from real-world situations and know how they can easily be translated into object-oriented code. Object-Oriented Programming with Swift is an easy-to-follow guide packed full of hands-on examples of solutions to common problems encountered with object-oriented code in Swift. It starts by helping you to recognize objects using real-life scenarios and demonstrates how 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 Swift. Then, you will explore how to maximize code reuse by writing code capable of working with objects of different types. After that, you'll discover the power of parametric polymorphism and will combine generic code with inheritance and multiple inheritance. Later, you move on to refactoring your existing code and organizing your source for easy maintenance and extensions. By the end of the book, you will be able to create better, stronger, and more

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reusable code, which will help you build better applications. Style and approach This simple guide is packed with practical examples of solutions to common problems. Each chapter includes exercises and the possibility for you to test your progress by answering questions.

Kivy – Interactive Applications and Games in Python Second Edition, will equip you with all the necessary knowledge to create interactive, responsive, and cross-platform applications and games. This book introduces the Kivy language and the necessary components so you can implement a graphical user interface (GUI) and learn techniques to handle events, detect gestures, and control multi-touch actions. You will learn strategies to animate your applications, and obtain interactive, professional-looking, and responsive results. You will be applying this knowledge throughout the book by developing three applications and tackling their diverse programming challenges.

Take Python beyond scripting to build robust, reusable, and efficient applications About This Book Get to grips with Python techniques that address commonly encountered problems in general application development. Develop, package, and deploy efficient applications in a fun way. All-practical coverage of the major areas of application development, including best practices, exception handling, testing, refactoring, design patterns, performance, and GUI application development. Who This Book Is For Do you know the basics of Python and object oriented programming? Do you want to go an

extra mile and learn techniques to make your Python application robust, extensible, and efficient? Then this book is for you. What You Will Learn Build a robust application by handling exceptions. Modularize, package, and release the source distribution. Document the code and implement coding standards. Create automated tests to catch bugs in the early development stage. Identify and re-factor badly written code to improve application life. Detect recurring problems in the code and apply design patterns. Improve code efficiency by identifying performance bottlenecks and fixing them. Develop simple GUI applications using Python. In Detail Python is one of the most widely used dynamic programming languages, supported by a rich set of libraries and frameworks that enable rapid development. But fast paced development often comes with its own baggage that could bring down the quality, performance, and extensibility of an application. This book will show you ways to handle such problems and write better Python applications. From the basics of simple command-line applications, develop your skills all the way to designing efficient and advanced Python apps. Guided by a light-hearted fantasy learning theme, overcome the real-world problems of complex Python development with practical solutions. Beginning with a focus on robustness, packaging, and releasing application code, you'll move on to focus on improving application lifetime by making code extensible, reusable, and readable. Get to grips with Python refactoring, design patterns and best practices. Techniques to identify the bottlenecks and improve performance are covered in a series

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of chapters devoted to performance, before closing with a look at developing Python GUIs. Style and approach The book uses a fantasy game theme as a medium to explain various topics. Specific aspects of application development are explained in different chapters. In each chapter the reader is presented with an interesting problem which is then tackled using hands-on examples with easy-to-follow instructions. 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 Build mobile apps efficiently with Kivy, the Python-powered graphical toolkit for creating natural

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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

Deploy deep learning applications into production across multiple platforms. You will work on computer vision applications that use the convolutional neural network (CNN) deep learning model and Python. This book starts by explaining the traditional machine-learning pipeline, where you will analyze an image dataset. Along the way you will cover artificial neural networks (ANNs), building one from scratch in Python, before optimizing it using genetic algorithms. For automating the process, the book highlights the limitations of traditional hand-crafted features for computer vision and why the CNN deep-learning model is the state-of-art solution. CNNs are discussed from scratch to demonstrate how they are different and more efficient than the fully connected ANN (FCNN). You will implement a CNN in Python to give you a full understanding of the model. After consolidating the basics, you will use TensorFlow

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to build a practical image-recognition model that you will deploy to a web server using Flask, making it accessible over the Internet. Using Kivy and NumPy, you will create cross-platform data science applications with low overheads. This book will help you apply deep learning and computer vision concepts from scratch, step-by-step from conception to production. What You Will Learn Understand how ANNs and CNNs work Create computer vision applications and CNNs from scratch using Python Follow a deep learning project from conception to production using TensorFlow Use NumPy with Kivy to build cross-platform data science applications Who This Book Is For Data scientists, machine learning and deep learning engineers, software developers.

JSON (JavaScript Object Notation) is a lightweight text-based data interchange format used to create objects to transfer data over the Internet. It's widely used today by common web applications, as well as mobile applications. This book gives you clear ways that you can exchange objects using JSON, regardless of whether you're developing a web or traditional networked application. You'll start with a brief refresher on JSON and JavaScript syntax and read and write on the client and server. Then, you'll learn how to use JSON in simple AJAX applications using AngularJS and jQuery. Next, you will learn how to exchange objects with databases using MongoDB and CouchDB. You'll also explore how to use JSON in a type-safe manner, writing programs that have fewer bugs.

Jump in and build working Android apps with the help of more than 230 tested recipes. The second edition of this acclaimed cookbook includes recipes for working with user interfaces, multitouch gestures, location awareness, web services, and specific device features such as the phone, camera, and accelerometer. You also get useful info on packaging your app for the

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Google Play Market. Ideal for developers familiar with Java, Android basics, and the Java SE API, this book features recipes contributed by more than three dozen Android developers. Each recipe provides a clear solution and sample code you can use in your project right away. Among numerous topics, this cookbook helps you: Get started with the tooling you need for developing and testing Android apps Create layouts with Android's UI controls, graphical services, and pop-up mechanisms Build location-aware services on Google Maps and OpenStreetMap Control aspects of Android's music, video, and other multimedia capabilities Work with accelerometers and other Android sensors Use various gaming and animation frameworks Store and retrieve persistent data in files and embedded databases Access RESTful web services with JSON and other formats Test and troubleshoot individual components and your entire application

Presents instructions for creating Android applications for mobile devices using Java. Intended to anyone interested in numerical computing and data science: students, researchers, teachers, engineers, analysts, hobbyists... Basic knowledge of Python/NumPy is recommended. Some skills in mathematics will help you understand the theory behind the computational methods.

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