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# Learning IPython for Interactive Computing and Data Visualization

## *Second Edition*

Get started with Python for data analysis and numerical computing in the Jupyter notebook.

Cyrille Rossant

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# Learning Ipython For Interactive Computing And Data Visualization Rossant Cyrille

**Luca Massaron,Alberto Boschetti**



## **Learning IPython For Interactive Computing And Data Visualization Rossant Cyrille:**

*Learning IPython for Interactive Computing and Data Visualization* Cyrille Rossant, 2015-10-21 Get started with Python for data analysis and numerical computing in the Jupyter notebook About This Book Learn the basics of Python in the Jupyter Notebook Analyze and visualize data with pandas NumPy matplotlib and seaborn Perform highly efficient numerical computations with Numba Cython and ipyparallel Who This Book Is For This book targets students teachers researchers engineers analysts journalists hobbyists and all data enthusiasts who are interested in analyzing and visualizing real world datasets If you are new to programming and data analysis this book is exactly for you If you re already familiar with another language or analysis software you will also appreciate this introduction to the Python data analysis platform Finally there are more technical topics for advanced readers No prior experience is required this book contains everything you need to know What You Will Learn Install Anaconda and code in Python in the Jupyter Notebook Load and explore datasets interactively Perform complex data manipulations effectively with pandas Create engaging data visualizations with matplotlib and seaborn Simulate mathematical models with NumPy Visualize and process images interactively in the Jupyter Notebook with scikit image Accelerate your code with Numba Cython and IPython parallel Extend the Notebook interface with HTML JavaScript and D3 In Detail Python is a user friendly and powerful programming language IPython offers a convenient interface to the language and its analysis libraries while the Jupyter Notebook is a rich environment well adapted to data science and visualization Together these open source tools are widely used by beginners and experts around the world and in a huge variety of fields and endeavors This book is a beginner friendly guide to the Python data analysis platform After an introduction to the Python language IPython and the Jupyter Notebook you will learn how to analyze and visualize data on real world examples how to create graphical user interfaces for image processing in the Notebook and how to perform fast numerical computations for scientific simulations with NumPy Numba Cython and ipyparallel By the end of this book you will be able to perform in depth analyses of all sorts of data Style and approach This is a hands on beginner friendly guide to analyze and visualize data on real world examples with Python and the Jupyter Notebook *IPython Interactive Computing and Visualization Cookbook* Cyrille Rossant, 2014-09-25 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 **IPython Interactive Computing and Visualization Cookbook, Second Edition** Cyrille Rossant, 2018-01-31 Learn to use IPython and Jupyter Notebook for your data analysis and visualization work Key Features Leverage the Jupyter Notebook for interactive data science and visualization Become an expert in high performance computing and visualization for data analysis and scientific modeling A comprehensive coverage of scientific computing through many hands on example driven recipes with detailed step by step explanations Book Description Python is one of the leading open source platforms for data science and numerical

computing IPython and the associated Jupyter Notebook offer efficient interfaces to Python for data analysis and interactive visualization and they constitute an ideal gateway to the platform IPython Interactive Computing and Visualization Cookbook Second Edition contains many ready to use focused recipes for high performance scientific computing and data analysis from the latest IPython Jupyter features to the most advanced tricks to help you write better and faster code You will apply these state of the art methods to various real world examples illustrating topics in applied mathematics scientific modeling and machine learning The first part of the book covers programming techniques code quality and reproducibility code optimization high performance computing through just in time compilation parallel computing and graphics card programming The second part tackles data science statistics machine learning signal and image processing dynamical systems and pure and applied mathematics What you will learn Master all features of the Jupyter Notebook Code better write high quality readable and well tested programs profile and optimize your code and conduct reproducible interactive computing experiments Visualize data and create interactive plots in the Jupyter Notebook Write blazingly fast Python programs with NumPy ctypes Numba Cython OpenMP GPU programming CUDA parallel IPython Dask and more Analyze data with Bayesian or frequentist statistics Pandas PyMC and R and learn from actual data through machine learning scikit learn Gain valuable insights into signals images and sounds with SciPy scikit image and OpenCV Simulate deterministic and stochastic dynamical systems in Python Familiarize yourself with math in Python using SymPy and Sage algebra analysis logic graphs geometry and probability theory Who this book is for This book is intended for anyone interested in numerical computing and data science students researchers teachers engineers analysts and hobbyists A basic knowledge of Python NumPy is recommended Some skills in mathematics will help you understand the theory behind the computational methods

*Learning IPython for Interactive Computing and Data Visualization* Cyrille Rossant, 2018 Python is a user friendly and powerful programming language IPython offers a convenient interface to the language and its analysis libraries while Jupyter Notebook is a rich environment well adapted to data science and visualization Together these open source tools are widely used by beginners and experts around the world and in a huge variety of fields and endeavors This course is a beginner friendly guide to the Python data analysis platform After an introduction to the Python language IPython and Jupyter Notebook you will learn how to analyze and visualize data on real world examples how to create graphical user interfaces for image processing in Notebook and how to perform fast numerical computations for scientific simulations with NumPy Numba Cython and ipyparallel By the end of this course you will be able to perform in depth analyses of all sorts of data Resource description page

**Learning IPython for Interactive Computing and Data Visualization - Second Edition** Cyrille Rossant, 2015 IPython provides a rich architecture for interactive computing and as a Python developer you can take advantage of this practical hands on guide to make yourself an expert Covers numerical computing data analysis and more Overview A practical step by step tutorial which will help you to replace the Python console with the powerful IPython

command line interface Use the IPython notebook to modernize the way you interact with Python Perform highly efficient computations with NumPy and Pandas Optimize your code using parallel computing and Cython In Detail You already use Python as a scripting language but did you know it is also increasingly used for scientific computing and data analysis Interactive programming is essential in such exploratory tasks and IPython is the perfect tool for that Once you've learnt it you won't be able to live without it Learning IPython for Interactive Computing and Data Visualization is a practical hands-on example-driven tutorial to considerably improve your productivity during interactive Python sessions and shows you how to effectively use IPython for interactive computing and data analysis This book covers all aspects of IPython from the highly powerful interactive Python console to the numerical and visualization features that are commonly associated with IPython You will learn how IPython lets you perform efficient vectorized computations through examples covering numerical simulations with NumPy data analysis with Pandas and visualization with Matplotlib You will also discover how IPython can be conveniently used to optimize your code using parallel computing and dynamic compilation in C with Cython Learning IPython for Interactive Computing and Data Visualization will allow you to optimize your productivity in interactive Python sessions What you will learn from this book Debug your code from the IPython console Benchmark and profile your code from IPython Perform efficient vectorized computations with NumPy Analyze data tables with Pandas Create visualizations with Matplotlib Parallelize your code easily with IPython Customize IPython and create your own magic commands Accelerate your Python code using dynamic C compilation with Cython Approach A practical hands-on guide which focuses on interactive programming numerical computing and data analysis with IPython Who this book is written for This book is for Python developers who use Python as a scripting language or for software development and are interested in learning IPython for increasing their productivity during interactive sessions in the console Knowledge of Python is required whereas no knowledge of IPython is necessary

**Mastering pandas for Finance** Michael Heydt, 2015-05-25 If you are interested in quantitative finance financial modeling and trading or simply want to learn how Python and pandas can be applied to finance then this book is ideal for you Some knowledge of Python and pandas is assumed Interest in financial concepts is helpful but no prior knowledge is expected

Python Data Visualization Cookbook Igor Milovanovic, Dimitry Foures, Giuseppe Vettigli, 2015-11-30 Over 70 recipes to get you started with popular Python libraries based on the principal concepts of data visualization About This Book Learn how to set up an optimal Python environment for data visualization Understand how to import clean and organize your data Determine different approaches to data visualization and how to choose the most appropriate for your needs Who This Book Is For If you already know about Python programming and want to understand data data formats data visualization and how to use Python to visualize data then this book is for you What You Will Learn Introduce yourself to the essential tooling to set up your working environment Explore your data using the capabilities of standard Python Data Library and Panda Library Draw your first chart and customize it Use the most popular data

visualization Python libraries Make 3D visualizations mainly using mplot3d Create charts with images and maps Understand the most appropriate charts to describe your data Know the matplotlib hidden gems Use plot.ly to share your visualization online In Detail Python Data Visualization Cookbook will progress the reader from the point of installing and setting up a Python environment for data manipulation and visualization all the way to 3D animations using Python libraries Readers will benefit from over 60 precise and reproducible recipes that will guide the reader towards a better understanding of data concepts and the building blocks for subsequent and sometimes more advanced concepts Python Data Visualization Cookbook starts by showing how to set up matplotlib and the related libraries that are required for most parts of the book before moving on to discuss some of the lesser used diagrams and charts such as Gantt Charts or Sankey diagrams Initially it uses simple plots and charts to more advanced ones to make it easy to understand for readers As the readers will go through the book they will get to know about the 3D diagrams and animations Maps are irreplaceable for displaying geo spatial data so this book will also show how to build them In the last chapter it includes explanation on how to incorporate matplotlib into different environments such as a writing system LaTeX or how to create Gantt charts using Python Style and approach A step by step recipe based approach to data visualization The topics are explained sequentially as cookbook recipes consisting of a code snippet and the resulting visualization

**Python Data Science Handbook** Jake VanderPlas, 2022-12-06 Python is a first class tool for many researchers primarily because of its libraries for storing manipulating and gaining insight from data Several resources exist for individual pieces of this data science stack but only with the new edition of Python Data Science Handbook do you get them all IPython NumPy pandas Matplotlib scikit learn and other related tools Working scientists and data crunchers familiar with reading and writing Python code will find the second edition of this comprehensive desk reference ideal for tackling day to day issues manipulating transforming and cleaning data visualizing different types of data and using data to build statistical or machine learning models Quite simply this is the must have reference for scientific computing in Python With this handbook you ll learn how IPython and Jupyter provide computational environments for scientists using Python NumPy includes the ndarray for efficient storage and manipulation of dense data arrays Pandas contains the DataFrame for efficient storage and manipulation of labeled columnar data Matplotlib includes capabilities for a flexible range of data visualizations Scikit learn helps you build efficient and clean Python implementations of the most important and established machine learning algorithms

*Python: Real World Machine Learning* Prateek Joshi, John Hearty, Bastiaan Sjardin, Luca Massaron, Alberto Boschetti, 2016-11-14 Learn to solve challenging data science problems by building powerful machine learning models using Python About This Book Understand which algorithms to use in a given context with the help of this exciting recipe based guide This practical tutorial tackles real world computing problems through a rigorous and effective approach Build state of the art models and develop personalized recommendations to perform machine learning at scale Who This Book Is For This Learning Path is for Python programmers who are looking to

use machine learning algorithms to create real world applications It is ideal for Python professionals who want to work with large and complex datasets and Python developers and analysts or data scientists who are looking to add to their existing skills by accessing some of the most powerful recent trends in data science Experience with Python Jupyter Notebooks and command line execution together with a good level of mathematical knowledge to understand the concepts is expected Machine learning basic knowledge is also expected What You Will Learn Use predictive modeling and apply it to real world problems Understand how to perform market segmentation using unsupervised learning Apply your new found skills to solve real problems through clearly explained code for every technique and test Compete with top data scientists by gaining a practical and theoretical understanding of cutting edge deep learning algorithms Increase predictive accuracy with deep learning and scalable data handling techniques Work with modern state of the art large scale machine learning techniques Learn to use Python code to implement a range of machine learning algorithms and techniques In Detail Machine learning is increasingly spreading in the modern data driven world It is used extensively across many fields such as search engines robotics self driving cars and more Machine learning is transforming the way we understand and interact with the world around us In the first module Python Machine Learning Cookbook you will learn how to perform various machine learning tasks using a wide variety of machine learning algorithms to solve real world problems and use Python to implement these algorithms The second module Advanced Machine Learning with Python is designed to take you on a guided tour of the most relevant and powerful machine learning techniques and you ll acquire a broad set of powerful skills in the area of feature selection and feature engineering The third module in this learning path Large Scale Machine Learning with Python dives into scalable machine learning and the three forms of scalability It covers the most effective machine learning techniques on a map reduce framework in Hadoop and Spark in Python This Learning Path will teach you Python machine learning for the real world The machine learning techniques covered in this Learning Path are at the forefront of commercial practice 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 Machine Learning Cookbook by Prateek Joshi Advanced Machine Learning with Python by John Hearty Large Scale Machine Learning with Python by Bastiaan Sjardin Alberto Boschetti Luca Massaron Style and approach This course is a smooth learning path that will teach you how to get started with Python machine learning for the real world and develop solutions to real world problems Through this comprehensive course you ll learn to create the most effective machine learning techniques from scratch and more

*Large Scale Machine Learning with Python* Bastiaan Sjardin, Luca Massaron, Alberto Boschetti, 2016-08-03 Learn to build powerful machine learning models quickly and deploy large scale predictive applications About This Book Design engineer and deploy scalable machine learning solutions with the power of Python Take command of Hadoop and Spark with Python for effective machine learning on a map reduce framework Build state of the art models and develop personalized recommendations to perform machine learning at scale Who This Book

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

### **Regression Analysis with Python** Luca

Massaron,Alberto Boschetti,2016-02-29 Learn the art of regression analysis with Python About This Book Become competent at implementing regression analysis in Python Solve some of the complex data science problems related to predicting outcomes Get to grips with various types of regression for effective data analysis Who This Book Is For The book targets Python developers with a basic understanding of data science statistics and math who want to learn how to do regression analysis on a dataset It is beneficial if you have some knowledge of statistics and data science What You Will Learn Format a dataset for regression and evaluate its performance Apply multiple linear regression to real world problems Learn to classify training points Create an observation matrix using different techniques of data analysis and cleaning Apply several techniques to decrease and eventually fix any overfitting problem Learn to scale linear models to a big dataset and deal with incremental data In Detail Regression is the process of learning relationships between inputs and continuous outputs from example data which enables predictions for novel inputs There are many kinds of regression algorithms and the aim of this



book is to explain which is the right one to use for each set of problems and how to prepare real world data for it With this book you will learn to define a simple regression problem and evaluate its performance The book will help you understand how to properly parse a dataset clean it and create an output matrix optimally built for regression You will begin with a simple regression algorithm to solve some data science problems and then progress to more complex algorithms The book will enable you to use regression models to predict outcomes and take critical business decisions Through the book you will gain knowledge to use Python for building fast better linear models and to apply the results in Python or in any computer language you prefer Style and approach This is a practical tutorial based book You will be given an example problem and then supplied with the relevant code and how to walk through it The details are provided in a step by step manner followed by a thorough explanation of the math underlying the solution This approach will help you leverage your own data using the same techniques

**Python Data Science Essentials** Alberto Boschetti, Luca Massaron, 2018-09-28 Gain useful insights from your data using popular data science tools Key Features A one stop guide to Python libraries such as pandas and NumPy Comprehensive coverage of data science operations such as data cleaning and data manipulation Choose scalable learning algorithms for your data science tasks Book Description Fully expanded and upgraded the latest edition of Python Data Science Essentials will help you succeed in data science operations using the most common Python libraries This book offers up to date insight into the core of Python including the latest versions of the Jupyter Notebook NumPy pandas and scikit learn The book covers detailed examples and large hybrid datasets to help you grasp essential statistical techniques for data collection data munging and analysis visualization and reporting activities You will also gain an understanding of advanced data science topics such as machine learning algorithms distributed computing tuning predictive models and natural language processing Furthermore You ll also be introduced to deep learning and gradient boosting solutions such as XGBoost LightGBM and CatBoost By the end of the book you will have gained a complete overview of the principal machine learning algorithms graph analysis techniques and all the visualization and deployment instruments that make it easier to present your results to an audience of both data science experts and business users What you will learn Set up your data science toolbox on Windows Mac and Linux Use the core machine learning methods offered by the scikit learn library Manipulate fix and explore data to solve data science problems Learn advanced explorative and manipulative techniques to solve data operations Optimize your machine learning models for optimized performance Explore and cluster graphs taking advantage of interconnections and links in your data Who this book is for If you re a data science entrant data analyst or data engineer this book will help you get ready to tackle real world data science problems without wasting any time Basic knowledge of probability statistics and Python coding experience will assist you in understanding the concepts covered in this book

**Learning Predictive Analytics with Python** Ashish Kumar, 2016-02-15 Gain practical insights into predictive modelling by implementing Predictive Analytics algorithms on public datasets with Python About This Book A step

by step guide to predictive modeling including lots of tips tricks and best practices Get to grips with the basics of Predictive Analytics with Python Learn how to use the popular predictive modeling algorithms such as Linear Regression Decision Trees Logistic Regression and Clustering Who This Book Is For If you wish to learn how to implement Predictive Analytics algorithms using Python libraries then this is the book for you If you are familiar with coding in Python or some other programming statistical scripting language but have never used or read about Predictive Analytics algorithms this book will also help you The book will be beneficial to and can be read by any Data Science enthusiasts Some familiarity with Python will be useful to get the most out of this book but it is certainly not a prerequisite What You Will Learn Understand the statistical and mathematical concepts behind Predictive Analytics algorithms and implement Predictive Analytics algorithms using Python libraries Analyze the result parameters arising from the implementation of Predictive Analytics algorithms Write Python modules functions from scratch to execute segments or the whole of these algorithms Recognize and mitigate various contingencies and issues related to the implementation of Predictive Analytics algorithms Get to know various methods of importing cleaning sub setting merging joining concatenating exploring grouping and plotting data with pandas and numpy Create dummy datasets and simple mathematical simulations using the Python numpy and pandas libraries Understand the best practices while handling datasets in Python and creating predictive models out of them In Detail Social Media and the Internet of Things have resulted in an avalanche of data Data is powerful but not in its raw form It needs to be processed and modeled and Python is one of the most robust tools out there to do so It has an array of packages for predictive modeling and a suite of IDEs to choose from Learning to predict who would win lose buy lie or die with Python is an indispensable skill set to have in this data age This book is your guide to getting started with Predictive Analytics using Python You will see how to process data and make predictive models from it We balance both statistical and mathematical concepts and implement them in Python using libraries such as pandas scikit learn and numpy You ll start by getting an understanding of the basics of predictive modeling then you will see how to cleanse your data of impurities and get it ready it for predictive modeling You will also learn more about the best predictive modeling algorithms such as Linear Regression Decision Trees and Logistic Regression Finally you will see the best practices in predictive modeling as well as the different applications of predictive modeling in the modern world Style and approach All the concepts in this book been explained and illustrated using a dataset and in a step by step manner The Python code snippet to implement a method or concept is followed by the output such as charts dataset heads pictures and so on The statistical concepts are explained in detail wherever required

**Mastering IPython 4.0** Thomas Bitterman, 2016-05-30 Get to grips with the advanced concepts of interactive computing to make the most out of IPython About This Book Most updated book on Interactive computing with IPython 4 0 Detailed example rich guide that lets you use the most advanced level interactive programming with IPython Get flexible interactive programming with IPython using this comprehensive guide Who This Book Is For This book is for IPython

developers who want to make the most of IPython and perform advanced scientific computing with IPython utilizing the ease of interactive computing It is ideal for users who wish to learn about the interactive and parallel computing properties of IPython 4.0 along with its integration with third party tools and concepts such as testing and documenting results What You Will Learn Develop skills to use IPython for high performance computing HPC Understand the IPython interactive shell Use XeroMQ and MPI to pass messages Integrate third party tools like R Julia and JavaScript with IPython Visualize the data Acquire knowledge to test and document the data Get to grips with the recent developments in the Jupyter notebook system In Detail IPython is an interactive computational environment in which you can combine code execution rich text mathematics plots and rich media This book will get IPython developers up to date with the latest advancements in IPython and dive deep into interactive computing with IPython This an advanced guide on interactive and parallel computing with IPython will explore advanced visualizations and high performance computing with IPython in detail You will quickly brush up your knowledge of IPython kernels and wrapper kernels then we ll move to advanced concepts such as testing Sphinx JS events interactive work and the ZMQ cluster The book will cover topics such as IPython Console Lexer advanced configuration and third party tools By the end of this book you will be able to use IPython for interactive and parallel computing in a high performance computing environment Style and approach This is a comprehensive guide to IPython for interactive exploratory and parallel computing It will let the IPython get up to date with the latest advancements in IPython and dive deeper into interactive computing with IPython

**Numerical Python** Robert Johansson, 2024-09-27 Learn how to leverage the scientific computing and data analysis capabilities of Python its standard library and popular open source numerical Python packages like NumPy SymPy SciPy matplotlib and more This book demonstrates how to work with mathematical modeling and solve problems with numerical symbolic and visualization techniques It explores applications in science engineering data analytics and more Numerical Python Third Edition presents many case study examples of applications in fundamental scientific computing disciplines as well as in data science and statistics This fully revised edition updated for each library s latest version demonstrates Python s power for rapid development and exploratory computing due to its simple and high level syntax and many powerful libraries and tools for computation and data analysis After reading this book readers will be familiar with many computing techniques including array based and symbolic computing visualization and numerical file I/O equation solving optimization interpolation and integration and domain specific computational problems such as differential equation solving data analysis statistical modeling and machine learning What You ll Learn Work with vectors and matrices using NumPy Review Symbolic computing with SymPy Plot and visualize data with Matplotlib Perform data analysis tasks with Pandas and SciPy Understand statistical modeling and machine learning with statsmodels and scikit learn Optimize Python code using Numba and Cython Who This Book Is For Developers who want to understand how to use Python and its ecosystem of libraries for scientific computing and data analysis

*Practical Data*

*Science Cookbook* Prabhanjan Tattar, Tony Ojeda, Sean Patrick Murphy, Benjamin Bengfort, Abhijit Dasgupta, 2017-06-29 Over 85 recipes to help you complete real world data science projects in R and Python About This Book Tackle every step in the data science pipeline and use it to acquire clean analyze and visualize your data Get beyond the theory and implement real world projects in data science using R and Python Easy to follow recipes will help you understand and implement the numerical computing concepts Who This Book Is For If you are an aspiring data scientist who wants to learn data science and numerical programming concepts through hands on real world project examples this is the book for you Whether you are brand new to data science or you are a seasoned expert you will benefit from learning about the structure of real world data science projects and the programming examples in R and Python What You Will Learn Learn and understand the installation procedure and environment required for R and Python on various platforms Prepare data for analysis by implement various data science concepts such as acquisition cleaning and munging through R and Python Build a predictive model and an exploratory model Analyze the results of your model and create reports on the acquired data Build various tree based methods and Build random forest In Detail As increasing amounts of data are generated each year the need to analyze and create value out of it is more important than ever Companies that know what to do with their data and how to do it well will have a competitive advantage over companies that don't Because of this there will be an increasing demand for people that possess both the analytical and technical abilities to extract valuable insights from data and create valuable solutions that put those insights to use Starting with the basics this book covers how to set up your numerical programming environment introduces you to the data science pipeline and guides you through several data projects in a step by step format By sequentially working through the steps in each chapter you will quickly familiarize yourself with the process and learn how to apply it to a variety of situations with examples using the two most popular programming languages for data analysis R and Python Style and approach This step by step guide to data science is full of hands on examples of real world data science tasks Each recipe focuses on a particular task involved in the data science pipeline ranging from readying the dataset to analytics and visualization

**Python Projects for Kids** Jessica Ingrassellino, 2016-04-14 Unleash Python and take your small readers on an adventurous ride through the world of programming About This Book Learn to start using Python for some simple programming tasks such as doing easy mathematical calculations Use logic and control loops to build a nice interesting game Get to grips with working with data and once you're comfortable with that you'll be introduced to Pygame which will help you wrap up the book with a cool game Who This Book Is For This book is for kids aged 10 and over This is book is intended for absolute beginners who lack any knowledge of computing or programming languages and want to get started in the world of programming What You Will Learn Start fiddling with Python's variables build functions and interact with users Build your own calculator using the Math Library Train Python to make logical decisions Work with moving 2D objects on screen Understand the Pygame Library and build your very own game Write a cool program to manage inventories

in your backpack In Detail Kids are always the most fast paced and enthusiastic learners and are naturally willing to build stuff that looks like magic at the end when it works Programming can be one such magic Being able to write a program that works helps them feel they've really achieved something Kids today are very tech savvy and cannot wait to enter the fast paced digital world Because Python is one of the most popular languages and has a syntax that is quite simple to understand even kids are eager to use it as a stepping stone to learning programming languages This book will cover projects that are simple and fun and teach kids how to write Python code that works The book will teach the basics of Python programming installation and so on and then will move on to projects A total of three projects with each and every step explained carefully without any assumption of previous experience Style and approach The book will take a light approach in guiding the little readers through the world of Python The main idea is to teach by example and let the readers have as much exercises to do so that they learn faster and can apply their own ideas to the existing examples The book should get them thinking by the end on where they can go next with such a powerful tool at their disposal

**Data Scientist Diploma (master's level) - City of London College of Economics - 6 months - 100% online / self-paced** City of London College of Economics, Overview This diploma course covers all aspects you need to know to become a successful Data Scientist Content Getting Started with Data Science Data Analytic Thinking Business Problems and Data Science Solutions Introduction to Predictive Modeling From Correlation to Supervised Segmentation Fitting a Model to Data Overfitting and Its Avoidance Similarity Neighbors and Clusters Decision Analytic Thinking I What Is a Good Model Visualizing Model Performance Evidence and Probabilities Representing and Mining Text Decision Analytic Thinking II Toward Analytical Engineering Other Data Science Tasks and Techniques Data Science and Business Strategy Machine Learning Learning from Data with Your Machine And much more Duration 6 months Assessment The assessment will take place on the basis of one assignment at the end of the course Tell us when you feel ready to take the exam and we'll send you the assignment questions Study material The study material will be provided in separate files by email download link

**Natural Language Processing with TensorFlow** Thushan Ganegedara, 2018-05-31 Write modern natural language processing applications using deep learning algorithms and TensorFlow Key Features Focuses on more efficient natural language processing using TensorFlow Covers NLP as a field in its own right to improve understanding for choosing TensorFlow tools and other deep learning approaches Provides choices for how to process and evaluate large unstructured text datasets Learn to apply the TensorFlow toolbox to specific tasks in the most interesting field in artificial intelligence Book Description Natural language processing NLP supplies the majority of data available to deep learning applications while TensorFlow is the most important deep learning framework currently available Natural Language Processing with TensorFlow brings TensorFlow and NLP together to give you invaluable tools to work with the immense volume of unstructured data in today's data streams and apply these tools to specific NLP tasks Thushan Ganegedara starts by giving you a grounding in NLP and TensorFlow basics You'll then learn how to use Word2vec

including advanced extensions to create word embeddings that turn sequences of words into vectors accessible to deep learning algorithms Chapters on classical deep learning algorithms like convolutional neural networks CNN and recurrent neural networks RNN demonstrate important NLP tasks as sentence classification and language generation You will learn how to apply high performance RNN models like long short term memory LSTM cells to NLP tasks You will also explore neural machine translation and implement a neural machine translator After reading this book you will gain an understanding of NLP and you ll have the skills to apply TensorFlow in deep learning NLP applications and how to perform specific NLP tasks What you will learn Core concepts of NLP and various approaches to natural language processing How to solve NLP tasks by applying TensorFlow functions to create neural networks Strategies to process large amounts of data into word representations that can be used by deep learning applications Techniques for performing sentence classification and language generation using CNNs and RNNs About employing state of the art advanced RNNs like long short term memory to solve complex text generation tasks How to write automatic translation programs and implement an actual neural machine translator from scratch The trends and innovations that are paving the future in NLP Who this book is for This book is for Python developers with a strong interest in deep learning who want to learn how to leverage TensorFlow to simplify NLP tasks Fundamental Python skills are assumed as well as some knowledge of machine learning and undergraduate level calculus and linear algebra No previous natural language processing experience required although some background in NLP or computational linguistics will be helpful

**Mastering matplotlib** Duncan M. McGregor, 2015-06-29 matplotlib is a Python plotting library that provides a large feature set for a multitude of platforms Given the depth of the library s legacy and the variety of related open source projects gaining expert knowledge can be a time consuming and often confusing process You ll begin your exciting journey learning about the skills that are necessary in leading technical teams for a visualization project or to become a matplotlib contributor Supported by highly detailed IPython Notebooks this book takes you through the conceptual components underlying the library and then provides a detailed overview of its APIs From there you will learn about event handling and how to code for interactive plots Next you will move on to customization techniques local configuration of matplotlib and then deployments in Cloud environments The adventure culminates in an exploration of big data visualization and matplotlib clustering

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