

Practical Data Science With R

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Data Science for Marketing Analytics - Mirza

Rahim Baig 2021-09-07

Turbocharge your marketing plans by making the leap from simple descriptive statistics in Excel to

sophisticated predictive analytics with the Python programming language. Key Features: Use data analytics and machine learning in a sales and marketing context. Gain insights from data to make

better business decisions Build your experience and confidence with realistic hands-on practice Book Description Unleash the power of data to reach your marketing goals with this practical guide to data science for business. This book will help you get started on your journey to becoming a master of marketing analytics with Python. You'll work with relevant datasets and build your practical skills by tackling engaging exercises and activities that simulate real-world market analysis projects. You'll learn to think like a data scientist, build your problem-solving skills, and discover how to look at data in new ways to deliver business insights and make intelligent data-driven decisions. As well as learning how to clean, explore, and visualize data, you'll implement machine learning algorithms and build models to make predictions. As you work through the book, you'll use Python tools to analyze sales, visualize advertising data, predict revenue,

address customer churn, and implement customer segmentation to understand behavior. By the end of this book, you'll have the knowledge, skills, and confidence to implement data science and machine learning techniques to better understand your marketing data and improve your decision-making. What you will learn Load, clean, and explore sales and marketing data using pandas Form and test hypotheses using real data sets and analytics tools Visualize patterns in customer behavior using Matplotlib Use advanced machine learning models like random forest and SVM Use various unsupervised learning algorithms for customer segmentation Use supervised learning techniques for sales prediction Evaluate and compare different models to get the best outcomes Optimize models with hyperparameter tuning and SMOTE Who this book is for This marketing book is for anyone who wants to learn how to use Python for cutting-edge

marketing analytics. Whether you're a developer who wants to move into marketing, or a marketing analyst who wants to learn more sophisticated tools and techniques, this book will get you on the right path. Basic prior knowledge of Python and experience working with data will help you access this book more easily.

Practical Data Science with R - Nina Zumel 2014

Practical R for Biologists - Donald L.J. Quicke
2020-12-21

R is a freely available, open-source statistical programming environment which provides powerful statistical analysis tools and graphics outputs. R is now used by a very wide range of people; biologists (the primary audience of this book), but also all other scientists and engineers, economists, market researchers and medical professionals. R users with expertise are constantly

adding new associated packages, and the range already available is immense. This text works through a set of studies that collectively represent almost all the R operations that biology students need in order to analyse their own data. The material is designed to serve students from first year undergraduates through to those beginning post graduate levels. Chapters are organized around topics such as graphing, classical statistical tests, statistical modelling, mapping, and text parsing. Examples are based on real scientific studies, and each one covers the use of more R functions than those simply necessary to get a p-value or plot.

Data Science in R - Deborah Nolan 2015-04-21
Effectively Access, Transform, Manipulate, Visualize, and Reason about Data and Computation
Data Science in R: A Case Studies Approach to Computational Reasoning and Problem Solving
illustrates the details involved in solving real

computational problems encountered in data analysis. It reveals the dynamic and iterative process by which data analysts approach a problem and reason about different ways of implementing solutions. The book's collection of projects, comprehensive sample solutions, and follow-up exercises encompass practical topics pertaining to data processing, including: Non-standard, complex data formats, such as robot logs and email messages Text processing and regular expressions Newer technologies, such as Web scraping, Web services, Keyhole Markup Language (KML), and Google Earth Statistical methods, such as classification trees, k-nearest neighbors, and naïve Bayes Visualization and exploratory data analysis Relational databases and Structured Query Language (SQL) Simulation Algorithm implementation Large data and efficiency Suitable for self-study or as supplementary reading in a statistical computing

course, the book enables instructors to incorporate interesting problems into their courses so that students gain valuable experience and data science skills. Students learn how to acquire and work with unstructured or semistructured data as well as how to narrow down and carefully frame the questions of interest about the data. Blending computational details with statistical and data analysis concepts, this book provides readers with an understanding of how professional data scientists think about daily computational tasks. It will improve readers' computational reasoning of real-world data analyses.

Practical R 4 - Jon Westfall 2020-06-30

Get started with an accelerated introduction to the R ecosystem, programming language, and tools including R script and RStudio. Utilizing many examples and projects, this book teaches you how to get data into R and how to work with that data using R. Once grounded in the fundamentals, the

rest of Practical R 4 dives into specific projects and examples starting with running and analyzing a survey using R and LimeSurvey. Next, you'll carry out advanced statistical analysis using R and MouselabWeb. Then, you'll see how R can work for you without statistics, including how R can be used to automate data formatting, manipulation, reporting, and custom functions. The final part of this book discusses using R on a server; you'll build a script with R that can run an RStudio Server and monitor a report source for changes to alert the user when something has changed. This project includes both regular email alerting and push notification. And, finally, you'll use R to create a customized daily rundown report of a person's most important information such as a weather report, daily calendar, to-do's and more. This demonstrates how to automate such a process so that every morning, the user navigates to the same web page and gets

the updated report. What You Will Learn Set up and run an R script, including installation on a new machine and downloading and configuring R Turn any machine into a powerful data analytics platform accessible from anywhere with RStudio Server Write basic R scripts and modify existing scripts to suit your own needs Create basic HTML reports in R, inserting information as needed Build a basic R package and distribute it Who This Book Is For Some prior exposure to statistics, programming, and maybe SAS is recommended but not required.

Data Analysis for the Life Sciences with R - Rafael A. Irizarry 2016-10-04

This book covers several of the statistical concepts and data analytic skills needed to succeed in data-driven life science research. The authors proceed from relatively basic concepts related to computed p-values to advanced topics related to analyzing highthroughput data. They include the R code that

performs this analysis and connect the lines of code to the statistical and mathematical concepts explained.

Practical Data Science with R - Nina Zumel

2014-04-10

Summary *Practical Data Science with R* lives up to its name. It explains basic principles without the theoretical mumbo-jumbo and jumps right to the real use cases you'll face as you collect, curate, and analyze the data crucial to the success of your business. You'll apply the R programming language and statistical analysis techniques to carefully explained examples based in marketing, business intelligence, and decision support. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

About the Book Business analysts and developers are increasingly collecting, curating, analyzing, and reporting on crucial business data. The R language

and its associated tools provide a straightforward way to tackle day-to-day data science tasks without a lot of academic theory or advanced mathematics. *Practical Data Science with R* shows you how to apply the R programming language and useful statistical techniques to everyday business situations. Using examples from marketing, business intelligence, and decision support, it shows you how to design experiments (such as A/B tests), build predictive models, and present results to audiences of all levels. This book is accessible to readers without a background in data science. Some familiarity with basic statistics, R, or another scripting language is assumed. What's Inside Data science for the business professional Statistical analysis using the R language Project lifecycle, from planning to delivery Numerous instantly familiar use cases Keys to effective data presentations About the Authors Nina Zumel and

John Mount are cofounders of a San Francisco-based data science consulting firm. Both hold PhDs from Carnegie Mellon and blog on statistics, probability, and computer science at win-vector.com. Table of Contents

PART 1 INTRODUCTION TO DATA SCIENCE The data science process Loading data into R Exploring data Managing data

PART 2 MODELING METHODS Choosing and evaluating models Memorization methods Linear and logistic regression Unsupervised methods Exploring advanced methods

PART 3 DELIVERING RESULTS Documentation and deployment Producing effective presentations

Practical Machine Learning with R - Brindha Priyadarshini Jeyaraman 2019-08-30

Understand how machine learning works and get hands-on experience of using R to build algorithms that can solve various real-world problems

Key Features Gain a comprehensive overview of

different machine learning techniques Explore various methods for selecting a particular algorithm Implement a machine learning project from problem definition through to the final model

Book Description With huge amounts of data being generated every moment, businesses need applications that apply complex mathematical calculations to data repeatedly and at speed. With machine learning techniques and R, you can easily develop these kinds of applications in an efficient way. Practical Machine Learning with R begins by helping you grasp the basics of machine learning methods, while also highlighting how and why they work. You will understand how to get these algorithms to work in practice, rather than focusing on mathematical derivations. As you progress from one chapter to another, you will gain hands-on experience of building a machine learning solution in R. Next, using R packages such as rpart, random

forest, and multiple imputation by chained equations (MICE), you will learn to implement algorithms including neural net classifier, decision trees, and linear and non-linear regression. As you progress through the book, you'll delve into various machine learning techniques for both supervised and unsupervised learning approaches. In addition to this, you'll gain insights into partitioning the datasets and mechanisms to evaluate the results from each model and be able to compare them. By the end of this book, you will have gained expertise in solving your business problems, starting by forming a good problem statement, selecting the most appropriate model to solve your problem, and then ensuring that you do not overtrain it. What you will learn Define a problem that can be solved by training a machine learning model Obtain, verify and clean data before transforming it into the correct format for use Perform exploratory analysis

and extract features from data Build models for neural net, linear and non-linear regression, classification, and clustering Evaluate the performance of a model with the right metrics Implement a classification problem using the neural net package Employ a decision tree using the random forest library Who this book is for If you are a data analyst, data scientist, or a business analyst who wants to understand the process of machine learning and apply it to a real dataset using R, this book is just what you need. Data scientists who use Python and want to implement their machine learning solutions using R will also find this book very useful. The book will also enable novice programmers to start their journey in data science. Basic knowledge of any programming language is all you need to get started.

R for Political Data Science - Francisco Urdinez
2020-11-17

R for Political Data Science: A Practical Guide is a handbook for political scientists new to R who want to learn the most useful and common ways to interpret and analyze political data. It was written by political scientists, thinking about the many real-world problems faced in their work. The book has 16 chapters and is organized in three sections. The first, on the use of R, is for those users who are learning R or are migrating from another software. The second section, on econometric models, covers OLS, binary and survival models, panel data, and causal inference. The third section is a data science toolbox of some of the most useful tools in the discipline: data imputation, fuzzy merge of large datasets, web mining, quantitative text analysis, network analysis, mapping, spatial cluster analysis, and principal component analysis. Key features: Each chapter has the most up-to-date and simple option available for each task, assuming minimal

prerequisites and no previous experience in R
Makes extensive use of the Tidyverse, the group of packages that has revolutionized the use of R
Provides a step-by-step guide that you can replicate using your own data
Includes exercises in every chapter for course use or self-study
Focuses on practical-based approaches to statistical inference rather than mathematical formulae
Supplemented by an R package, including all data
As the title suggests, this book is highly applied in nature, and is designed as a toolbox for the reader. It can be used in methods and data science courses, at both the undergraduate and graduate levels. It will be equally useful for a university student pursuing a PhD, political consultants, or a public official, all of whom need to transform their datasets into substantive and easily interpretable conclusions.

Practical Data Analysis Cookbook - Tomasz Drabas
2016-04-29

Over 60 practical recipes on data exploration and analysis About This Book Clean dirty data, extract accurate information, and explore the relationships between variables Forecast the output of an electric plant and the water flow of American rivers using pandas, NumPy, Statsmodels, and scikit-learn Find and extract the most important features from your dataset using the most efficient Python libraries Who This Book Is For If you are a beginner or intermediate-level professional who is looking to solve your day-to-day, analytical problems with Python, this book is for you. Even with no prior programming and data analytics experience, you will be able to finish each recipe and learn while doing so. What You Will Learn Read, clean, transform, and store your data usng Pandas and OpenRefine Understand your data and explore the relationships between variables using Pandas and D3.js Explore a variety of techniques to classify and

cluster outbound marketing campaign calls data of a bank using Pandas, mlpy, NumPy, and Statsmodels Reduce the dimensionality of your dataset and extract the most important features with pandas, NumPy, and mlpy Predict the output of a power plant with regression models and forecast water flow of American rivers with time series methods using pandas, NumPy, Statsmodels, and scikit-learn Explore social interactions and identify fraudulent activities with graph theory concepts using NetworkX and Gephi Scrape Internet web pages using urllib and BeautifulSoup and get to know natural language processing techniques to classify movies ratings using NLTK Study simulation techniques in an example of a gas station with agent-based modeling In Detail Data analysis is the process of systematically applying statistical and logical techniques to describe and illustrate, condense and recap, and evaluate data. Its

importance has been most visible in the sector of information and communication technologies. It is an employee asset in almost all economy sectors. This book provides a rich set of independent recipes that dive into the world of data analytics and modeling using a variety of approaches, tools, and algorithms. You will learn the basics of data handling and modeling, and will build your skills gradually toward more advanced topics such as simulations, raw text processing, social interactions analysis, and more. First, you will learn some easy-to-follow practical techniques on how to read, write, clean, reformat, explore, and understand your data—arguably the most time-consuming (and the most important) tasks for any data scientist. In the second section, different independent recipes delve into intermediate topics such as classification, clustering, predicting, and more. With the help of these easy-to-follow recipes, you will also learn

techniques that can easily be expanded to solve other real-life problems such as building recommendation engines or predictive models. In the third section, you will explore more advanced topics: from the field of graph theory through natural language processing, discrete choice modeling to simulations. You will also get to expand your knowledge on identifying fraud origin with the help of a graph, scrape Internet websites, and classify movies based on their reviews. By the end of this book, you will be able to efficiently use the vast array of tools that the Python environment has to offer. Style and approach This hands-on recipe guide is divided into three sections that tackle and overcome real-world data modeling problems faced by data analysts/scientist in their everyday work. Each independent recipe is written in an easy-to-follow and step-by-step fashion.

Data Analysis for Social Science - Elena Llaudet

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2022-09-13

An ideal textbook for an introductory course on quantitative methods for social scientists—assumes no prior knowledge of statistics or coding Data Analysis for Social Science provides a friendly introduction to the statistical concepts and programming skills needed to conduct and evaluate social scientific studies. Using plain language and assuming no prior knowledge of statistics and coding, the book provides a step-by-step guide to analyzing real-world data with the statistical program R for the purpose of answering a wide range of substantive social science questions. It teaches not only how to perform the analyses but also how to interpret results and identify strengths and limitations. This one-of-a-kind textbook includes supplemental materials to accommodate students with minimal knowledge of math and clearly identifies sections with more advanced material so

that readers can skip them if they so choose.

Analyzes real-world data using the powerful, open-sourced statistical program R, which is free for everyone to use Teaches how to measure, predict, and explain quantities of interest based on data Shows how to infer population characteristics using survey research, predict outcomes using linear models, and estimate causal effects with and without randomized experiments Assumes no prior knowledge of statistics or coding Specifically designed to accommodate students with a variety of math backgrounds Provides cheatsheets of statistical concepts and R code Supporting materials available online, including real-world datasets and the code to analyze them, plus—for instructor use—sample syllabi, sample lecture slides, additional datasets, and additional exercises with solutions

R for Data Science - Hadley Wickham 2016-12-12

Learn how to use R to turn raw data into insight,

knowledge, and understanding. This book introduces you to R, RStudio, and the tidyverse, a collection of R packages designed to work together to make data science fast, fluent, and fun. Suitable for readers with no previous programming experience, R for Data Science is designed to get you doing data science as quickly as possible. Authors Hadley Wickham and Garrett Grolemund guide you through the steps of importing, wrangling, exploring, and modeling your data and communicating the results. You'll get a complete, big-picture understanding of the data science cycle, along with basic tools you need to manage the details. Each section of the book is paired with exercises to help you practice what you've learned along the way. You'll learn how to:

- Wrangle—transform your datasets into a form convenient for analysis
- Program—learn powerful R tools for solving data problems with greater clarity

- and ease Explore—examine your data, generate hypotheses, and quickly test them
- Model—provide a low-dimensional summary that captures true "signals" in your dataset
- Communicate—learn R Markdown for integrating prose, code, and results

Practical Data Science Cookbook - Prabhanjan Tattar
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

Data Science with Java - Michael R. Brzustowicz,
PhD 2017-06-06

Data Science is booming thanks to R and Python, but Java brings the robustness, convenience, and ability to scale critical to today's data science applications. With this practical book, Java software engineers looking to add data science skills will take a logical journey through the data science pipeline. Author Michael Brzustowicz explains the basic math theory behind each step of the data science process, as well as how to apply these concepts with Java. You'll learn the critical roles that data IO, linear algebra, statistics, data operations, learning and prediction, and Hadoop MapReduce play in the process. Throughout this book, you'll find code examples you can use in your applications. Examine methods for obtaining, cleaning, and arranging data into its purest form Understand the matrix

structure that your data should take Learn basic concepts for testing the origin and validity of data Transform your data into stable and usable numerical values Understand supervised and unsupervised learning algorithms, and methods for evaluating their success Get up and running with MapReduce, using customized components suitable for data science algorithms

Practical Data Science with Hadoop and Spark - Ofer Mendelevitch 2016-12-08

The Complete Guide to Data Science with Hadoop—For Technical Professionals, Businesspeople, and Students Demand is soaring for professionals who can solve real data science problems with Hadoop and Spark. Practical Data Science with Hadoop® and Spark is your complete guide to doing just that. Drawing on immense experience with Hadoop and big data, three leading experts bring together everything you need: high-

level concepts, deep-dive techniques, real-world use cases, practical applications, and hands-on tutorials. The authors introduce the essentials of data science and the modern Hadoop ecosystem, explaining how Hadoop and Spark have evolved into an effective platform for solving data science problems at scale. In addition to comprehensive application coverage, the authors also provide useful guidance on the important steps of data ingestion, data munging, and visualization. Once the groundwork is in place, the authors focus on specific applications, including machine learning, predictive modeling for sentiment analysis, clustering for document analysis, anomaly detection, and natural language processing (NLP). This guide provides a strong technical foundation for those who want to do practical data science, and also presents business-driven guidance on how to apply Hadoop and Spark to optimize ROI of data science initiatives. Learn

What data science is, how it has evolved, and how to plan a data science career How data volume, variety, and velocity shape data science use cases Hadoop and its ecosystem, including HDFS, MapReduce, YARN, and Spark Data importation with Hive and Spark Data quality, preprocessing, preparation, and modeling Visualization: surfacing insights from huge data sets Machine learning: classification, regression, clustering, and anomaly detection Algorithms and Hadoop tools for predictive modeling Cluster analysis and similarity functions Large-scale anomaly detection NLP: applying data science to human language
Practical Data Science with Python - Nathan George
2021-09-30

Learn to effectively manage data and execute data science projects from start to finish using Python Key Features Understand and utilize data science tools in Python, such as specialized machine

learning algorithms and statistical modelingBuild a strong data science foundation with the best data science tools available in PythonAdd value to yourself, your organization, and society by extracting actionable insights from raw dataBook Description Practical Data Science with Python teaches you core data science concepts, with real-world and realistic examples, and strengthens your grip on the basic as well as advanced principles of data preparation and storage, statistics, probability theory, machine learning, and Python programming, helping you build a solid foundation to gain proficiency in data science. The book starts with an overview of basic Python skills and then introduces foundational data science techniques, followed by a thorough explanation of the Python code needed to execute the techniques. You'll understand the code by working through the examples. The code has been broken down into

small chunks (a few lines or a function at a time) to enable thorough discussion. As you progress, you will learn how to perform data analysis while exploring the functionalities of key data science Python packages, including pandas, SciPy, and scikit-learn. Finally, the book covers ethics and privacy concerns in data science and suggests resources for improving data science skills, as well as ways to stay up to date on new data science developments. By the end of the book, you should be able to comfortably use Python for basic data science projects and should have the skills to execute the data science process on any data source. What you will learnUse Python data science packages effectivelyClean and prepare data for data science work, including feature engineering and feature selectionData modeling, including classic statistical models (such as t-tests), and essential machine learning algorithms, such as random forests

and boosted models Evaluate model performance Compare and understand different machine learning methods Interact with Excel spreadsheets through Python Create automated data science reports through Python Get to grips with text analytics techniques Who this book is for The book is intended for beginners, including students starting or about to start a data science, analytics, or related program (e.g. Bachelor's, Master's, bootcamp, online courses), recent college graduates who want to learn new skills to set them apart in the job market, professionals who want to learn hands-on data science techniques in Python, and those who want to shift their career to data science. The book requires basic familiarity with Python. A "getting started with Python" section has been included to get complete novices up to speed.

Practical Statistics for Data Scientists - Peter Bruce
2020-04-10

Statistical methods are a key part of data science, yet few data scientists have formal statistical training. Courses and books on basic statistics rarely cover the topic from a data science perspective. The second edition of this popular guide adds comprehensive examples in Python, provides practical guidance on applying statistical methods to data science, tells you how to avoid their misuse, and gives you advice on what's important and what's not. Many data science resources incorporate statistical methods but lack a deeper statistical perspective. If you're familiar with the R or Python programming languages and have some exposure to statistics, this quick reference bridges the gap in an accessible, readable format. With this book, you'll learn: Why exploratory data analysis is a key preliminary step in data science How random sampling can reduce bias and yield a higher-quality dataset, even with big data How the principles of experimental design yield definitive

answers to questions How to use regression to estimate outcomes and detect anomalies Key classification techniques for predicting which categories a record belongs to Statistical machine learning methods that "learn" from data Unsupervised learning methods for extracting meaning from unlabeled data

Joe Celko's SQL for Smarties - Joe Celko 2000

An industry consultant shares his most useful tips and tricks for advanced SQL programming to help the working programmer gain performance and work around system deficiencies.

Modern Data Science with R - Benjamin S. Baumer
2021-03-31

From a review of the first edition: "Modern Data Science with R... is rich with examples and is guided by a strong narrative voice. What's more, it presents an organizing framework that makes a convincing argument that data science is a course

distinct from applied statistics" (The American Statistician). Modern Data Science with R is a comprehensive data science textbook for undergraduates that incorporates statistical and computational thinking to solve real-world data problems. Rather than focus exclusively on case studies or programming syntax, this book illustrates how statistical programming in the state-of-the-art R/RStudio computing environment can be leveraged to extract meaningful information from a variety of data in the service of addressing compelling questions. The second edition is updated to reflect the growing influence of the tidyverse set of packages. All code in the book has been revised and styled to be more readable and easier to understand. New functionality from packages like sf, purrr, tidymodels, and tidytext is now integrated into the text. All chapters have been revised, and several have been split, re-organized, or re-

imagined to meet the shifting landscape of best practice.

Practical Machine Learning in R - Fred

Nwanganga 2020-05-27

Guides professionals and students through the rapidly growing field of machine learning with hands-on examples in the popular R programming language Machine learning—a branch of Artificial Intelligence (AI) which enables computers to improve their results and learn new approaches without explicit instructions—allows organizations to reveal patterns in their data and incorporate predictive analytics into their decision-making process. Practical Machine Learning in R provides a hands-on approach to solving business problems with intelligent, self-learning computer algorithms. Bestselling author and data analytics experts Fred Nwanganga and Mike Chapple explain what machine learning is, demonstrate its organizational

benefits, and provide hands-on examples created in the R programming language. A perfect guide for professional self-taught learners or students in an introductory machine learning course, this reader-friendly book illustrates the numerous real-world business uses of machine learning approaches. Clear and detailed chapters cover data wrangling, R programming with the popular RStudio tool, classification and regression techniques, performance evaluation, and more. Explores data management techniques, including data collection, exploration and dimensionality reduction Covers unsupervised learning, where readers identify and summarize patterns using approaches such as apriori, eclat and clustering Describes the principles behind the Nearest Neighbor, Decision Tree and Naive Bayes classification techniques Explains how to evaluate and choose the right model, as well as how to improve model performance using

ensemble methods such as Random Forest and XGBoost Practical Machine Learning in R is a must-have guide for business analysts, data scientists, and other professionals interested in leveraging the power of AI to solve business problems, as well as students and independent learners seeking to enter the field.

Practical Data Analysis - Hector Cuesta 2016-09-30

A practical guide to obtaining, transforming, exploring, and analyzing data using Python, MongoDB, and Apache Spark About This Book Learn to use various data analysis tools and algorithms to classify, cluster, visualize, simulate, and forecast your data Apply Machine Learning algorithms to different kinds of data such as social networks, time series, and images A hands-on guide to understanding the nature of data and how to turn it into insight Who This Book Is For This book is for developers who want to implement data analysis

and data-driven algorithms in a practical way. It is also suitable for those without a background in data analysis or data processing. Basic knowledge of Python programming, statistics, and linear algebra is assumed. What You Will Learn Acquire, format, and visualize your data Build an image-similarity search engine Generate meaningful visualizations anyone can understand Get started with analyzing social network graphs Find out how to implement sentiment text analysis Install data analysis tools such as Pandas, MongoDB, and Apache Spark Get to grips with Apache Spark Implement machine learning algorithms such as classification or forecasting In Detail Beyond buzzwords like Big Data or Data Science, there are a great opportunities to innovate in many businesses using data analysis to get data-driven products. Data analysis involves asking many questions about data in order to discover insights and generate value for a product

or a service. This book explains the basic data algorithms without the theoretical jargon, and you'll get hands-on turning data into insights using machine learning techniques. We will perform data-driven innovation processing for several types of data such as text, Images, social network graphs, documents, and time series, showing you how to implement large data processing with MongoDB and Apache Spark. Style and approach This is a hands-on guide to data analysis and data processing. The concrete examples are explained with simple code and accessible data.

Practical Data Science for Information Professionals - David Stuart 2020-07-24

Practical Data Science for Information Professionals provides an accessible introduction to a potentially complex field, providing readers with an overview of data science and a framework for its application. It provides detailed examples and analysis on real data

sets to explore the basics of the subject in three principle areas: clustering and social network analysis; predictions and forecasts; and text analysis and mining. As well as highlighting a wealth of user-friendly data science tools, the book also includes some example code in two of the most popular programming languages (R and Python) to demonstrate the ease with which the information professional can move beyond the graphical user interface and achieve significant analysis with just a few lines of code. After reading, readers will understand:

- the growing importance of data science
- the role of the information professional in data science
- some of the most important tools and methods that information professionals can use.

Bringing together the growing importance of data science and the increasing role of information professionals in the management and use of data, Practical Data Science for Information Professionals

will provide a practical introduction to the topic specifically designed for the information community. It will appeal to librarians and information professionals all around the world, from large academic libraries to small research libraries. By focusing on the application of open source software, it aims to reduce barriers for readers to use the lessons learned within.

Practical Machine Learning with R and Python:

Third Edition - Tinniam V. Ganesh 2019

This is the 3rd edition of the book. All the code sections are formatted with fixed-width font Consolas for better readability. This book implements many common Machine Learning algorithms in equivalent R and Python. The book touches on R and Python implementations of different regression models, classification algorithms including logistic regression, KNN classification, SVMs, b-splines, random forest, boosting etc. Other

techniques like best-fit, forward fit, backward fit, and lasso and ridge regression are also covered. The book further touches on classification metrics for computing accuracy, recall, precision etc. There are implementations of validation, ROC and AUC curves in both R and Python. Finally, the book covers unsupervised learning methods like K-Means, PCA and Hierarchical clustering. The book is well suited for the novice and the expert. The first two chapters discuss the most important programming constructs in R and Python. The third chapter highlights equivalent programming phrases in R and Python. Hence, those with no knowledge of R and Python will find these introductory chapters useful. Those who are proficient in one of the language can further their knowledge on the other. Those are familiar with both R and Python will find the equivalent implementations useful to internalize the

algorithms. This book should serve as a useful and handy reference for Machine Learning algorithms in both R and Python

Data Science, Analytics and Machine Learning with R - Luiz Paulo Favero 2023-01-27

Data Science, Analytics and Machine Learning with R explains the principles of data mining and machine learning techniques and accentuates the importance of applied and multivariate modeling. The book emphasizes the fundamentals of each technique, with step-by-step codes and real-world examples with data from areas such as medicine and health, biology, engineering, technology and related sciences. Examples use the most recent R language syntax, with recognized robust, widespread and current packages. Code scripts are exhaustively commented, making it clear to readers what happens in each command. For data collection, readers are instructed how to build their own robots

from the very beginning. In addition, an entire chapter focuses on the concept of spatial analysis, allowing readers to build their own maps through geo-referenced data (such as in epidemiologic research) and some basic statistical techniques. Other chapters cover ensemble and uplift modeling and GLMM (Generalized Linear Mixed Models) estimations, both linear and nonlinear. Presents a comprehensive and practical overview of machine learning, data mining and AI techniques for a broad multidisciplinary audience Serves readers who are interested in statistics, analytics and modeling, and those who wish to deepen their knowledge in programming through the use of R Teaches readers how to apply machine learning techniques to a wide range of data and subject areas Presents data in a graphically appealing way, promoting greater information transparency and interactive learning

Topics in Data Science with Practical Examples -

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Abdolreza Abhari 2018-09-26

Data Science, sometimes known as methods of processing and analyzing massive data sets (Big Data), is a rapidly evolving field. This book teaches important topics of the emerging data science by providing simple and practical examples in R language. Initial chapters are about data collection and management at large scale, and then data analytics and applying statistical and machine learning models on the collected data are discussed in rest of the book. Ten important topics in data science are explained in ten chapters of this book with practical examples in Oracle SQL, R, Hadoop, and MapReduce. The fundamental of data management such as relational database systems, data mining and distributed computing with practical examples of SQL and implementing Hadoop and MapReduce are detailed in chapters 1 to 3. Regression and statistical analysis, neural

networks, support vector machines and machine learning are explained in simple language together with R programming examples, in chapter 4 to 7. Natural language processing, recommendation systems and analyzing social networks graphs are explained in chapters 8 to 10 of this book. Dr. Abdolreza Abhari, a professor of computer science department at Ryerson University, has collected the material of this book after many years of teaching Data Science. With the background in computer science dating back to before the invention of the world wide web, professor Abhari has extensive experience in analyzing web and social network data and creating database systems for the companies and industrial sectors in Europe and North America. His teaching area in academia includes database systems, distributed systems, and data science for graduate and undergraduate students. Although this book is written for

professionals and graduated students who have a university or college degree, it is also useful for whoever considers working in the data science industry.

R Programming for Data Science - Roger D. Peng
2012-04-19

Data science has taken the world by storm. Every field of study and area of business has been affected as people increasingly realize the value of the incredible quantities of data being generated. But to extract value from those data, one needs to be trained in the proper data science skills. The R programming language has become the de facto programming language for data science. Its flexibility, power, sophistication, and expressiveness have made it an invaluable tool for data scientists around the world. This book is about the fundamentals of R programming. You will get started with the basics of the language, learn how to

manipulate datasets, how to write functions, and how to debug and optimize code. With the fundamentals provided in this book, you will have a solid foundation on which to build your data science toolbox.

R for Political Data Science - Francisco Urdinez
2020-11-18

R for Political Data Science: A Practical Guide is a handbook for political scientists new to R who want to learn the most useful and common ways to interpret and analyze political data. It was written by political scientists, thinking about the many real-world problems faced in their work. The book has 16 chapters and is organized in three sections. The first, on the use of R, is for those users who are learning R or are migrating from another software. The second section, on econometric models, covers OLS, binary and survival models, panel data, and causal inference. The third section is a data science

toolbox of some the most useful tools in the discipline: data imputation, fuzzy merge of large datasets, web mining, quantitative text analysis, network analysis, mapping, spatial cluster analysis, and principal component analysis. Key features: Each chapter has the most up-to-date and simple option available for each task, assuming minimal prerequisites and no previous experience in R Makes extensive use of the Tidyverse, the group of packages that has revolutionized the use of R Provides a step-by-step guide that you can replicate using your own data Includes exercises in every chapter for course use or self-study Focuses on practical-based approaches to statistical inference rather than mathematical formulae Supplemented by an R package, including all data As the title suggests, this book is highly applied in nature, and is designed as a toolbox for the reader. It can be used in methods and data science courses, at both the

undergraduate and graduate levels. It will be equally useful for a university student pursuing a PhD, political consultants, or a public official, all of whom need to transform their datasets into substantive and easily interpretable conclusions. *Data Science Fundamentals and Practical Approaches* - Dr. Gypsy Nandi 2020-06-02 Learn how to process and analysis data using Python KEY FEATURES - The book has theories explained elaborately along with Python code and corresponding output to support the theoretical explanations. The Python codes are provided with step-by-step comments to explain each instruction of the code. - The book is not just dealing with the background mathematics alone or only the programs but beautifully correlates the background mathematics to the theory and then finally translating it into the programs. - A rich set of chapter-end exercises are provided, consisting of

both short-answer questions and long-answer questions. **DESCRIPTION** This book introduces the fundamental concepts of Data Science, which has proved to be a major game-changer in business solving problems. Topics covered in the book include fundamentals of Data Science, data preprocessing, data plotting and visualization, statistical data analysis, machine learning for data analysis, time-series analysis, deep learning for Data Science, social media analytics, business analytics, and Big Data analytics. The content of the book describes the fundamentals of each of the Data Science related topics together with illustrative examples as to how various data analysis techniques can be implemented using different tools and libraries of Python programming language. Each chapter contains numerous examples and illustrative output to explain the important basic concepts. An appropriate number of questions is

presented at the end of each chapter for self-assessing the conceptual understanding. The references presented at the end of every chapter will help the readers to explore more on a given topic. **WHAT WILL YOU LEARN** Perform processing on data for making it ready for visual plot and understand the pattern in data over time. Understand what machine learning is and how learning can be incorporated into a program. Know how tools can be used to perform analysis on big data using python and other standard tools. Perform social media analytics, business analytics, and data analytics on any data of a company or organization. **WHO THIS BOOK IS FOR** The book is for readers with basic programming and mathematical skills. The book is for any engineering graduates that wish to apply data science in their projects or wish to build a career in this direction. The book can be read by anyone who has an interest in data analysis

and would like to explore more out of interest or to apply it to certain real-life problems. TABLE OF CONTENTS 1. Fundamentals of Data Science 1 2. Data Preprocessing 3. Data Plotting and Visualization 4. Statistical Data Analysis 5. Machine Learning for Data Science 6. Time-Series Analysis 7. Deep Learning for Data Science 8. Social Media Analytics 9. Business Analytics 10. Big Data Analytics

Practical Data Science with SAP - Greg Foss

2019-09-18

Learn how to fuse today's data science tools and techniques with your SAP enterprise resource planning (ERP) system. With this practical guide, SAP veterans Greg Foss and Paul Modderman demonstrate how to use several data analysis tools to solve interesting problems with your SAP data.

Data engineers and scientists will explore ways to add SAP data to their analysis processes, while SAP business analysts will learn practical methods for

answering questions about the business. By focusing on grounded explanations of both SAP processes and data science tools, this book gives data scientists and business analysts powerful methods for discovering deep data truths. You'll explore: Examples of how data analysis can help you solve several SAP challenges Natural language processing for unlocking the secrets in text Data science techniques for data clustering and segmentation Methods for detecting anomalies in your SAP data Data visualization techniques for making your data come to life

Introduction to Data Science - Rafael A. Irizarry

2019-11-20

Introduction to Data Science: Data Analysis and Prediction Algorithms with R introduces concepts and skills that can help you tackle real-world data analysis challenges. It covers concepts from probability, statistical inference, linear regression,

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and machine learning. It also helps you develop skills such as R programming, data wrangling, data visualization, predictive algorithm building, file organization with UNIX/Linux shell, version control with Git and GitHub, and reproducible document preparation. This book is a textbook for a first course in data science. No previous knowledge of R is necessary, although some experience with programming may be helpful. The book is divided into six parts: R, data visualization, statistics with R, data wrangling, machine learning, and productivity tools. Each part has several chapters meant to be presented as one lecture. The author uses motivating case studies that realistically mimic a data scientist's experience. He starts by asking specific questions and answers these through data analysis so concepts are learned as a means to answering the questions. Examples of the case studies included are: US murder rates by state, self-

reported student heights, trends in world health and economics, the impact of vaccines on infectious disease rates, the financial crisis of 2007-2008, election forecasting, building a baseball team, image processing of hand-written digits, and movie recommendation systems. The statistical concepts used to answer the case study questions are only briefly introduced, so complementing with a probability and statistics textbook is highly recommended for in-depth understanding of these concepts. If you read and understand the chapters and complete the exercises, you will be prepared to learn the more advanced concepts and skills needed to become an expert.

Data Visualization - Kieran Healy 2018-12-18

An accessible primer on how to create effective graphics from data This book provides students and researchers a hands-on introduction to the principles and practice of data visualization. It explains what

makes some graphs succeed while others fail, how to make high-quality figures from data using powerful and reproducible methods, and how to think about data visualization in an honest and effective way. *Data Visualization* builds the reader's expertise in ggplot2, a versatile visualization library for the R programming language. Through a series of worked examples, this accessible primer then demonstrates how to create plots piece by piece, beginning with summaries of single variables and moving on to more complex graphics. Topics include plotting continuous and categorical variables; layering information on graphics; producing effective "small multiple" plots; grouping, summarizing, and transforming data for plotting; creating maps; working with the output of statistical models; and refining plots to make them more comprehensible. Effective graphics are essential to communicating ideas and a great way to

better understand data. This book provides the practical skills students and practitioners need to visualize quantitative data and get the most out of their research findings. Provides hands-on instruction using R and ggplot2 Shows how the "tidyverse" of data analysis tools makes working with R easier and more consistent Includes a library of data sets, code, and functions

Practical Data Science - Andreas François Vermeulen 2018-02-22

Learn how to build a data science technology stack and perform good data science with repeatable methods. You will learn how to turn data lakes into business assets. The data science technology stack demonstrated in *Practical Data Science* is built from components in general use in the industry. Data scientist Andreas Vermeulen demonstrates in detail how to build and provision a technology stack to yield repeatable results. He shows you how to apply

practical methods to extract actionable business knowledge from data lakes consisting of data from a polyglot of data types and dimensions. What You'll Learn Become fluent in the essential concepts and terminology of data science and data engineering Build and use a technology stack that meets industry criteria Master the methods for retrieving actionable business knowledge Coordinate the handling of polyglot data types in a data lake for repeatable results Who This Book Is For Data scientists and data engineers who are required to convert data from a data lake into actionable knowledge for their business, and students who aspire to be data scientists and data engineers Practical Statistics for Data Scientists - Peter Bruce 2017-05-10

Statistical methods are a key part of data science, yet very few data scientists have any formal statistics training. Courses and books on basic

statistics rarely cover the topic from a data science perspective. This practical guide explains how to apply various statistical methods to data science, tells you how to avoid their misuse, and gives you advice on what's important and what's not. Many data science resources incorporate statistical methods but lack a deeper statistical perspective. If you're familiar with the R programming language, and have some exposure to statistics, this quick reference bridges the gap in an accessible, readable format. With this book, you'll learn: Why exploratory data analysis is a key preliminary step in data science How random sampling can reduce bias and yield a higher quality dataset, even with big data How the principles of experimental design yield definitive answers to questions How to use regression to estimate outcomes and detect anomalies Key classification techniques for predicting which categories a record belongs to

Statistical machine learning methods that “learn” from data Unsupervised learning methods for extracting meaning from unlabeled data

Learning R - Richard Cotton 2013-09-09

Learn how to perform data analysis with the R language and software environment, even if you have little or no programming experience. With the tutorials in this hands-on guide, you'll learn how to use the essential R tools you need to know to analyze data, including data types and programming concepts. The second half of Learning R shows you real data analysis in action by covering everything from importing data to publishing your results. Each chapter in the book includes a quiz on what you've learned, and concludes with exercises, most of which involve writing R code. Write a simple R program, and discover what the language can do Use data types such as vectors, arrays, lists, data frames, and strings Execute code conditionally

or repeatedly with branches and loops Apply R add-on packages, and package your own work for others Learn how to clean data you import from a variety of sources Understand data through visualization and summary statistics Use statistical models to pass quantitative judgments about data and make predictions Learn what to do when things go wrong while writing data analysis code

Business Analytics Using R - A Practical Approach - Umesh R Hodeghatta 2016-12-27

Learn the fundamental aspects of the business statistics, data mining, and machine learning techniques required to understand the huge amount of data generated by your organization. This book explains practical business analytics through examples, covers the steps involved in using it correctly, and shows you the context in which a particular technique does not make sense. Further, Practical Business Analytics using R helps you

understand specific issues faced by organizations and how the solutions to these issues can be facilitated by business analytics. This book will discuss and explore the following through examples and case studies: An introduction to R: data management and R functions The architecture, framework, and life cycle of a business analytics project Descriptive analytics using R: descriptive statistics and data cleaning Data mining: classification, association rules, and clustering Predictive analytics: simple regression, multiple regression, and logistic regression This book includes case studies on important business analytic techniques, such as classification, association, clustering, and regression. The R language is the statistical tool used to demonstrate the concepts throughout the book. What You Will Learn • Write R programs to handle data • Build analytical models and draw useful inferences from them • Discover the basic

concepts of data mining and machine learning • Carry out predictive modeling • Define a business issue as an analytical problem Who This Book Is For Beginners who want to understand and learn the fundamentals of analytics using R. Students, managers, executives, strategy and planning professionals, software professionals, and BI/DW professionals.

Practical Data Science with R, Second Edition - Nina Zumel 2019-12-07

Summary Practical Data Science with R, Second Edition takes a practice-oriented approach to explaining basic principles in the ever expanding field of data science. You'll jump right to real-world use cases as you apply the R programming language and statistical analysis techniques to carefully explained examples based in marketing, business intelligence, and decision support. Purchase of the print book includes a free eBook in PDF, Kindle,

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and ePub formats from Manning Publications. About the technology Evidence-based decisions are crucial to success. Applying the right data analysis techniques to your carefully curated business data helps you make accurate predictions, identify trends, and spot trouble in advance. The R data analysis platform provides the tools you need to tackle day-to-day data analysis and machine learning tasks efficiently and effectively. About the book Practical Data Science with R, Second Edition is a task-based tutorial that leads readers through dozens of useful, data analysis practices using the R language. By concentrating on the most important tasks you'll face on the job, this friendly guide is comfortable both for business analysts and data scientists. Because data is only useful if it can be understood, you'll also find fantastic tips for organizing and presenting data in tables, as well as snappy visualizations. What's inside Statistical

analysis for business pros Effective data presentation The most useful R tools Interpreting complicated predictive models About the reader You'll need to be comfortable with basic statistics and have an introductory knowledge of R or another high-level programming language. About the author Nina Zumel and John Mount founded a San Francisco-based data science consulting firm. Both hold PhDs from Carnegie Mellon University and blog on statistics, probability, and computer science. [Deep Learning for Coders with fastai and PyTorch](#) - Jeremy Howard 2020-06-29 Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a

consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

Practical Data Science with SAP - Greg Foss

2019-09-18

Learn how to fuse today's data science tools and techniques with your SAP enterprise resource planning (ERP) system. With this practical guide, SAP veterans Greg Foss and Paul Modderman demonstrate how to use several data analysis tools to solve interesting problems with your SAP data. Data engineers and scientists will explore ways to add SAP data to their analysis processes, while SAP business analysts will learn practical methods for answering questions about the business. By focusing on grounded explanations of both SAP processes and data science tools, this book gives data scientists and business analysts powerful methods for discovering deep data truths. You'll explore: Examples of how data analysis can help you solve several SAP challenges Natural language processing for unlocking the secrets in text Data science techniques for data clustering and segmentation

Methods for detecting anomalies in your SAP data
Data visualization techniques for making your data
come to life

Foundations of Data Science - Avrim Blum

2020-01-23

This book provides an introduction to the mathematical and algorithmic foundations of data science, including machine learning, high-dimensional geometry, and analysis of large networks. Topics include the counterintuitive nature of data in high dimensions, important linear algebraic techniques such as singular value decomposition, the theory of random walks and Markov chains, the fundamentals of and important algorithms for machine learning, algorithms and analysis for clustering, probabilistic models for large networks, representation learning including topic modelling and non-negative matrix factorization, wavelets and compressed sensing. Important

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probabilistic techniques are developed including the law of large numbers, tail inequalities, analysis of random projections, generalization guarantees in machine learning, and moment methods for analysis of phase transitions in large random graphs.

Additionally, important structural and complexity measures are discussed such as matrix norms and VC-dimension. This book is suitable for both undergraduate and graduate courses in the design and analysis of algorithms for data.

Practical Web Scraping for Data Science - Seppe

vanden Broucke 2018-04-18

This book provides a complete and modern guide to web scraping, using Python as the programming language, without glossing over important details or best practices. Written with a data science audience in mind, the book explores both scraping and the larger context of web technologies in which it operates, to ensure full understanding. The authors

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recommend web scraping as a powerful tool for any data scientist's arsenal, as many data science projects start by obtaining an appropriate data set. Starting with a brief overview on scraping and real-life use cases, the authors explore the core concepts of HTTP, HTML, and CSS to provide a solid foundation. Along with a quick Python primer, they cover Selenium for JavaScript-heavy sites, and web crawling in detail. The book finishes with a recap of best practices and a collection of examples that bring together everything you've learned and illustrate various data science use cases. What You'll Learn Leverage well-established best practices and

commonly-used Python packages Handle today's web, including JavaScript, cookies, and common web scraping mitigation techniques Understand the managerial and legal concerns regarding web scraping Who This Book is For A data science oriented audience that is probably already familiar with Python or another programming language or analytical toolkit (R, SAS, SPSS, etc). Students or instructors in university courses may also benefit. Readers unfamiliar with Python will appreciate a quick Python primer in chapter 1 to catch up with the basics and provide pointers to other guides as well.