

Sas Programming And Data Visualization Techniques A Power Users Guide

SAS Programming and Data Visualization Techniques: A Power User's Guide brings together a wealth of ideas about strategic and tactical solutions to everyday situations experienced when transferring, extracting, processing, analyzing, and reporting the valuable data you have at your fingertips. Best, you can achieve most of the solutions using the SAS components you already license, meaning that this book's insights can keep you from throwing money at problems needlessly. Author Philip R. Holland advises a broad range of clients throughout Europe and the United States as an independent consultant and founder of Holland Numerics Ltd, a SAS technical consultancy. In this book he explains techniques—through code samples and example—that will enable you to increase your knowledge of all aspects of SAS programming, improve your coding productivity, and interface SAS with other programs. He also provides an expert's overview of Graph Templates, which was recently moved into Base SAS. You will learn to create attractive, standardized, reusable, and platform-independent graphs—both statistical and non-statistical—to help you and your business users

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explore, visualize, and capitalize on your company's data. In addition, you will find many examples and cases pertaining to healthcare, finance, retail, and other industries. Among other things, SAS Programming and Data Visualization Techniques will show you how to: Write efficient and reusable SAS code Combine look-up data sets with larger data sets effectively Run R and Perl from SAS Run SAS programs from SAS Studio and Enterprise Guide Output data into insightful, valuable charts and graphs SAS Programming and Data Visualization Techniques prepares you to make better use of your existing SAS components by learning to use the newest features, improve your coding efficiency, help you develop applications that are easier to maintain, and make data analysis easier. In other words, it will save you time, money, and effort—and make you a more valuable member of the development team. What You'll Learn How to write more efficient SAS code—either code that runs quicker, code that is easier to maintain, or both How to do more with the SAS components you already license How to take advantage of the newest features in SAS How to interface external applications with SAS software How to create graphs using SAS ODS Graphics Who This Book Is For SAS programmers wanting to improve their existing programming skills, and programming managers wanting to make better use of the SAS software they

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already license.

The official guide by the SAS Global Certification Program, SAS Certified Professional Prep Guide: Advanced Programming Using SAS 9.4 prepares you to take the new SAS 9.4 Advanced Programming Performance-Based Exam. New in this edition is a workbook whose sample scenarios require you to write code to solve problems and answer questions. Answers to the chapter quizzes and solutions to the sample scenarios in the workbook are included. You will also find links to exam objectives, practice exams, and other resources such as the Base SAS Glossary and a list of practice data sets. Major topics include SQL processing, SAS macro language processing, and advanced SAS programming techniques. All exam topics are covered in the following chapters: SQL Processing with SAS PROC SQL Fundamentals Creating and Managing Tables Joining Tables Using PROC SQL Joining Tables Using Set Operators Using Subqueries Advanced SQL Techniques SAS Macro Language Processing Creating and Using Macro Variables Storing and Processing Text Working with Macro Programs Advanced Macro Techniques Advanced SAS Programming Techniques Defining and Processing Arrays Processing Data Using Hash Objects Using SAS Utility Procedures Using Advanced Functions Practice Programming Scenarios (Workbook)

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SAS provides many different solutions to investigate and analyze text and operationalize decisioning. Several impressive papers have been written to demonstrate how to use these techniques. We have carefully selected a handful of these from recent Global Forum contributions to introduce you to the topic and let you sample what each has to offer. Also available free as a PDF from sas.com/books.

Leverage the capabilities of SAS to process and analyze Big Data About This Book Combine SAS with platforms such as Hadoop, SAP HANA, and Cloud Foundry-based platforms for efficient Big Data analytics Learn how to use the web browser-based SAS Studio and iPython Jupyter Notebook interfaces with SAS Practical, real-world examples on predictive modeling, forecasting, optimizing and reporting your Big Data analysis with SAS Who This Book Is For SAS professionals and data analysts who wish to perform analytics on Big Data using SAS to gain actionable insights will find this book to be very useful. If you are a data science professional looking to perform large-scale analytics with SAS, this book will also help you. A basic understanding of SAS will be helpful, but is not mandatory. What You Will Learn Configure a free version of SAS in order to do hands-on exercises dealing with data management, analysis, and reporting. Understand the basic concepts of the SAS language which consists of the data step (for data preparation) and

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procedures (or PROCs) for analysis. Make use of the web browser based SAS Studio and iPython Jupyter Notebook interfaces for coding in the SAS, DS2, and FedSQL programming languages. Understand how the DS2 programming language plays an important role in Big Data preparation and analysis using SAS Integrate and work efficiently with Big Data platforms like Hadoop, SAP HANA, and cloud foundry based systems. In Detail SAS has been recognized by Money Magazine and Payscale as one of the top business skills to learn in order to advance one's career. Through innovative data management, analytics, and business intelligence software and services, SAS helps customers solve their business problems by allowing them to make better decisions faster. This book introduces the reader to the SAS and how they can use SAS to perform efficient analysis on any size data, including Big Data. The reader will learn how to prepare data for analysis, perform predictive, forecasting, and optimization analysis and then deploy or report on the results of these analyses. While performing the coding examples within this book the reader will learn how to use the web browser based SAS Studio and iPython Jupyter Notebook interfaces for working with SAS. Finally, the reader will learn how SAS's architecture is engineered and designed to scale up and/or out and be combined with the open source offerings such as Hadoop, Python, and R. By the

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end of this book, you will be able to clearly understand how you can efficiently analyze Big Data using SAS. Style and approach The book starts off by introducing the reader to SAS and the SAS programming language which provides data management, analytical, and reporting capabilities. Most chapters include hands on examples which highlights how SAS provides The Power to Know©. The reader will learn that if they are looking to perform large-scale data analysis that SAS provides an open platform engineered and designed to scale both up and out which allows the power of SAS to combine with open source offerings such as Hadoop, Python, and R.

Graphical methods for quantitative data are well developed and widely used. However, until now with this comprehensive treatment, few graphical methods existed for categorical data. In this innovative book, the author presents many aspects of the relationships among variables, the adequacy of a fitted model, and possibly unusual features of the data that can best be seen and appreciated in an informative graphical display.

An Up-to-Date, All-in-One Resource for Using SAS and R to Perform Frequent Tasks The first edition of this popular guide provided a path between SAS and R using an easy-to-understand, dictionary-like approach. Retaining the same accessible format, SAS and R: Data Management, Statistical Analysis,

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and Graphics, Second Edition explains how to easily perform an analytical task in both SAS and R, without having to navigate through the extensive, idiosyncratic, and sometimes unwieldy software documentation. The book covers many common tasks, such as data management, descriptive summaries, inferential procedures, regression analysis, and graphics, along with more complex applications. New to the Second Edition This edition now covers RStudio, a powerful and easy-to-use interface for R. It incorporates a number of additional topics, including using application program interfaces (APIs), accessing data through database management systems, using reproducible analysis tools, and statistical analysis with Markov chain Monte Carlo (MCMC) methods and finite mixture models. It also includes extended examples of simulations and many new examples. Enables Easy Mobility between the Two Systems Through the extensive indexing and cross-referencing, users can directly find and implement the material they need. SAS users can look up tasks in the SAS index and then find the associated R code while R users can benefit from the R index in a similar manner. Numerous example analyses demonstrate the code in action and facilitate further exploration. The datasets and code are available for download on the book's website.

When it comes to business intelligence and

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analytical capabilities, SAS Visual Analytics is the premier solution for data discovery, visualization, and reporting. An Introduction to SAS Visual Analytics will show you how to make sense of your complex data with the goal of leading you to smarter, data-driven decisions without having to write a single line of code – unless you want to! You will be able to use SAS Visual Analytics to access, prepare, and present your data to anyone anywhere in the world. SAS Visual Analytics automatically highlights key relationships, outliers, clusters, trends and more. These abilities will guide you to critical insights that inspire action from your data. With this book, you will become proficient using SAS Visual Analytics to present data and results in customizable, robust visualizations, as well as guided analyses through auto-charting. With interactive dashboards, charts, and reports, you will create visualizations which convey clear and actionable insights for any size and type of data. This book largely focuses on the version of SAS Visual Analytics on SAS 9.4, although it is available on both 9.4 and SAS Viya platforms. Each version is considered the latest release, with subsequent releases planned to continue on each platform; hence, the Viya version works similarly to the 9.4 version and will look familiar. This book covers new features of each and important differences between the two. With this book, you will learn how to: Build your first report

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using the SAS Visual Analytics Designer Prepare a dashboard and determine the best layout Effectively use geo-spatial objects to add location analytics to reports Understand and use the elements of data visualizations Prepare and load your data with the SAS Visual Analytics Data Builder Analyze data with a variety of options, including forecasting, word clouds, heat maps, correlation matrix, and more Understand administration activities to keep SAS Visual Analytics humming along Optimize your environment for considerations such as scalability, availability, and efficiency between components of your SAS software deployment and data providers Elevate your storytelling with SAS Visual Analytics Data visualization is the gateway to artificial intelligence (AI) and big data. Insightful Data Visualization with SAS Viya shows how the latest SAS Viya tools can be used to create data visualizations in an easier, smarter, and more engaging way than ever before. SAS Visual Analytics combined with human creativity can produce endless possibilities. In this book, you will learn tips and techniques for getting the most from your SAS Visual Analytics investment. From beginners to advanced SAS users, this book has something for everyone. Use AI wizards to create data visualization automatically, learn to use advanced analytics in your dashboards to surface smarter insights, and learn to extend SAS Visual

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Analytics with advanced integrations and options. Topics covered in this book include: SAS Visual Analytics Data visualization with SAS Reports and dashboards SAS code examples Self-service analytics SAS data access Extending SAS beyond drag and drop

Use R 4, RStudio, Tidyverse, and Shiny to interrogate and analyze your data, and then use the D3 JavaScript library to format and display that data in an elegant, informative, and interactive way. You will learn how to gather data effectively, and also how to understand the philosophy and implementation of each type of chart, so as to be able to represent the results visually. With the popularity of the R language, the art and practice of creating data visualizations is no longer the preserve of mathematicians, statisticians, or cartographers. As technology leaders, we can gather metrics around what we do and use data visualizations to communicate that information. Pro Data Visualization Using R and JavaScript combines the power of the R language with the simplicity and familiarity of JavaScript to display clear and informative data visualizations. Gathering and analyzing empirical data is the key to truly understanding anything. We can track operational metrics to quantify the health of our products in production. We can track quality metrics of our projects, and even use our data to identify bad code.

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Visualizing this data allows anyone to read our analysis and easily get a deep understanding of the story the data tells. This book makes the R language approachable, and promotes the idea of data gathering and analysis mostly using web interfaces. What You Will Learn Carry out data visualization using R and JavaScript Use RStudio for data visualization Harness Tidyverse data pipelines Apply D3 and R Notebooks towards your data Work with the R Plumber API generator, Shiny, and more Who This Book Is For Programmers and data scientists/analysts who have some prior experience with R and JavaScript.

SAS users in the Health and Life Sciences industry need to create complex graphs to analyze biostatistics data and clinical data, and they need to submit drugs for approval to the FDA. Graphs used in the HLS industry are complex in nature and require innovative usage of the graphics features. Clinical Graphs Using SAS® provides the knowledge, the code, and real-world examples that enable you to create common clinical graphs using SAS graphics tools, such as the Statistical Graphics procedures and the Graph Template Language. This book describes detailed processes to create many commonly used graphs in the Health and Life Sciences industry. For SAS® 9.3 and SAS® 9.4 it covers many improvements in the graphics features that are supported by the Statistical Graphics procedures and the Graph Template Language, many of which are a direct result of the needs of the Health and Life Sciences

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community. With the addition of new features in SAS® 9.4, these graphs become positively easy to create. Topics covered include the usage of SGPLOT procedure, the SGPANEL procedure and the Graph Template Language for the creation of graphs like forest plots, swimmer plots, and survival plots.

Enhance your SAS data-wrangling skills with high-precision and parallel data manipulation using the DS2 programming language. Now in its second edition, this book addresses the DS2 programming language from SAS, which combines the precise procedural power and control of the Base SAS DATA step language with the simplicity and flexibility of SQL. DS2 provides simple, safe syntax for performing complex data transformations in parallel and enables manipulation of native database data types at full precision. It also covers PROC FEDSQL, a modernized SQL language that blends perfectly with DS2. You will learn to harness the power of parallel processing to speed up CPU-intensive computing processes in Base SAS and how to achieve even more speed by processing DS2 programs on massively parallel database systems. Techniques for leveraging internet APIs to acquire data, avoiding large data movements when working with data from disparate sources, and leveraging DS2's new data types for full-precision numeric calculations are presented, with examples of why these techniques are essential for the modern data wrangler. Here's what's new in this edition: how to significantly improve performance by using the new SAS Viya architecture with its SAS Cloud Analytic Services (CAS) how to declare private variables and

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methods in a package the new PROC DSTODS2 the PCRXFIND and PCRXREPLACE packages While working though the code samples provided with this book, you will build a library of custom, reusable, and easily shareable DS2 program modules, execute parallelized DATA step programs to speed up a CPU-intensive process, and conduct advanced data transformations using hash objects and matrix math operations. This book is part of the SAS Press Series. SAS Programming for R Users, based on the free SAS Education course of the same name, is designed for experienced R users who want to transfer their programming skills to SAS. Emphasis is on programming and not statistical theory or interpretation. You will learn how to write programs in SAS that replicate familiar functions and capabilities in R. This book covers a wide range of topics including the basics of the SAS programming language, how to import data, how to create new variables, random number generation, linear modeling, Interactive Matrix Language (IML), and many other SAS procedures. This book also explains how to write R code directly in the SAS code editor for seamless integration between the two tools. Exercises are provided at the end of each chapter so that you can test your knowledge and practice your programming skills. Statistical Data Mining Using SAS Applications, Second Edition describes statistical data mining concepts and demonstrates the features of user-friendly data mining SAS tools. Integrating the statistical and graphical analysis tools available in SAS systems, the book provides complete statistical data mining solutions

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without writing SAS program code

Create compelling business infographics with SAS and familiar office productivity tools. A picture is worth a thousand words, but what if there are a billion words? When analyzing big data, you need a picture that cuts through the noise. This is where infographics come in. Infographics are a representation of information in a graphic format designed to make the data easily understandable. With infographics, you don't need deep knowledge of the data. The infographic combines story telling with data and provides the user with an approachable entry point into business data.

Infographics Powered by SAS : Data Visualization Techniques for Business Reporting shows you how to create graphics to communicate information and insight from big data in the boardroom and on social media.

Learn how to create business infographics for all occasions with SAS and learn how to build a workflow that lets you get the most from your SAS system without having to code anything, unless you want to! This book combines the perfect blend of creative freedom and data governance that comes from leveraging the power of SAS and the familiarity of Microsoft Office. Topics covered in this book include: SAS Visual Analytics SAS Office Analytics SAS/GRAPH software (SAS code examples) Data visualization with SAS Creating reports with SAS Using reports and graphs from SAS to create business presentations Using SAS within Microsoft Office

Discover how to use the popular RStudio IDE as a professional tool that includes code refactoring support,

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debugging, and Git version control integration. This book gives you a tour of RStudio and shows you how it helps you do exploratory data analysis; build data visualizations with ggplot; and create custom R packages and web-based interactive visualizations with Shiny. In addition, you will cover common data analysis tasks including importing data from diverse sources such as SAS files, CSV files, and JSON. You will map out the features in RStudio so that you will be able to customize RStudio to fit your own style of coding. Finally, you will see how to save a ton of time by adopting best practices and using packages to extend RStudio. Learn RStudio IDE is a quick, no-nonsense tutorial of RStudio that will give you a head start to develop the insights you need in your data science projects. What You Will Learn Quickly, effectively, and productively use RStudio IDE for building data science applications Install RStudio and program your first Hello World application Adopt the RStudio workflow Make your code reusable using RStudio Use RStudio and Shiny for data visualization projects Debug your code with RStudio Import CSV, SPSS, SAS, JSON, and other data Who This Book Is For Programmers who want to start doing data science, but don't know what tools to focus on to get up to speed quickly.

Data simulation is a fundamental technique in statistical programming and research. Rick Wicklin's *Simulating Data with SAS* brings together the most useful algorithms and the best programming techniques for efficient data simulation in an accessible how-to book for practicing statisticians and statistical programmers. This book discusses in detail how to simulate data from

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common univariate and multivariate distributions, and how to use simulation to evaluate statistical techniques. It also covers simulating correlated data, data for regression models, spatial data, and data with given moments. It provides tips and techniques for beginning programmers, and offers libraries of functions for advanced practitioners. As the first book devoted to simulating data across a range of statistical applications, *Simulating Data with SAS* is an essential tool for programmers, analysts, researchers, and students who use SAS software. SAS Products and Releases: Base SAS: 9.3 SAS/ETS: 9.3 SAS/IML: 9.3 SAS/STAT: 9.3 Operating Systems: All

SAS Visual Data Mining and Machine Learning, powered by SAS Viya, means that users of all skill levels can visually explore data on their own while drawing on powerful in-memory technologies for faster analytic computations and discoveries. You can manually program with custom code or use the features in SAS Studio, Model Studio, and SAS Visual Analytics to automate your data manipulation and modeling. These programs offer a flexible, easy-to-use, self-service environment that can scale on an enterprise-wide level. In this book, we will explore some of the many features of SAS Visual Data Mining and Machine Learning including: programming in the Python interface; new, advanced data mining and machine learning procedures; pipeline building in Model Studio, and model building and comparison in SAS Visual Analytics.

Gain the R programming language fundamentals for doing the applied statistics useful for data exploration

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and analysis in data science and data mining. This book covers topics ranging from R syntax basics, descriptive statistics, and data visualizations to inferential statistics and regressions. After learning R's syntax, you will work through data visualizations such as histograms and boxplot charting, descriptive statistics, and inferential statistics such as t-test, chi-square test, ANOVA, non-parametric test, and linear regressions. Learn R for Applied Statistics is a timely skills-migration book that equips you with the R programming fundamentals and introduces you to applied statistics for data explorations. What You Will Learn Discover R, statistics, data science, data mining, and big data Master the fundamentals of R programming, including variables and arithmetic, vectors, lists, data frames, conditional statements, loops, and functions Work with descriptive statistics Create data visualizations, including bar charts, line charts, scatter plots, boxplots, histograms, and scatterplots Use inferential statistics including t-tests, chi-square tests, ANOVA, non-parametric tests, linear regressions, and multiple linear regressions Who This Book Is For Those who are interested in data science, in particular data exploration using applied statistics, and the use of R programming for data visualizations.

Get complete instructions for manipulating, processing, cleaning, and crunching datasets in Python. Updated for Python 3.6, the second edition of this hands-on guide is packed with practical case studies that show you how to solve a broad set of data analysis problems effectively. You'll learn the

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latest versions of pandas, NumPy, IPython, and Jupyter in the process. Written by Wes McKinney, the creator of the Python pandas project, this book is a practical, modern introduction to data science tools in Python. It's ideal for analysts new to Python and for Python programmers new to data science and scientific computing. Data files and related material are available on GitHub. Use the IPython shell and Jupyter notebook for exploratory computing Learn basic and advanced features in NumPy (Numerical Python) Get started with data analysis tools in the pandas library Use flexible tools to load, clean, transform, merge, and reshape data Create informative visualizations with matplotlib Apply the pandas groupby facility to slice, dice, and summarize datasets Analyze and manipulate regular and irregular time series data Learn how to solve real-world data analysis problems with thorough, detailed examples

Dive deeper into SPSS Statistics for more efficient, accurate, and sophisticated data analysis and visualization SPSS Statistics for Data Analysis and Visualization goes beyond the basics of SPSS Statistics to show you advanced techniques that exploit the full capabilities of SPSS. The authors explain when and why to use each technique, and then walk you through the execution with a pragmatic, nuts and bolts example. Coverage includes extensive, in-depth discussion of

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advanced statistical techniques, data visualization, predictive analytics, and SPSS programming, including automation and integration with other languages like R and Python. You'll learn the best methods to power through an analysis, with more efficient, elegant, and accurate code. IBM SPSS Statistics is complex: true mastery requires a deep understanding of statistical theory, the user interface, and programming. Most users don't encounter all of the methods SPSS offers, leaving many little-known modules undiscovered. This book walks you through tools you may have never noticed, and shows you how they can be used to streamline your workflow and enable you to produce more accurate results. Conduct a more efficient and accurate analysis Display complex relationships and create better visualizations Model complex interactions and master predictive analytics Integrate R and Python with SPSS Statistics for more efficient, more powerful code These "hidden tools" can help you produce charts that simply wouldn't be possible any other way, and the support for other programming languages gives you better options for solving complex problems. If you're ready to take advantage of everything this powerful software package has to offer, SPSS Statistics for Data Analysis and Visualization is the expert-led training you need.

Although the web and online SAS® communities can

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provide volumes of information for programmers, these resources are often overwhelming and lack a simple path to guide coding SAS. This reference, however, does provide such a path from a data user's standpoint vs. seeing things as a code writer. Written by an experienced SAS programmer, this book lets SAS coders easily find explanations and clarification to typical programming problems. This book presents practical real-world data analysis steps encountered by analysts in the field. These steps include the following: Getting to know raw data Understanding variables Getting data into SAS Creating new data variables Performing data manipulations, including sorting, ranking, grouping, subtotal, total, and percentage Statistical testing under a broad range of logical and conditional settings Data visualization Throughout this book, statements and codes are accompanied by thorough annotation. Line-by-line explanations ensure that all terms are clearly explained. Code examples and sample codes have broad usages. All the examples are related to highway transportation where the use of big data is exploding and presenting new challenges and opportunities for growth. Clear and precise practical introductory material on statistics is integrated into the relevant SAS procedures to bolster users' confidence in applying such methods to their own work. Comprehensive and foundational coverage, systematic introduction of programming

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topics, thoroughly annotated code examples, and real-world code samples combine to make SAS® Coding Primer and Reference Guide an indispensable reference for beginners and experienced programmers.

Learn to program SAS by example! Learning SAS by Example, A Programmer's Guide, Second Edition, teaches SAS programming from very basic concepts to more advanced topics. Because most programmers prefer examples rather than reference-type syntax, this book uses short examples to explain each topic. The second edition has brought this classic book on SAS programming up to the latest SAS version, with new chapters that cover topics such as PROC SGPLOT and Perl regular expressions. This book belongs on the shelf (or e-book reader) of anyone who programs in SAS, from those with little programming experience who want to learn SAS to intermediate and even advanced SAS programmers who want to learn new techniques or identify new ways to accomplish existing tasks. In an instructive and conversational tone, author Ron Cody clearly explains each programming technique and then illustrates it with one or more real-life examples, followed by a detailed description of how the program works. The text is divided into four major sections: Getting Started, DATA Step Processing, Presenting and Summarizing Your Data, and Advanced Topics.

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Subjects addressed include Reading data from external sources Learning details of DATA step programming Subsetting and combining SAS data sets Understanding SAS functions and working with arrays Creating reports with PROC REPORT and PROC TABULATE Getting started with the SAS macro language Leveraging PROC SQL Generating high-quality graphics Using advanced features of user-defined formats and informats Restructuring SAS data sets Working with multiple observations per subject Getting started with Perl regular expressions You can test your knowledge and hone your skills by solving the problems at the end of each chapter.

Visualizing the data is an essential part of any data analysis. Modern computing developments have led to big improvements in graphic capabilities and there are many new possibilities for data displays. This book gives an overview of modern data visualization methods, both in theory and practice. It details modern graphical tools such as mosaic plots, parallel coordinate plots, and linked views. Coverage also examines graphical methodology for particular areas of statistics, for example Bayesian analysis, genomic data and cluster analysis, as well software for graphics.

Do you want to create data analysis reports without writing a line of code? This book introduces SAS Studio, a free data science web browser-based

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product for educational and non-commercial purposes. The power of SAS Studio comes from its visual point-and-click user interface that generates SAS code. It is easier to learn SAS Studio than to learn R and Python to accomplish data cleaning, statistics, and visualization tasks. The book includes a case study about analyzing the data required for predicting the results of presidential elections in the state of Maine for 2016 and 2020. In addition to the presidential elections, the book provides real-life examples including analyzing stocks, oil and gold prices, crime, marketing, and healthcare. You will see data science in action and how easy it is to perform complicated tasks and visualizations in SAS Studio. You will learn, step-by-step, how to do visualizations, including maps. In most cases, you will not need a line of code as you work with the SAS Studio graphical user interface. The book includes explanations of the code that SAS Studio generates automatically. You will learn how to edit this code to perform more complicated advanced tasks. The book introduces you to multiple SAS products such as SAS Viya, SAS Analytics, and SAS Visual Statistics. What You Will Learn Become familiar with SAS Studio IDE Understand essential visualizations Know the fundamental statistical analysis required in most data science and analytics reports Clean the most common data set problems Use linear progression for data prediction Write programs in

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SAS Get introduced to SAS-Viya, which is more potent than SAS studio Who This Book Is For A general audience of people who are new to data science, students, and data analysts and scientists who are experienced but new to SAS. No programming or in-depth statistics knowledge is needed.

Robert Allison's SAS/GRAPH: Beyond the Basics collects examples that demonstrate a variety of techniques you can use to create custom graphs using SAS/GRAPH software. SAS/GRAPH is known for its flexibility and power, but few people know how to use it to its full potential. Written for the SAS programmer with experience using Base SAS to work with data, the book includes examples that can be used in a variety of industry sectors.

SAS/GRAPH: Beyond the Basics will help you create the exact graph you want.

Leverage the full potential of SAS to get unique, actionable insights from your data Key Features Build enterprise-class data solutions using SAS and become well-versed in SAS programming Work with different data structures, and run SQL queries to manipulate your data Explore essential concepts and techniques with practical examples to confidently pass the SAS certification exam Book Description SAS is one of the leading enterprise tools in the world today when it comes to data management and analysis. It enables the fast and easy processing of

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data and helps you gain valuable business insights for effective decision-making. This book will serve as a comprehensive guide that will prepare you for the SAS certification exam. After a quick overview of the SAS architecture and components, the book will take you through the different approaches to importing and reading data from different sources using SAS. You will then cover SAS Base and 4GL, understanding data management and analysis, along with exploring SAS functions for data manipulation and transformation. Next, you'll discover SQL procedures and get up to speed on creating and validating queries. In the concluding chapters, you'll learn all about data visualization, right from creating bar charts and sample geographic maps through to assigning patterns and formats. In addition to this, the book will focus on macro programming and its advanced aspects. By the end of this book, you will be well versed in SAS programming and have the skills you need to easily handle and manage your data-related problems in SAS. What you will learn

- Explore a variety of SAS modules and packages for efficient data analysis
- Use SAS 4GL functions to manipulate, merge, sort, and transform data
- Gain useful insights into advanced PROC SQL options in SAS to interact with data
- Get to grips with SAS Macro and define your own macros to share data
- Discover the different graphical libraries to shape and visualize data with

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Apply the SAS Output Delivery System to prepare detailed reports Who this book is for Budding or experienced data professionals who want to get started with SAS will benefit from this book. Those looking to prepare for the SAS certification exam will also find this book to be a useful resource. Some understanding of basic data management concepts will help you get the most out of this book.

Foreword by Oliver Schabenberger, PhD Executive Vice President, Chief Operating Officer and Chief Technology Officer SAS Dive into deep learning! Machine learning and deep learning are ubiquitous in our homes and workplaces-from machine translation to image recognition and predictive analytics to autonomous driving. Deep learning holds the promise of improving many everyday tasks in a variety of disciplines. Much deep learning literature explains the mechanics of deep learning with the goal of implementing cognitive applications fueled by Big Data. This book is different. Written by an expert in high-performance analytics, Deep Learning for Numerical Applications with SAS® introduces a new field: Deep Learning for Numerical Applications (DL4NA). Contrary to deep learning, the primary goal of DL4NA is not to learn from data but to dramatically improve the performance of numerical applications by training deep neural networks. Deep Learning for Numerical Applications with SAS® presents deep learning concepts in SAS along with

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step-by-step techniques that allow you to easily reproduce the examples on your high-performance analytics systems. It also discusses the latest hardware innovations that can power your SAS programs: from many-core CPUs to GPUs to FPGAs to ASICs. This book assumes the reader has no prior knowledge of high-performance computing, machine learning, or deep learning. It is intended for SAS developers who want to develop and run the fastest analytics. In addition to discovering the latest trends in hybrid architectures with GPUs and FPGAS, readers will learn how to Use deep learning in SAS Speed up their analytics using deep learning Easily write highly parallel programs using the many task computing paradigms For sample material and supporting resources, please see the author's page. This book is part of the SAS Press program.

With the powerful interactive and visual functionality of JMP, you can dynamically analyze market data to transform it into actionable and useful information with clear, concise, and insightful reports and displays. Market Data Analysis Using JMP is a unique example-driven book because it has a specific application focus: market data analysis. A working knowledge of JMP will help you turn your market data into vital knowledge that will help you succeed in a highly competitive, fast-moving, and dynamic business world. This book can be used as a stand-alone resource for working professionals, or as a supplement to a business school course in market data research. Anyone who works with market data will benefit from reading and studying this book, then using JMP to apply the dynamic analytical concepts to

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their market data. After reading this book, you will be able to quickly and effortlessly use JMP to: prepare market data for analysis use and interpret sophisticated statistical methods build choice models estimate regression models to turn data into useful and actionable information Market Data Analysis Using JMP will teach you how to use dynamic graphics to illustrate your market data analysis and explore the vast possibilities that your data can offer!

The era of Big Data as arrived, and most organizations are woefully unprepared. Slowly, many are discovering that stalwarts like Excel spreadsheets, KPIs, standard reports, and even traditional business intelligence tools aren't sufficient. These old standbys can't begin to handle today's increasing streams, volumes, and types of data. Amidst all of the chaos, though, a new type of organization is emerging. In *The Visual Organization*, award-winning author and technology expert Phil Simon looks at how an increasingly number of organizations are embracing new dataviz tools and, more important, a new mind-set based upon data discovery and exploration. Simon adroitly shows how Amazon, Apple, Facebook, Google, Twitter, and other tech heavyweights use powerful data visualization tools to garner fascinating insights into their businesses. But make no mistake: these companies are hardly alone. Organizations of all types, industries, sizes are representing their data in new and amazing ways. As a result, they are asking better questions and making better business decisions. Rife with real-world examples and case studies, *The Visual Organization* is a full-color tour-de-force.

SAS/IML software is a powerful tool for data analysts because it enables implementation of statistical algorithms that are not available in any SAS procedure. Rick Wicklin's *Statistical Programming with SAS/IML Software* is the first book to provide a comprehensive description of the software

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and how to use it. He presents tips and techniques that enable you to use the IML procedure and the SAS/IML Studio application efficiently. In addition to providing a comprehensive introduction to the software, the book also shows how to create and modify statistical graphs, call SAS procedures and R functions from a SAS/IML program, and implement such modern statistical techniques as simulations and bootstrap methods in the SAS/IML language. Written for data analysts working in all industries, graduate students, and consultants, *Statistical Programming with SAS/IML Software* includes numerous code snippets and more than 100 graphs. This book is part of the SAS Press program.

"SAS Programming and Data Analysis is an instructional manual on programming with SAS and the general syntax of the SAS software. The Statistical Analysis System was developed by, and is proprietary to the SAS Institute, Cary, North Carolina. SAS is an integrated software that enables the user to enter, retrieve, manage, and analyze data in different ways. It has become one of the foremost software programs for business, government, and industry. Additionally, SAS is the software of choice for most institutions graduating majors and minor in Statistics."--Back cover.

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,

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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

SAS software has been in existence for a long time and has been implemented in large, data-intensive environments, including data warehouses. This SAS book covers practical programming considerations to make when involving SAS in a data warehouse environment. You'll be able to develop the skills you need to apply SAS in your working environment. This first book in the series covers how to access data files, libraries, and existing code in SAS Studio. You also learn about new procedures in SAS Viya, how to write new code, and how to use some of the pre-installed tasks that come with SAS Visual Data Mining and Machine Learning. In the last chapter, you learn how to use the features in SAS Data Preparation to perform data management tasks using SAS Data Explorer, SAS Data Studio, and SAS Lineage Viewer. Also available free as a PDF from sas.com/books.

SAS Programming and Data Visualization Techniques
A Power User's Guide
Apress

Learn data science concepts with real-world examples in SAS! End-to-End Data Science with SAS: A Hands-On

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Programming Guide provides clear and practical explanations of the data science environment, machine learning techniques, and the SAS programming knowledge necessary to develop machine learning models in any industry. The book covers concepts including understanding the business need, creating a modeling data set, linear regression, parametric classification models, and non-parametric classification models. Real-world business examples and example code are used to demonstrate each process step-by-step. Although a significant amount of background information and supporting mathematics are presented, the book is not structured as a textbook, but rather it is a user's guide for the application of data science and machine learning in a business environment. Readers will learn how to think like a data scientist, wrangle messy data, choose a model, and evaluate the model's effectiveness. New data scientists or professionals who want more experience with SAS will find this book to be an invaluable reference. Take your data science career to the next level by mastering SAS programming for machine learning models.

Data visualization enables decision makers to see analytics presented visually so that they can grasp difficult concepts or identify new patterns. SAS offers several solutions for visualizing your data, many of which are powered by SAS Viya. This book includes four visualization solutions powered by SAS Viya: SAS Visual Analytics, SAS Visual Statistics, SAS Visual Text Analytics, and SAS Visual Investigator. SAS visualization software is designed for anyone in your organization who wants to use and derive insights from data—from influencers, decision makers, and analysts to statisticians and data scientists. Also

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available as a free e-book from sas.com/books. Statistical Programming in SAS Second Edition provides a foundation for programming to implement statistical solutions using SAS, a system that has been used to solve data analytic problems for more than 40 years. The author includes motivating examples to inspire readers to generate programming solutions. Upper-level undergraduates, beginning graduate students, and professionals involved in generating programming solutions for data-analytic problems will benefit from this book. The ideal background for a reader is some background in regression modeling and introductory experience with computer programming. The coverage of statistical programming in the second edition includes ? Getting data into the SAS system, engineering new features, and formatting variables ? Writing readable and well-documented code ? Structuring, implementing, and debugging programs that are well documented ? Creating solutions to novel problems ? Combining data sources, extracting parts of data sets, and reshaping data sets as needed for other analyses ? Generating general solutions using macros ? Customizing output ? Producing insight-inspiring data visualizations ? Parsing, processing, and analyzing text ? Programming solutions using matrices and connecting to R ? Processing text ? Programming with matrices ? Connecting SAS with R ? Covering

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topics that are part of both base and certification exams.

Practical data design tips from a data visualization expert of the modern age Data doesn't decrease; it is ever-increasing and can be overwhelming to organize in a way that makes sense to its intended audience. Wouldn't it be wonderful if we could actually visualize data in such a way that we could maximize its potential and tell a story in a clear, concise manner? Thanks to the creative genius of Nathan Yau, we can. With this full-color book, data visualization guru and author Nathan Yau uses step-by-step tutorials to show you how to visualize and tell stories with data. He explains how to gather, parse, and format data and then design high quality graphics that help you explore and present patterns, outliers, and relationships. Presents a unique approach to visualizing and telling stories with data, from a data visualization expert and the creator of flowingdata.com, Nathan Yau Offers step-by-step tutorials and practical design tips for creating statistical graphics, geographical maps, and information design to find meaning in the numbers Details tools that can be used to visualize data-native graphics for the Web, such as ActionScript, Flash libraries, PHP, and JavaScript and tools to design graphics for print, such as Adobe Illustrator Contains numerous examples and descriptions of patterns and outliers and explains how to show them

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Visualize This demonstrates how to explain data visually so that you can present your information in a way that is easy to understand and appealing.

Data visualization has emerged as a serious scholarly topic, and a wide range of tools have recently been developed at an accelerated pace to aid in this research area. Examining different ways of analyzing big data can result in increased efficiency for many corporations and organizations. Data

Visualization and Statistical Literacy for Open and Big Data highlights methodological developments in the way that data analytics is both learned and taught. Featuring extensive coverage on emerging relevant topics such as data complexity, statistics education, and curriculum development, this publication is geared toward teachers,

academicians, students, engineers, professionals, and researchers that are interested in expanding their knowledge of data examination and analysis.

SAS Programming with Medicare Administrative Data is the most comprehensive resource available for using Medicare data with SAS. This book teaches you how to access Medicare data and, more importantly, how to apply this data to your research.

Knowing how to use Medicare data to answer common research and business questions is a critical skill for many SAS users. Due to its complexity, Medicare data requires specific programming knowledge in order to be applied

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accurately. Programmers need to understand the Medicare program in order to interpret and utilize its data. With this book, you'll learn the entire process of programming with Medicare data—from obtaining access to data; to measuring cost, utilization, and quality; to overcoming common challenges. Each chapter includes exercises that challenge you to apply concepts to real-world programming tasks. SAS Programming with Medicare Administrative Data offers beginners a programming project template to follow from beginning to end. It also includes more complex questions and discussions that are appropriate for advanced users. Matthew Gillingham has created a book that is both a foundation for programmers new to Medicare data and a comprehensive reference for experienced programmers. This book is part of the SAS Press program.

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