1. Record Nr. UNINA9910789721903321

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Titolo	The art of R programming [[electronic resource]] : a tour of statistical software design / / by Norman Matloff
Pubbl/distr/stampa	San Francisco, : No Starch Press, 2011
ISBN	1-59327-410-6
Edizione	[1st edition]
Descrizione fisica	1 online resource (404 p.)
Disciplina	519.50285/5133
Soggetti	Statistics - Data processing R (Computer program language)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Brief Contents; Contents in Detail; Acknowledgments; Introduction; Why Use R for Your Statistical Work?; Whom Is This Book For?; My Own Background; 1: Getting Started; 1.1 How to Run R; 1.2 A First R Session; 1.3 Introduction to Functions; 1.4 Preview of Some Important R Data Structures; 1.5 Extended Example: Regression Analysis of Exam Grades; 1.6 Startup and Shutdown; 1.7 Getting Help; 2: Vectors; 2.1 Scalars, Vectors, Arrays, and Matrices; 2.2 Declarations; 2.3 Recycling; 2.4 Common Vector Operations; 2.5 Using all() and any(); 2.6 Vectorized Operations; 2.7 NA and NULL Values 2.8 Filtering2.9 A Vectorized if-then-else: The ifelse() Function; 2.10 Testing Vector Equality; 2.11 Vector Element Names; 2.12 More on c(); 3: Matrices and Arrays; 3.1 Creating Matrices; 3.2 General Matrix Operations; 3.3 Applying Functions to Matrix Rows and Columns; 3.4 Adding and Deleting Matrix Rows and Columns; 3.5 More on the Vector/Matrix Distinction; 3.6 Avoiding Unintended Dimension Reduction; 3.7 Naming Matrix Rows and Columns; 3.8 Higher-Dimensional Arrays; 4: Lists; 4.1 Creating Lists; 4.2 General List Operations; 4.3 Accessing List Components and Values 4.4 Applying Functions to Lists4.5 Recursive Lists; 5: Data Frames; 5.1 Creating Data Frames; 5.2 Other Matrix-Like Operations; 5.3 Merging Data Frames; 5.4 Applying Functions to Data Frames; 6: Factors and Tables; 6.1 Factors and Levels; 6.2 Common Functions Used with Factors; 6.3 Working with Tables; 6.4 Other Factor- and Table-Related

Functions; 7: R Programming Structures; 7.1 Control Statements; 7.2 Arithmetic and Boolean Operators and Values; 7.3 Default Values for Arguments; 7.4 Return Values; 7.5 Functions Are Objects; 7.6 Environment and Scope Issues; 7.7 No Pointers in R
7.8 Writing Upstairs7.9 Recursion; 7.10 Replacement Functions; 7.11 Tools for Composing Function Code; 7.12 Writing Your Own Binary Operations; 7.13 Anonymous Functions; 8: Doing Math and Simulations in R; 8.1 Math Functions; 8.2 Functions for Statistical Distributions; 8.3 Sorting; 8.4 Linear Algebra Operations on Vectors and Matrices; 8.5 Set Operations; 8.6 Simulation Programming in R; 9: Object-Oriented Programming; 9.1 S3 Classes; 9.2 S4 Classes; 9.3 S3 Versus S4; 9.4 Managing Your Objects; 10: Input/Output; 10.1 Accessing the Keyboard and Monitor; 10.2 Reading and Writing Files
10.3 Accessing the Internet11: String Manipulation; 11.1 An Overview of String-Manipulation Functions; 11.2 Regular Expressions; 11.3 Use of String Utilities in the edtdbg Debugging Tool; 12: Graphics; 12.1 Creating Graphs; 12.2 Customizing Graphs; 12.3 Saving Graphs to Files; 12.4 Creating Three-Dimensional Plots; 13: Debugging; 13.1 Fundamental Principles of Debugging; 13.2 Why Use a Debugging Tool?; 13.3 Using R Debugging Facilities; 13.4 Moving Up in the World: More Convenient DebuggingTools; 13.5 Ensuring Consistency in Debugging Simulation Code; 13.6 Syntax and Runtime Errors
13.7 Running GDB on R Itself

Sommario/riassunto

R is the world's most popular programming language for statistical computing. Drug developers use it to evaluate clinical trials and determine which medications are safe and effective; archaeologists use it to sift through mounds of artifacts and track the spread of ancient civilizations; and actuaries use it to assess financial risks and keep economies running smoothly. In The Art of R Programming , veteran author Norman Matloff takes readers on a guided tour of this powerful language, from basic object types and data structures to graphing, parallel processing, and much more. Along the way,