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| Nota di contenuto | Cover; Copyright; Credits; About the Author; About the Reviewers; www.PacktPub.com; Table of Contents; Preface; Chapter 1: Visualization as a Tool to Understand Data; The importance of visualization; Types of datasets; Tables; Scalar fields; Time series; Graphs; Text; Cartographic data; Mathematica as a tool for visualization; Getting started with Mathematica; Creating and selecting cells; Evaluating a cell; Suppressing output from a cell; Cell formatting; Commenting; Aborting evaluation; Upcoming chapters; Further reading; Summary; Chapter 2: Dissecting Data Using Mathematica<br>Data structures and core languagesIntroducing lists; Nested lists; Matrices; Constructing lists programmatically; Accessing elements from a list; Applying set operations on lists; Functions and conditionals; Declaring and using functions; Conditionals; Further core language; Data importing and basic plots; Importing data into Mathematica; SetDirectory[] and NotebookDirectory[]; Loading the dataset; Basic plotting functions; ListPlot; Styling our plots; Plot legends; 3D point plots; Log plots; Further reading; Summary; Chapter 3: Time Series and Scientific Visualization<br>Periodic patterns in time seriesSector charts; Simulating Internet activity; SectorChart and its options; Interactive visualization of financial data; The DateListPlot function; Adding interactivity - |

preliminaries; Intermission - Graphics and Show; Adding interactivity - Dynamic and Refresh; Isocontour and molecular visualization; Introduction to isocontours; Example project - protein molecule visualization; Loading and visualizing the protein molecule; Preparing the isocontour plots; Adding interactivity - manipulate; Isosurface and styling
Thinking like a visualization scientist - isovalue analysisFurther reading; Summary; Chapter 4: Statistical and Information Visualization; Statistical visualization; The swiss bank notes dataset; Histograms and charts; Histogram; PairedHistogram; Histogram3D; PieChart; BubbleChart; Choosing appropriate plots; A glimpse of high-dimensional data; Similarity maps; Projecting information to low dimensions; Visualizing genuine and counterfeit clusters; Similarity map for smaller datasets; Things that can (and will) go wrong; Text visualization; A modified word cloud; Cleaning the data
The basic algorithmCode and explanation; Graphs and networks; A basic graph visualization; Representing graphs in Mathematica; Visualizing the Les Miserables network; Highlighting centrality measures; Other graph layouts; 3D layouts; Chord diagrams; Code and explanation; Tweaking the visualization; Further reading; Summary; Chapter 5: Maps and Aesthetics; Map visualization; The GeoGraphics package; A map of our current location; Plotting a path on the map; Interactivity in GeoGraphics; Anatomy of a map visualization engine; The visual interface; Code and explanation
Aesthetics in visualization

Sommario/riassunto

If you are planning to create data analysis and visualization tools in the context of science, engineering, economics, or social science, then this book is for you. With this book, you will become a visualization expert, in a short time, using Mathematica.