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Nota di contenuto	Cover; Contents; Preface; Acknowledgments; Part I Data Preparation; Chapter 1 An Introduction to Data Mining and Predictive Analytics; 1.1 What is Data Mining? What is Predictive Analytics?; 1.2 Wanted: Data Miners; 1.3 The Need for Human Direction of Data Mining; 1.4 The Cross-Industry Standard Process for Data Mining: CRISP-DM; 1.4.1 CRISP-DM: The Six Phases; 1.5 Fallacies of Data Mining; 1.6 What Tasks Can Data Mining Accomplish; 1.6.1 Description; 1.6.2 Estimation; 1.6.3 Prediction; 1.6.4 Classification; 1.6.5 Clustering; 1.6.6 Association; The R Zone; R References; Exercises Chapter 2 Data Preprocessing2.1 Why do We Need to Preprocess the Data?; 2.2 Data Cleaning; 2.3 Handling Missing Data; 2.4 Identifying Misclassifications; 2.5 Graphical Methods for Identifying Outliers; 2.6 Measures of Center and Spread; 2.7 Data Transformation; 2.8 Min-Max Normalization; 2.9 Z-Score Standardization; 2.10 Decimal Scaling; 2.11 Transformations to Achieve Normality; 2.12 Numerical Methods for Identifying Outliers; 2.13 Flag Variables; 2.14 Transforming Categorical Variables into Numerical Variables; 2.15 Binning Numerical Variables; 2.16 Reclassifying Categorical Variables 2.17 Adding an Index Field2.18 Removing Variables that are not Useful;

2.19 Variables that Should Probably not be Removed; 2.20 Removal of Duplicate Records; 2.21 A Word About ID Fields; The R Zone; R Reference; Exercises; Chapter 3 Exploratory Data Analysis; 3.1 Hypothesis Testing Versus Exploratory Data Analysis; 3.2 Getting to Know the Data Set; 3.3 Exploring Categorical Variables; 3.4 Exploring Numeric Variables; 3.5 Exploring Multivariate Relationships; 3.6 Selecting Interesting Subsets of the Data for Further Investigation; 3.7 Using EDA to Uncover Anomalous Fields
3.8 Binning Based on Predictive Value
3.9 Deriving New Variables: Flag Variables; 3.10 Deriving New Variables: Numerical Variables; 3.11 Using EDA to Investigate Correlated Predictor Variables; 3.12 Summary of Our EDA; The R Zone; R References; Exercises; Chapter 4 Dimension-Reduction Methods; 4.1 Need for Dimension-Reduction in Data Mining; 4.2 Principal Components Analysis; 4.3 Applying PCA to the Houses Data Set; 4.4 How Many Components Should We Extract?; 4.4.1 The Eigenvalue Criterion; 4.4.2 The Proportion of Variance Explained Criterion; 4.4.3 The Minimum Communality Criterion
4.4.4 The Scree Plot Criterion
4.5 Profiling the Principal Components; 4.6 Communalities; 4.6.1 Minimum Communality Criterion; 4.7 Validation of the Principal Components; 4.8 Factor Analysis; 4.9 Applying Factor Analysis to the Adult Data Set; 4.10 Factor Rotation; 4.11 User-Defined Composites; 4.12 An Example of a User-Defined Composite; The R Zone; R References; Exercises; Part II Statistical Analysis; Chapter 5 Univariate Statistical Analysis; 5.1 Data Mining Tasks in Discovering Knowledge in Data; 5.2 Statistical Approaches to Estimation and Prediction; 5.3 Statistical Inference
5.4 How Confident are We in Our Estimates?

Sommario/riassunto

Learn methods of data analysis and their application to real-world data sets. This updated second edition serves as an introduction to data mining methods and models, including association rules, clustering, neural networks, logistic regression, and multivariate analysis. The authors apply a unified "white box" approach to data mining methods and models. This approach is designed to walk readers through the operations and nuances of the various methods, using small data sets, so readers can gain an insight into the inner workings of the method under review. Chapters provide readers with hands
