



IIT ROORKEE



NPTEL ONLINE
CERTIFICATION COURSE

VISUALIZATION TECHNIQUES

LECTURE 07

DR. GAURAV DIXIT

DEPARTMENT OF MANAGEMENT STUDIES



VISUALIZATION TECHNIQUES

- “A picture is worth a thousand words”
 - A popular proverb
- Primary Role in the Data Mining Process is during the Data Exploration, and Conditioning phase
 - Understanding data structure
 - Identifying gaps or erroneous values
 - Identifying outliers
 - Finding patterns



VISUALIZATION TECHNIQUES

- Primary Role in the Data Mining Process is during the Data Exploration, and Conditioning phase
 - Finding missing values
 - Identifying duplicate rows and columns
 - Variable selection, transformation and derivation
 - Appropriate bin sizes for converting continuous variable into categorical variable
 - Combining categories
 - Usefulness of variables and metrics



VISUALIZATION TECHNIQUES

- Data Exploration and Conditioning
 - Required preliminary step before formal analysis
 - Visual analysis
 - A free-form data exploration
 - Main idea is to support the data mining goal and subsequent formal analysis
 - Techniques range from basic plots to interactive visualizations
 - Features such filtering, zooming, color and multiple panels
 - Usage of Visualization Techniques depends on
 - Different data mining tasks such as classification, prediction, clustering etc.
 - Different data mining techniques such as CART, HAC etc.



VISUALIZATION TECHNIQUES

- Basic Charts
 - Display one or two variables at a time
 - Useful to understand the structure of the data, variable types, and missing values in the dataset
 - For Supervised learning methods, main focus is on outcome variable
 - Typically plotted on y-axis

VISUALIZATION TECHNIQUES

- Line Charts or Graphs
 - Used mainly to display time series data
 - Overall level and Changes over time
 - Open RStudio
- Bar Charts
 - For comparing groups using a single statistic
 - X-axis is used for categorical variable
 - Open RStudio

Key References

- Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data by EMC Education Services (2015)
- Data Mining for Business Intelligence: Concepts, Techniques, and Applications in Microsoft Office Excel with XLMiner by Shmueli, G., Patel, N. R., & Bruce, P. C. (2010)



Thanks...

