Goskills

Basics of Data Visualization Analysis

GoSkills online course syllabus

Skill level
Beginner

Lessons
23

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Pre-requisites
No prior experience needed

Video duration
1h 27m

Estimated study time
1h 27m

Instructor
Franz Buscha, PhD

Introduction

1 The value of visual analysis

A picture is worth a thousand words, and in applied data analysis it can be worth substantially more than that.

Basics of Analysis

2 Types of data

There are many different kind of datasets, but at their core, they all contain multiple sets of numbers.

3 Basic graph elements

Data visualisation takes place on graphs and charts, and while there are many types of graphs and charts, they all have the same basic elements.

4 Univariate, bivariate and multivariate analysis

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Distributional Analysis with Continuous Data

5 Histograms

Histograms are a common visualization technique to show continuous distributions.

6 Density plots

Density plots are a popular way to visualize continuous distributions.

7 Strip plots

Strip plots offer a simpler way to visualize distributions.

8 Box plots

Box pots visualize distribution using boxes.

Distributional Analysis with Discrete Data

9 Bar graphs and dot plots

Bar graphs, or column graphs, are the most used visualization technique in data analysis.

10 Pie charts

Pie charts are circular visualization techniques that rely on arc length and area to visualize data components.

11 Radar plots

Radar plots, or spider charts, visualize discrete data along the spokes of a wheel.

Visualizing Multiple Distributions

12 Multiple histogram and density plots

Presenting and comparing multiple continuous distributions using histograms and density plots requires careful consideration of opacity, colour and axes-scales.

13 Multiple box and violin plots

When faced with many continuous distributions box and violin plots offer a compact way to visualize a large amount of data.

14 Multiple bar graphs and dot plots

When faced with multiple discrete groups, bar graphs and dot plots offer a flexible and convenient way to visualize a large amount of data.

15 Multiple pie and radar plots

Using pie charts and radar plots can be an effective way to display multiple discrete groups of data.

Visualizing Relationships

16 Scatter plots

Scatter plots are the most common type of relationship plots.

17 Lines of best fit

Parametric and non-parametric lines of best fit can be combined with scatterplots to create powerful visual stories.

18 Line plots

When time, or some other ordered variable, is one of the relationship variables line plots are often used.

19 Table plots

Table plots are a powerful tool for visualizing the relationship between variables.

Visualizing Multi-Dimensional Relationships

20 Matrix scatter and trellis plots

When faced with many dimensions or variables, relationships can be hard to analyze.

21 Bubble plots

Table plots are a powerful tool for visualizing the relationship between variables.

22 Contour plots

If bubble plots are not an option, then contour plots offer a final alternative to a 3D graphs.

Conclusion

23 Time to visualize

Thanks for watching this course! Now, you should feel prepared to visualize continuous and discrete data across various distribution types.