



Mathematics and Problem Solving

Lecture 10.4

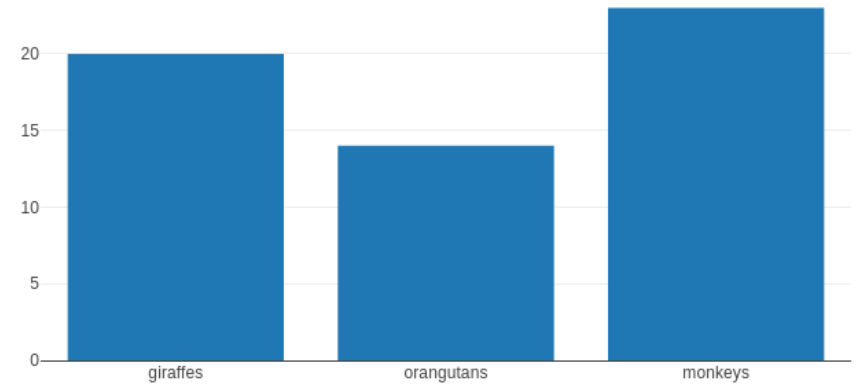
Data Visualisation

Visualising Data

- Why?
 - Look at your data
 - Understand your data
 - Communicate your findings

Nominal

- Distribution
 - Counts
- Bar Chart

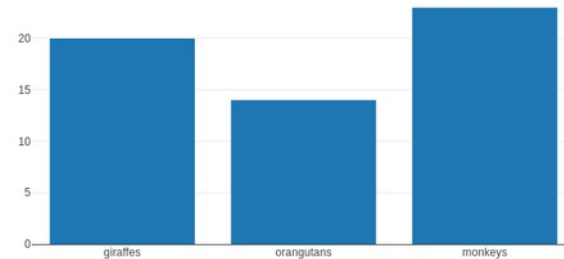
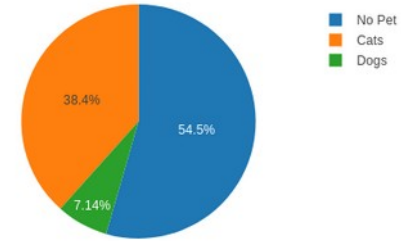


- Proportion

- Pie charts?

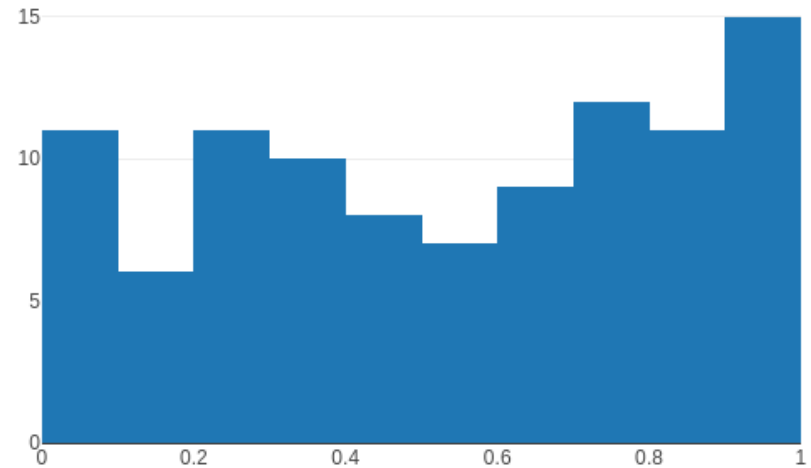
- Harder to read
 - Avoided in research literature

- Stick with a bar chart



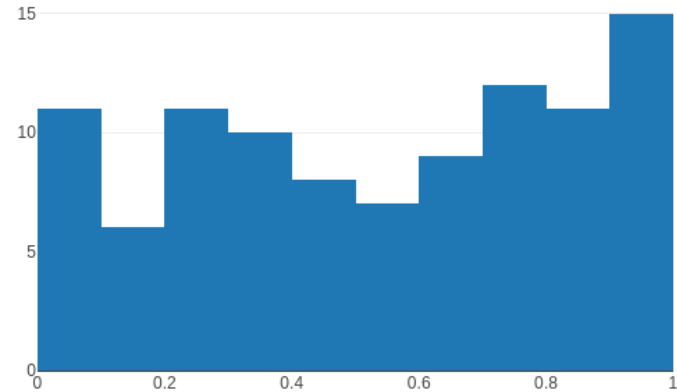
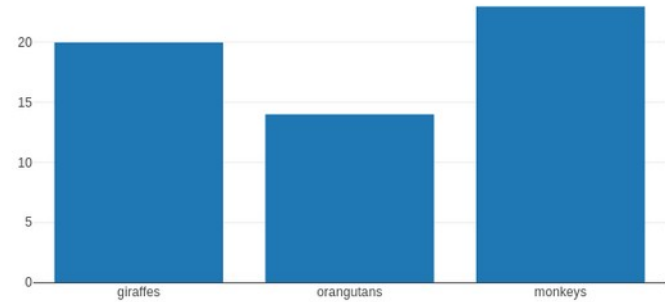
Numeric

- Group into bins
 - Can vary in size
- Histogram



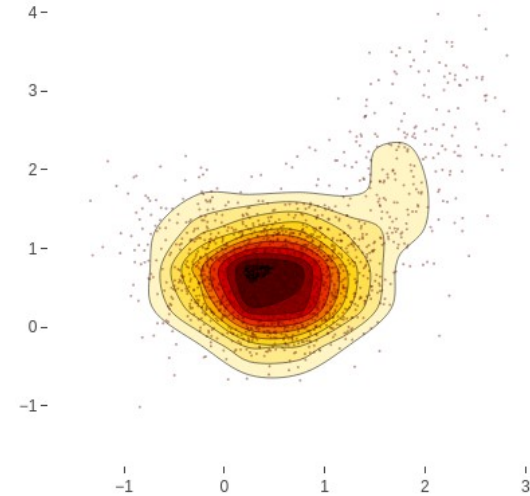
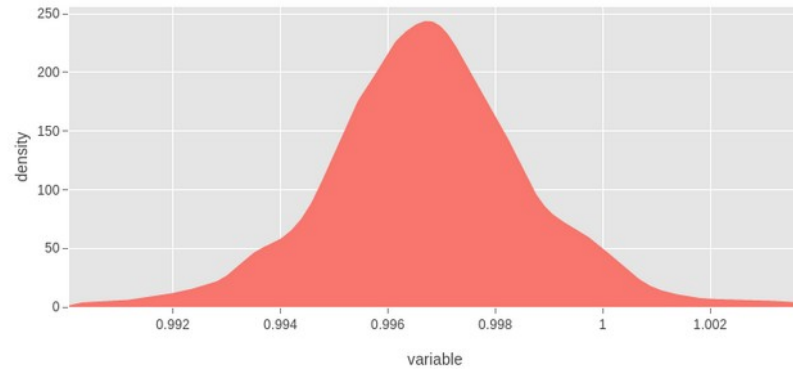
Ordinal

- Few values → bar chart
- Many values → histogram



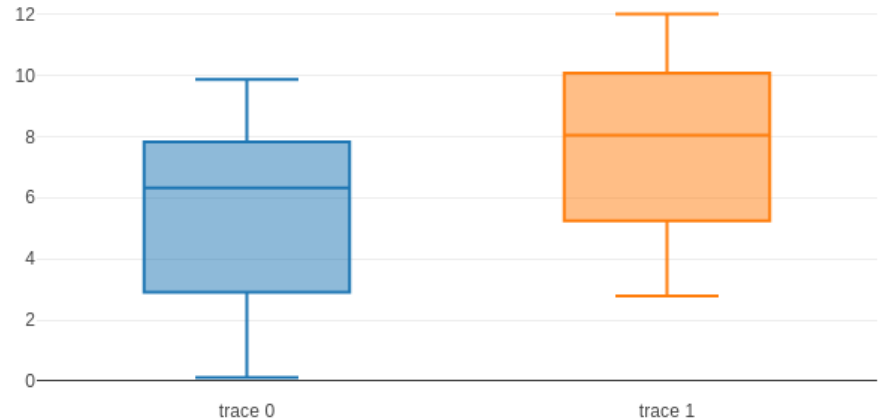
Density Plot

- Show distribution of data



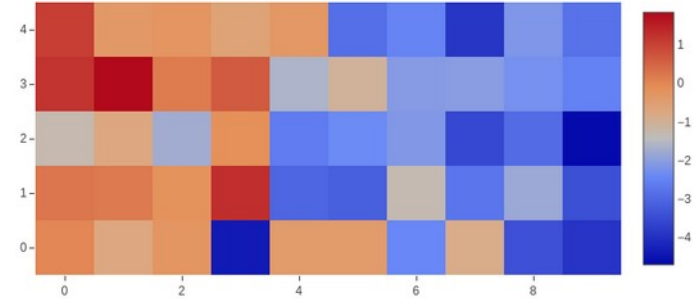
Boxplot

- Line = mean
- Box = IQR
- Whiskers = range (minus outliers)
- Outliers as dots



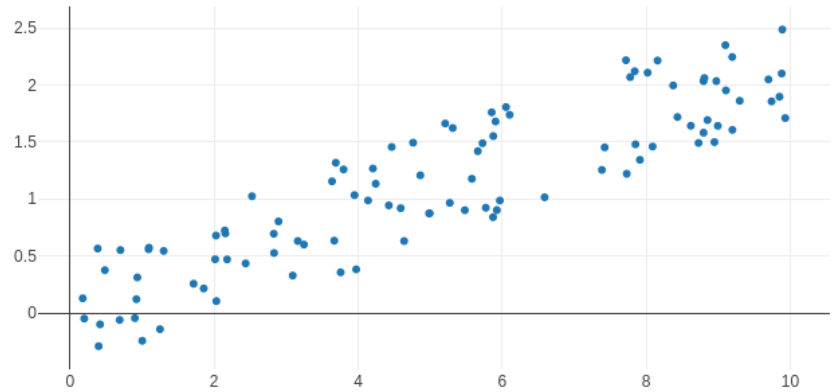
Heatmap

- Shows magnitude in 2D data
 - Clusters
 - Over space



Correlations

- Correlation?
 - Linear relationship between variables
 - Correlations between $-1 \rightarrow 1$
- Scatterplot



Summary

- Nominal
 - Bar Chart
- Numeric
 - Histogram
- Hypothesis test
 - Box plot

