Business Intelligence Concepts, Tools, and Applications

Week 3: Data Visualization and Dashboard Design
Lesson 2: Data Visualization Guidelines and Pitfalls

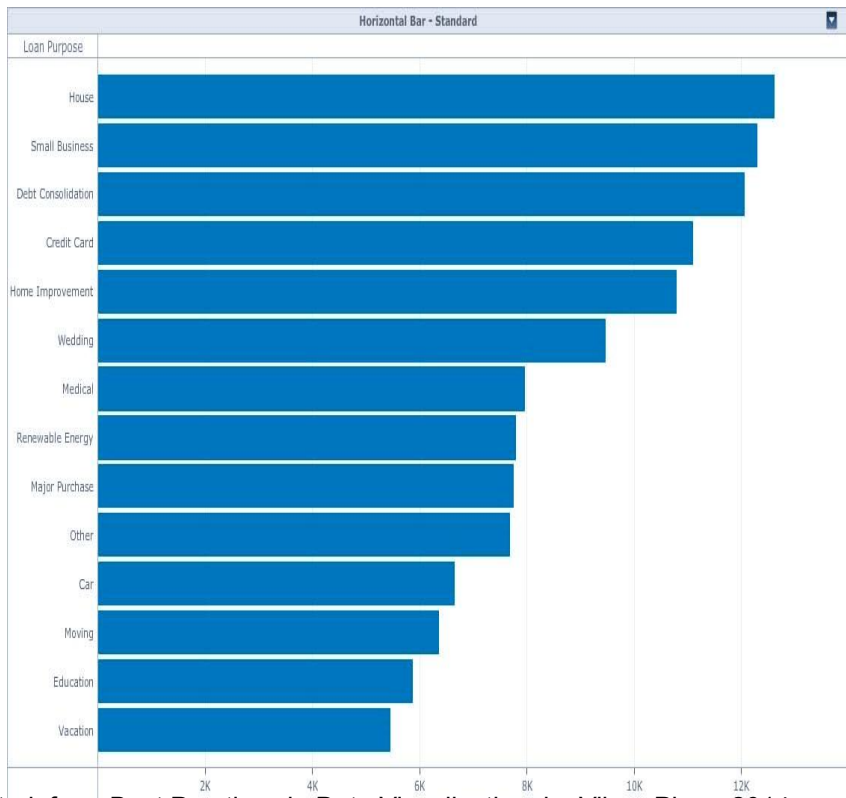# Data Visualizations Guidelines and Pitfalls

- Learning Objectives
  - Identify best practices for designing data visualizations in preparation for completing the data visualization exercise.
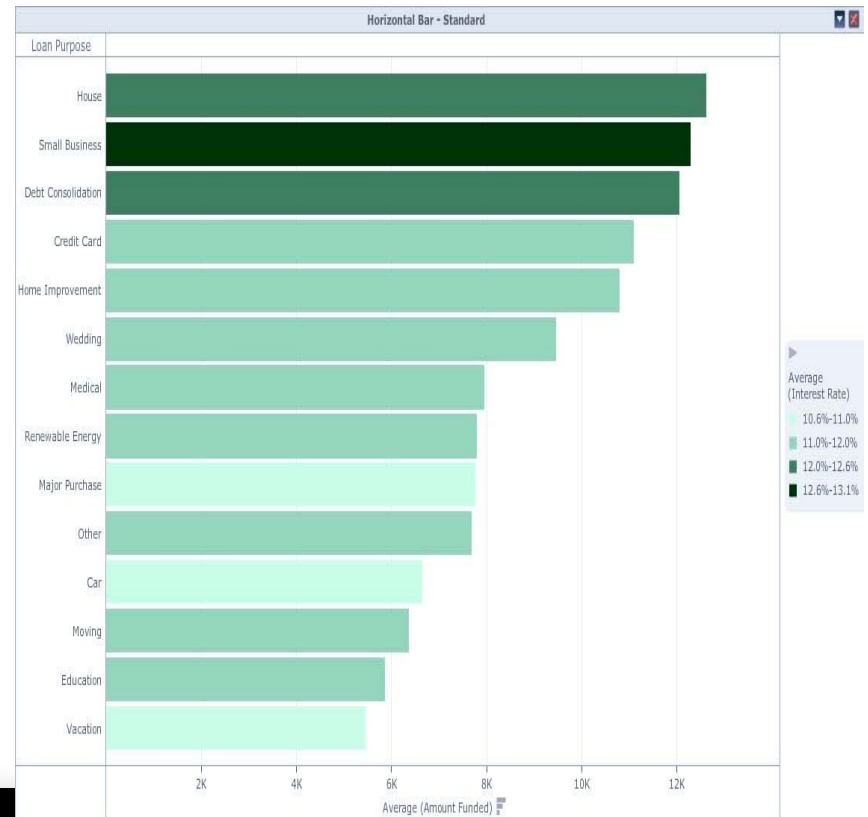
Visualizations
Attribute (nominal) and Metric

Comparative Analysis -Bar Chart Sorted

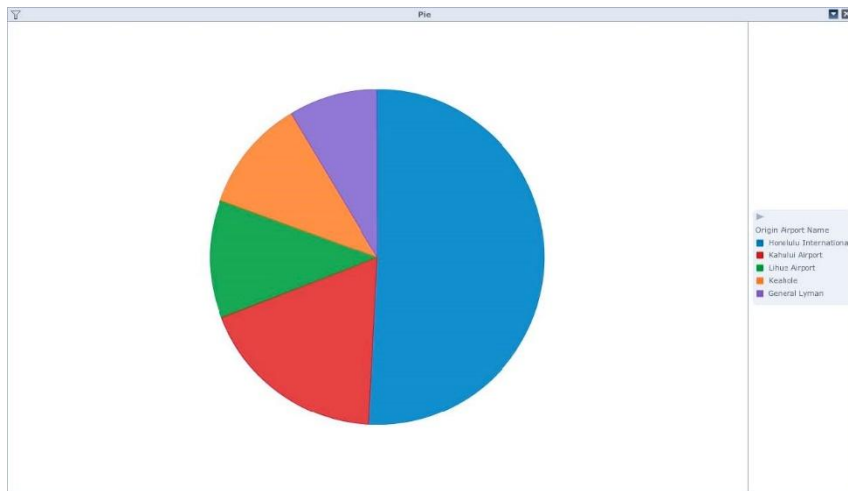**Comparative analysis- Bar Chart with Color to highlight Metric Patterns**

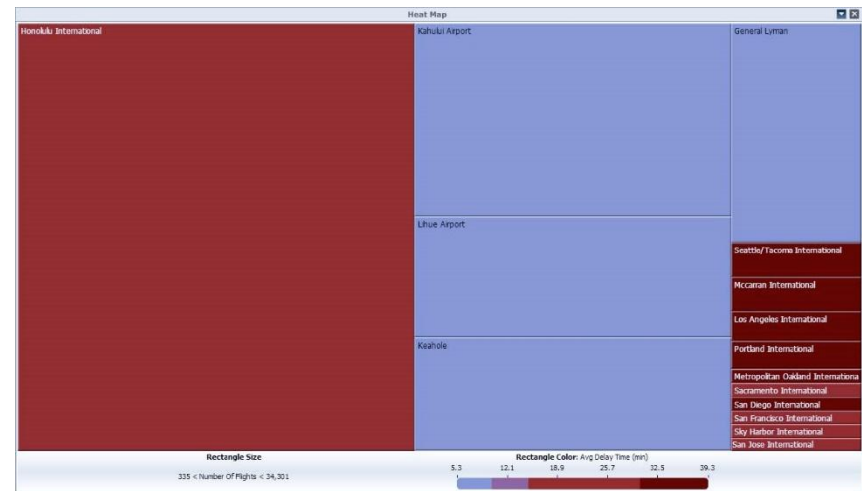Adapted from Best Practices in Data Visualization, by Vihao Pham 2014

Visualizations
Attribute(nominal) and Metric

Contribution analysis-few elements- Pie Chart
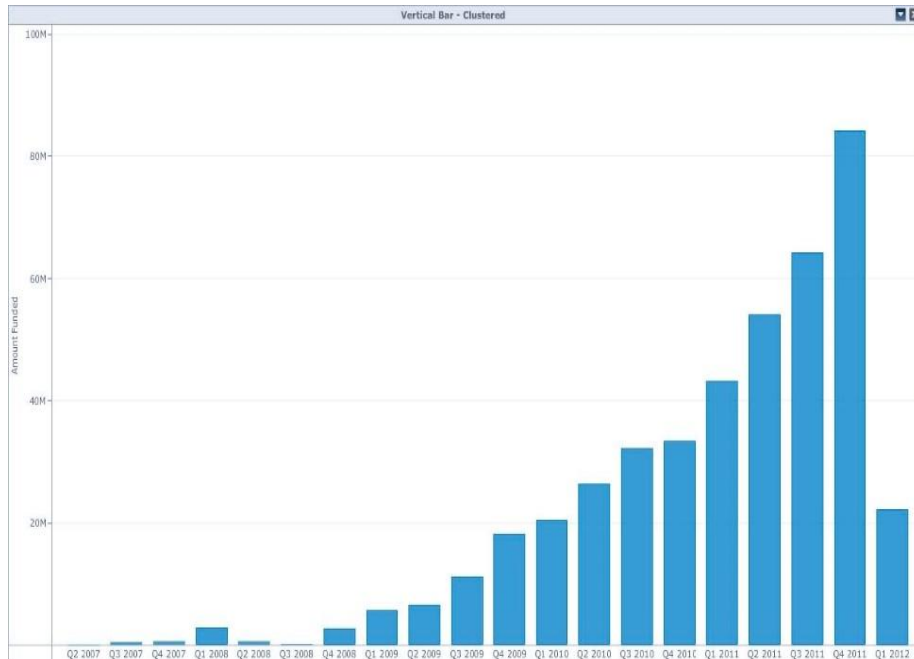
Contribution Analysis- Many Elements- Heat Map

Adapted from <u>Best Practices in Data Visualization</u>, by Vihao Pham 2014
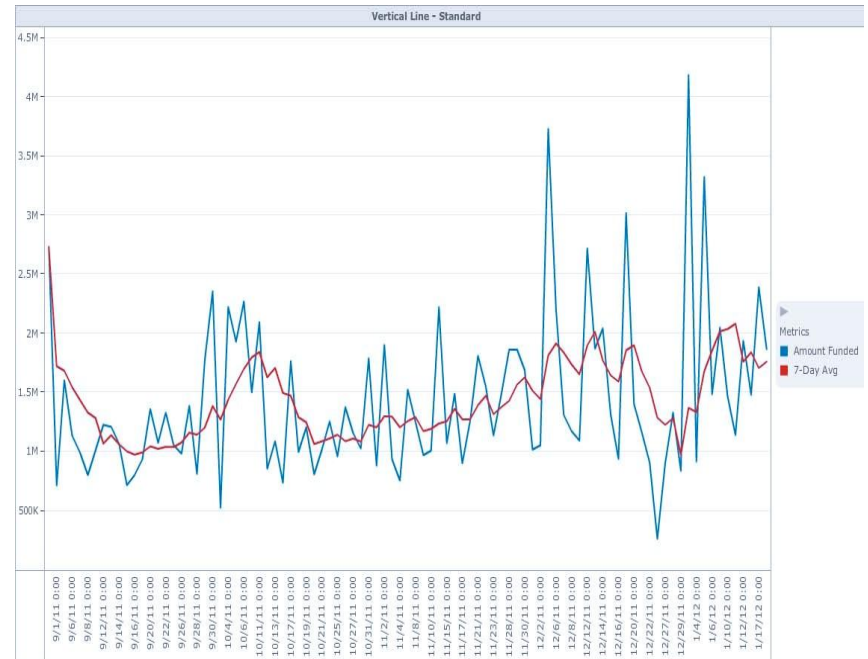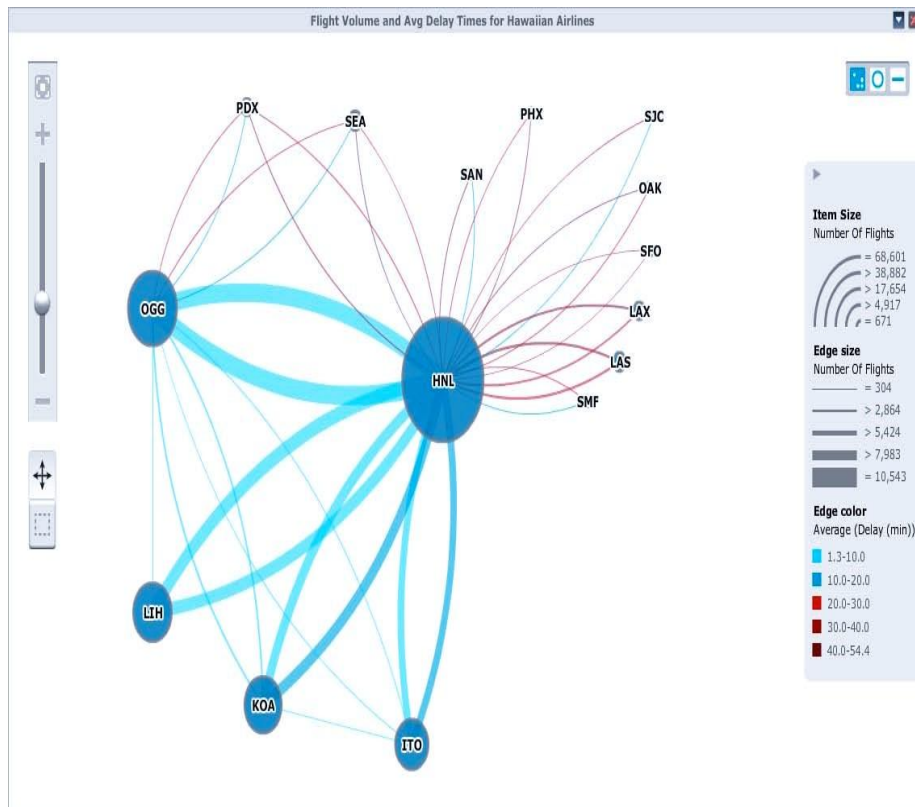
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Visualizations
Attribute (ordinal) and Metric

Time-series analysis- Few elements- Column Chart

Time-series Analysis- Many Elements- Line chart

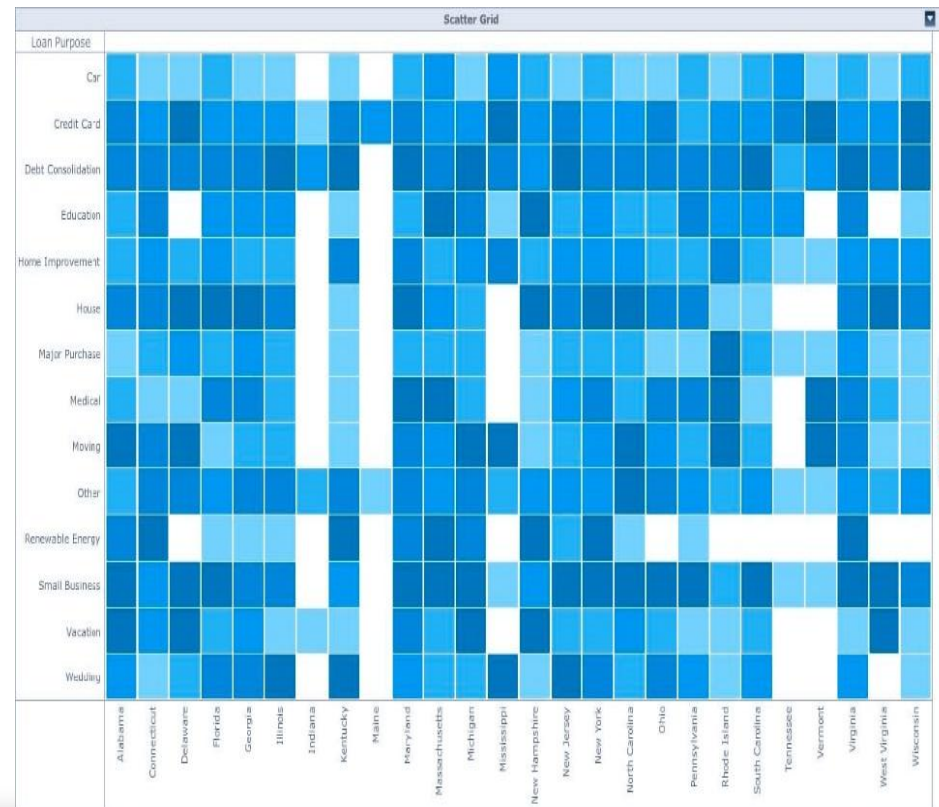Adapted From <u>Best Practices in Data Visualization</u>, by Vihao Pham 2014

Visualizations
Attribute (Nominal) and Attribute (Nominal)

Market Basket or Network Analysis- Network Visualization

Market Basket or Network Analysis- Avoid Scatter Grid- Implied ordinality

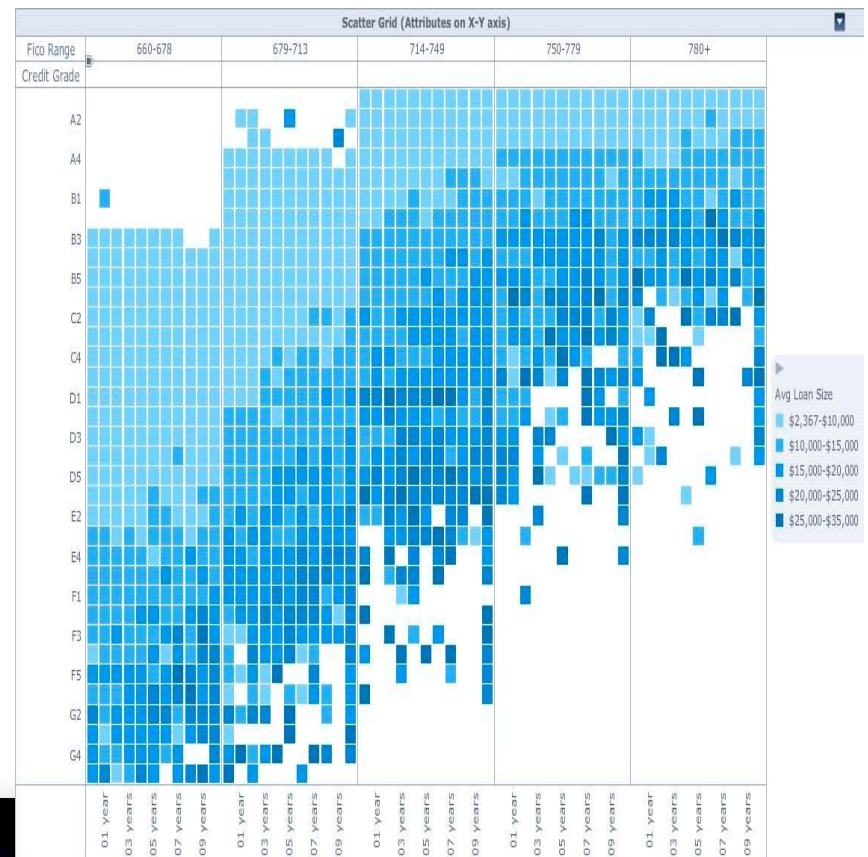Adapted from Best Practices in Data Visualization, by Vihao Pham 2014

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Visualizations
Attribute (nominal) and Attribute (ordinal)

Time-series Comparative Analysis- Line Chart with Break-by

Cluster or Heat map Analysis Scatter Grid

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6

Appropriate Visualizations

	Metric	Attribute (Nominal)	Attribute (Ordinal)
Attribute (Nominal)	Bar Heatmap	Network	Line w/ Break-By Bar w/ Break-By
Attribute (Ordinal)	Column Line		Scatter Grid
Metric	Scatter/Bubble		

Adopted from Best Practices in Data Visualization, by Vihao Pham 2014

A Sparkline, Bullet Chart, Column Chart and Bubble Grid Are Used to Analyze Activities in a Customer Support Center

General Rules for Charts

- Think about which increments are best to use in charts.
- Avoid combining unrelated charts into one.
- Consider the importance of direction when presenting data.
- Avoid cramming too much information into each chart.
- Make sure that any data labels or data legends are legible.
- Think about the order and direction of the slices in a pie chart.
- Avoid using too many effects to differentiate each slice.
- Think about the size of sparklines.
- Ensure they are placed in relevant sections.

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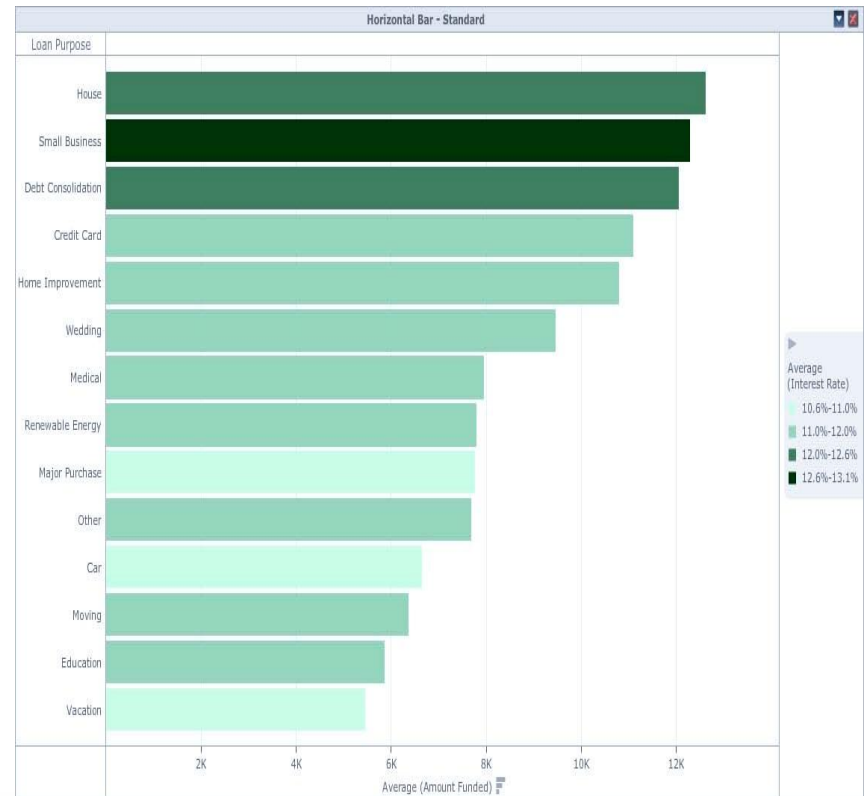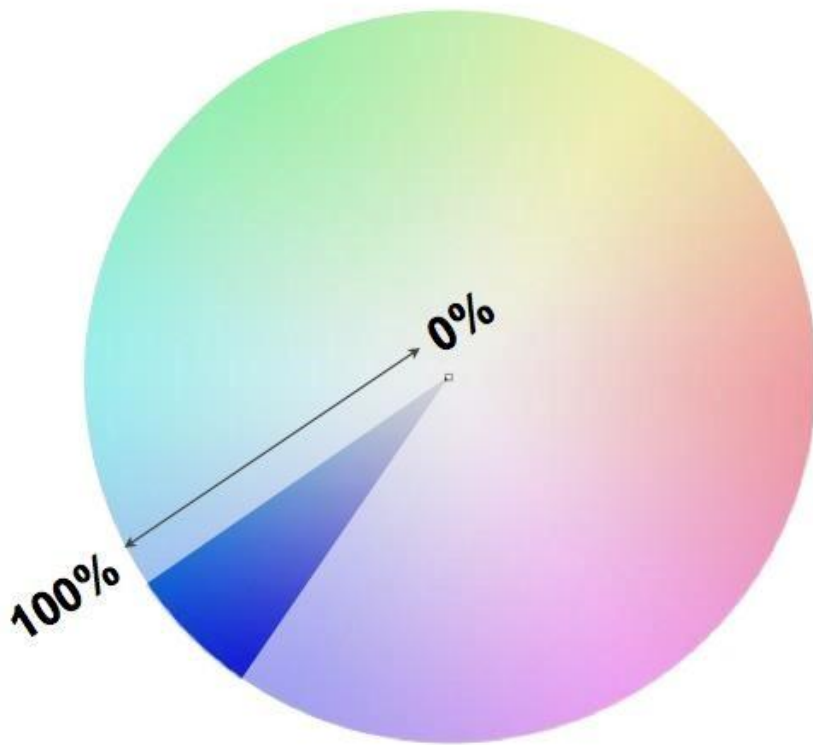UNIVERSITY OF COLORADO DENVER

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Visualization Considerations
Use Color Saturation Correctly

Less Saturation: Small Values

More Saturation: Greater Values

Adapted from <u>Best Practices in Data Visualization</u>, by Vihao Pham 2014

Hands-on Exercise #3

Offline/Standalone Dashboards with Advanced Visualizations

Dynamic Dashboards Help Business People Make Better Decisions, Faster