COMP 333 Data Analytics

Visualization

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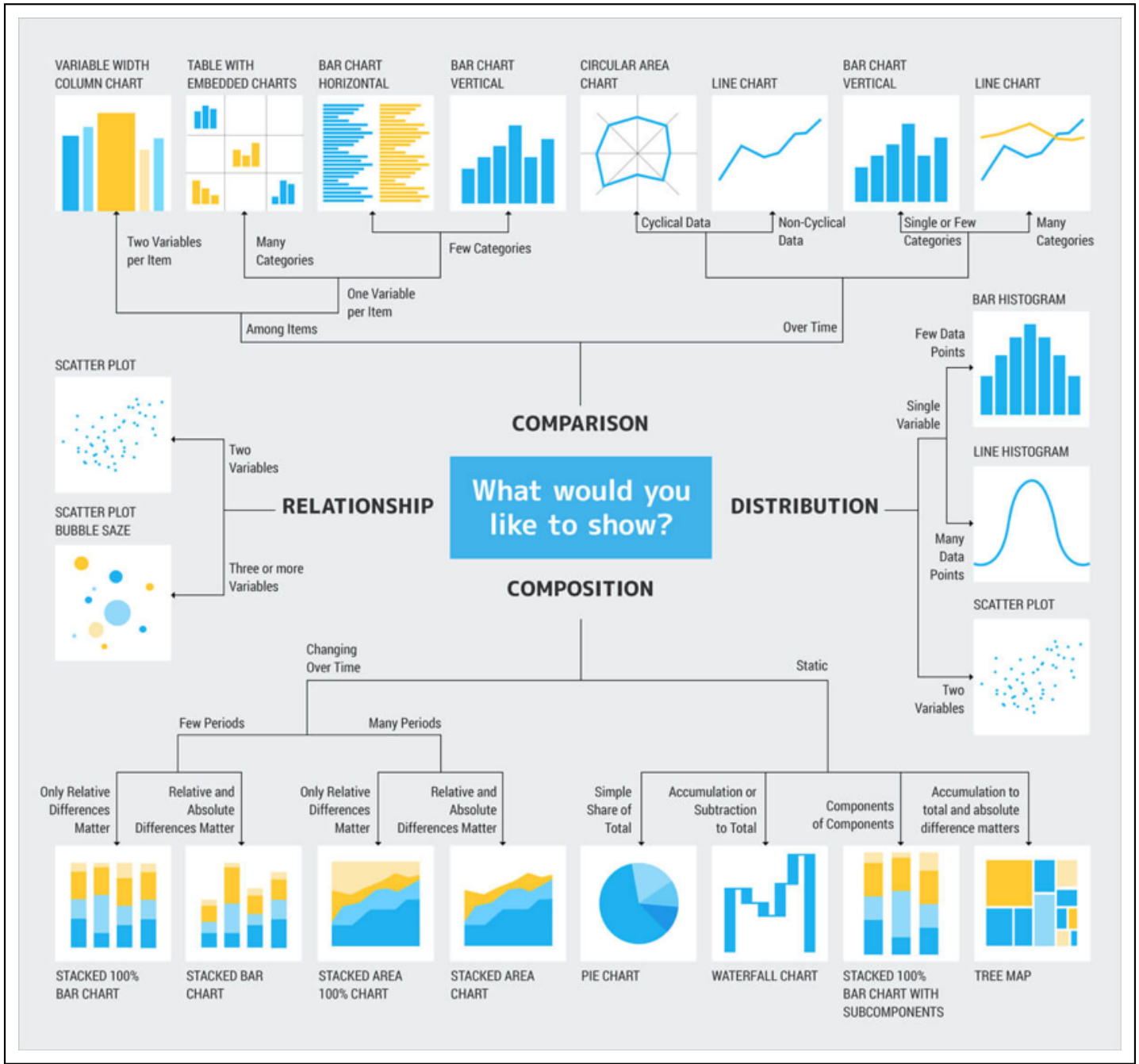
Outline of Lecture

- Story Telling and Data Visualization
- Types of Visualizations

Guide to Visualizations



Story Telling

"Data stories explore and explain how and why data changes over time, usually through a series of linked visualizations"

Storytelling = visualization + narrative + context

"It's the context around the data that provides value and that's what will make people listen and engage"

Use Data and Analytics to Tell a Story, Christy Pettey, December 2018.

`https://www.gartner.com/smarterwithgartner/use-data-and-analytics-to-tell-a-story/`

Story Telling with Visualizations

Story telling is effective

- Data isn't as memorable as stories. 5% remember the statistics, whereas 63% remember the story.
- Stories are more persuasive than statistics. Stories persuade twice as much compared to using just statistics.

Three Elements of Data Visualization Storytelling

- Data
- Narratives
- Visuals

Persuasive Storytelling with Data Visualization, Nick Mannon, May 2018.

`https://www.blastam.com/blog/persuasive-storytelling-with-data-visualization`

Three Elements

Story Telling with Visualizations

1. Align data to your message. You probably have a lot of data and visualizations that support the entire story, but be selective. Choose the data that best illustrates and support the point you are making.
2. Identify the right visualization. Refine and rework it so that it clearly communicates your intention. The audience should be able to see that your visualization clearly reinforces the point you are making.
3. Remove unnecessary noise. If your visualization includes an attribute with many values, group lower values into an "other" category. Avoid using more than five values when possible.
4. Focus on what is important. Use colour to highlight what matters, make the issue or opportunity stand out.
5. Main Point: Make sure you have a main point! If your audience is supposed to intuit the main point, they may come up with something you did not intend, and as such may take no action or take action that isn't relevant or needed.

Persuasive Storytelling with Data Visualization, Nick Mannon, May 2018.

`https://www.blastam.com/blog/persuasive-storytelling-with-data-visualization`

Story Telling with Visualizations

Key to Communicating with Visualizations

- empathy: how to communicate effectively with data
- simplicity: the very core and fundamentals of data visualization

Your Context in Data Visualization Storytelling

Focus on **explanatory analysis** and **communication**.

- Who am I communicating to?
- What do I want my audience to know or do?
- How can I use data to help make my point?

Storytelling with Data: A Data Visualization Guide for Business Professionals, Admond Lee, October 2018.

`https://towardsdatascience.com/storytelling-with-data-a-data-visualization-guide-for-business-professionals-97d50512b407`

Story Telling with Visualizations

Choose an Effective Visual

Eliminate Clutter

Draw Attention Where You Want It

Use preattentive attributes

Think like a Designer

- affordances
- accessibility
- aesthetics

Storytelling with Data: A Data Visualization Guide for Business Professionals, Admond Lee, October 2018.

https://towardsdatascience.com/

storytelling-with-data-a-data-visualization-guide-for-business-professionals-97d50512b407

Design Terminology

Preattentive Attributes

A preattentive visual property is one which is processed in spatial memory without our conscious action.

- Colour
- Form
- Movement
- Spatial Positioning

Affordance in Design

Affordances are clues about how an object should be used, typically provided by the object itself or its context.
For example, even if you've never seen a coffee mug before, its use is fairly natural.
The handle is shaped for easy grasping and the vessel has a large opening at the top with an empty well inside.

Preattentive attributes

Orientation

Shape

Line length

Line width

Size

Curvature

Added marks

Enclosure

Hue

Intensity

Spatial position

Motion

source: Knaflic, Cole. *Storytelling With Data: A Data Visualization Guide for Business Professionals*, Wiley, © 2015.

storytelling with data

Types of Data and Suitable Charts

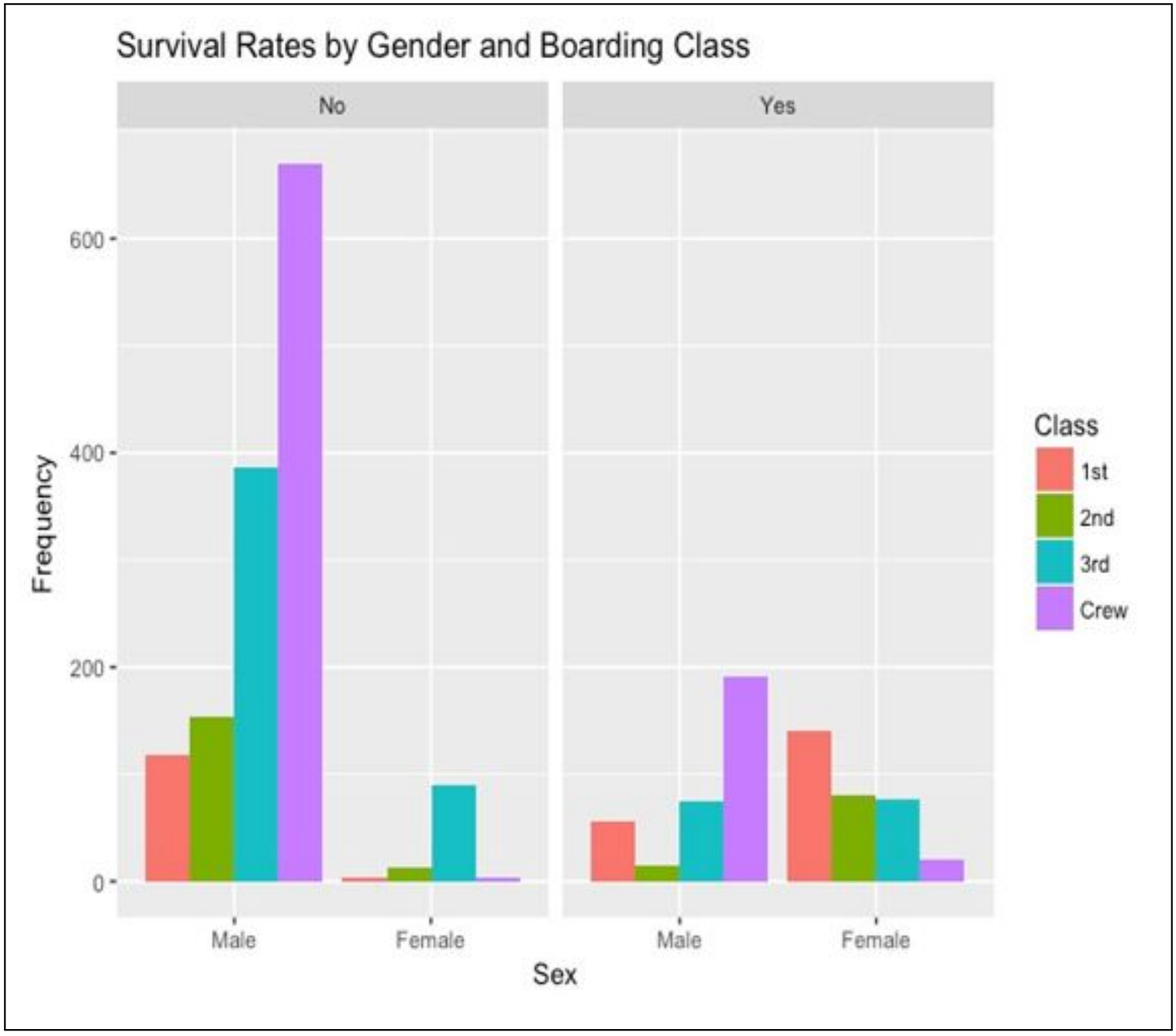
1. Text [Wordclouds]
2. Mixed [Facet Grids]
3. Numeric [Line Charts/Bar Charts]
4. Stocks [Candlestick Charts]
5. Geographic [Maps]

The Art of Story Telling in Data Science and how to create data stories?, October 2017.

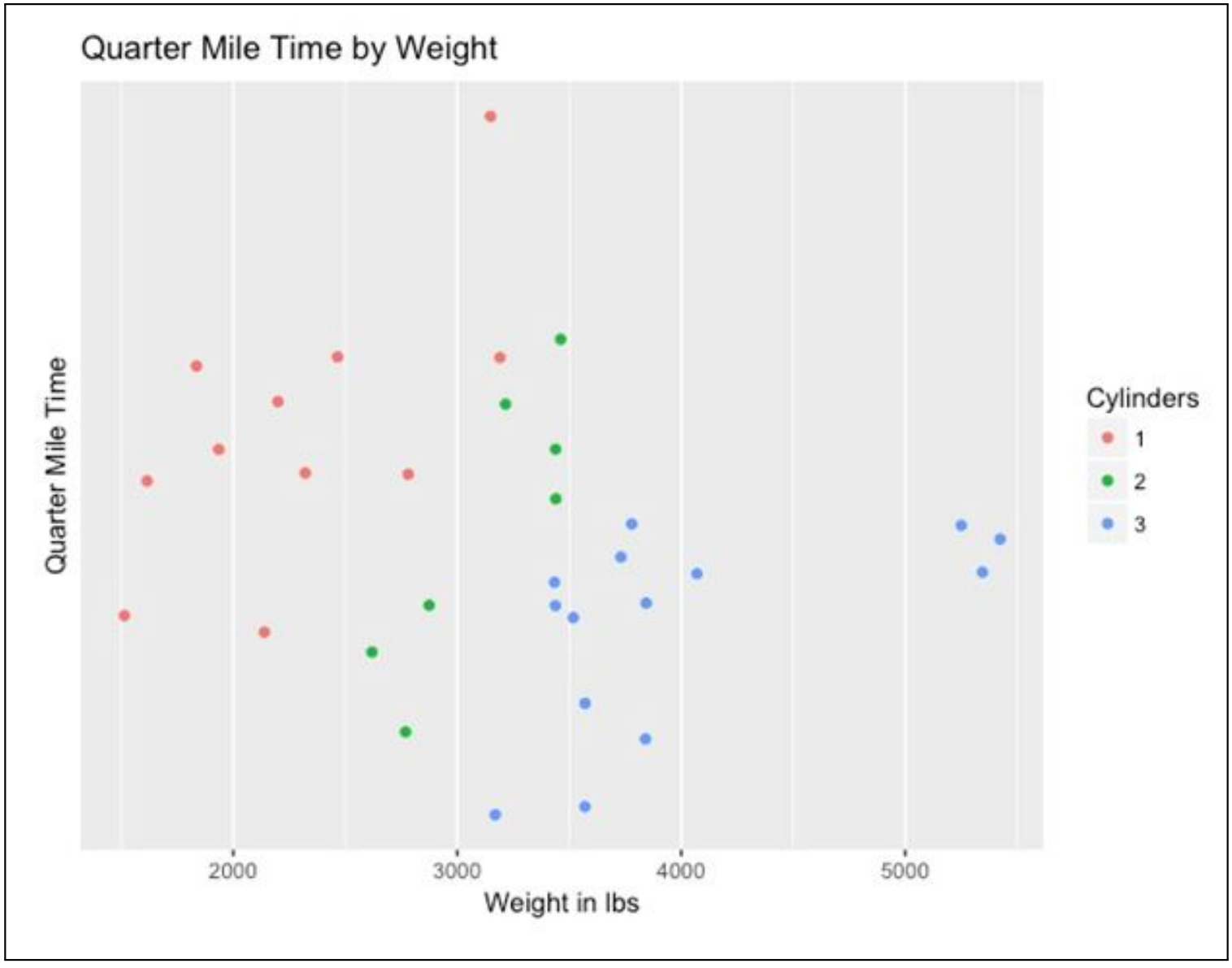
https://www.analyticsvidhya.com/blog/2017/10/art-story-telling-data-science/

Text: wordcloud

Mixed: Facet Grid

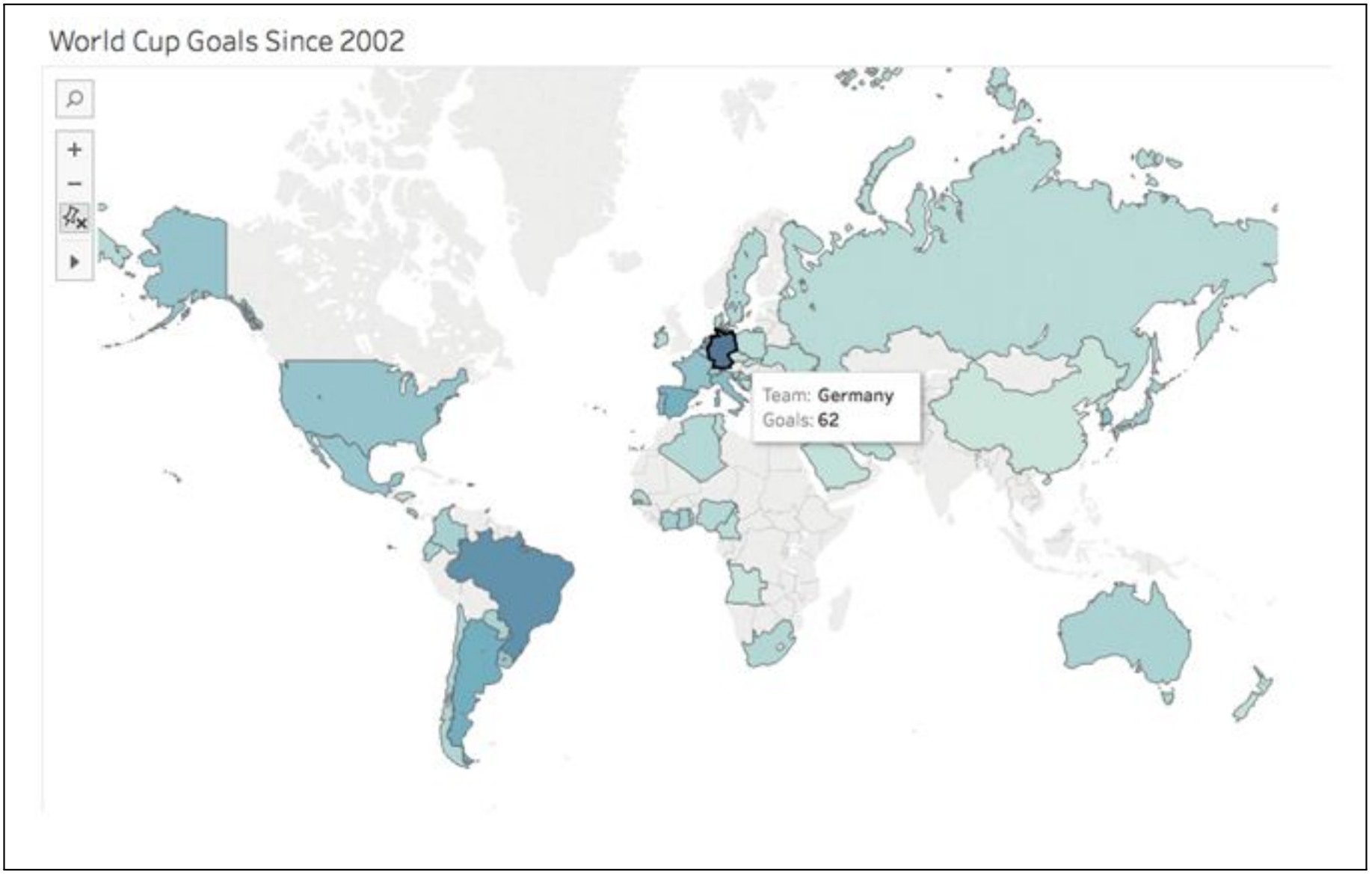


Mixed: Facet Grid



Stocks: Candle Stick

Geographic: maps



Seaborn Visualization

Seaborn Example Gallery

`https://seaborn.pydata.org/examples/index.html`