AFM 207 Final Exam Study Package

AFM 207

AFSA

EDUCATION

Please enjoy these
materials and happy studying!

Class 1: Introduction to Performance Analytics

What is Performance Analytics?

- Use of data analytics capabilities to answer questions about business performance and communicate findings to answer those questions.

Who uses performance analytics?

- "Measure how the company is doing in different ways, deliver information to senior management and decide how to process as a company" - Wincy Sin
- "Helps understand drivers of a business and tailor your communications to who you are talking to" - Myuran Raventhiran
- "Triangulate social media data with actual sales and analyze what people are buying at the register, what they are buying, what categories are going up/down, brand share so who's capturing the market" - Nilofer Ahmed

Key Concepts

Business Performance

- Business Model: Segments and hierarchies
- Key Performance Indicators (KPIs)
- Root cause analysis - performance driver trees and 5 Whys

Data Analytics

- Process: CRISP-DM steps
- Exploratory + explanatory analysis
- Tableau dimensions + measures
- Tableau functions + charts

Communication skills

- Effective visual display of data
- Storyboards + build a Tableau story

Class 2: Data viz for analysis - build scatter plots and maps to use in your story

Trailhead Module Unit: Data Analysis in Tableau Desktop, Compare Measures Using a Scatter Plot

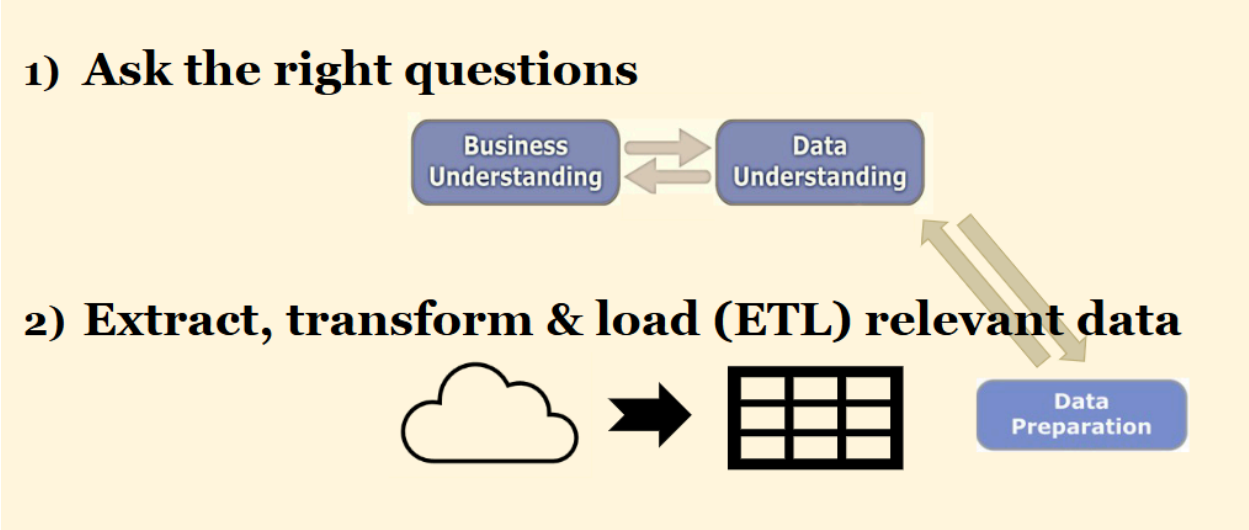
Business Canvas Model

1. Customer segments - different groups business aims to serve
2. Value proposition -
3. Revenue streams - how business
4. Channels - how they communicate and deliver value
5. Customer relationships - how to establish and maintain relationships
6. Key activities - how they operate successfully
7. Key resources - important resources that make business work

8. Key partners
9. Cost structure

Class 3

Remember that data analytics is an iterative process



EY Academic Resource Center (ARC). Introduction to Data Visualization, page 13.

Class 4 - Data viz for analysis - build tables, bar charts, and line charts

Choosing an Effective Visual

- Simple text
  - Just because you have numbers does not mean you need a graph
- Table
  - Avoid using in presentations as the audience will read and not listen
  - THERE ARE MORE EFFICIENT VISUALS
- Heat map
  - Useful the beginning to explore data and deciding where to analyze further
- Scatter Plot
  - Useful for encoding data simultaneously on 2 different axes to identify what relationship they have
- Line
  - Lines that connect the dots have to make sense
  - Most effective with: continuous data
- Slope graph
  - Line graph with 2 points

    - Useful to focus on change between 2 points in time or difference between groups
- Bar Graphs
    - Vertical
        - Good for categorical data
        - Easy for our eyes - can compare heights to a consistent baseline
        - Rule: Must have a 0 baseline
    - Horizontal
        - Good for long category names
    - Stacked
        - Often misused
        - Easier to compare total & first series
        - Segments up the stack do not line up

Storytelling with Data: Let's Practice, Chapter 2 extract, Cole Nussbaumer Knaflic, (pp. 51-53).

Class 5

When Do You Use a Scatter Plot?

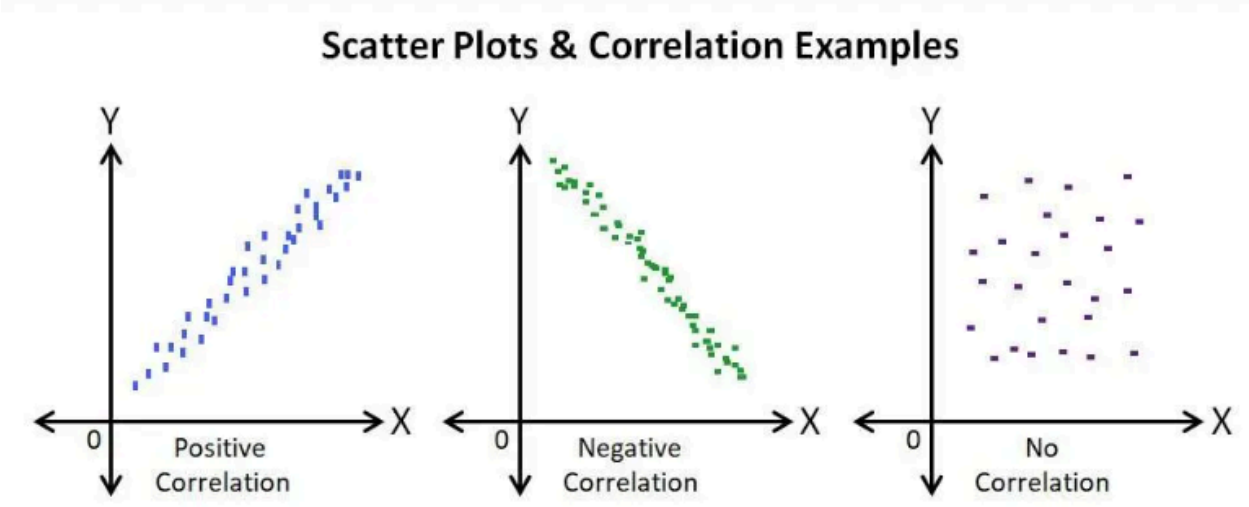
- When you want to compare 2 different measures (ex. Sales and revenue)

Scatter plots help:

- Easily spot trends and outliers in your data
- Identify other pattern by groups
- Identify unexpected gaps in the data

Know the Relationships Between Scatter Plot Variables

- Positive correlation
- Negative correlation
- No correlation



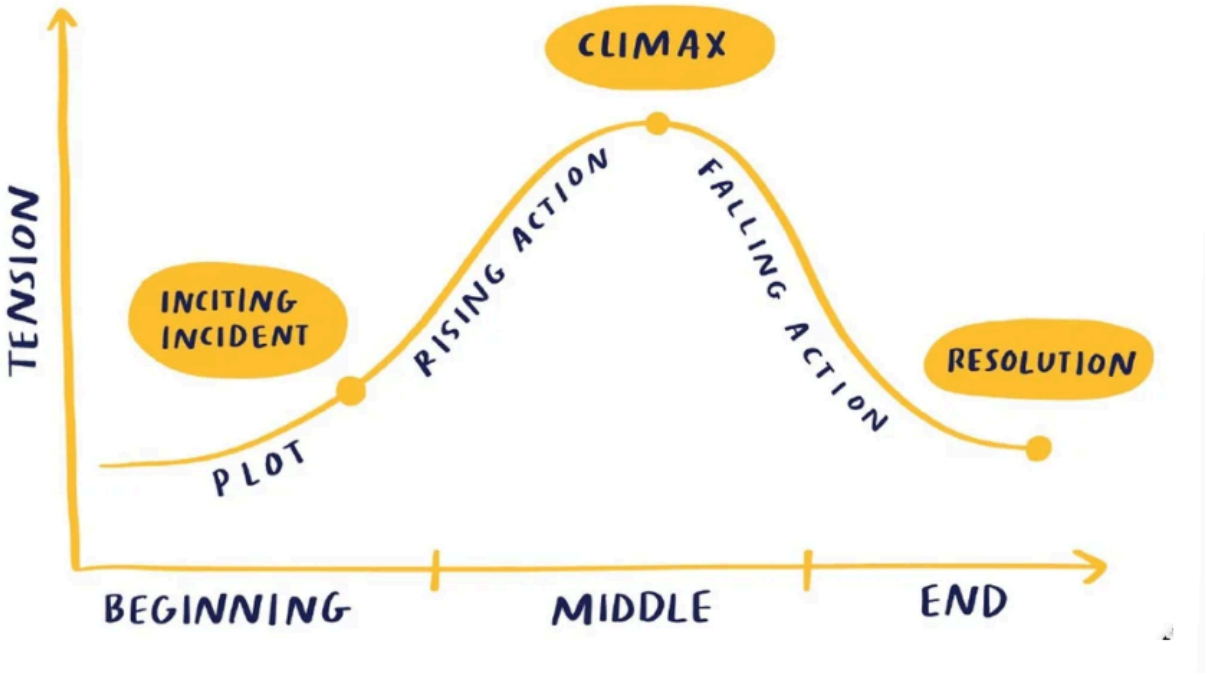
Source: Trailhead Module, "Compare Measures Using a Scatter Plot" Unit

Class 6

Exploratory vs. explanatory
Exploratory: analyzing and understanding
Explanatory: Focus of Storytelling with Data

"Shape your story," Amy Esselman
Structure(s) of story

- Narrative arc is the format we use the most frequently as it is the shape that can best describe many different business scenarios

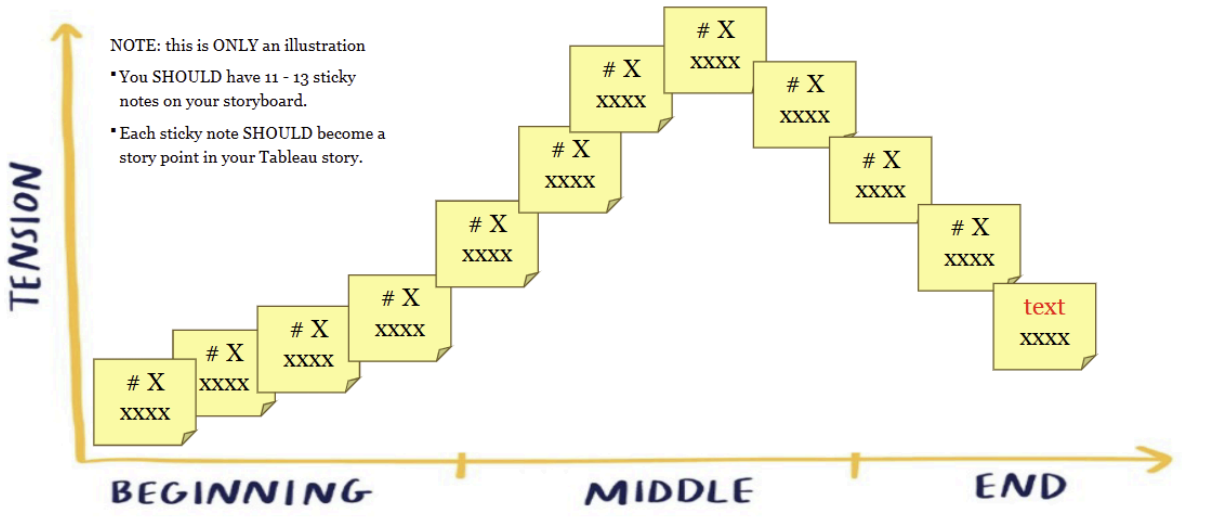


"Shape your story," Amy Esselman, Aug 22

- **Beginning** is the plot (inciting incident)
  - Share relevant background context
- **Middle** introduces the twists in found during the analysis (rising action)
  - Tension builds up until we hit the climax
- **End**
  - Brings story to a close by resolving the tension
  - Done by offering conclusions, recommendations and next steps
- Arcs do not always have to be symmetrical
  - sometimes you may want to provide more context upfront to provide the audience with more information, or more tension to create a sense of urgency

Class 7 - Build a basic Tableau story to explain what happened and why

- **A Story** is a sequence of visualizations that work together to convey information
  - Stories can be used to tell a data narrative, provide context, demonstrate how decisions relate to outcomes, or to simply make a compelling business case.
- Each individual sheet in a story is called a **story point**
- **Purpose** of a conclusion: to reinforce the key message(s) you want the audience to remember.
  - A summary sentence that explains what you learned through the analysis
  - One or two impactful, memorable statements or visuals about the most important takeaway.



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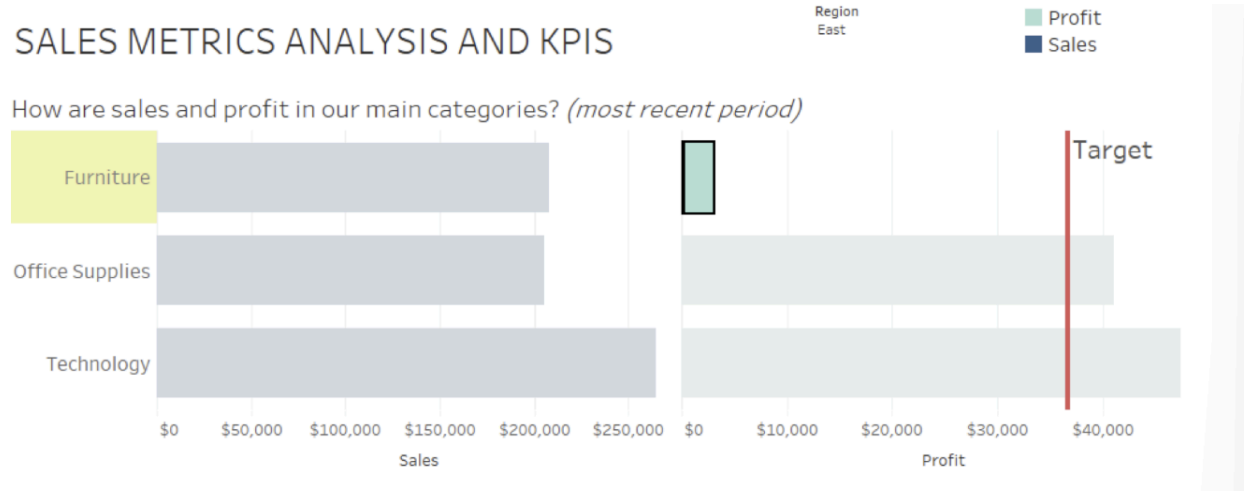
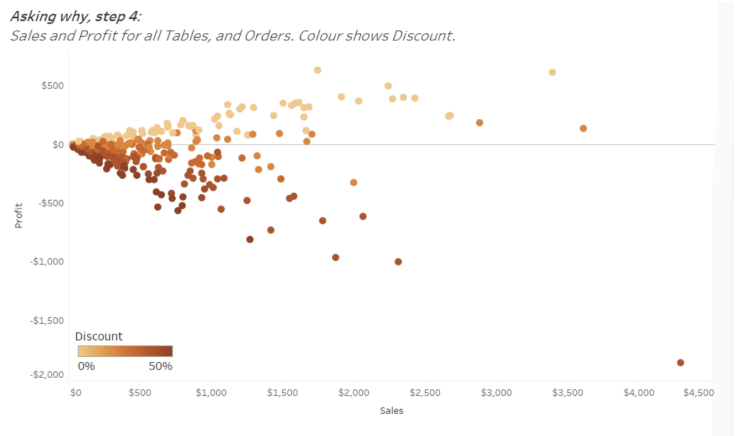
Class 8 - Service Business Model: Segments, KPIs, Performance Drivers, and Data

- Identifying the problem is the easy part, the hard but crucial part is getting to the root of the problem so you can take action.
- When finding hidden insights within your data you must ask why and ask why again
- The “5 whys” technique created by the founder of Toyota asks “why” of a problem, then continues to ask “why” for each answer or explanation given to determine the root cause of a defect.

Blog example

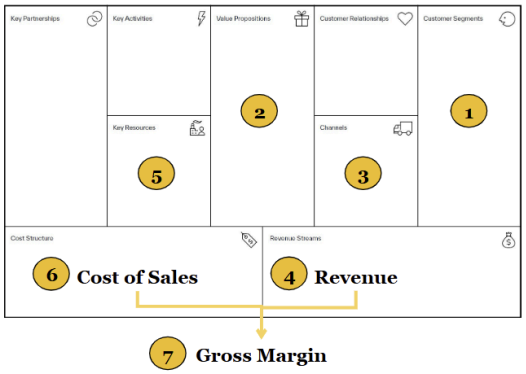


Problem: Why are furniture profits low?



Root cause: After asking why multiple times we see that by providing a discount on tables, we make a loss rather than a profit.

What do we know about Gourmet Grilled Cheese (GGC)?



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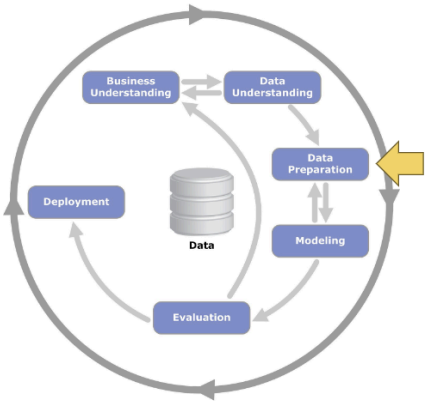
Sales Transaction data – Attachment B

- Available categorical variables
- Available numerical variables
- What variables are not readily available?
- Could we access missing variables? How?

Class 9 - Prepare Data + Build Charts for Exploratory Analysis

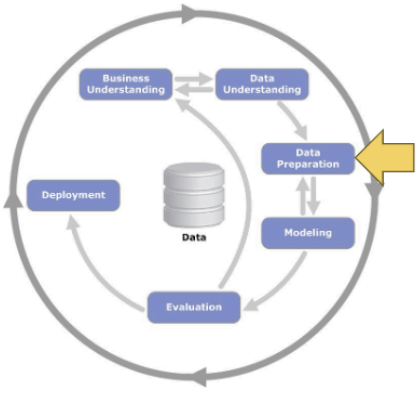
Checklist for effective exploratory analysis

1. Load and prepare relevant, accurate data
2. Select appropriate charts to explore answers to planned questions
3. Add clear, descriptive chart titles
   - e.g., rename sheets
4. Build simple charts that are easy-to-read AND easy-to-understand
   - Consider axis titles, axis labels, other text to make it **easy-to-read**
   - Consider colours, data labels, and/or data sorts if needed **easy-to-understand**
5. Make select charts interactive so users can explore "why"
   - Using filters and sorts



1. Build a hierarchy for menu groups and menu items
2. Add menu groups to the table you build for quantity sold for each menu item in each fiscal year
3. Play with drill down functionality

Link to help page if needed



Note: CRISP-DM image sourced from Wikipedia

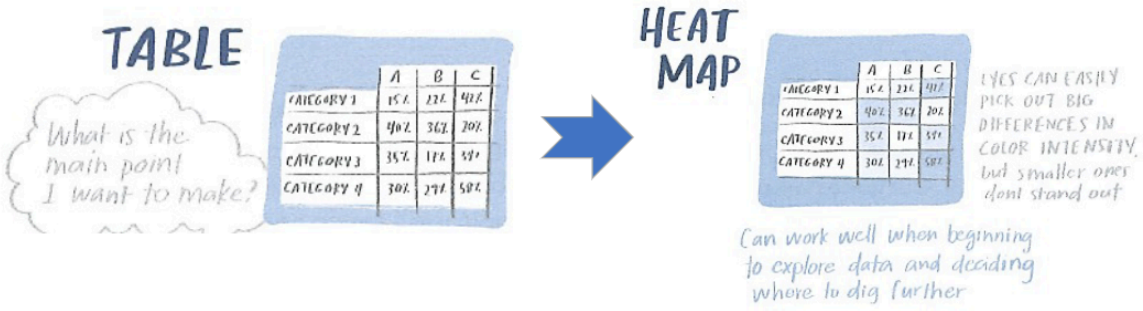
Numerical variables available: quantity, price & cost

Calculate variables for:

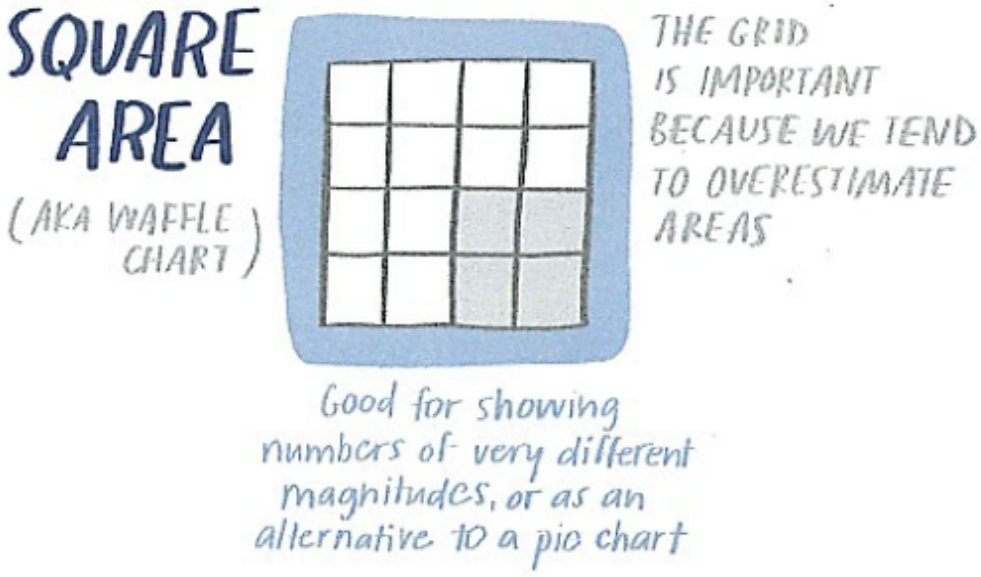
1. Revenue
2. Cost of Sales
3. Gross Margin ($)
4. Gross Margin %
5. Number of Orders
6. Average Order Value (AOV)

Class 10 - Make Data Visualization Interactive - Use Tableau Hierarchies, Filters and Sorting

- **Heat maps** can be useful for **exploratory analysis** as it uses coloured cells to help visualize data in a table in addition to the numbers.



- **Area Chart (Treemaps** in Tableau**)** are also useful for **exploratory analysis** as it allows you to visualize numbers of vastly different magnitudes (i.e. when a pie chart would have too many slices).

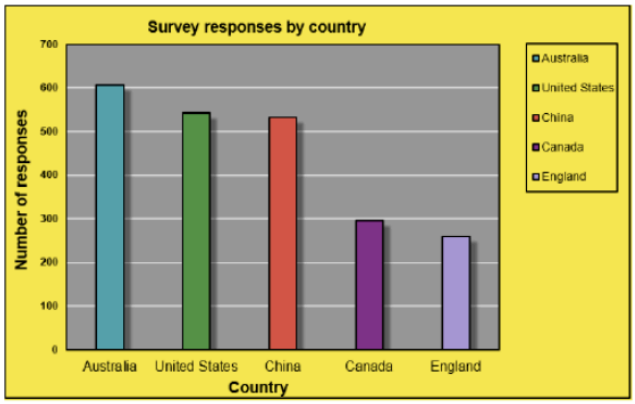


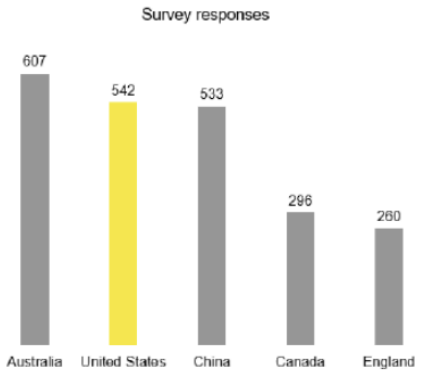
Class 11 - Build a Tableau Story to Communicate the GGC Performance Diagnostic

The analytical mindset

- **Asks the right questions**, using your understanding of the business, available data, and stakeholder needs to plan a performance diagnostic
- **Load relevant data** and **apply appropriate data analysis techniques**, using exploratory analysis to:
  - describe performance outcomes, and
  - diagnose the root cause.
- **Interpret and share result**s, applying explanatory analysis to communicate answers to three key questions:
  - 1) What happened?
  - 2) Why did it happen?
  - 3) Now what?

Eliminate clutter to focus on the message in the data



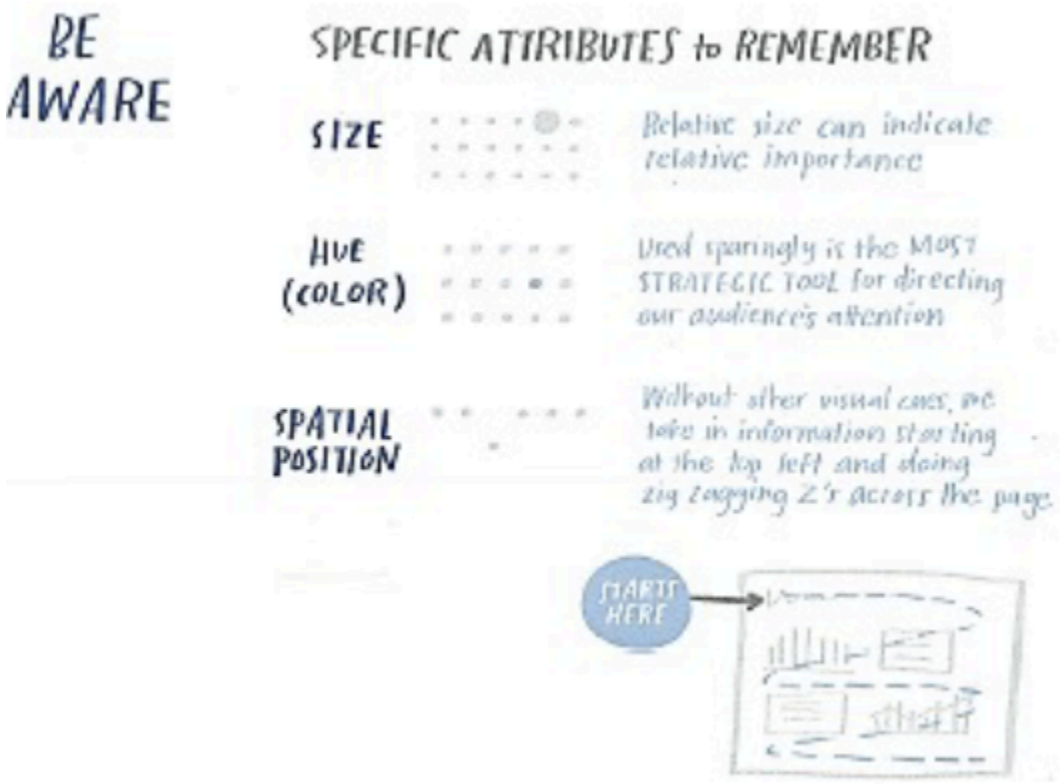


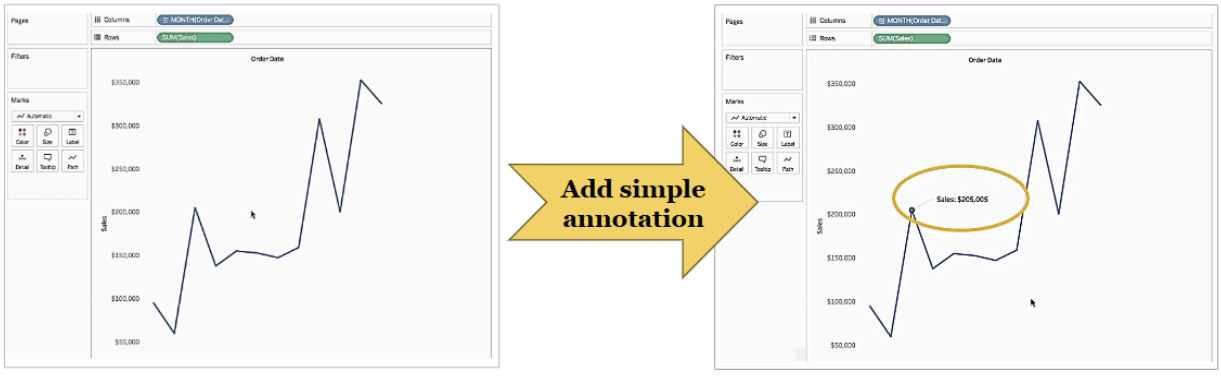
Removed:

- Background(s)
- Redundant labels
- Redundant legend
- Borders
- Multiple colours
- Special effects (shadow on bars)
- Grid lines (lighten or remove)
- Y-axis (add data labels on bars)

Tufte's principles highlight that "excellence in statistical graphics consists of complex ideas communicated with:

- Clarity
- Precision
- Efficiency.





- **Slope graphs** used for **explanatory analysis,** filtered to focus attention and eliminate clutter.

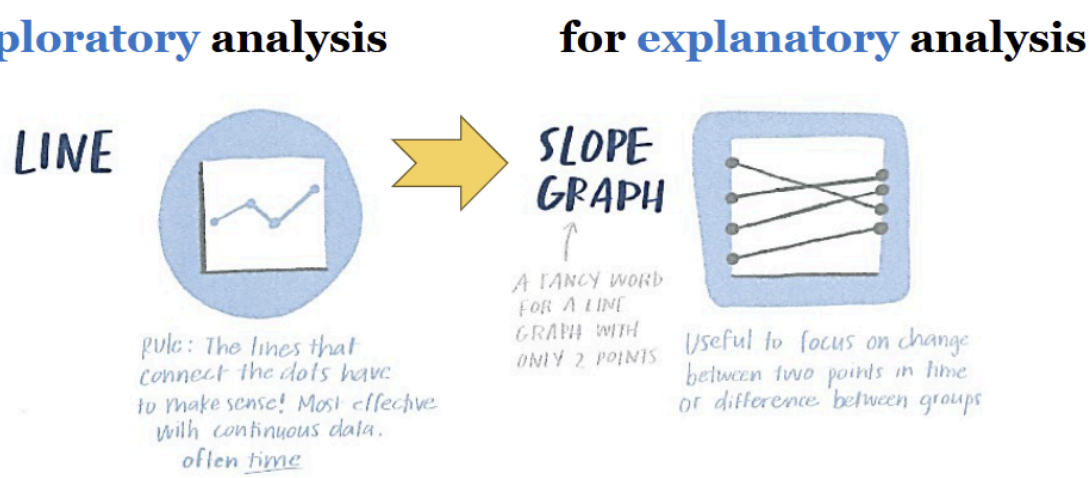


Tableau story creation

1. Tailor the story title and story points to audience needs, knowledge level, and desired action.
2. Outline the beginning, middle, and end of story on a storyboard
3. Choose a simple chart for each story point AND add a key observation/ insight for each story point [caption]
4. Eliminate unnecessary clutter from each chart/story point
5. Focus audience attention on key data (e.g., add annotations or use size and colour sparingly).

Exploratory vs Explanatory Analysis

- **Exploratory Analysis**
  - What you do to understand the data and figure out what might be noteworthy or interesting to highlight to others.
- **Explanatory Analysis**
  - What you do to communicate what's noteworthy or interesting from your exploratory analysis to the target audience.
- **Pearl analogy**
  - **Exploratory** is like hunting for pearls in oysters. You might have to open 100 oysters just to find two pearls.
  - **Explanatory** is where you have a specific thing you want to explain, in this case the two pearls.