Different types of charts

Overview

Two basic types of charts

- **Comparison charts**
- **Reduction charts**

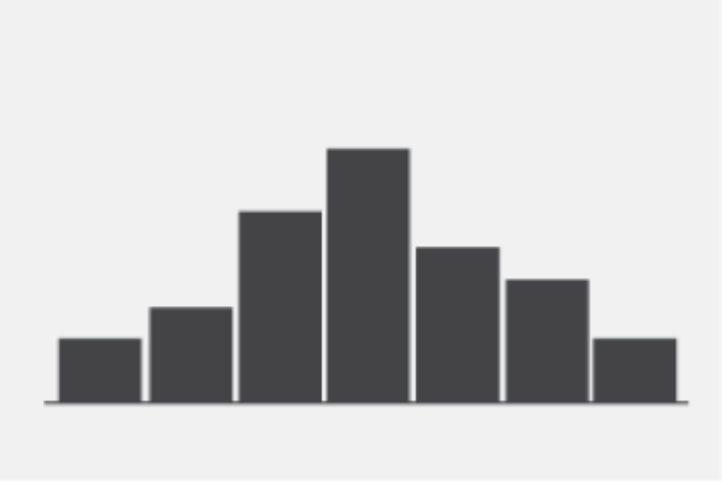
Comparison charts

- Maintain the data point as the unit of measure (**no aggregations**)
- Allow for quick comparisons between entities or categories

Bars
(comparison)

Pie
(composition of sample)

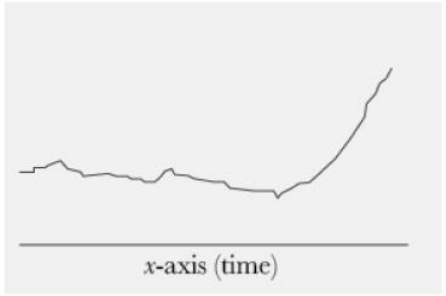
Histogram
(composition of sample)



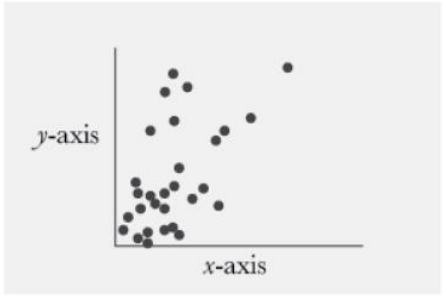
Reduction charts

- Present data that has been aggregated or generalized in some way
- Can help illustrate patterns

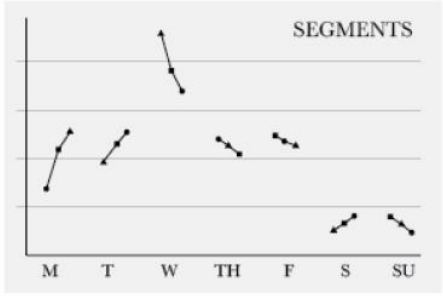
Line
(evolution)



Scatterplot
(relationship between two values)



Cycle Plot
(distillation of cycle segments)



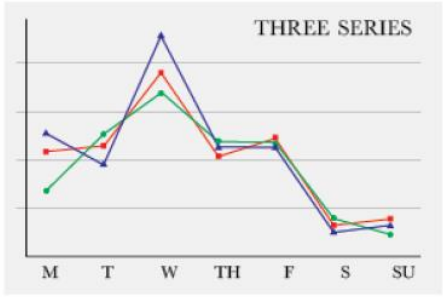
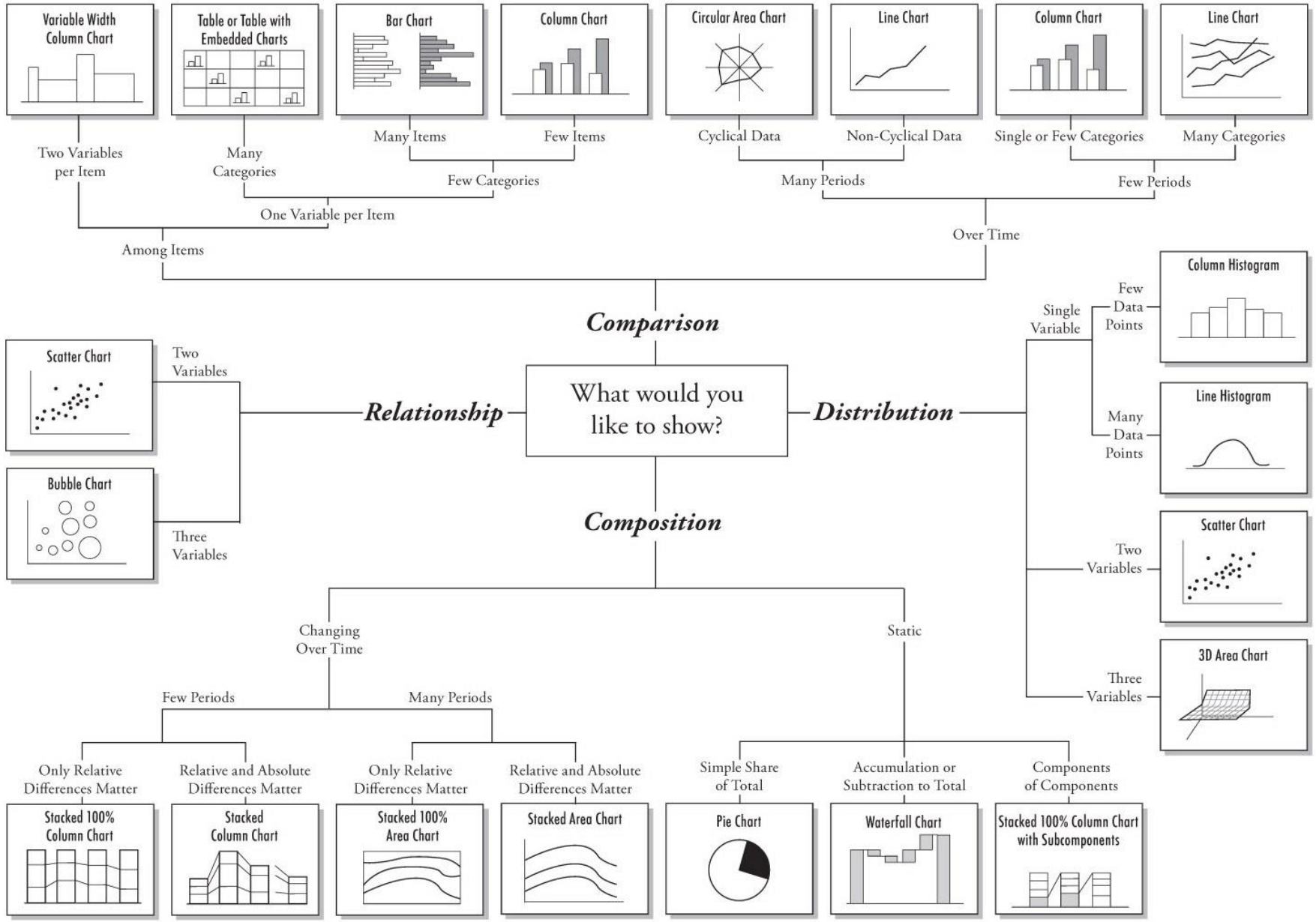


Chart Suggestions—A Thought-Starter



Types of visuals / charts

Text or number visualization

- Sometimes one number is sufficient as a visualization
- **High-level** information on **dashboards**

Video Views: 195678

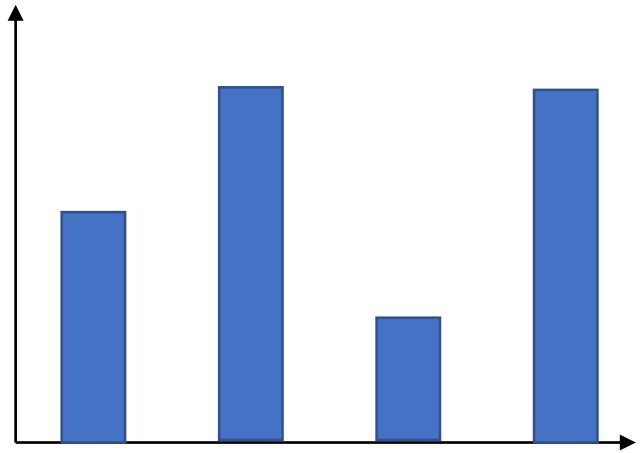
Tables

- Can convey a lot of information
- Compare across categories
- Less effective as size increases
- 2 x 2 can be powerful

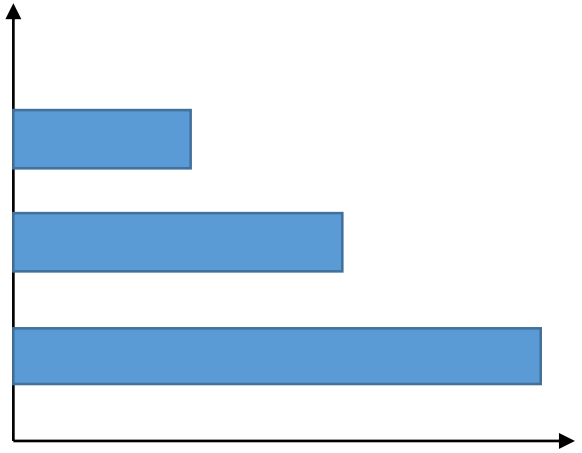
	Vaccinated	Not vaccinated
Male	53	11
Female	55	16

Bar charts

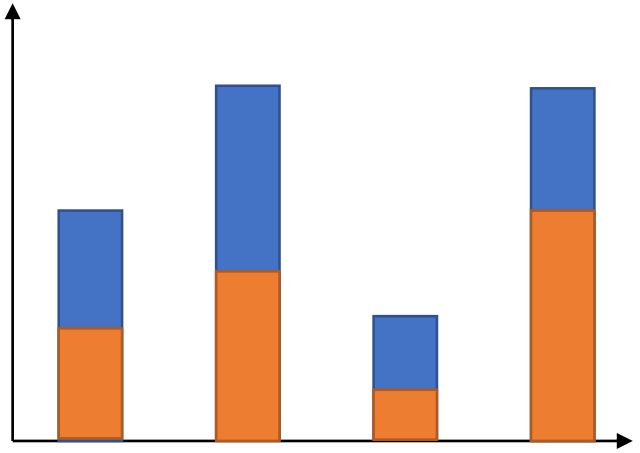
- Very effective – can be **vertical** or **horizontal** or **stacked** (common)
- Choice depends on how much information we want to convey



VERTICAL



HORIZONTAL



STACKED

Bar charts

- Best suited for **numerical data** that can be divided into distinct categories
  - Compare information
  - Reveal trends
- Bars can be horizontal or vertical → helpful to spot trends
- Can add additional layers of information by
  - Using clustered bars
  - Stacking related data

Bar charts

- Color can be added to increase impact or to overlay for immediate insight

- To highlight important data points → can add **trend lines** and other annotations

- **Side-by-side** or **stacked** bars can add depth to analysis and help answer multiple questions at once

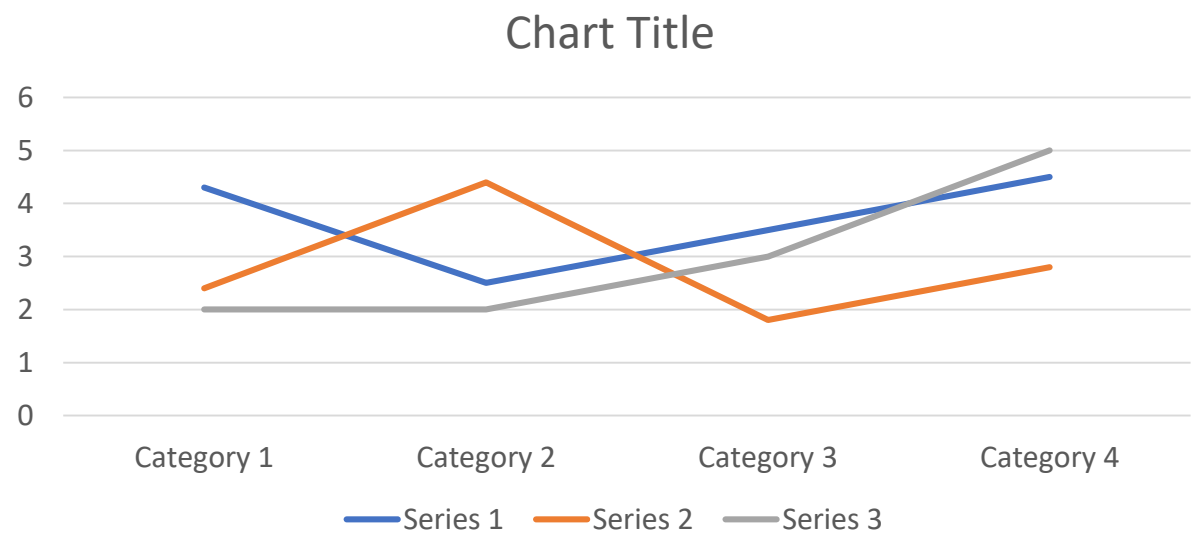
Bar charts

- Bar charts can be combined with maps or line charts
  - Will act as filters that correspond to different data points as they are selected

- Multiple bar charts can be set on a dashboard → viewers can quickly compare information without navigating several charts

Line charts

- Useful for visualizing data **over time**
- Help spot trends from time variables
- Can help with forecasting activities (extrapolation)

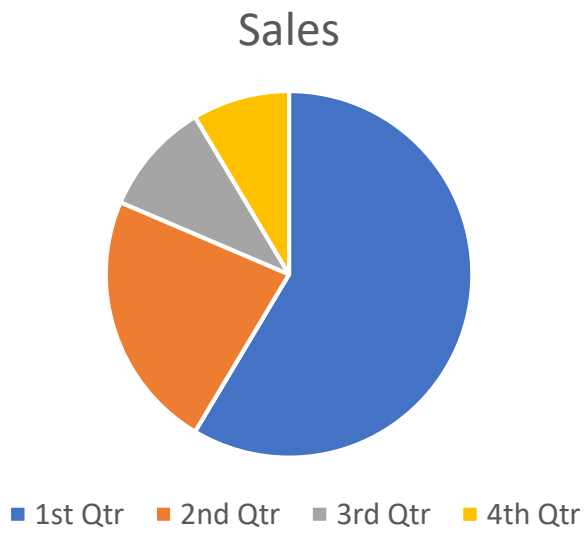


Line charts

- Connect individual numeric data points to visualize a sequence of events
- Most commonly used when an element of time is present
- Best use case – displaying trends over a period of time

Pie charts

- Have a very bad reputation
- But useful in certain specific instances



Pie charts

- Pie and donut charts have a bad reputation due to
  - Problems with reading and understanding angles
  - Distortion effects caused by too many slices

- But can be useful to visualize:
  - Parts of a whole
  - Percentages

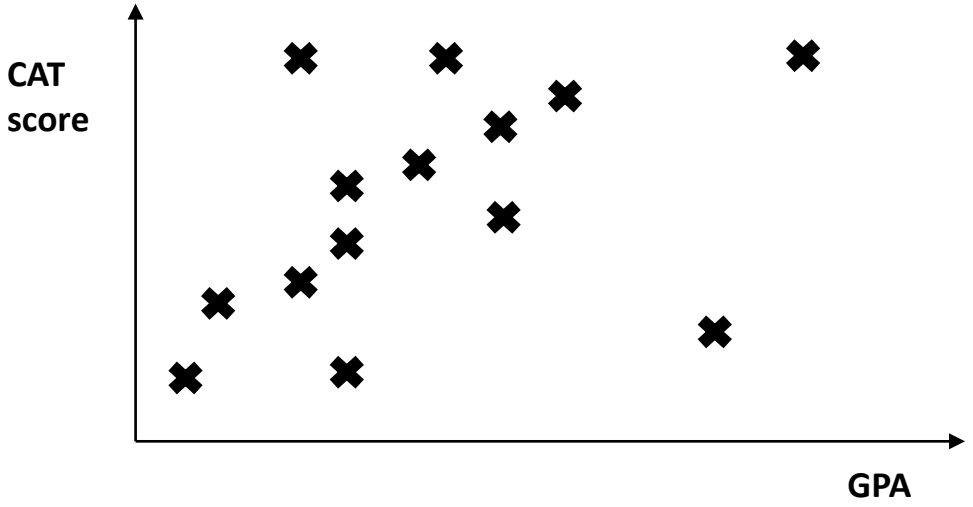
- In **storyteller** rather than **analytical** visualizations

Pie charts

- Since the circle represents 100 %, **size of each wedge** is a percent
- Best to look at **area** or **arc length** of wedge rather than angle
- Focus on comparing a few values (best 2; max 6)
- In a **donut chart**, you can also include an insight / takeaway in the center white space

Scatter plots

- Representing information related to **continuous** variables
- Lot of information available
- Useful for determining inferences (correlations between variables)
- Helps view potential data relationships

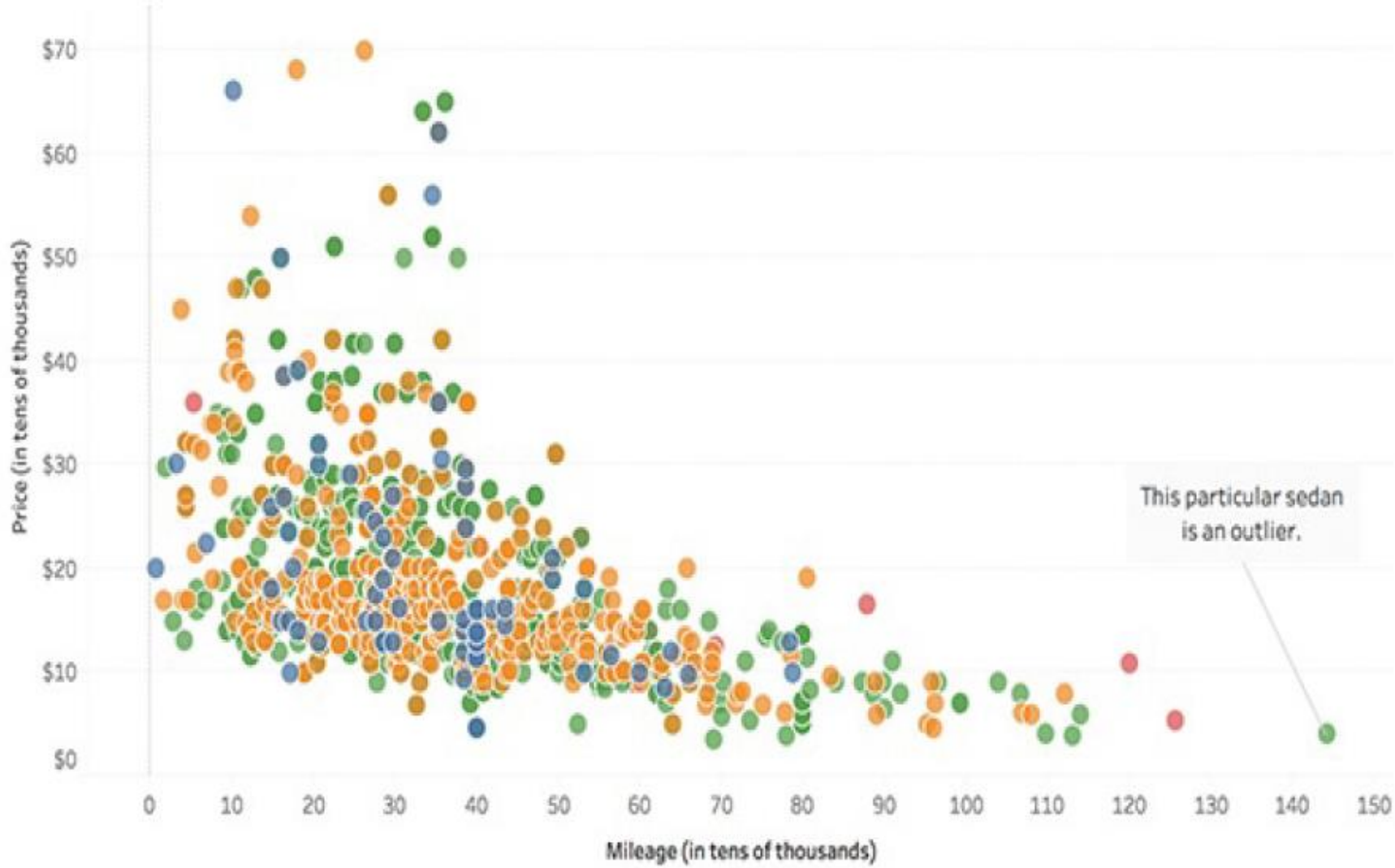


Scatter plots

- Effective way to visualize numerical variables
- Can help compare measures and quickly identify:
  - Patterns
  - Trends
  - Outliers
  - Clusters
- Guides further focus of discovery efforts
- Helps investigate relationships between variables → linear regression

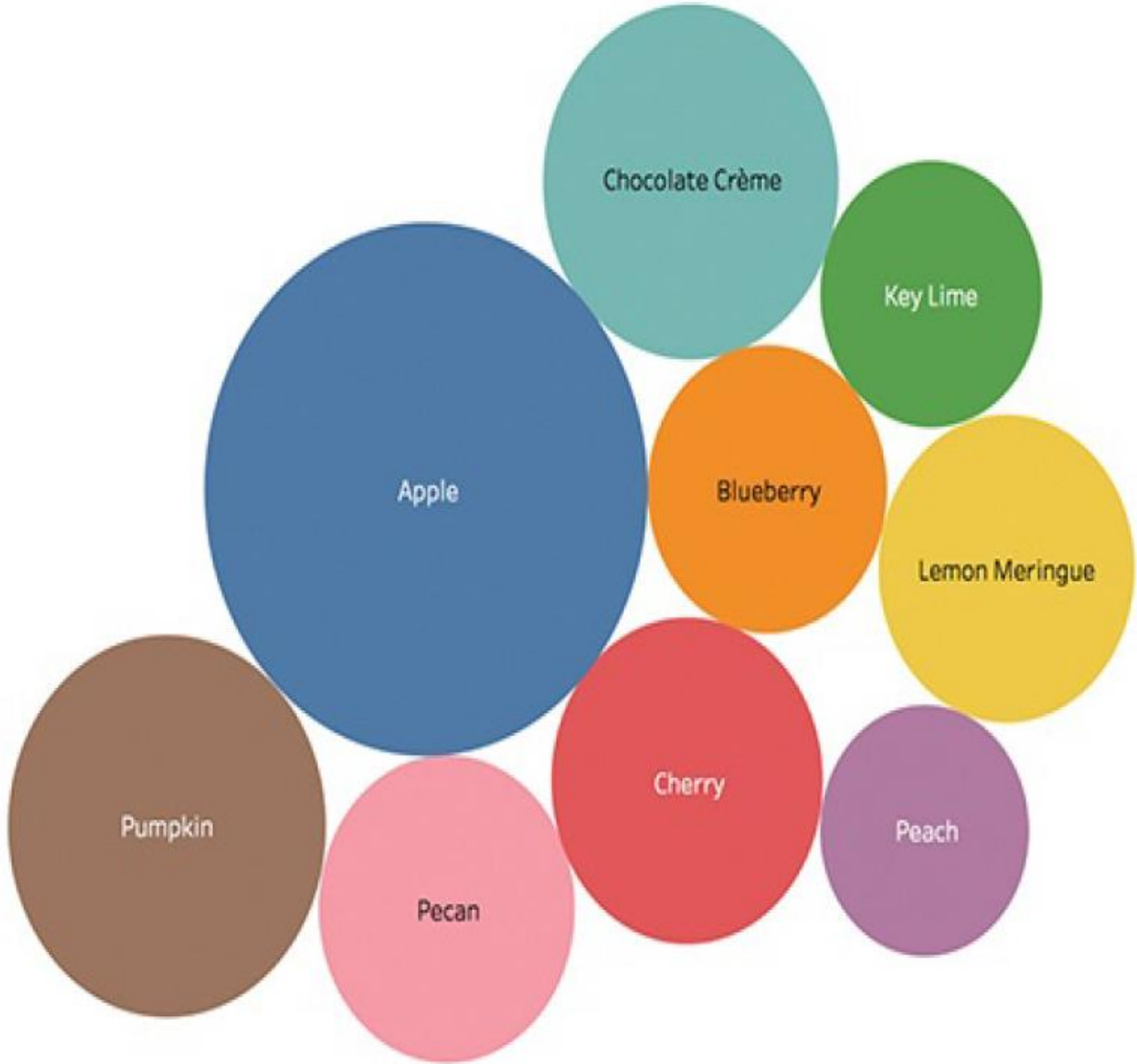
What Effect Does Mileage of a Used Car Have On Price?

A regression scatterplot of used coupes, SUVs, sedans, and trucks.



Bubble chart

- Variation of scatter plot
- Replaces data points with a cluster of circles
- Shows relational values without regard to axes
- Used to display three dimensions of data – two through **location** of bubble, and one through **size**


Chocolate Crème
Key Lime
Apple
Blueberry
Lemon Meringue
Pumpkin
Cherry
Peach
Pecan

Tree maps

- Uses a series of rectangles of various sizes
- Works well if data has a hierarchical structure
- Divides and sub-divides based on parts of a whole
- Makes efficient use of space when working with large amounts of data

Heat maps

- Uses color to visually emphasize certain information
- Compare categorical data using color
- Works well with hierarchical values

Heat maps

- Comparing categorical data using color

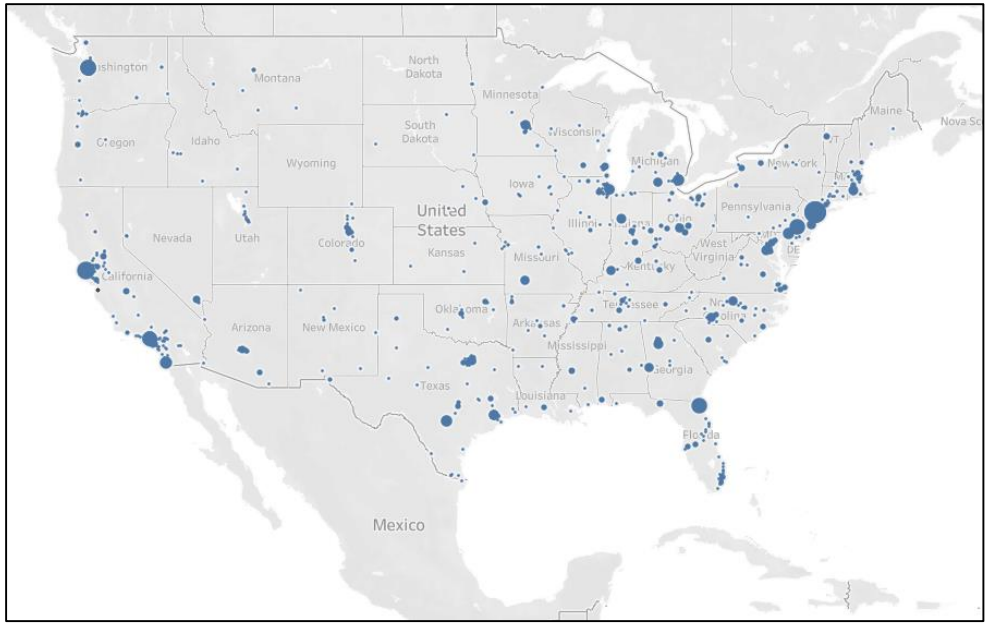
- Represents values by a variable in a hierarchy (like tree map)

<u>Adding details to a heat map</u>

- Adding a **size** variation for squares to show concentration of intersecting factors while adding a third element
- Using a shape other than a square to convey meaning more impactfully

Maps

- For spatial analysis
- Used with spatial components, geography, latitude & longitude data



Maps

- Analyzing and presenting data geographically

- Should answer questions that have both
  - Appropriate data representation
  - Attractive data representation

- If the geodata is recognized by Tableau → **latitude** and **longitude** are automatically displayed as measures