20 CHARTS YOU SHOULD MASTER TO BECOME A DATA VISUALIST

Presented by:

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On the 18th of August during an in-house staff presentation at ADSR.

KEY PRINCIPLES OF DATA VISUALIZATION

Strive for **CLARITY** & **SIMPLICITY**

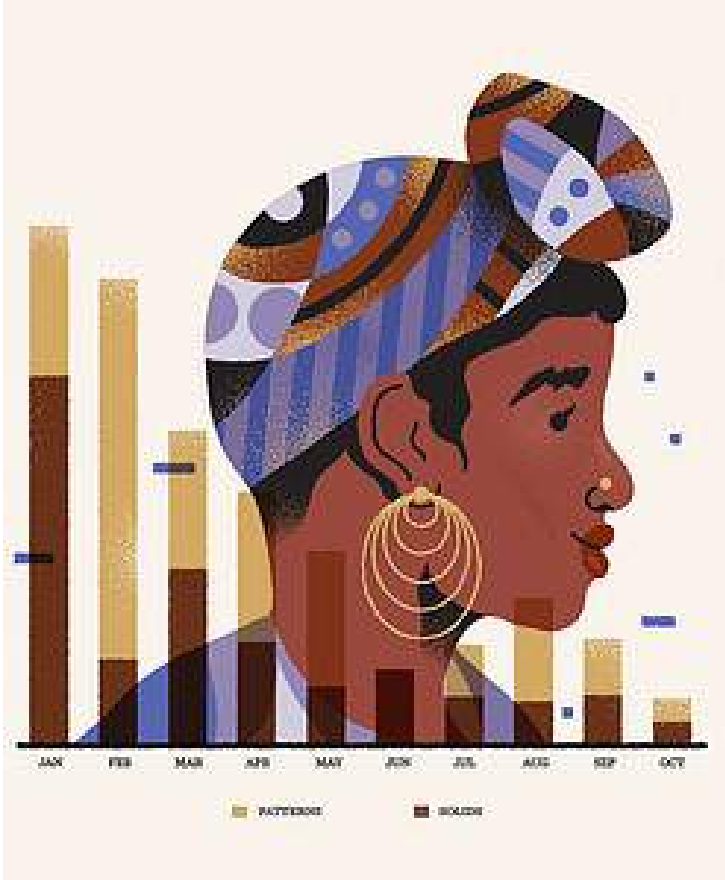
- *Maximize **impact**, minimize **noise***
- *If it doesn't **add value** or **serve a purpose**, get rid of it*

Focus on creating a **NARRATIVE**

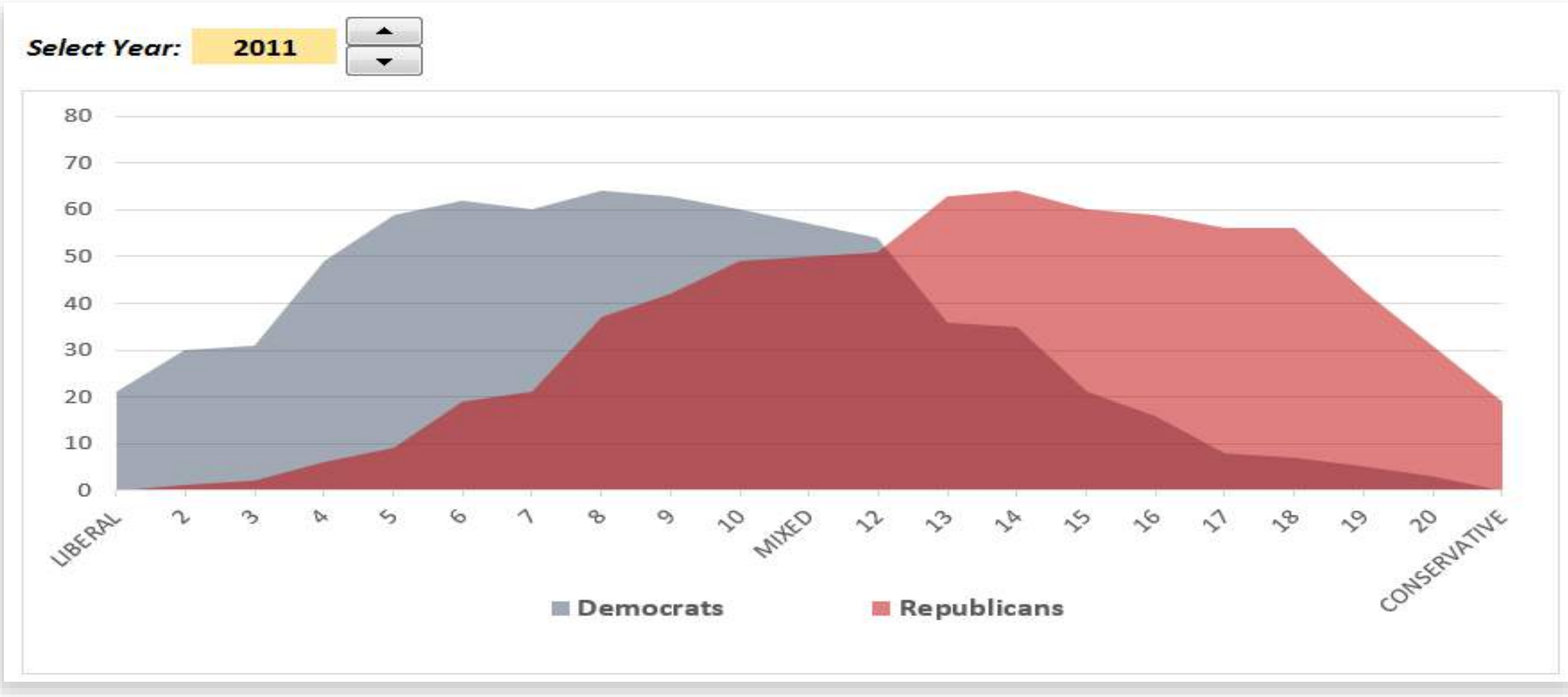
- *Don't just show data, **tell a story***
- *Communicate key insights **clearly, quickly** and **powerfully***

Strike a balance between **DESIGN** & **FUNCTION**

- *Selecting the right type of chart is **critical***
- ***Beautiful** is good, **functional** is better, **BOTH** is ideal*



THE GOOD, THE BAD, AND THE UGLY

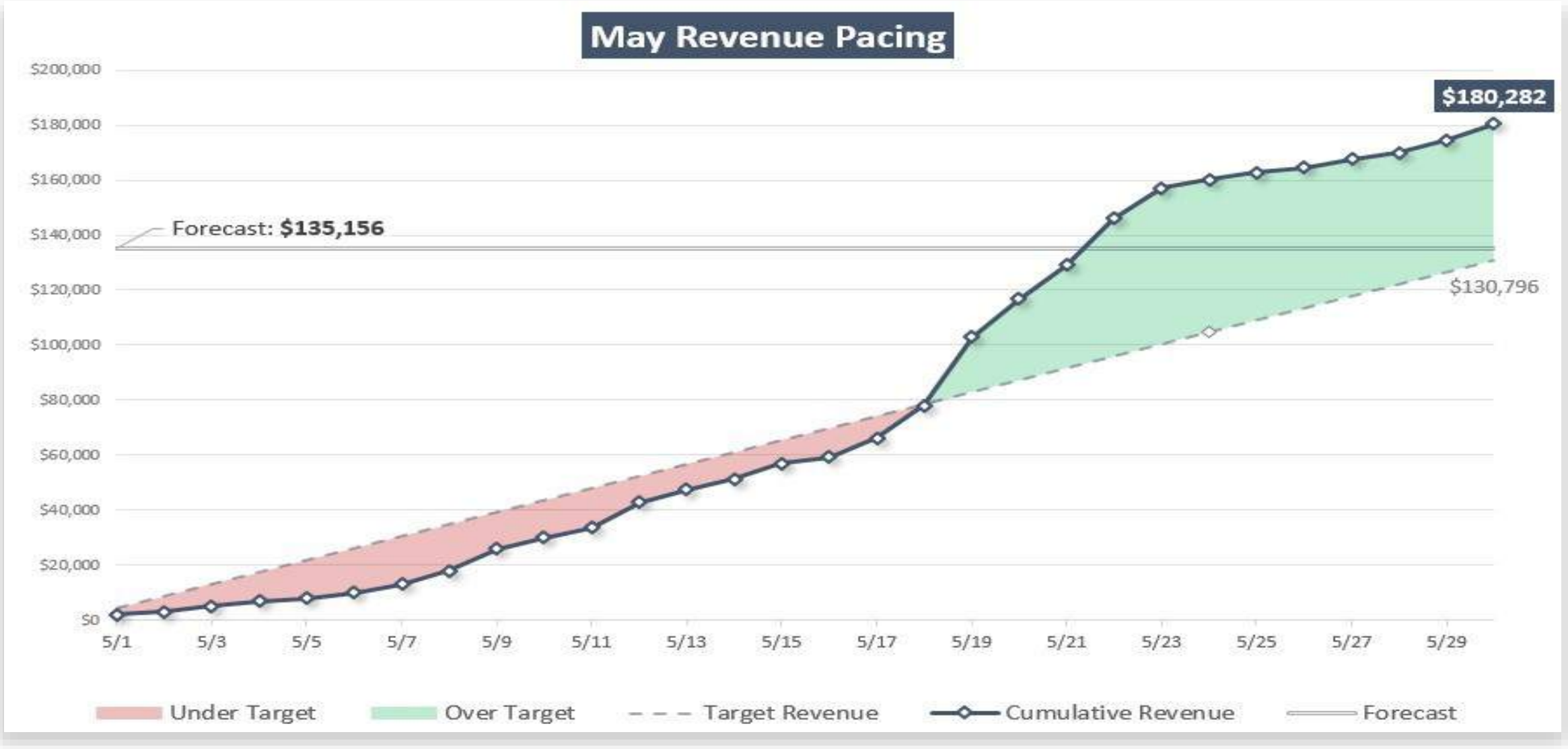


Clean, simple visualization with animation over time

THE GOOD, THE BAD, AND THE UGLY

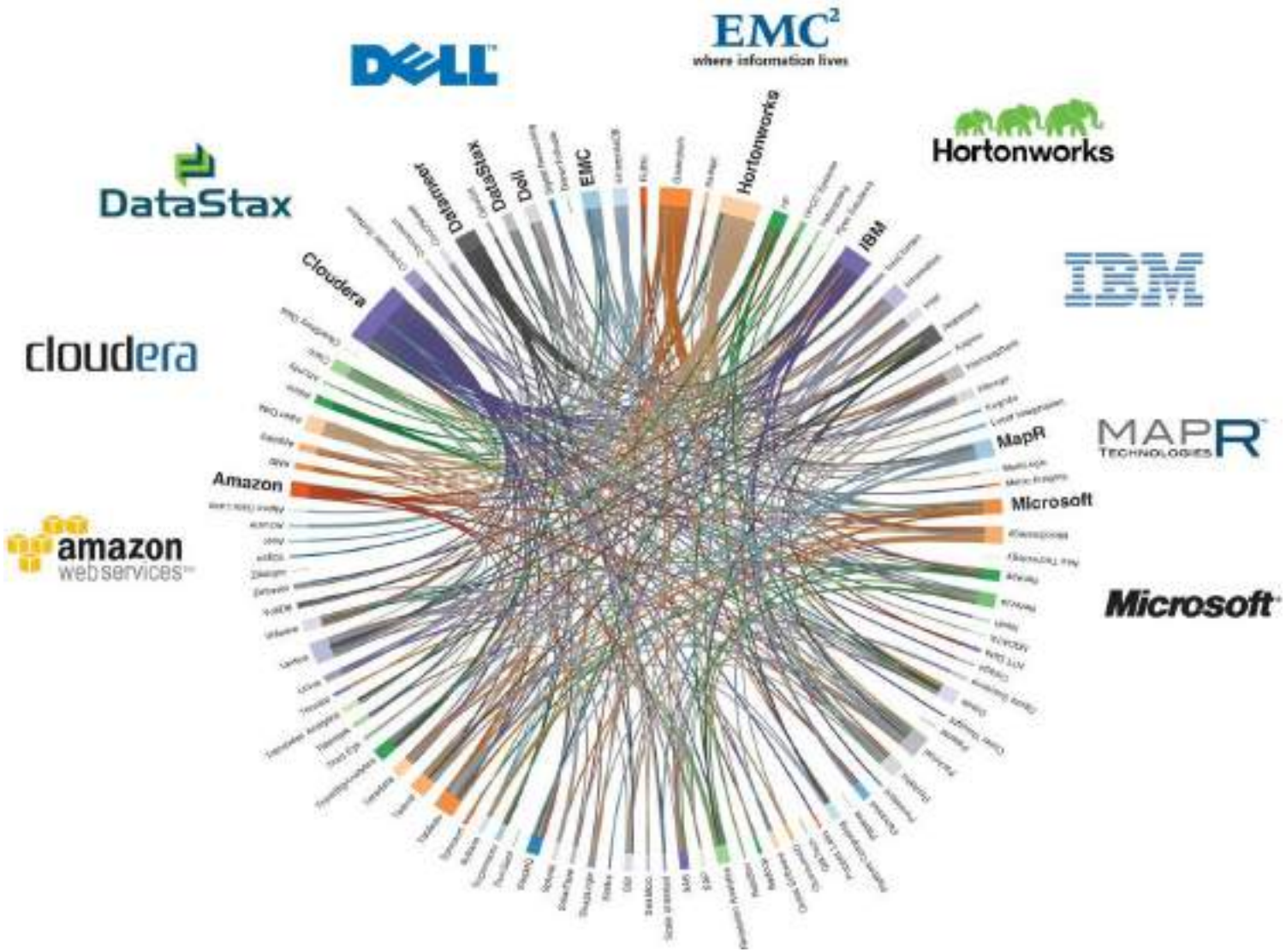
Simple, intuitive custom chart design

THE GOOD, THE BAD, AND THE UGLY



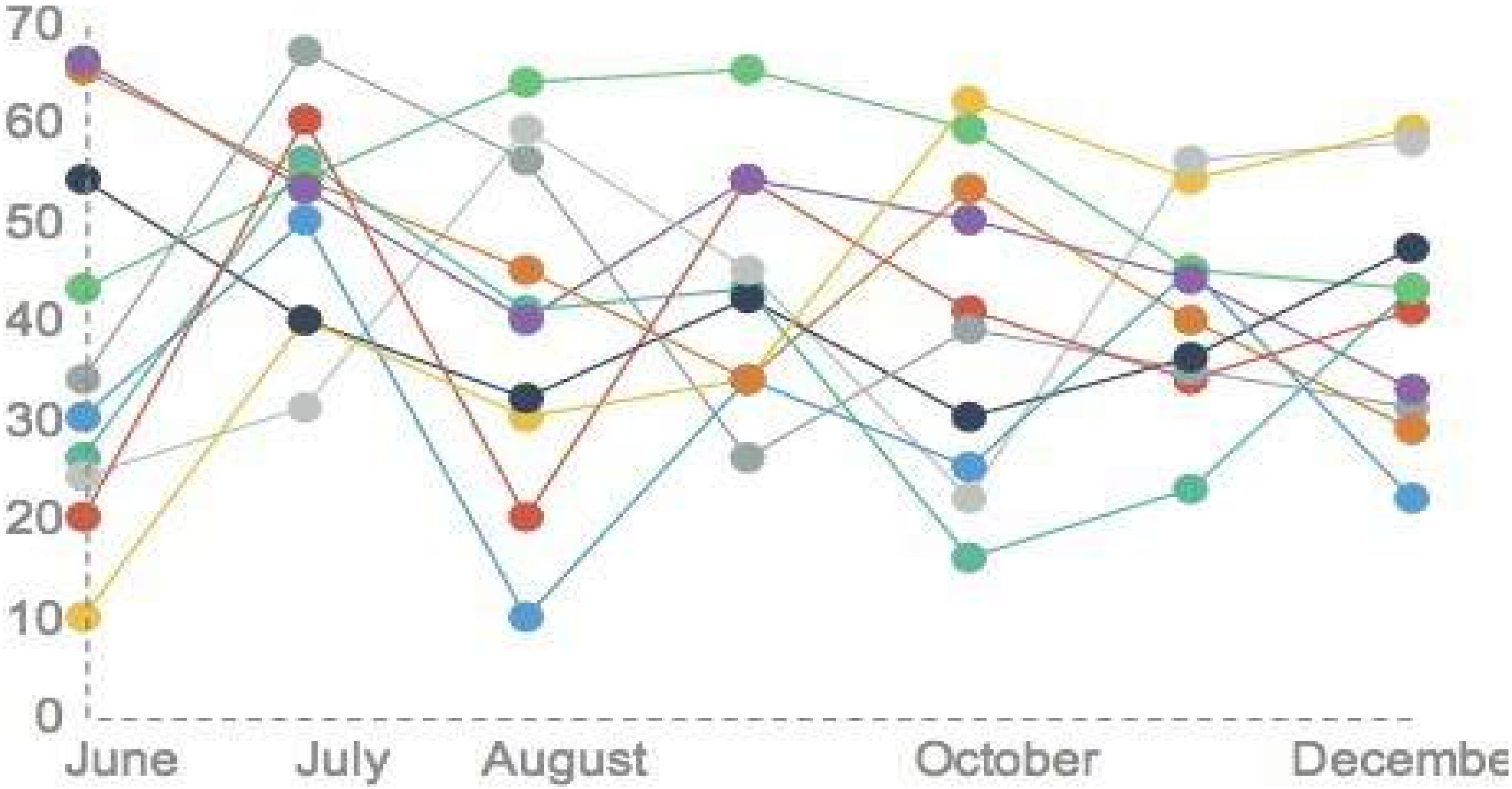
Dynamic formatting helps to strengthen the story

THE GOOD, THE BAD, AND THE UGLY



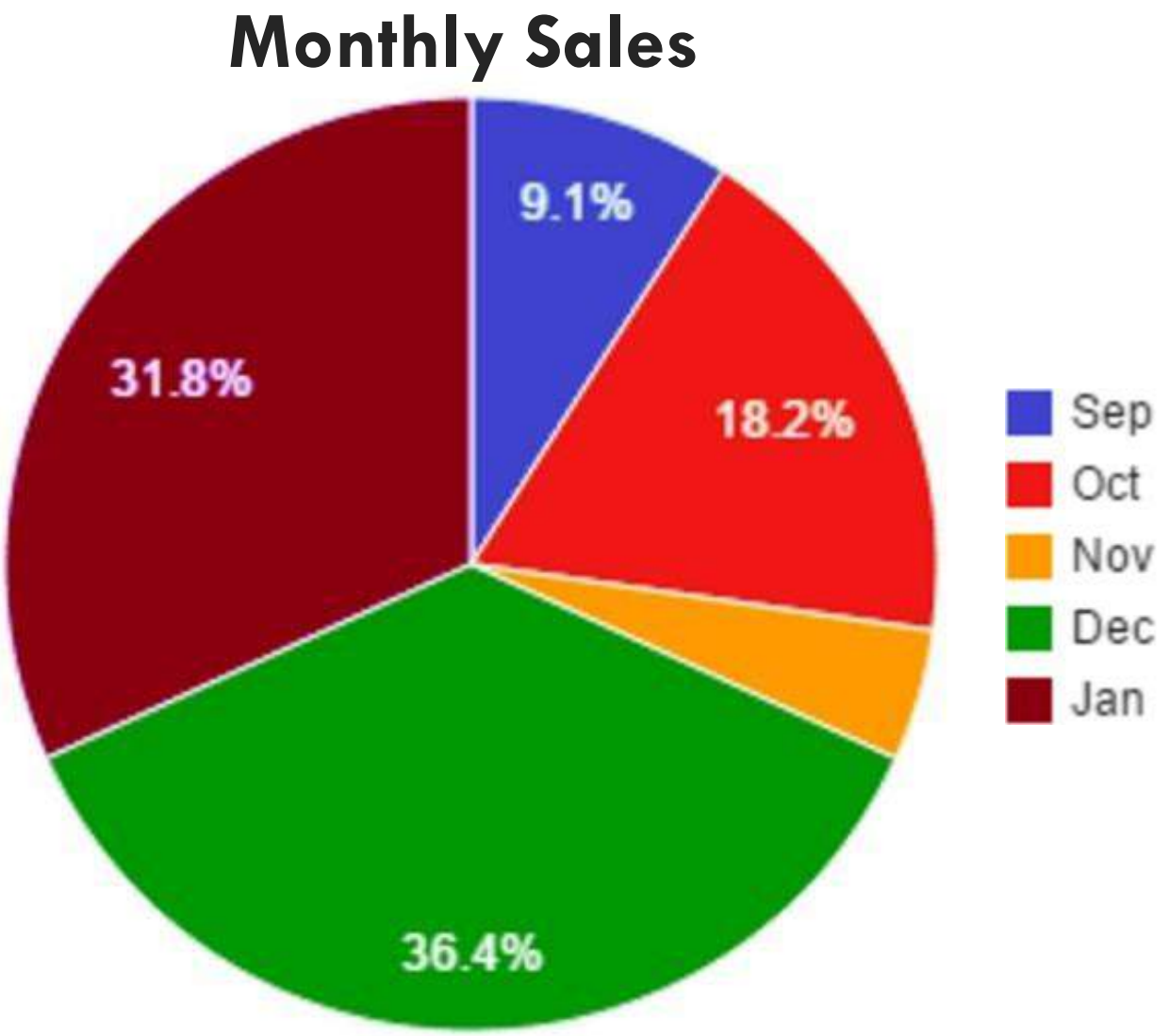
All design, no function

THE GOOD, THE BAD, AND THE UGLY



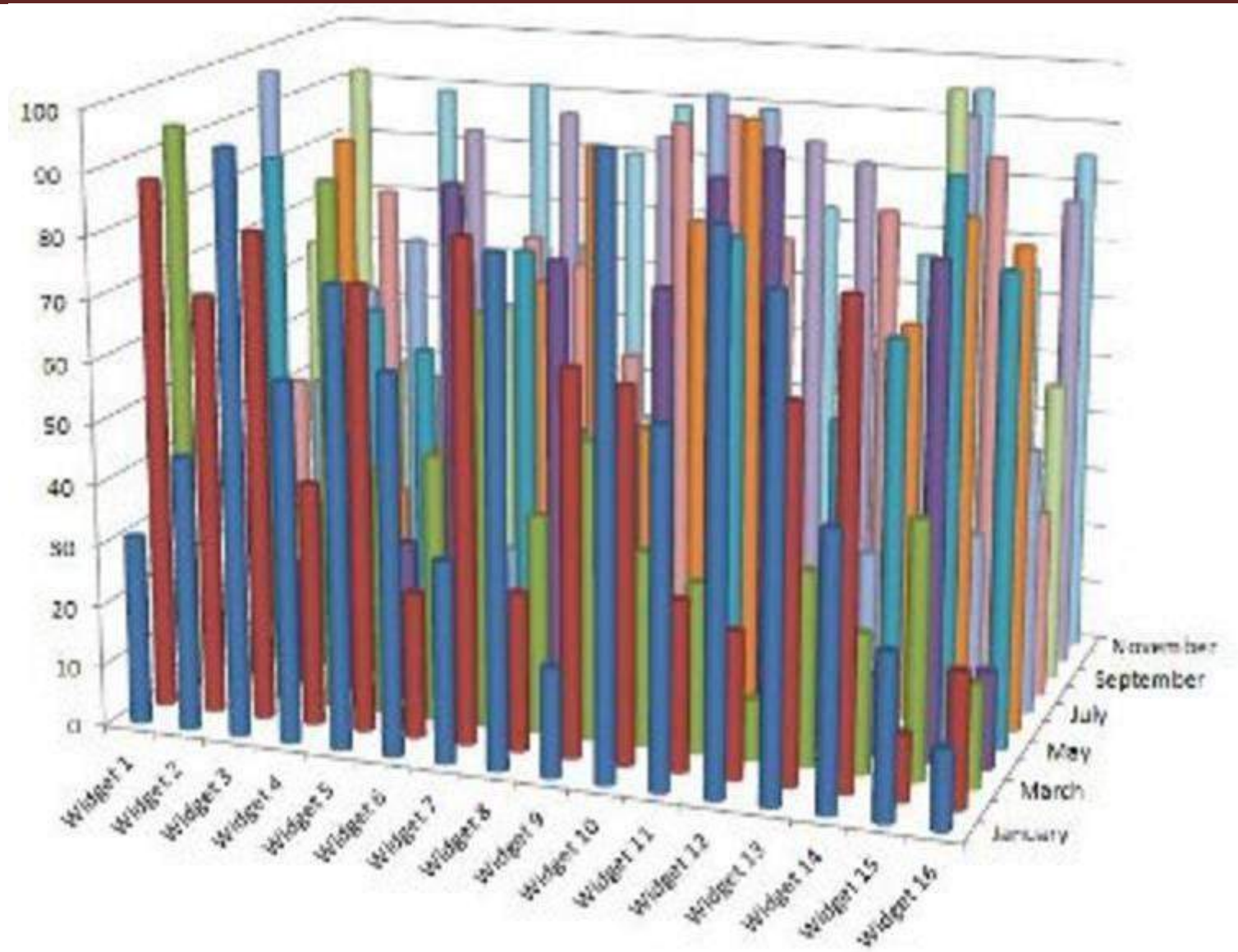
Busy, no clear narrative

THE GOOD, THE BAD, AND THE UGLY



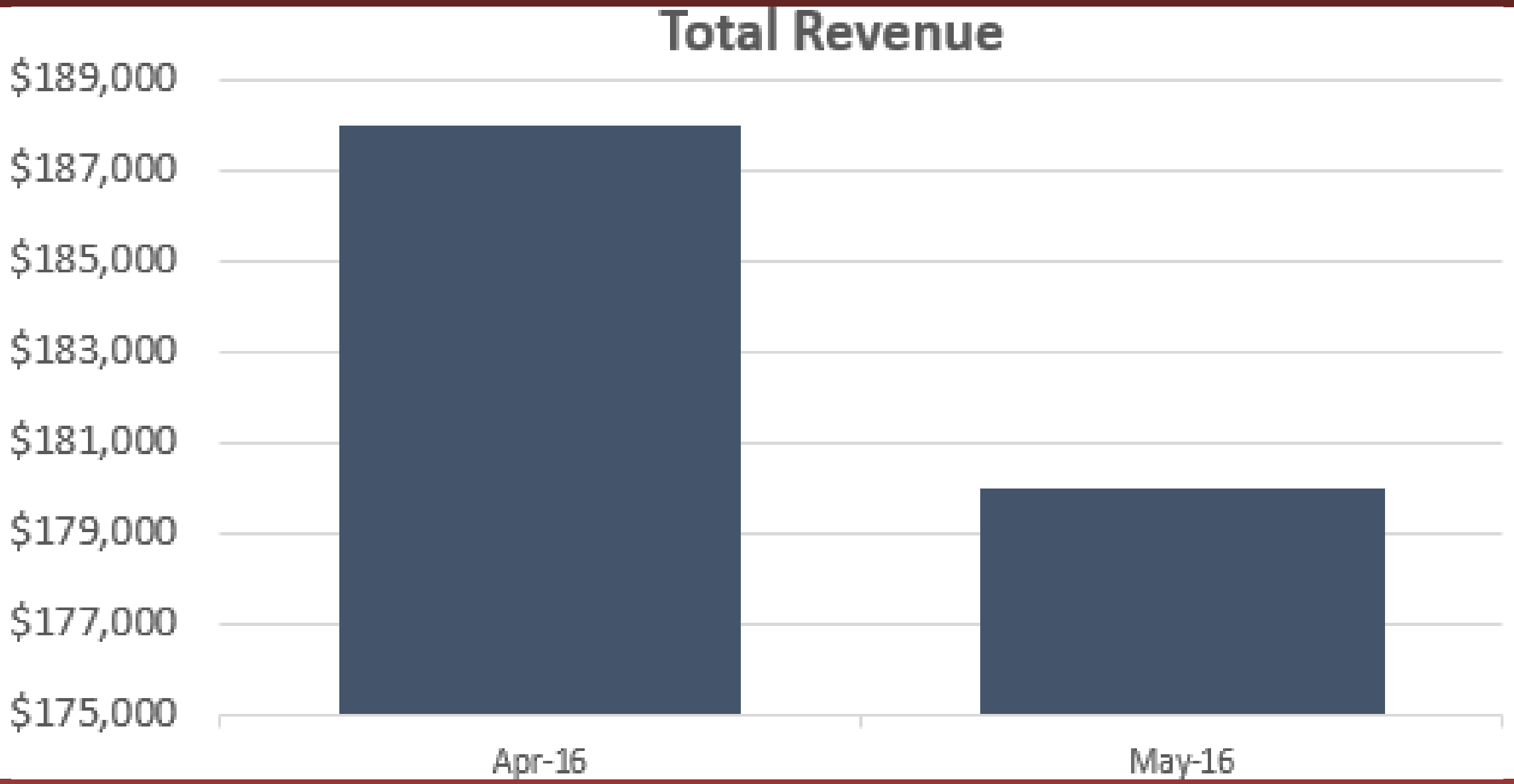
Misleading chart type

THE GOOD, THE BAD, AND THE UGLY



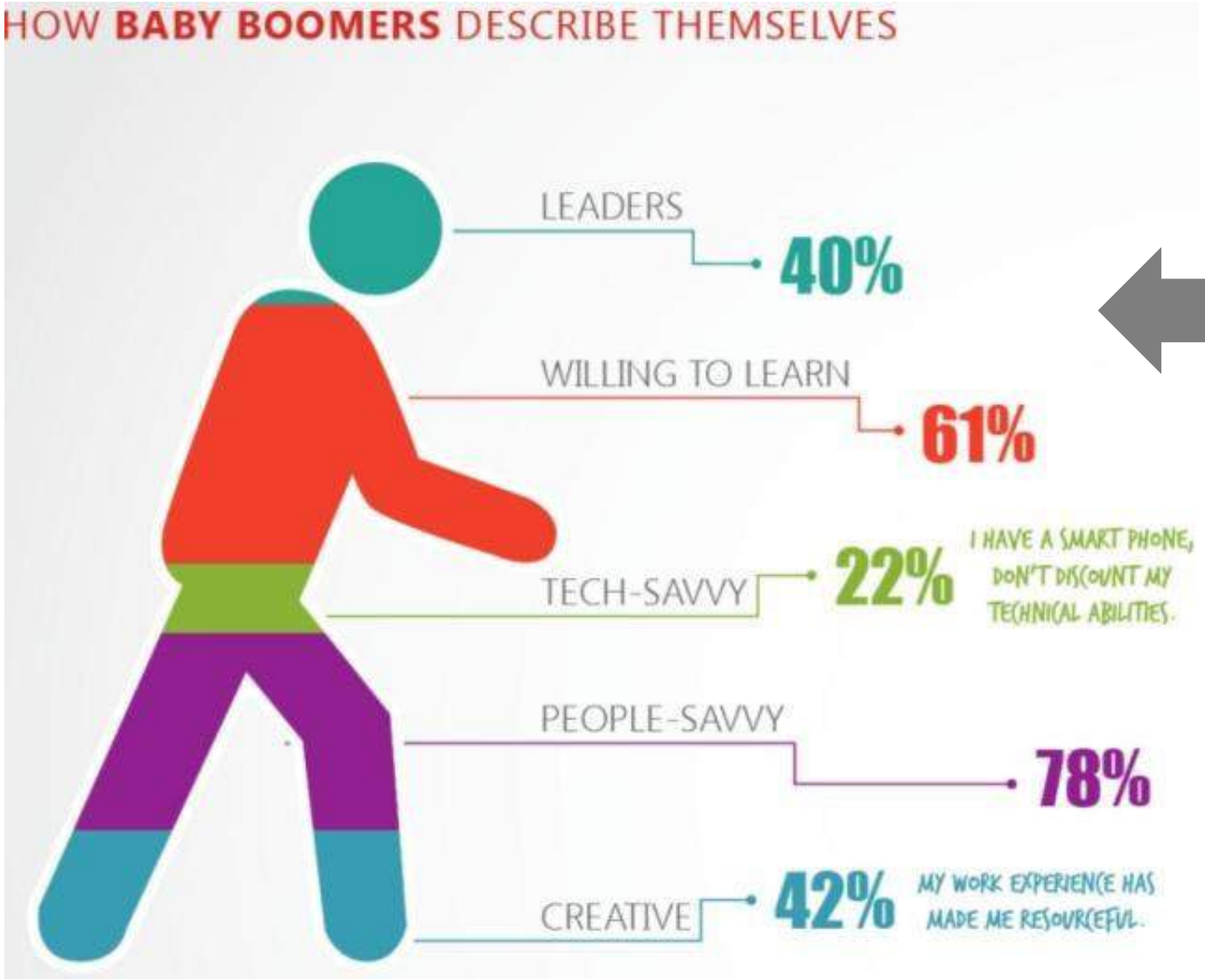
Too many elements, distracting 3D design

THE GOOD, THE BAD, AND THE UGLY



Misleading y-axis scale

THE GOOD, THE BAD, AND THE UGLY



Improper use of percentages & inconsistent scaling

THE 3 KEY QUESTIONS

- What **type of data** are you working with?
  - *Integer, real, categorical, time-series, geo-spatial, etc.*

- What are you trying to **communicate**?
  - *Relationship, comparison, composition, distribution, trending, etc.*

- Who is the **end user** consuming this information?
  - *Analyst, CEO, client, intern, etc.*

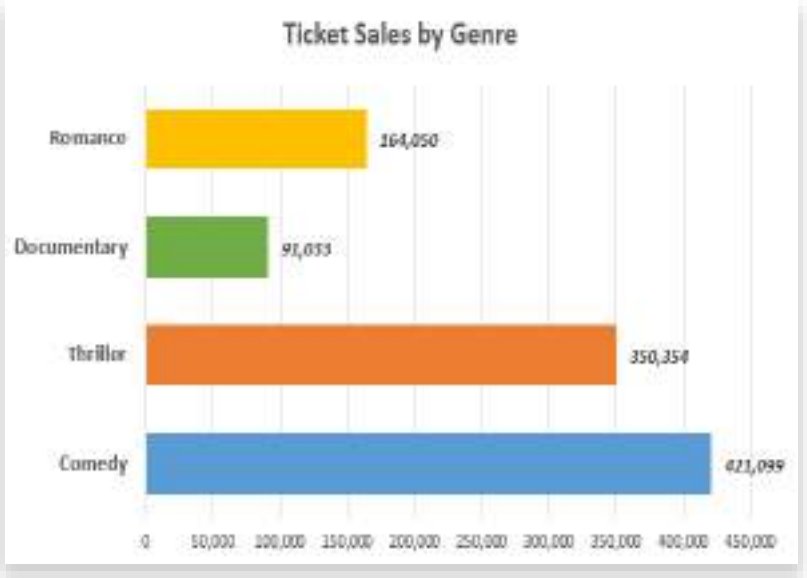
BAR & COLUMN CHARTS

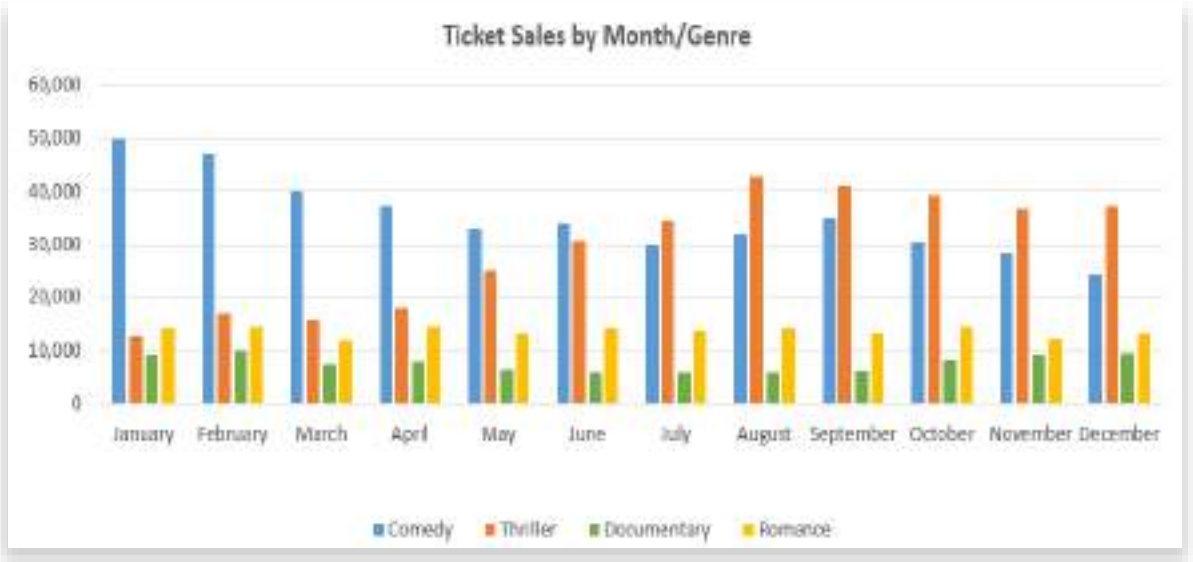
COMMONLY USED FOR:

- **Comparing numerical data across categories**

EXAMPLES:

- *Total sales by product type*
- *Population by country*
- *Revenue by department, by quarter*

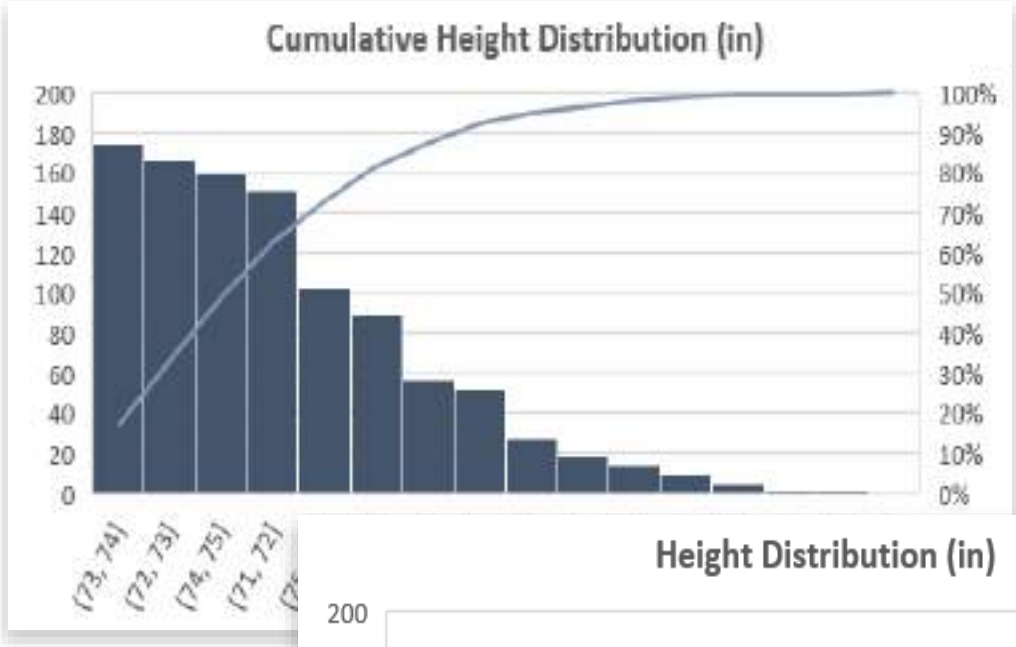


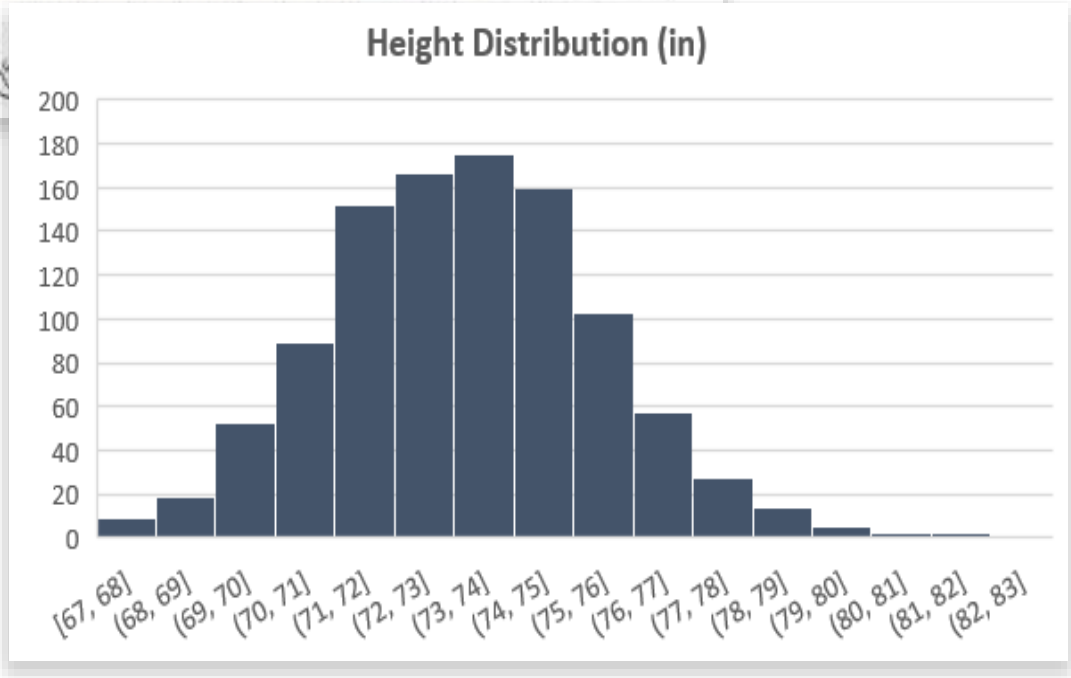


HISTOGRAMS & PARETO CHARTS

COMMONLY USED FOR:

- **Showing the distribution of a continuous data set**





EXAMPLES:

- *Frequency of test scores among students*
- *Distribution of population by age group*
- *Distribution of heights or weights*

LINE CHARTS

COMMONLY USED FOR:

- **Visualizing trends over time**

EXAMPLES:

- *Stock price by hour*
- *Average temperature by month*
- *Profit by quarter*

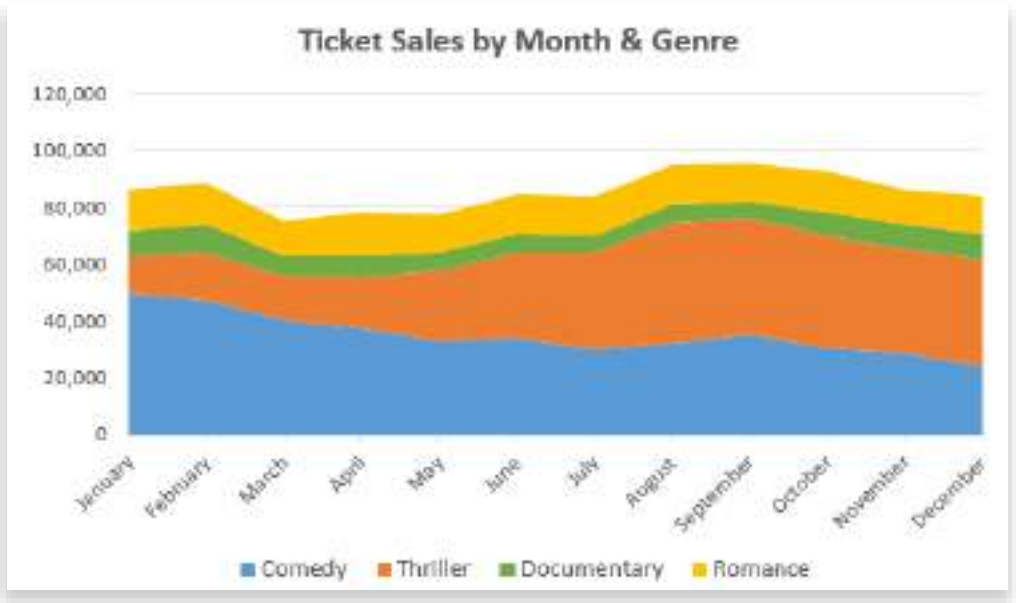
AREA CHARTS

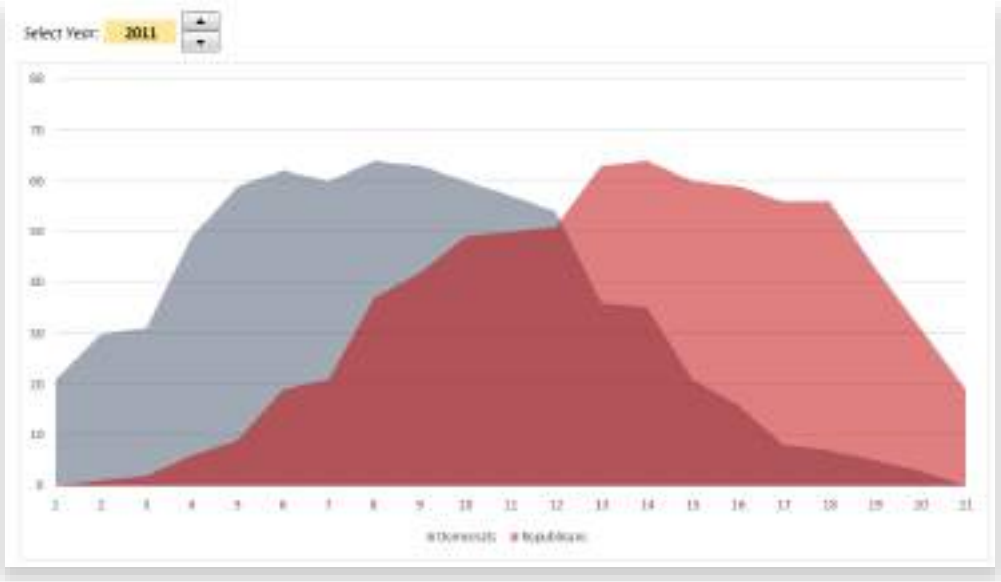
COMMONLY USED FOR:

- **Showing changes in data composition over time**

EXAMPLES:

- *Sales by department, by month*
- *% of total downloads by browser, by week*
- *Population by continent, by decade*

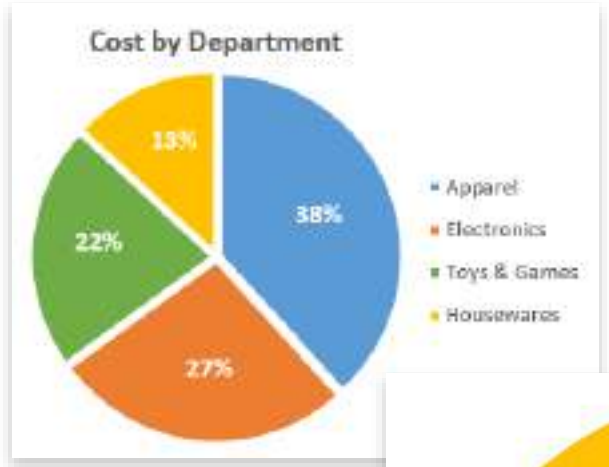




PIE & DONUT CHARTS

COMMONLY USED FOR:

- **Comparing proportions totaling 100%**



EXAMPLES:

- *Percentage of budget spent by department*
- *Proportion of internet users by age range*
- *Breakdown of site traffic by source*

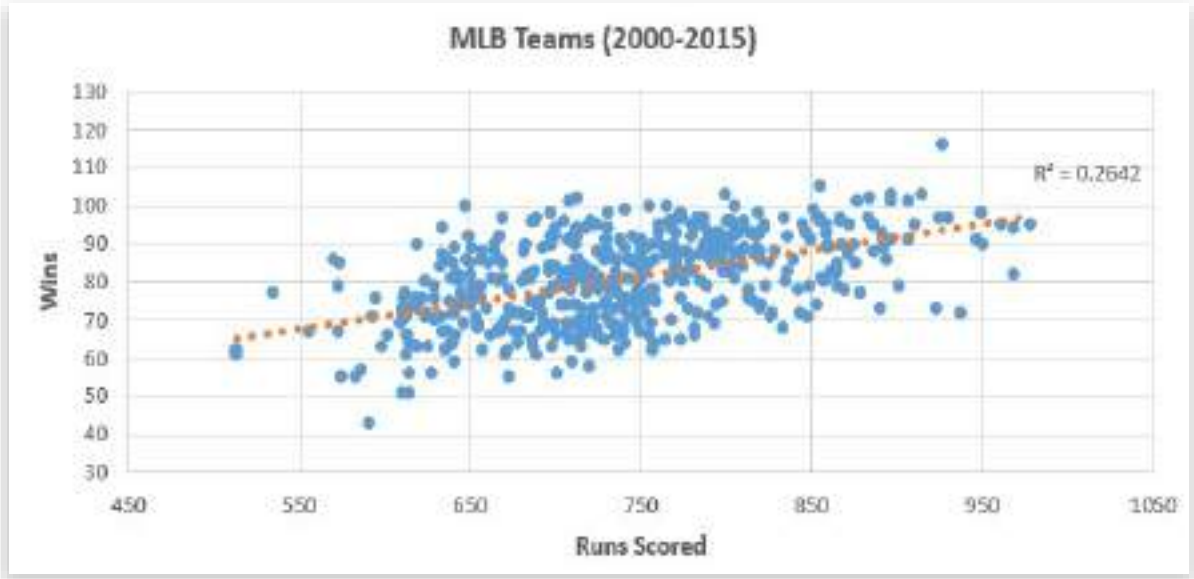
SCATTER PLOTS

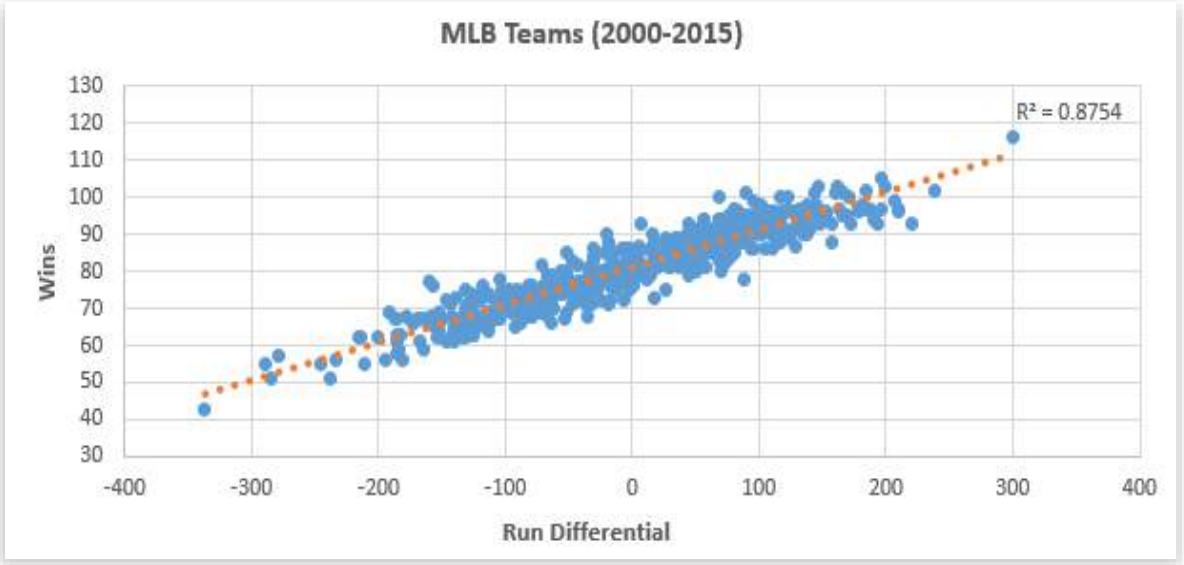
COMMONLY USED FOR:

- **Exploring correlations or relationships between series**

EXAMPLES:

- *Number of home runs and salary by player*
- *Ice cream sales and average temperature by day*
- *Hours of television watched by age*

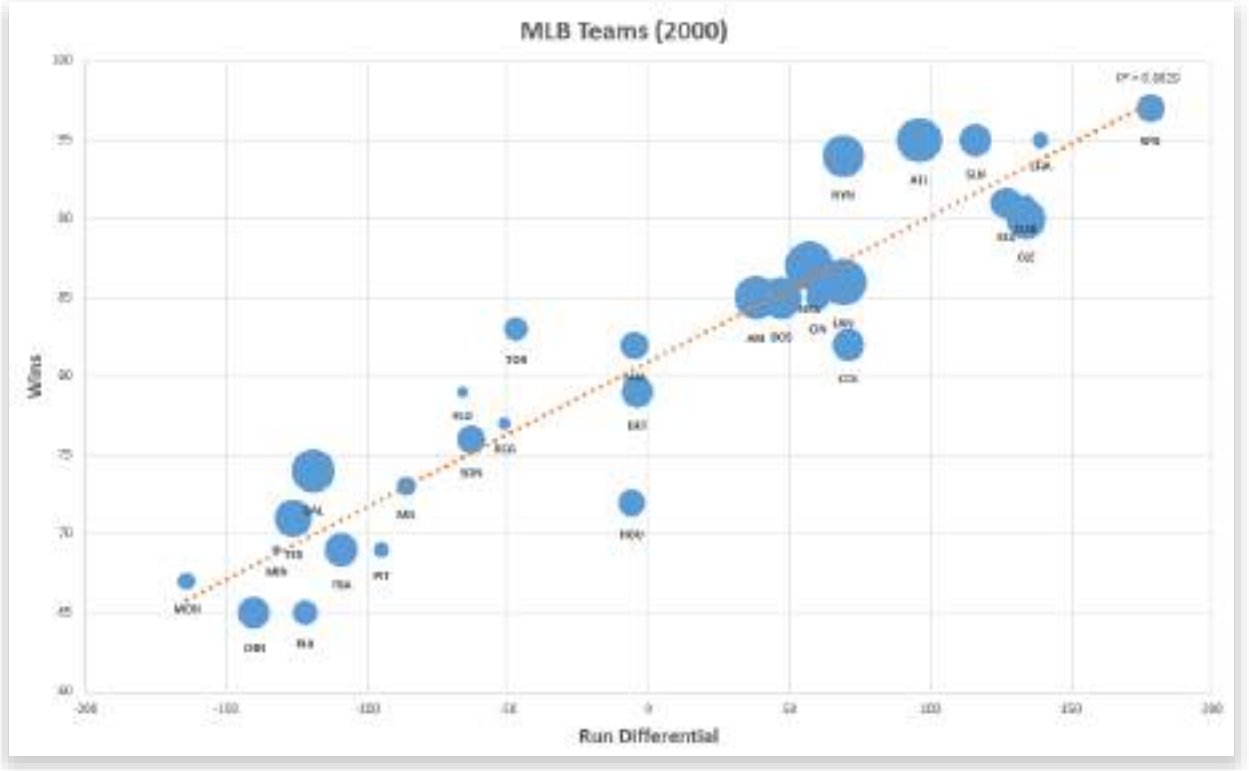




BUBBLE CHARTS

COMMONLY USED FOR:

- **Adding a third dimension (size) to a scatter plot format**



EXAMPLES:

- *Comparing historical annual rainfall across cities*
- *Analyzing distributions of values and identifying outliers*
- *Comparing mean and median height/weight by country*

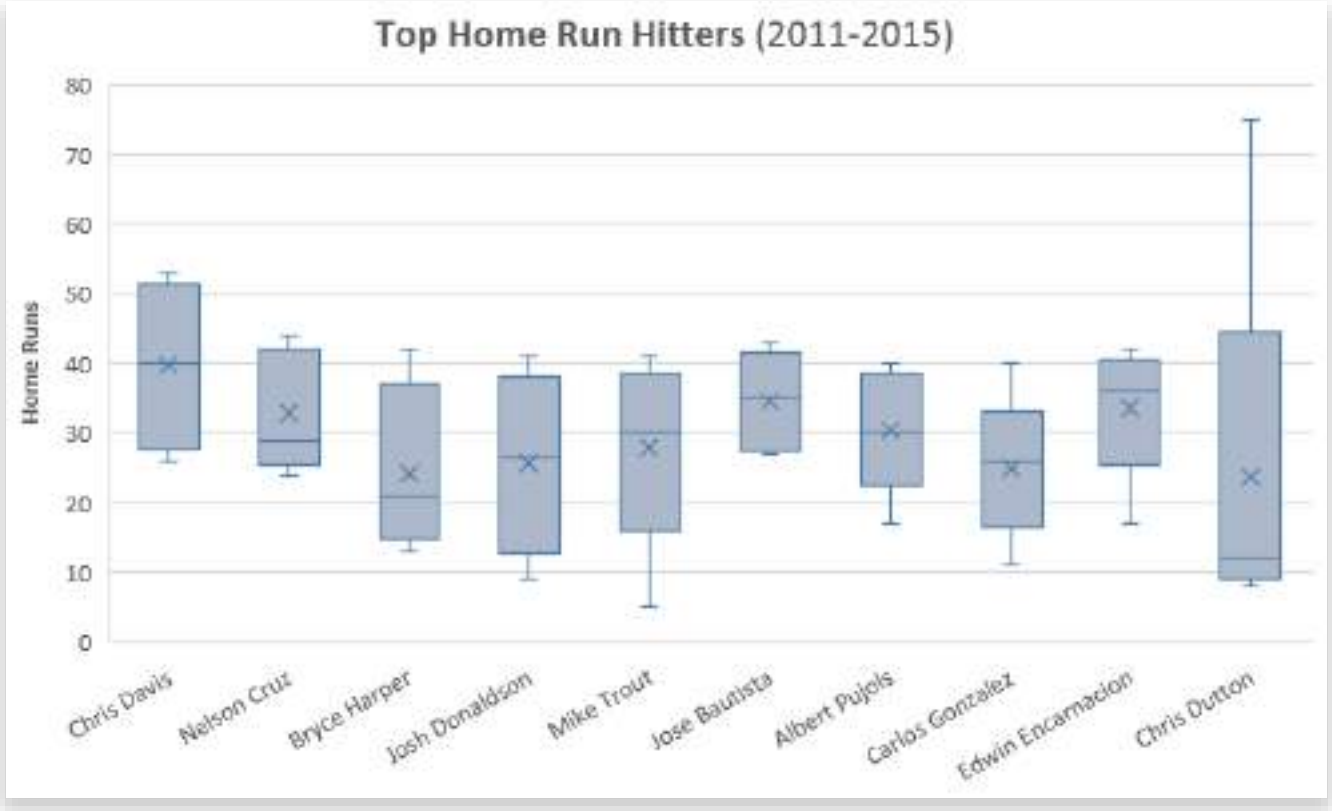
BOX & WHISKER CHARTS

COMMONLY USED FOR:

- **Visualizing statistical characteristics across data series**

EXAMPLES:

- *Comparing historical annual rainfall across cities*
- *Analyzing distributions of values and identifying outliers*
- *Comparing mean and median height/weight by country*



TREE MAPS & SUNBURST CHARTS

COMMONLY USED FOR:

- **Visualizing hierarchical data with natural groups/sub-groups**

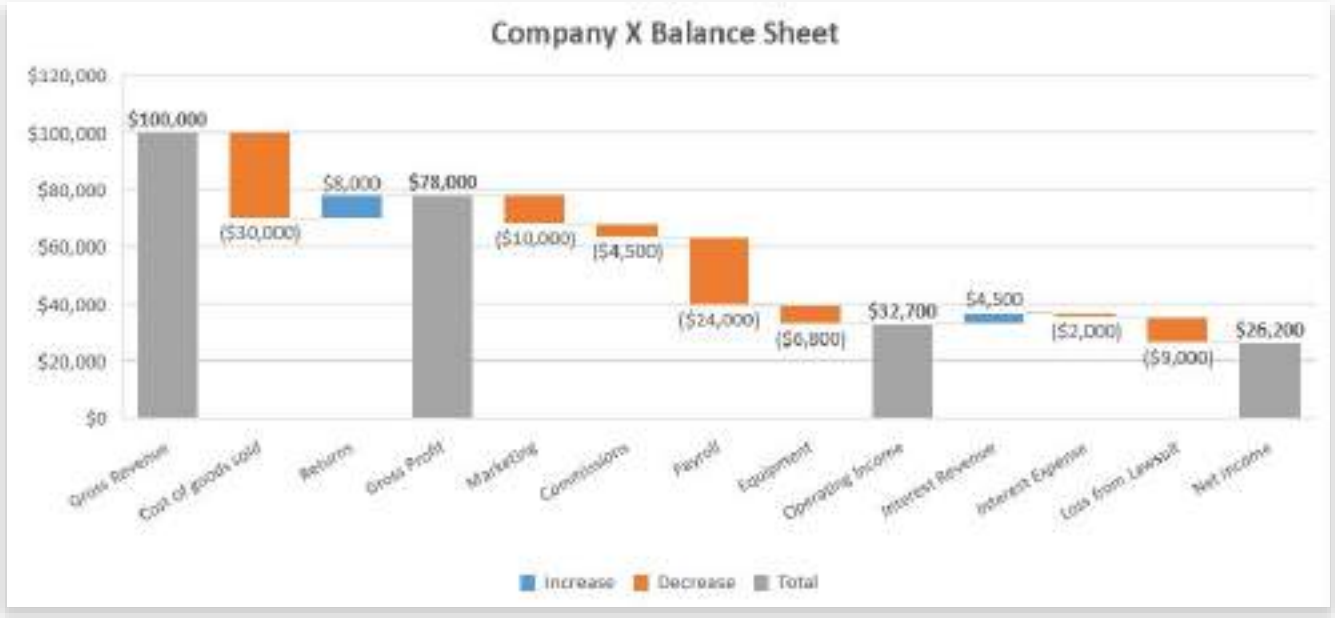
EXAMPLES:

- *Revenue by Book Title, Sub-Genre, and Genre*
- *Number of Employees by Department and Office*
- *Population by City, State, and Region*

WATERFALL CHARTS

COMMONLY USED FOR:

- **Showing the net value after a series of positive and negative contributions**



EXAMPLES:

- *Corporate balance sheet analysis*
- *Personal income and spending*

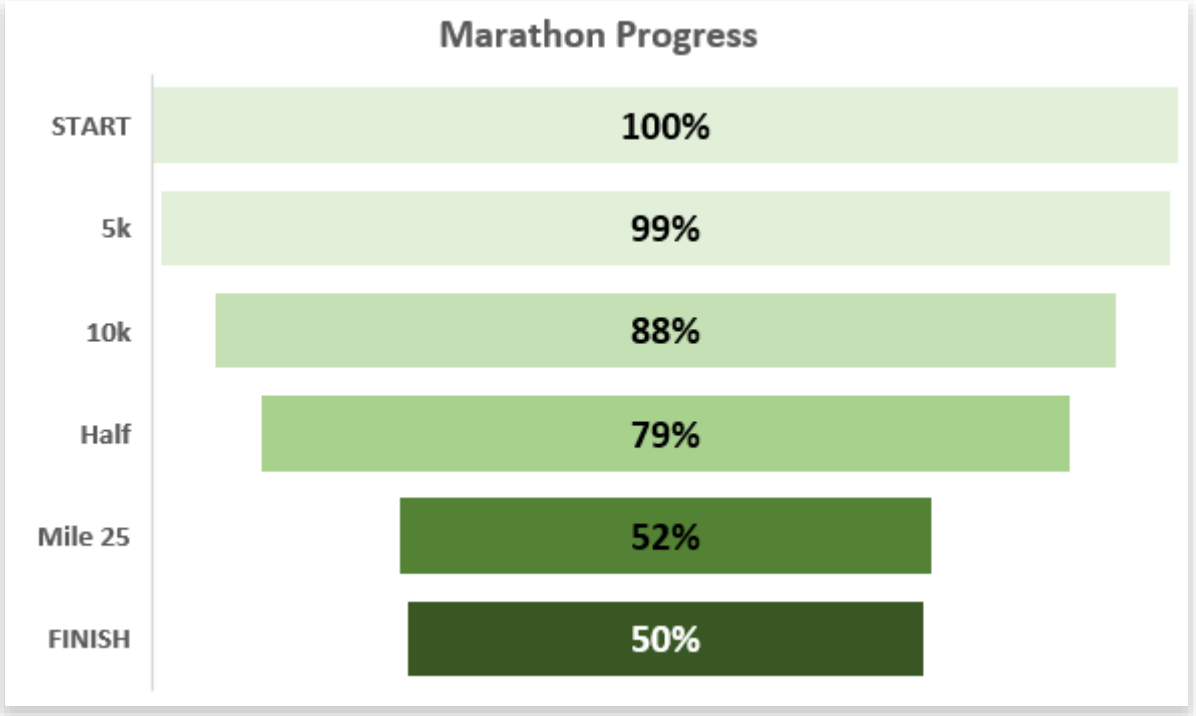
FUNNEL CHARTS

COMMONLY USED FOR:

- **Showing progress through the stages of a funnel**

EXAMPLES:

- *Volume of views, clicks, and sales on an ecomm site*
- *Number of runners who reach each checkpoint in a marathon (5k, 10k, half, etc.)*



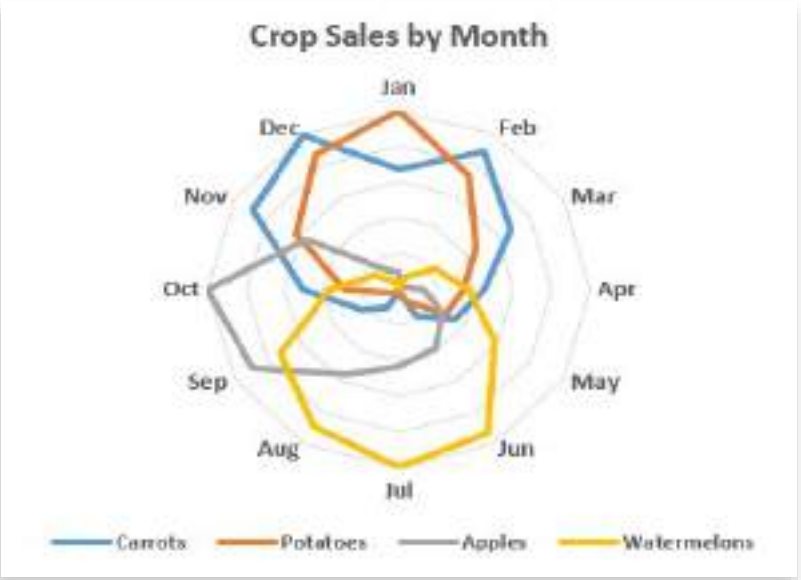
RADAR CHARTS

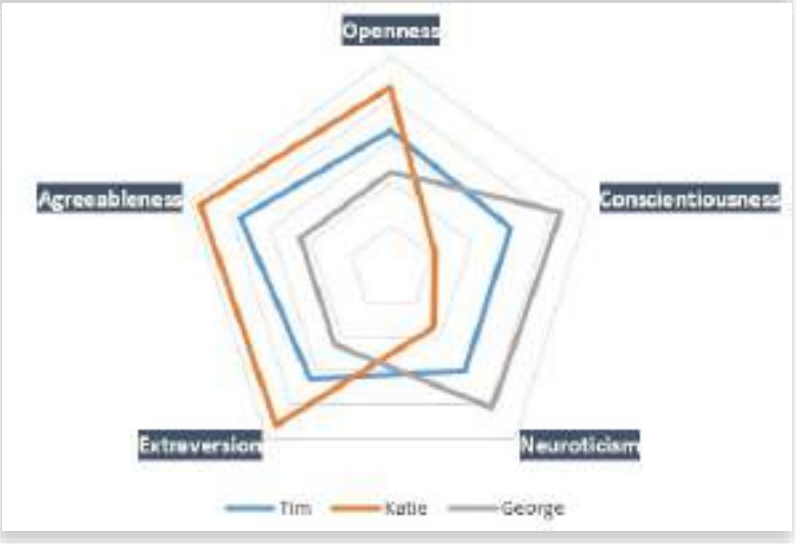
COMMONLY USED FOR:

- **Plotting three or more quantitative variables on a two-dimensional chart, relative to a central point**

EXAMPLES:

- *Comparing test scores across multiple subjects*
- *Sales of different types of vegetables, by month*
- *Visualizing personality test results across subjects*





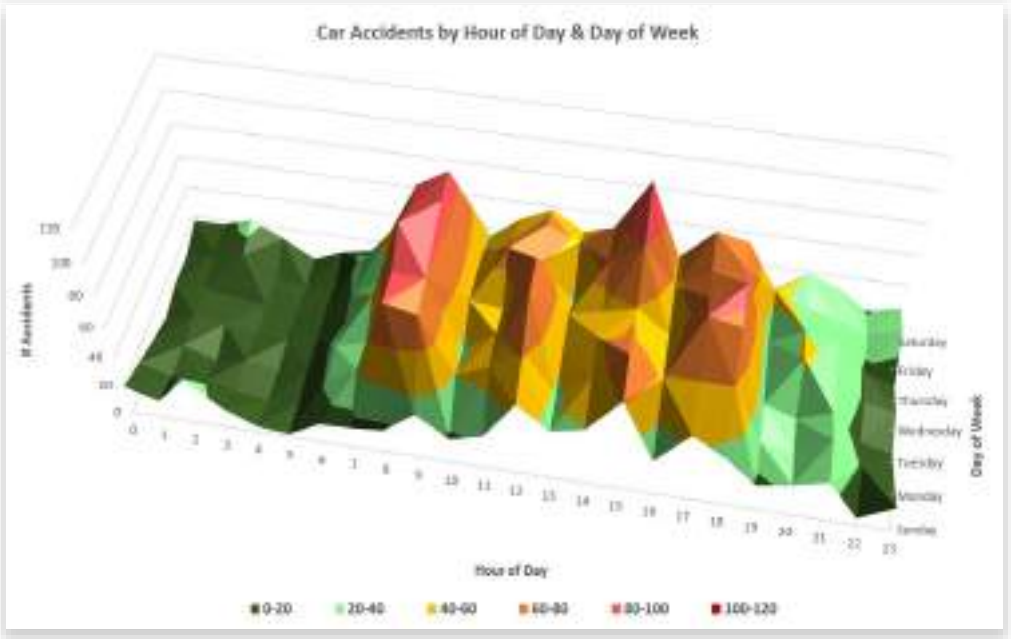
SURFACE & CONTOUR CHARTS

COMMONLY USED FOR:

- **Plotting data in three dimensions to find optimum combinations of values**

EXAMPLES:

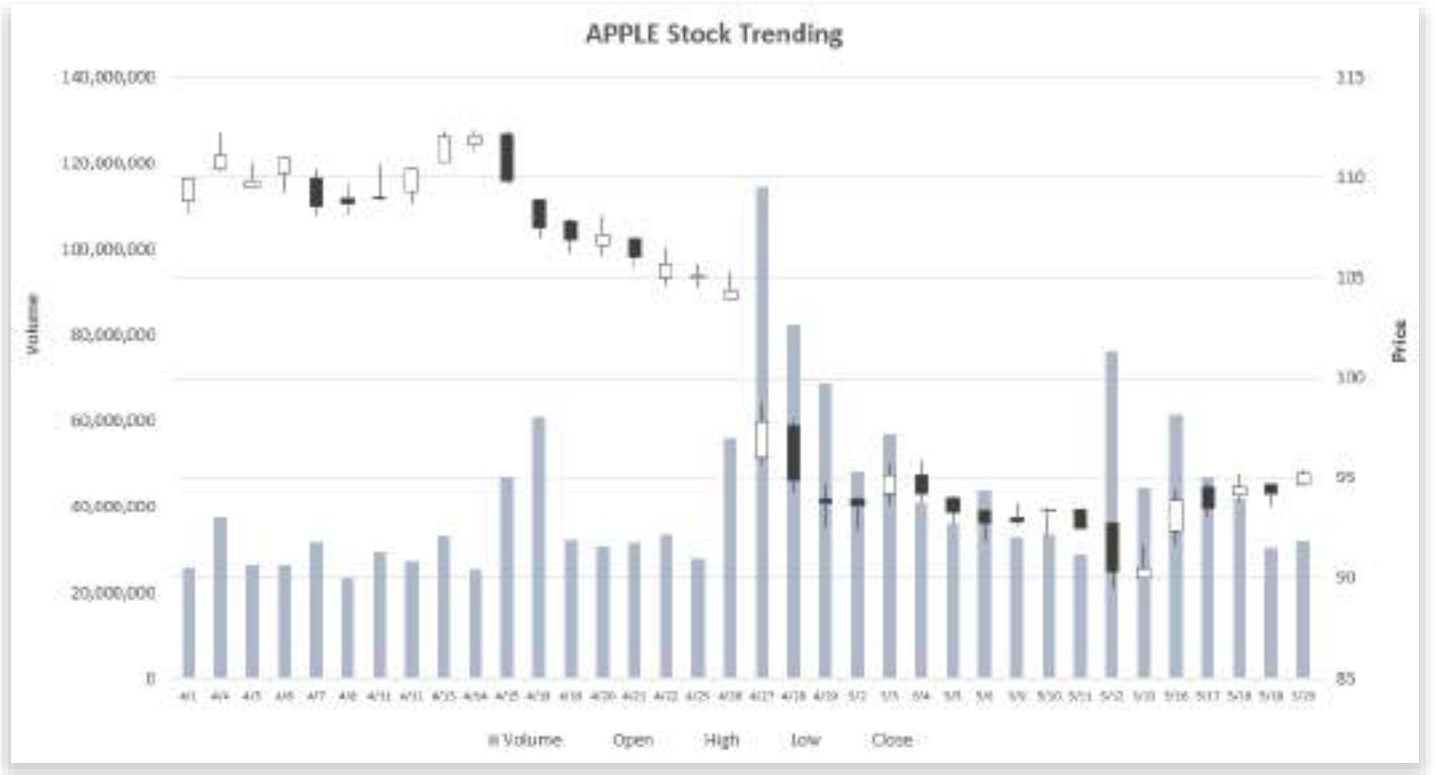
- *Accident rates by hour of day and day of week*
- *Elevation by latitude and longitude*
- *Cookie deliciousness by oven temp and baking time*



STOCK CHARTS

COMMONLY USED FOR:

- **Visualizing stock market data, including volume, high, low, open, and closing prices**



EXAMPLES:

- *Facebook's daily stock performance in 2015*
- *High, low, and closing prices for Google in Q1*
- *Relative performance across multiple stocks*

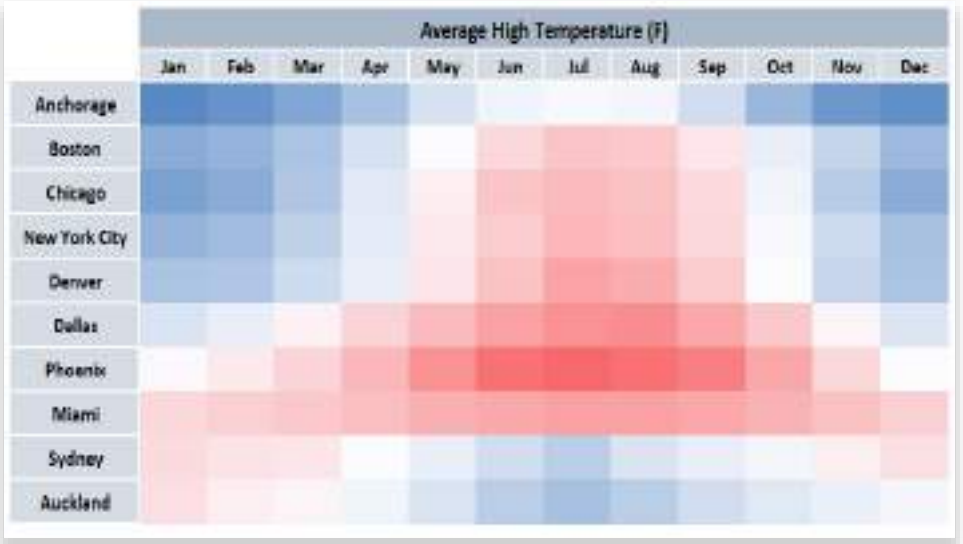
HEAT MAPS

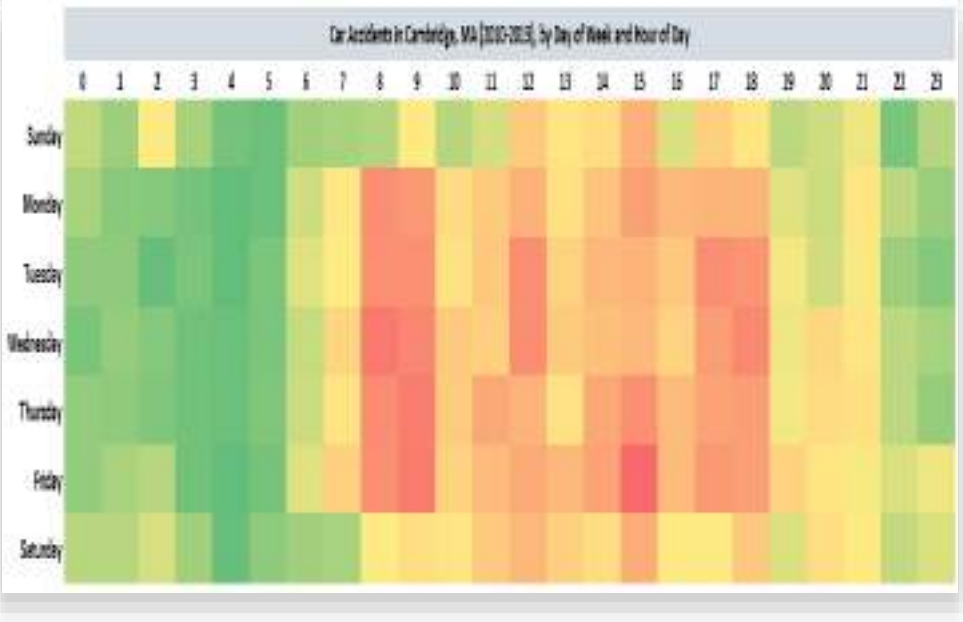
COMMONLY USED FOR:

- **Visualizing trends or relationships using color scales**

EXAMPLES:

- *Accident rates by time of day and day of week*
- *Average temperature by city, by month*
- *Average sentiment by hashtag*





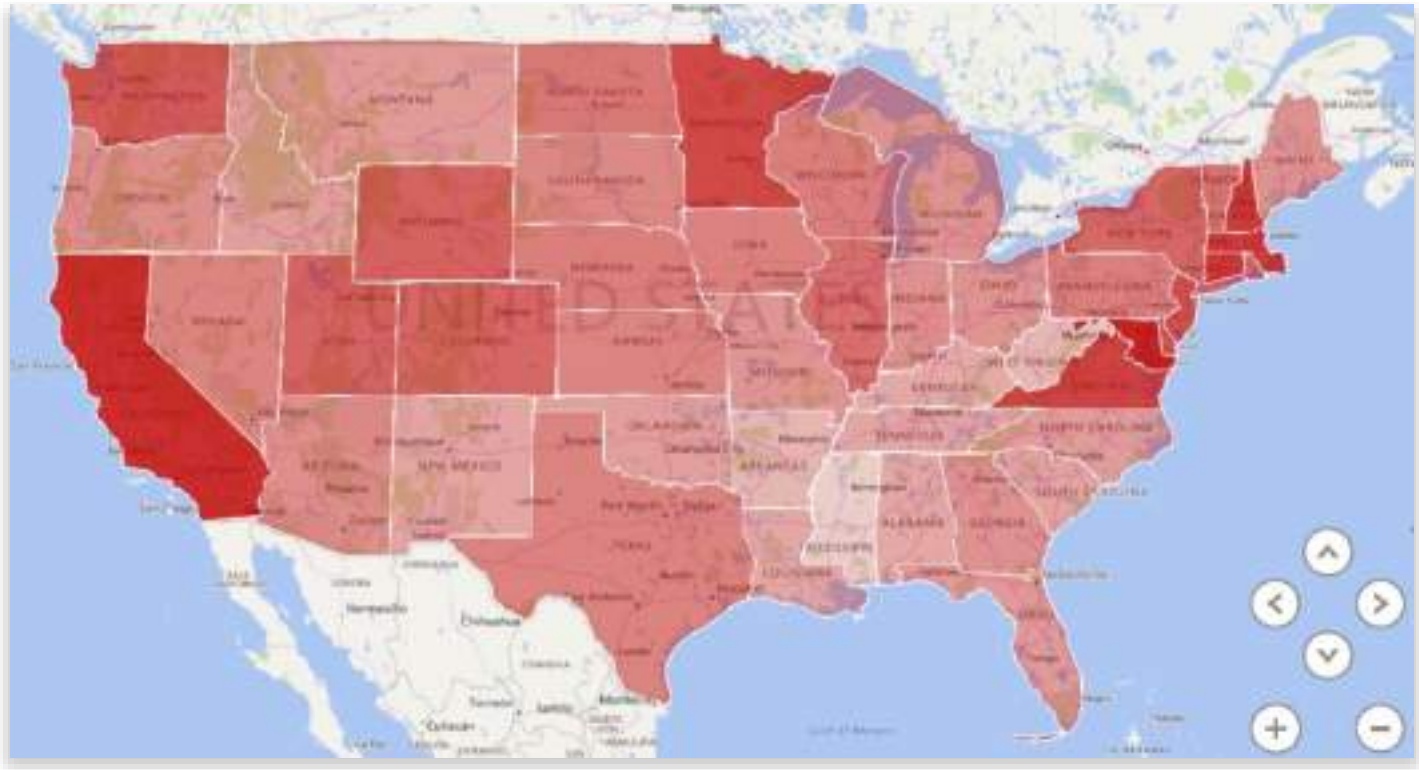
GEOSPATIAL/CHOROPLETH MAP

COMMONLY USED FOR:

- **Visualizing location-based data**

EXAMPLES:

- *Frequency of accidents by street address*
- *Unemployment rate by country*
- *Average rainfall by state*



End.

Thank You for listening