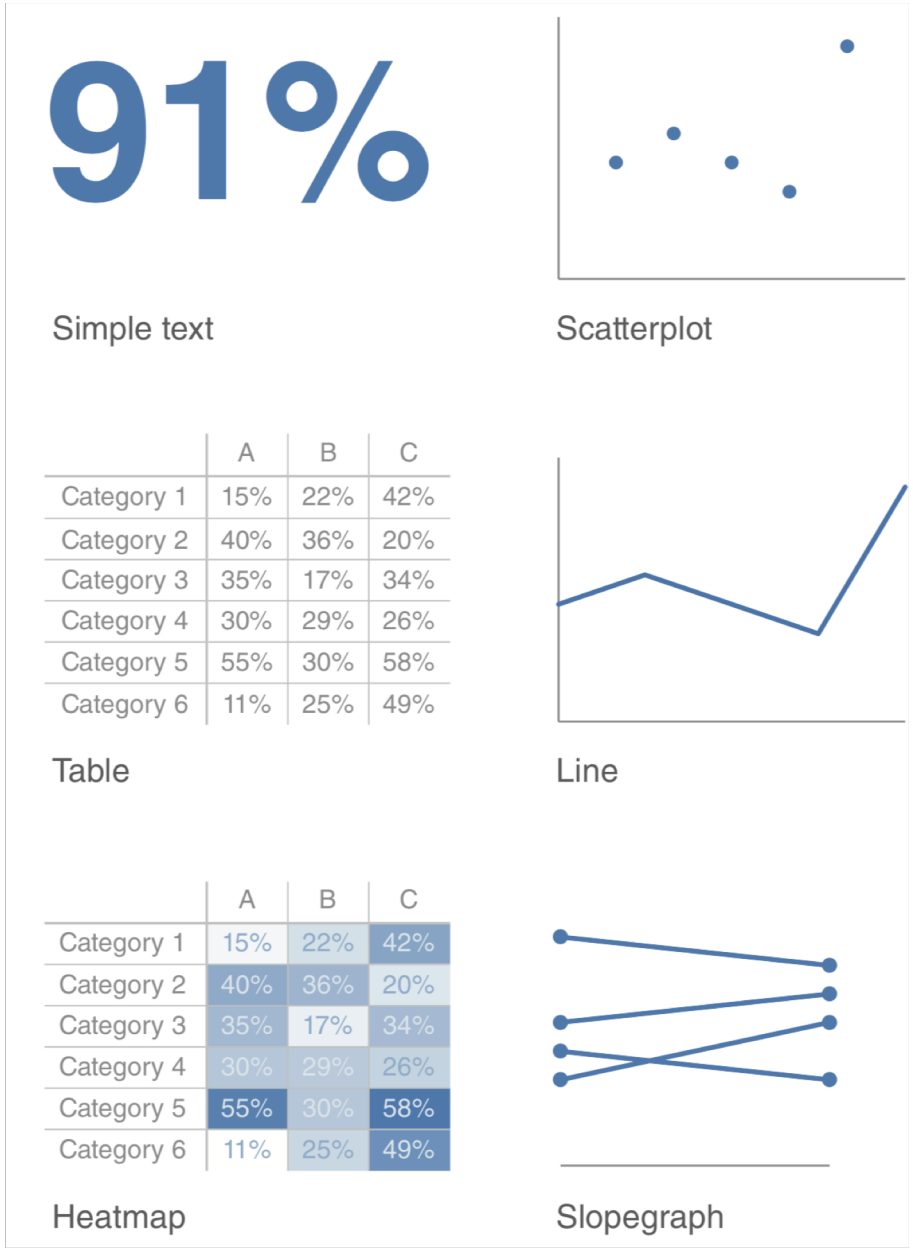
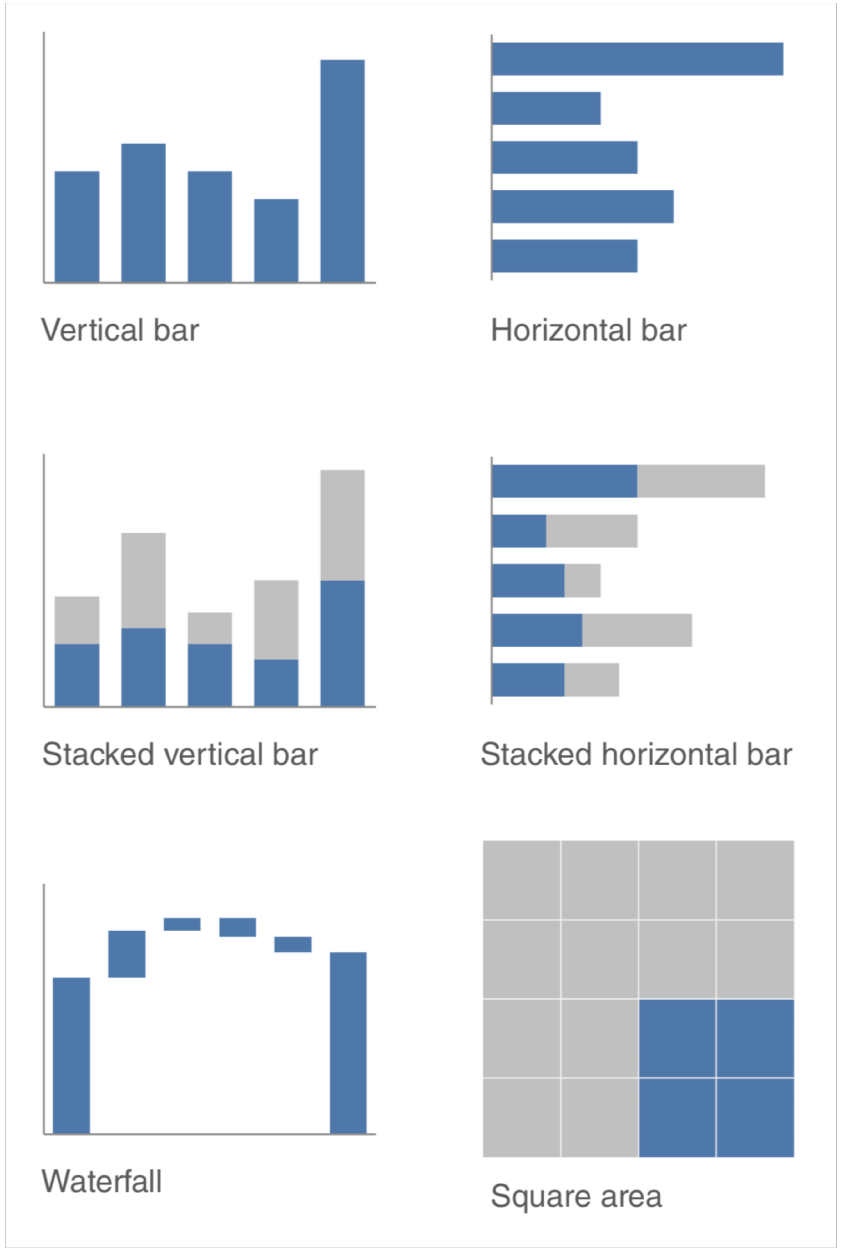
AGENDA

- Review LA #2 & Questions
- Lecture on Chapter 2

CH. 2 CHOOSING AN EFFECTIVE VISUAL

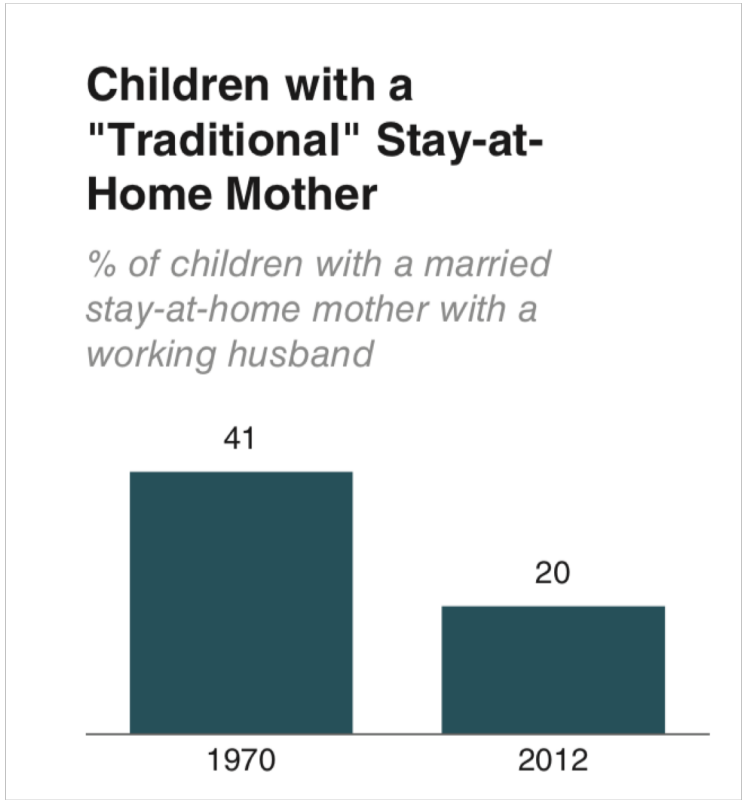
FEBRUARY 12, 2019


91%
Simple text
Scatterplot
A B C
Category 1 15% 22% 42%
Category 2 40% 36% 20%
Category 3 35% 17% 34%
Category 4 30% 29% 26%
Category 5 55% 30% 58%
Category 6 11% 25% 49%
Table
Line
A B C
Category 1 15% 22% 42%
Category 2 40% 36% 20%
Category 3 35% 17% 34%
Category 4 30% 29% 26%
Category 5 55% 30% 58%
Category 6 11% 25% 49%
Heatmap
Slopegraph


Vertical bar
Horizontal bar
Stacked vertical bar
Stacked horizontal bar
Waterfall
Square area

SIMPLE TEXT

- 1-2 numbers to share
- Helps emphasize a data point
- Has to be important



20%

of children had a
traditional stay-at-home mom
in 2012, compared to 41% in 1970

TABLE

- We typically read tables like intersections
- Rows and columns
- Emphasize prominent data in the table

Order #	First Name	Last Name	Sales	Country
1	Will	Smith	$16,753.00	UK
2	Randy	Johnson	$14,808.00	USA
3	Nate	Williams	$10,644.00	UK
4	Jimmy	Jones	$1,390.00	USA
5	John	Brown	$4,865.00	USA
6	Nate	Williams	$12,438.00	UK
7	Randy	Johnson	$9,339.00	UK

Heavy borders

Group	Metric A	Metric B	Metric C
Group 1	$X.X	Y%	Z,ZZZ
Group 2	$X.X	Y%	Z,ZZZ
Group 3	$X.X	Y%	Z,ZZZ
Group 4	$X.X	Y%	Z,ZZZ
Group 5	$X.X	Y%	Z,ZZZ

Light borders

Group	Metric A	Metric B	Metric C
Group 1	$X.X	Y%	Z,ZZZ
Group 2	$X.X	Y%	Z,ZZZ
Group 3	$X.X	Y%	Z,ZZZ
Group 4	$X.X	Y%	Z,ZZZ
Group 5	$X.X	Y%	Z,ZZZ

Minimal borders

Group	Metric A	Metric B	Metric C
Group 1	$X.X	Y%	Z,ZZZ
Group 2	$X.X	Y%	Z,ZZZ
Group 3	$X.X	Y%	Z,ZZZ
Group 4	$X.X	Y%	Z,ZZZ
Group 5	$X.X	Y%	Z,ZZZ

HEATMAP

Table

	A	B	C
Category 1	15%	22%	42%
Category 2	40%	36%	20%
Category 3	35%	17%	34%
Category 4	30%	29%	26%
Category 5	55%	30%	58%
Category 6	11%	25%	49%

Heatmap

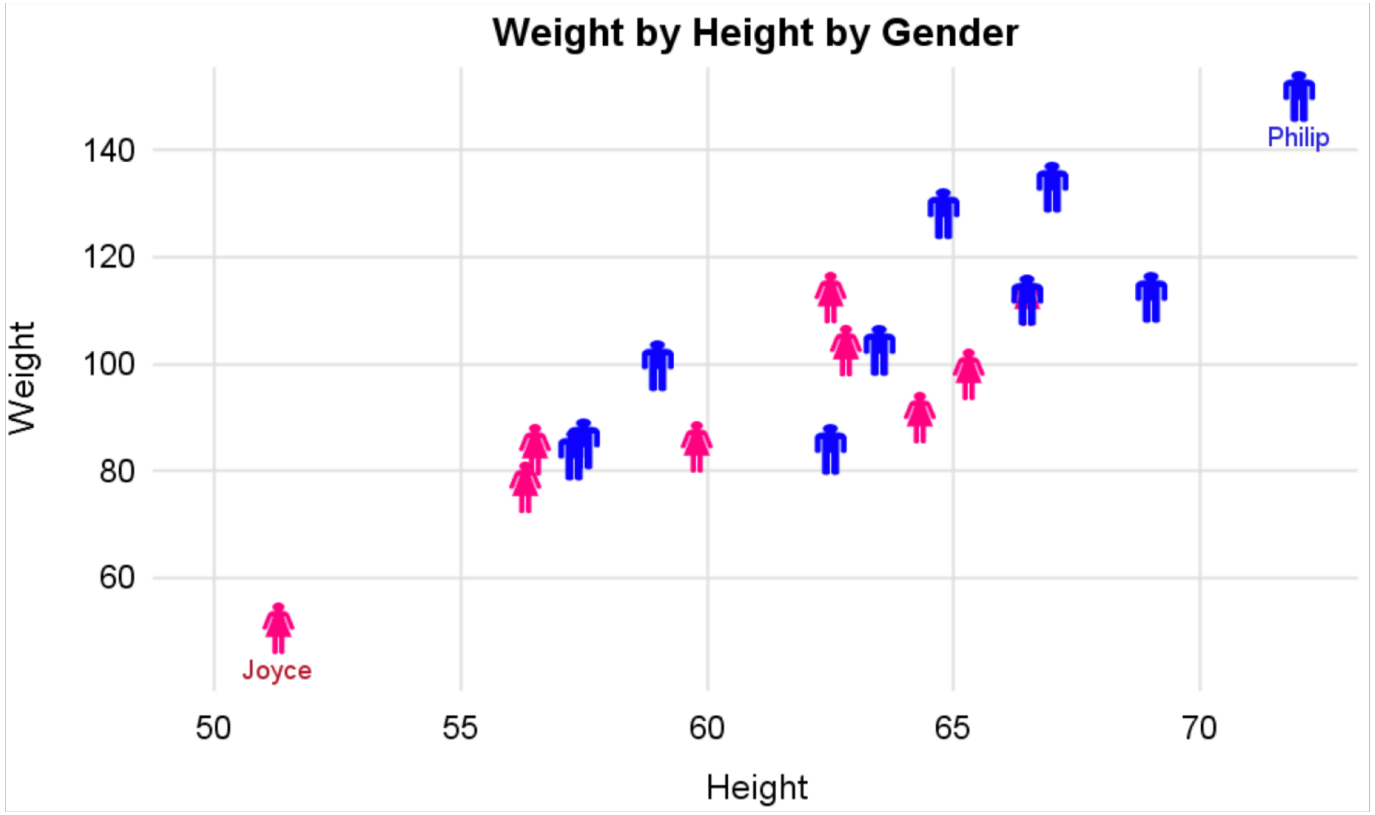
LOW-**HIGH**

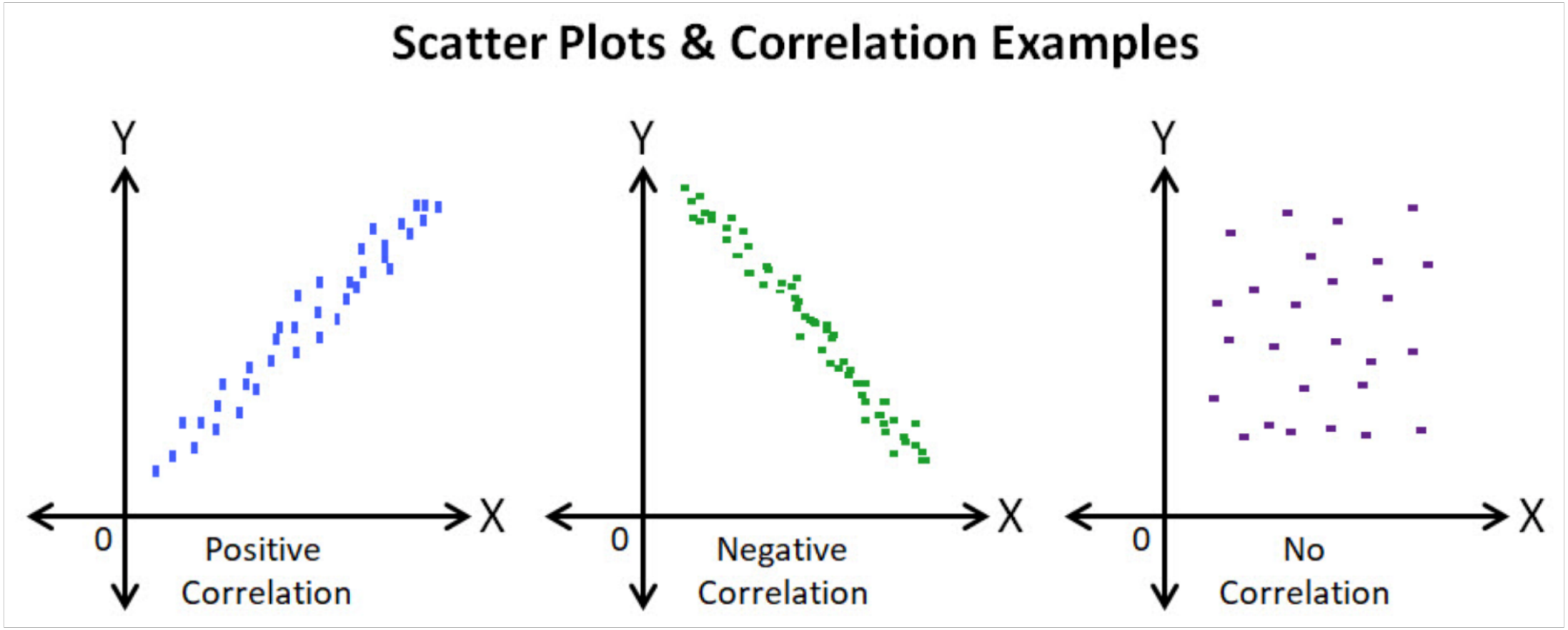
	A	B	C
Category 1	15%	22%	42%
Category 2	40%	36%	20%
Category 3	35%	17%	34%
Category 4	30%	29%	26%
Category 5	55%	30%	58%
Category 6	11%	25%	49%

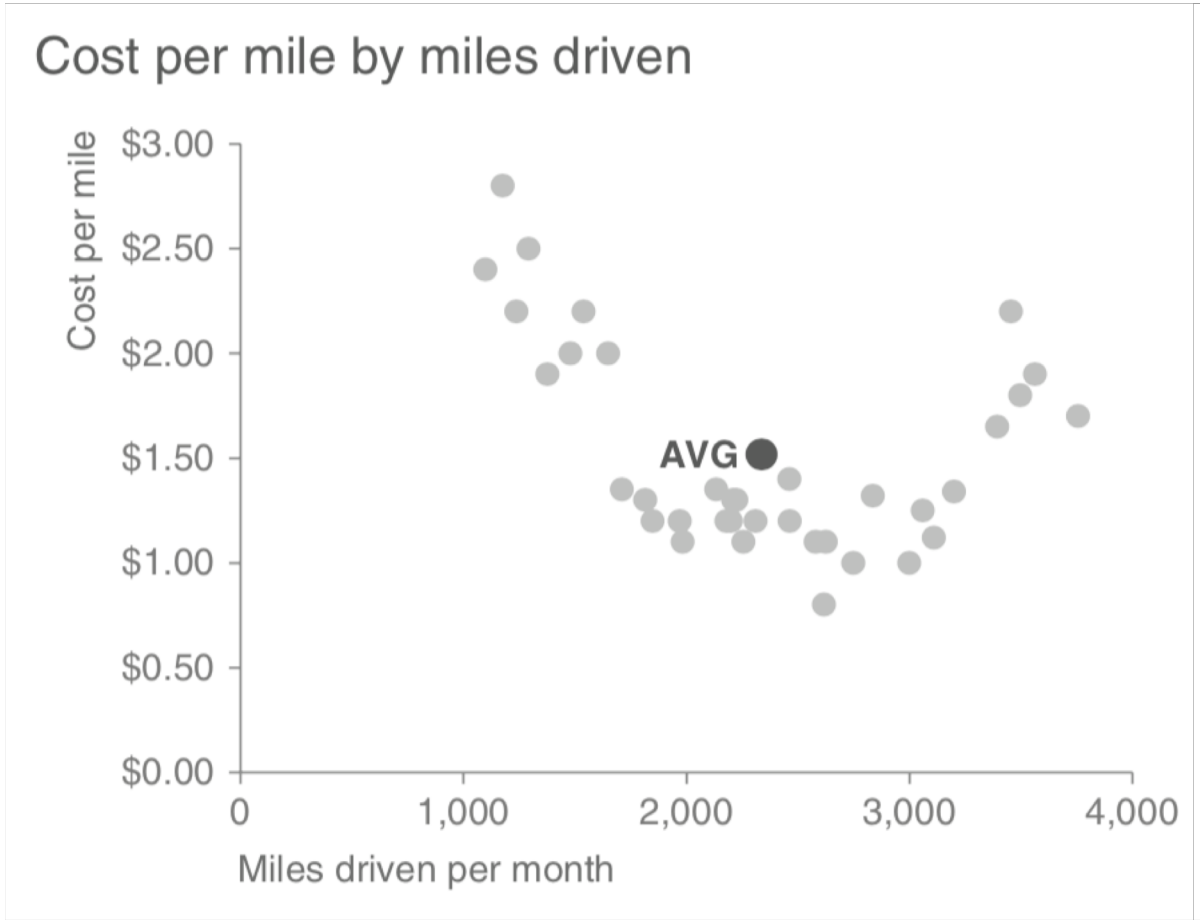
- Colored/Shaded cells convey magnitude
  - Helps with visual cues

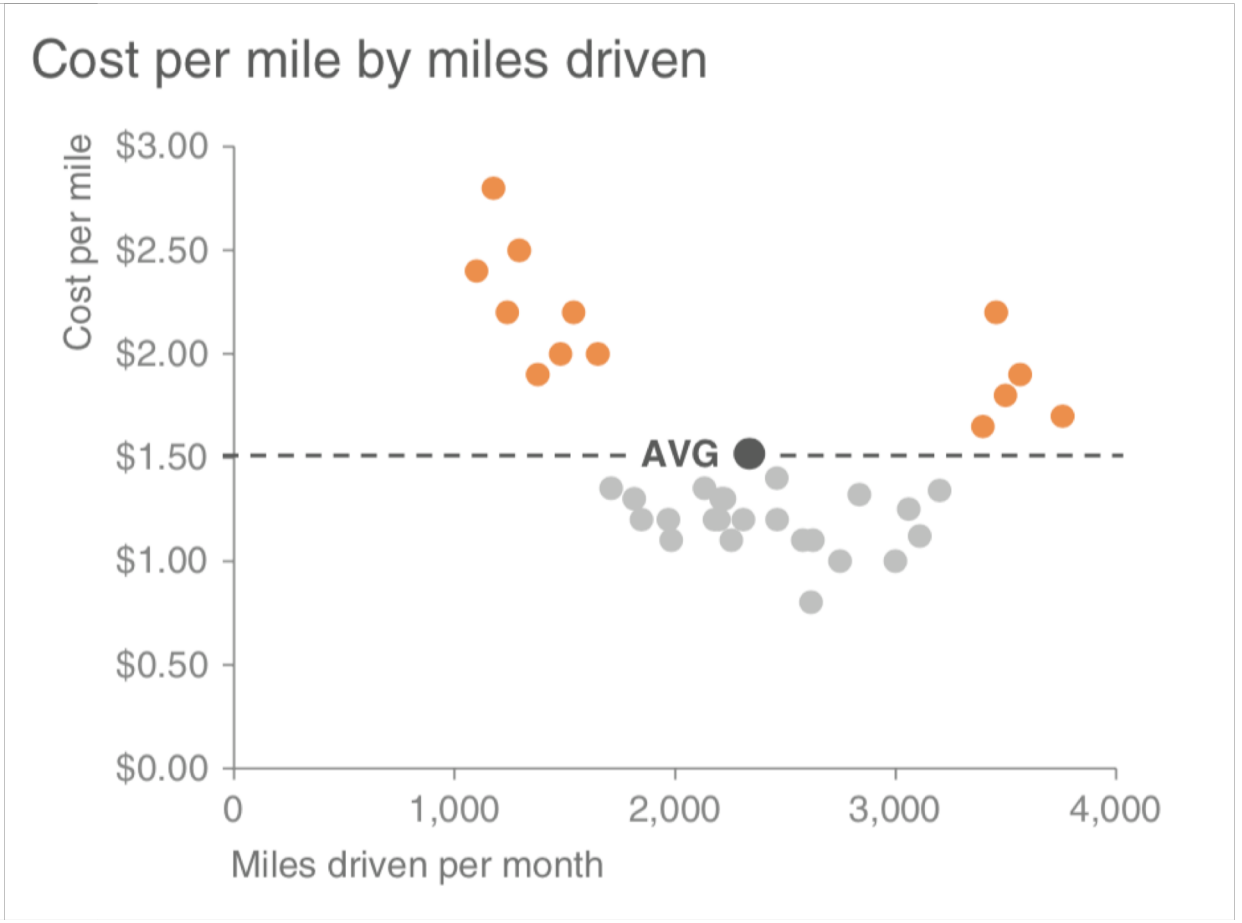
SCATTERPLOT

- Shows the relationship between two items
- X-axis & Y-axis
- Identify whether there is a relationship
- Correlation vs. causation



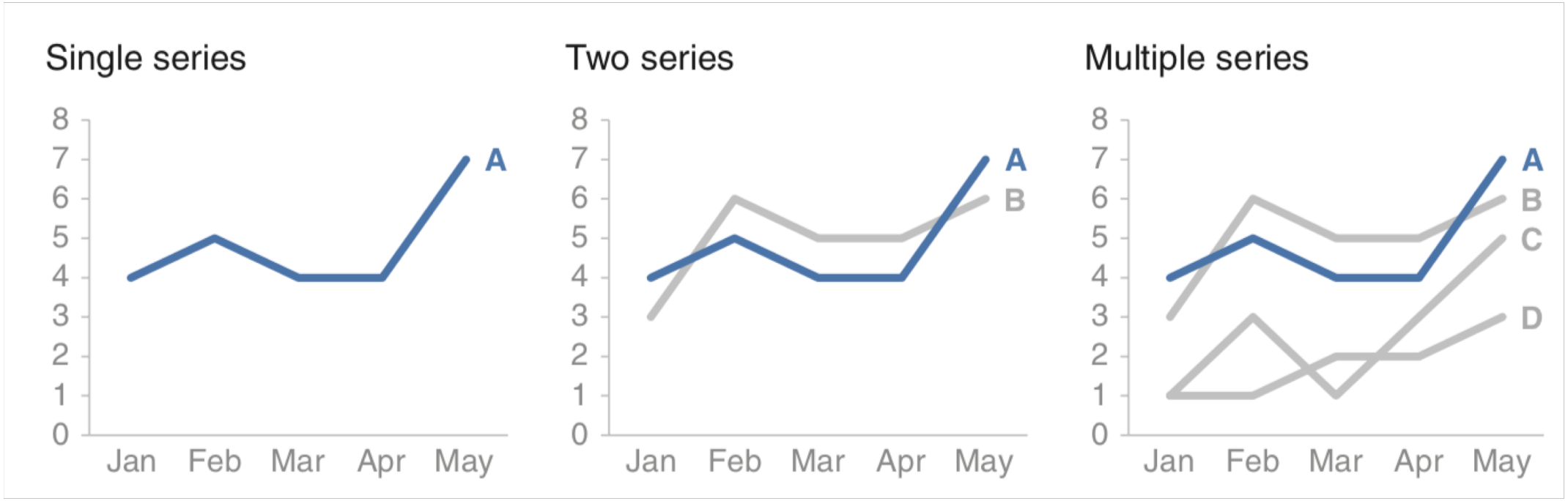

Scatter Plots & Correlation Examples
Y
X
0
Positive
Correlation
Y
X
0
Negative
Correlation
Y
X
0
No
Correlation

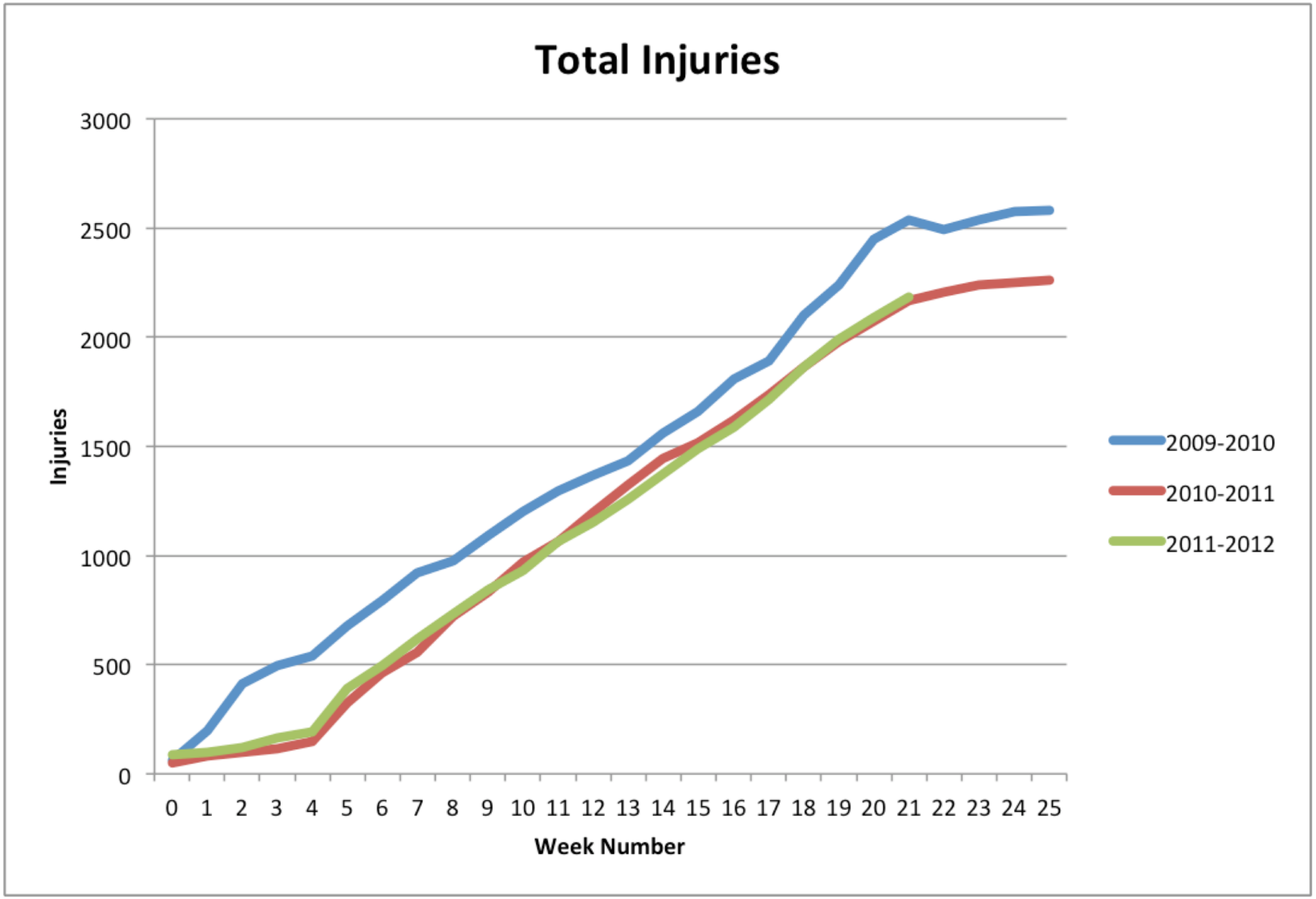

Cost per mile by miles driven
Cost per mile
$3.00
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
AVG
0
1,000
2,000
3,000
4,000
Miles driven per month

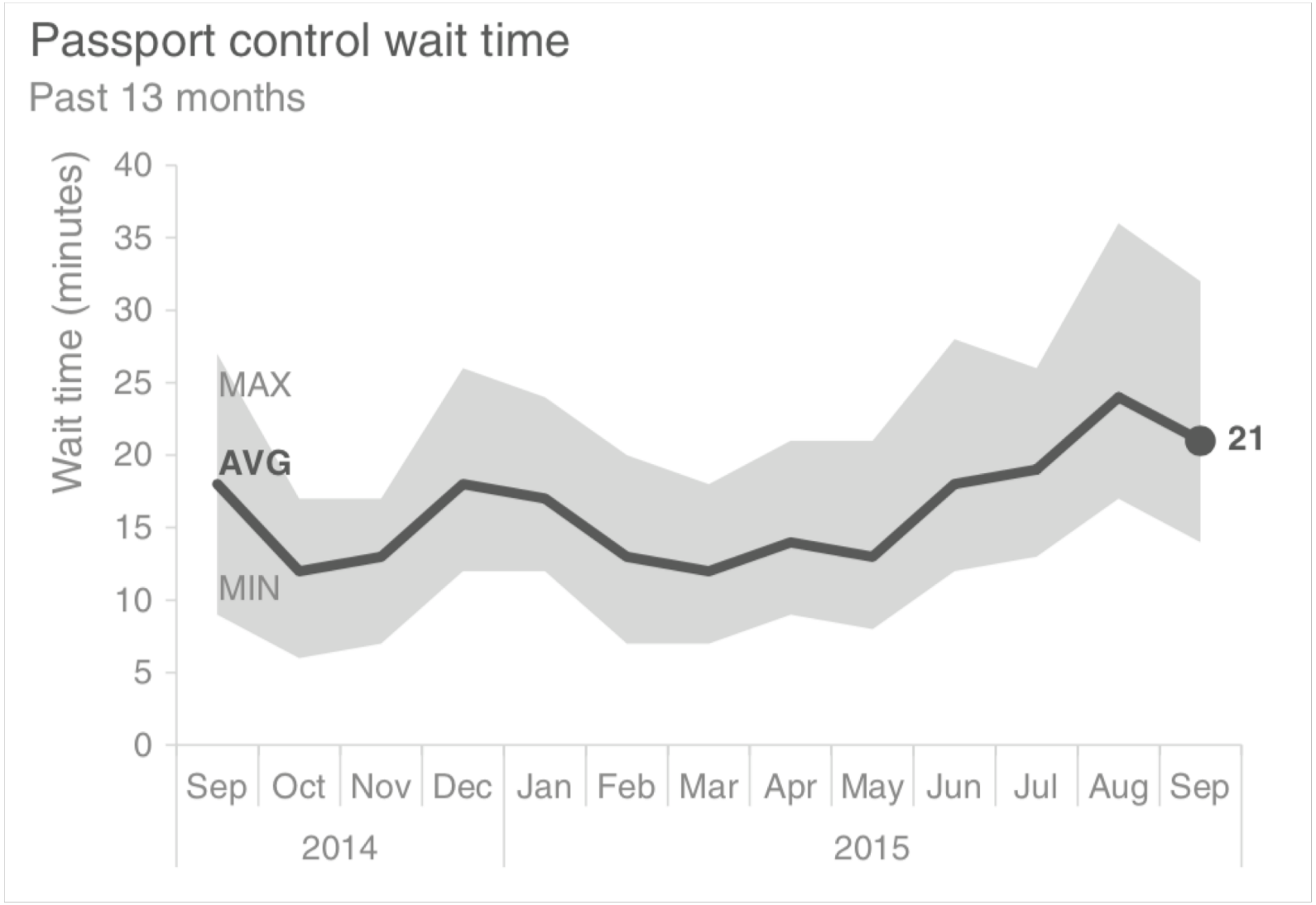

Cost per mile by miles driven
Cost per mile
$3.00
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
AVG
0
1,000
2,000
3,000
4,000
Miles driven per month

LINE

- Most commonly used graphs
- Continuous data connected by a line
- Most common units: day, months, quarters, years
- X-axis must be consistent
- You can add multiple series to the graph


Single series
8
7
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
A
Two series
8
7
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
A
B
Multiple series
8
7
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
A
B
C
D


Total Injuries
3000
2500
2000
1500
1000
500
0
Injuries
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Week Number
2009-2010
2010-2011
2011-2012


Passport control wait time
Past 13 months
Wait time (minutes)
40
35
30
25
20
15
10
5
0
MAX
AVG
MIN
21
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
2014
2015

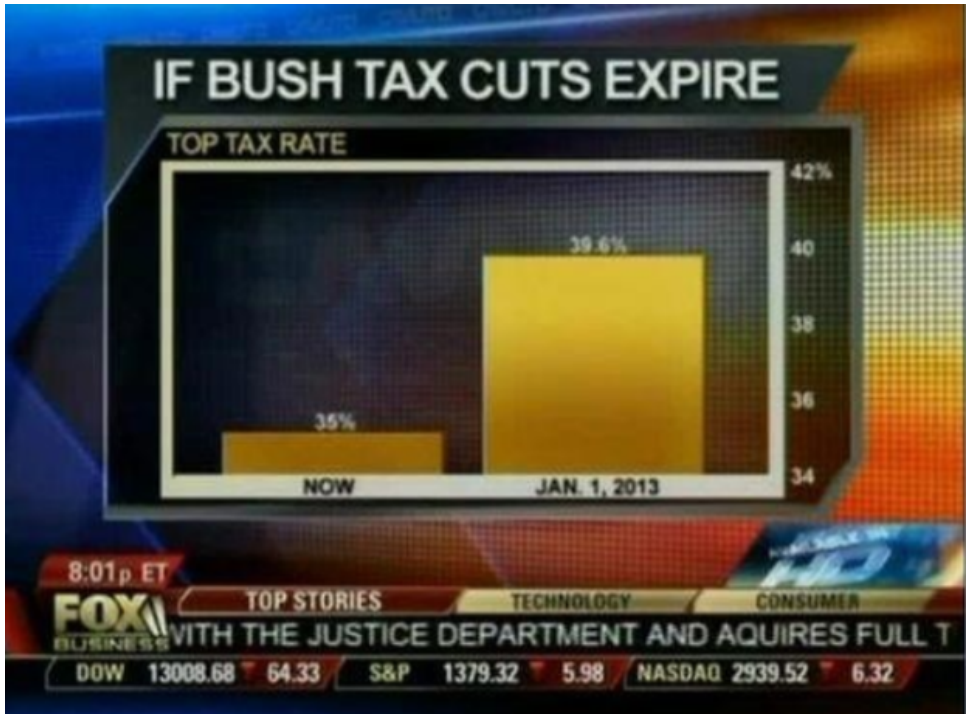
SLOPEGRAPH

- Show points of comparison
- Show increase/decrease between two data point
- Show rate of change
- Loaded graphs

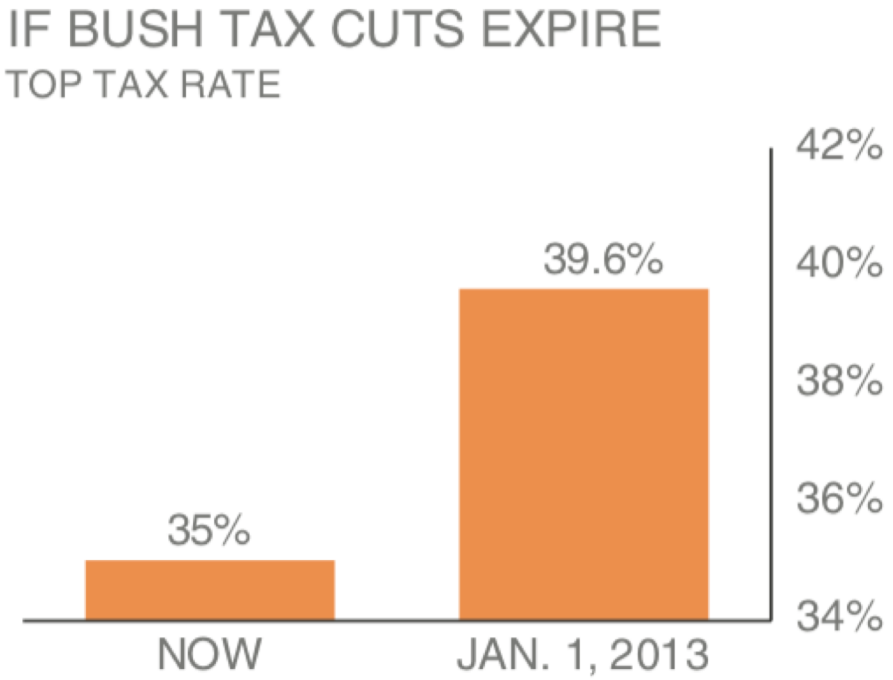
Employee feedback over time

VERTICAL BAR CHART

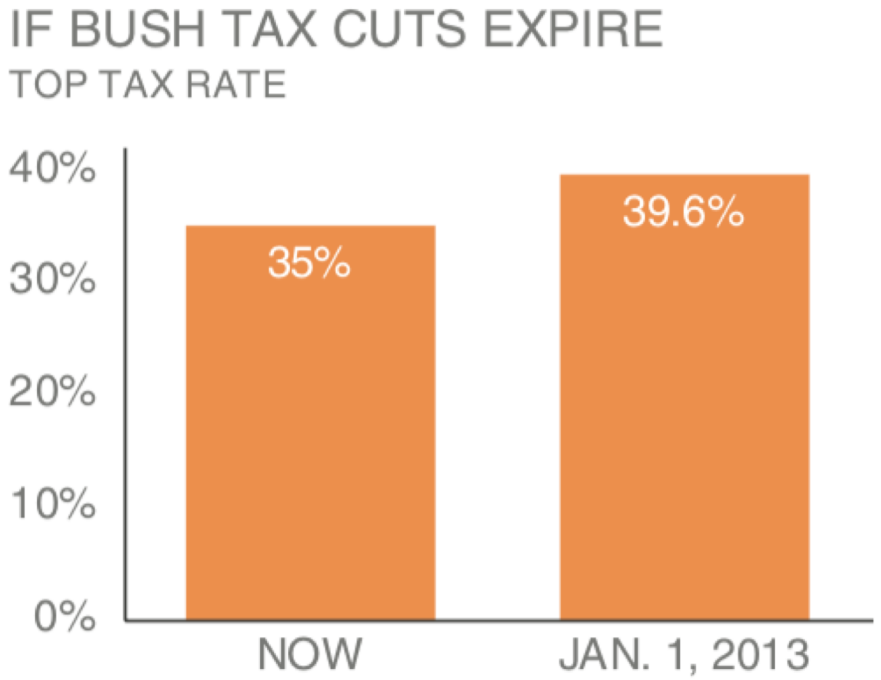
- DO NOT avoid bar charts because they are basic
- X-axis & Y-axis
- Easy to read and understand
- Use a zero baseline

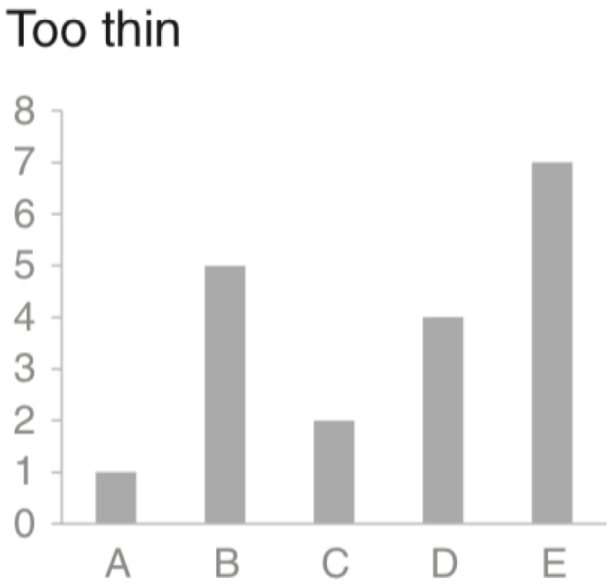


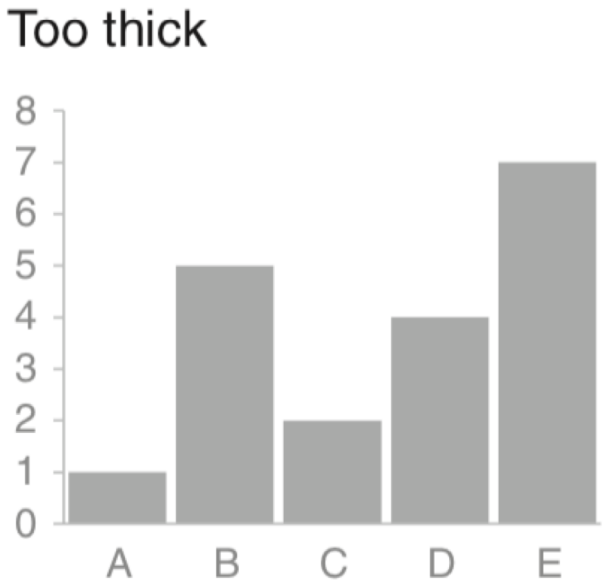
Non-zero baseline: as originally graphed

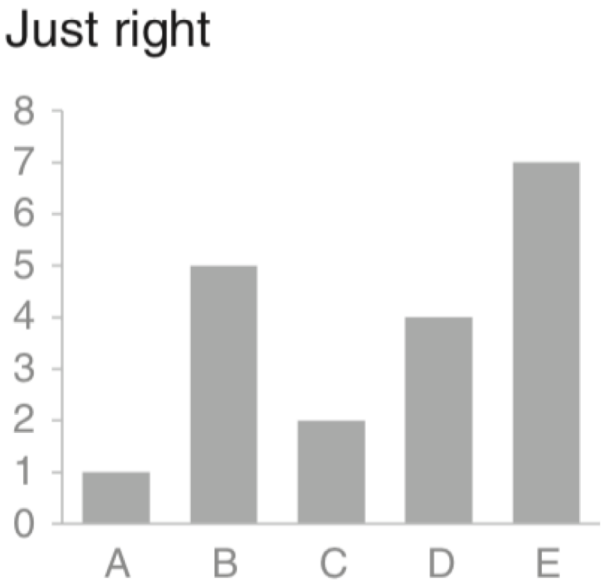


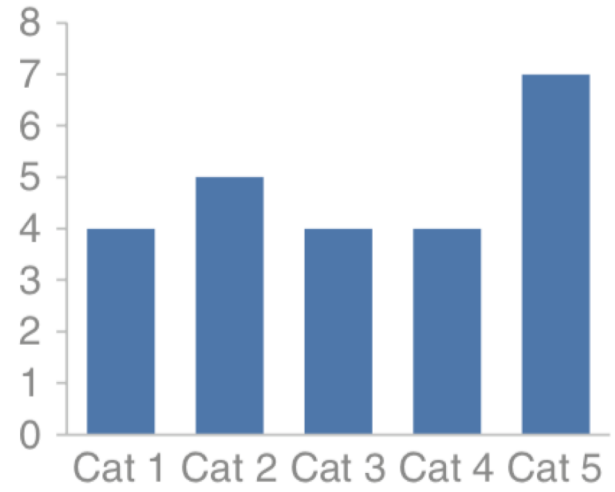
Zero baseline: as it should be graphed

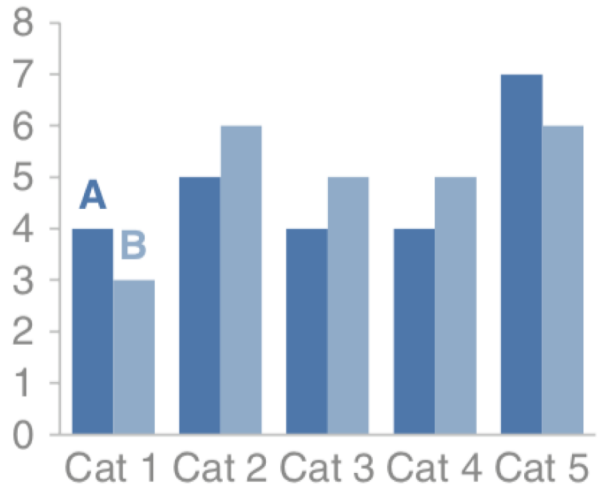


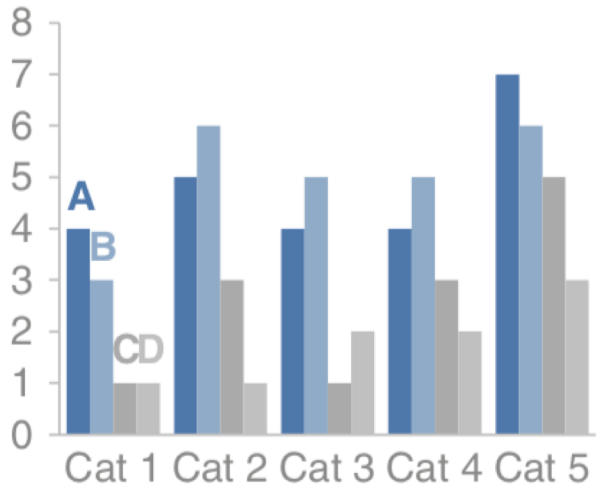

Too thin
8
7
6
5
4
3
2
1
0
A
B
C
D
E


Too thick
8
7
6
5
4
3
2
1
0
A
B
C
D
E

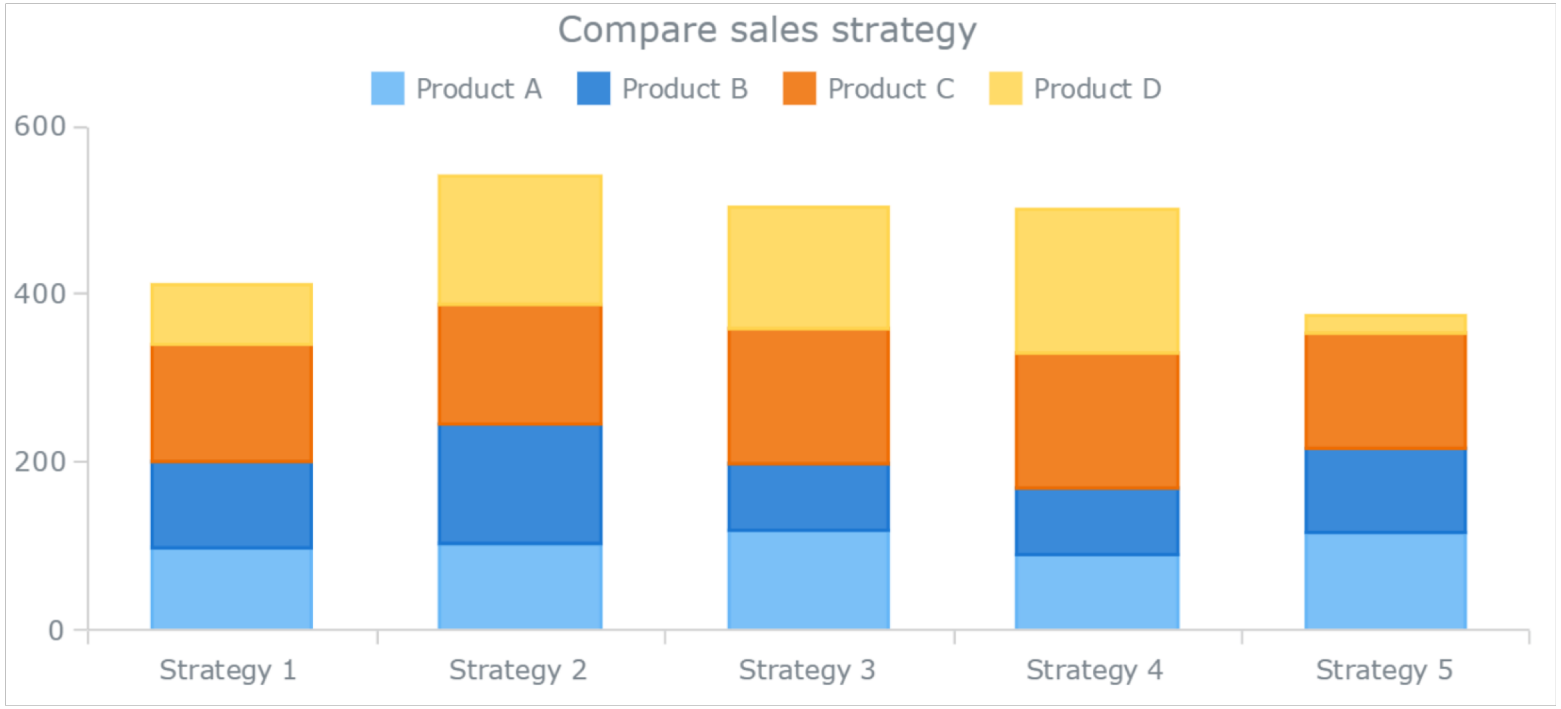

Just right
8
7
6
5
4
3
2
1
0
A
B
C
D
E


Single series
8
7
6
5
4
3
2
1
0
Cat 1
Cat 2
Cat 3
Cat 4
Cat 5


Two series
8
7
6
5
4
3
2
1
0
A
B
Cat 1
Cat 2
Cat 3
Cat 4
Cat 5

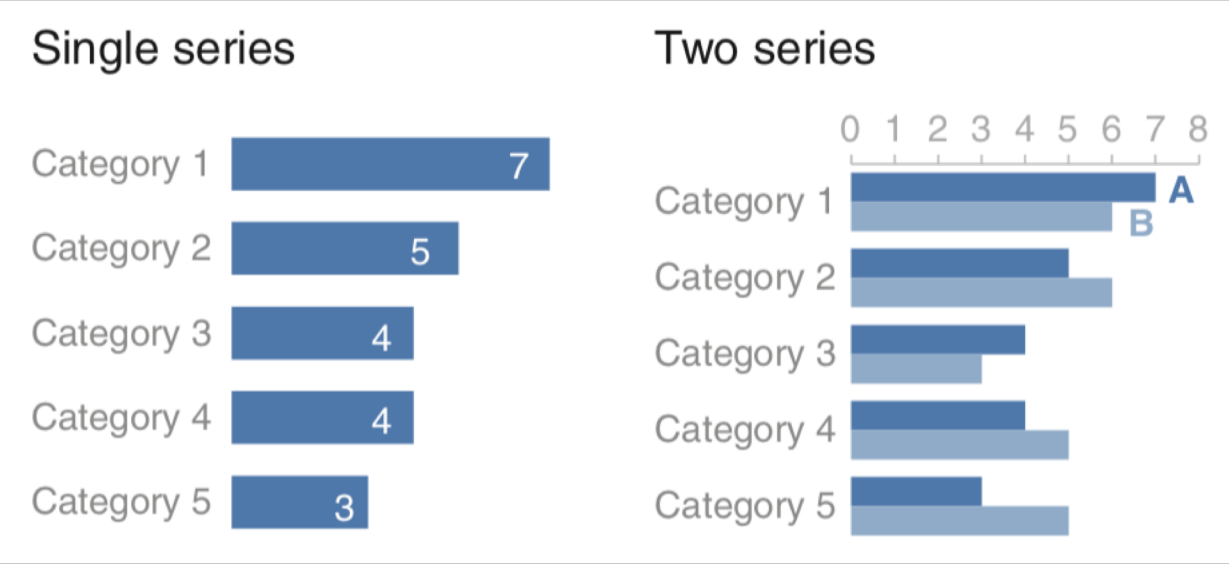

Multiple series
8
7
6
5
4
3
2
1
0
A
B
CD
Cat 1
Cat 2
Cat 3
Cat 4
Cat 5

STACKED VERTICAL BAR



- Very similar to a bar graph, but help compare across categories/subcomponents
  - Use right color scheme to make it easier on the user
- Try to keep the most important category you are highlighting as the bottom series

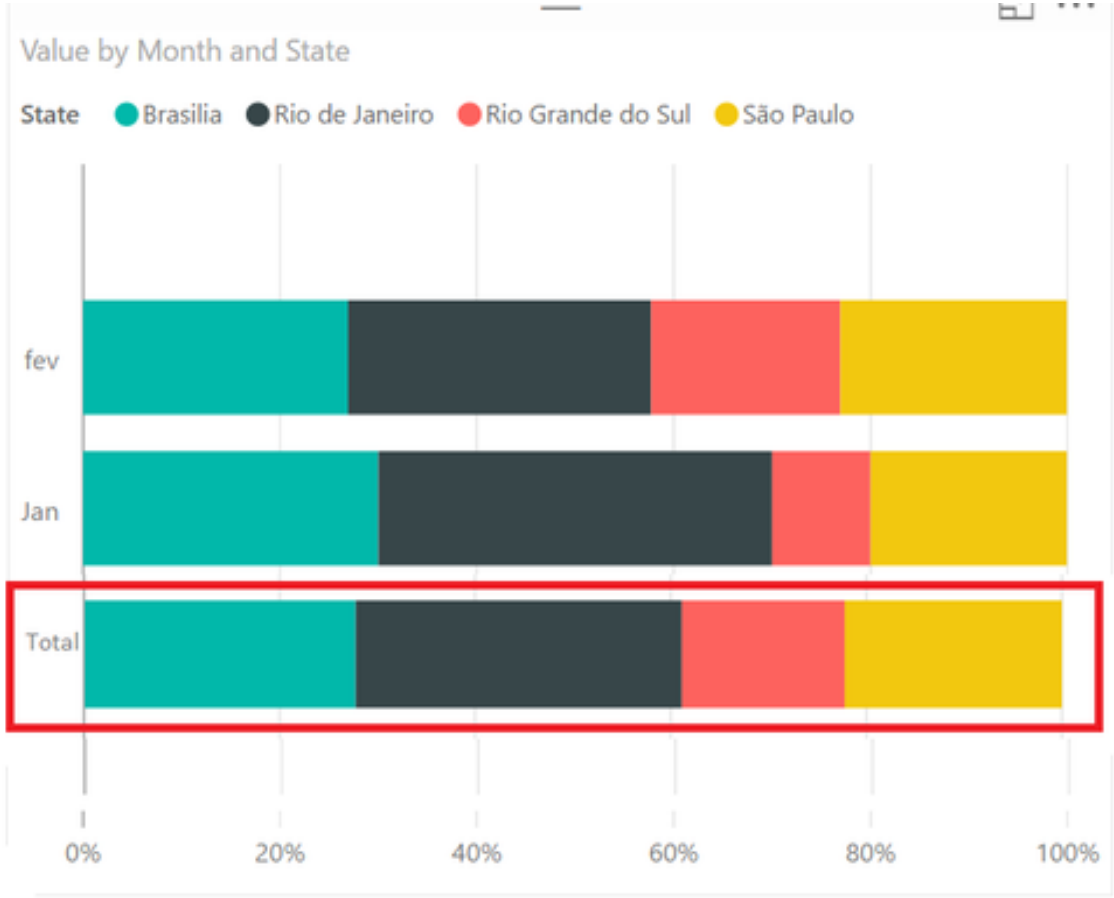
HORIZONTAL BAR

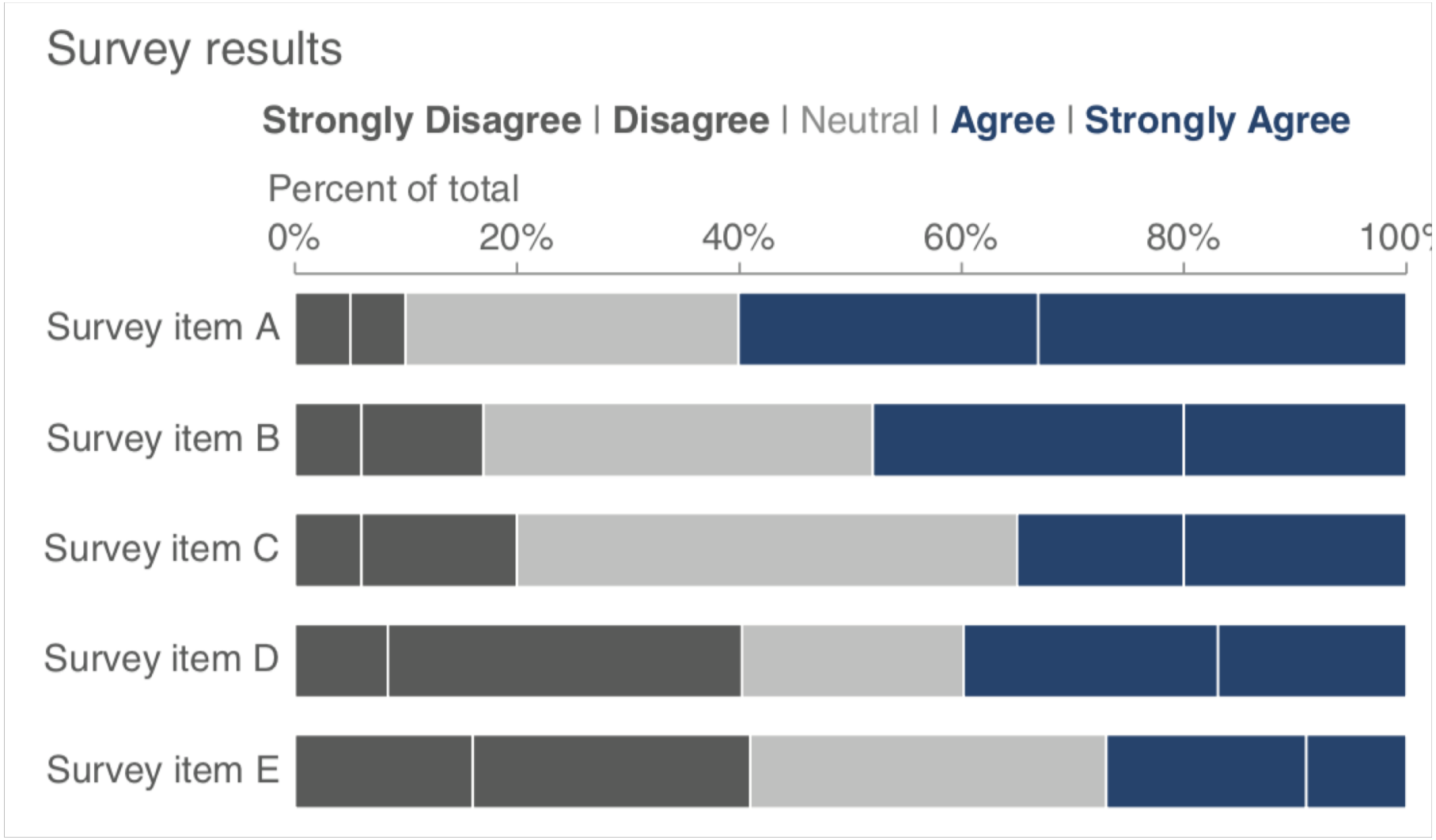


- Very similar to vertical bar graph
- Good for categorical data
- Easy to organize from Top to Bottom/Small to Large
- Can be single series, two series, multiple series

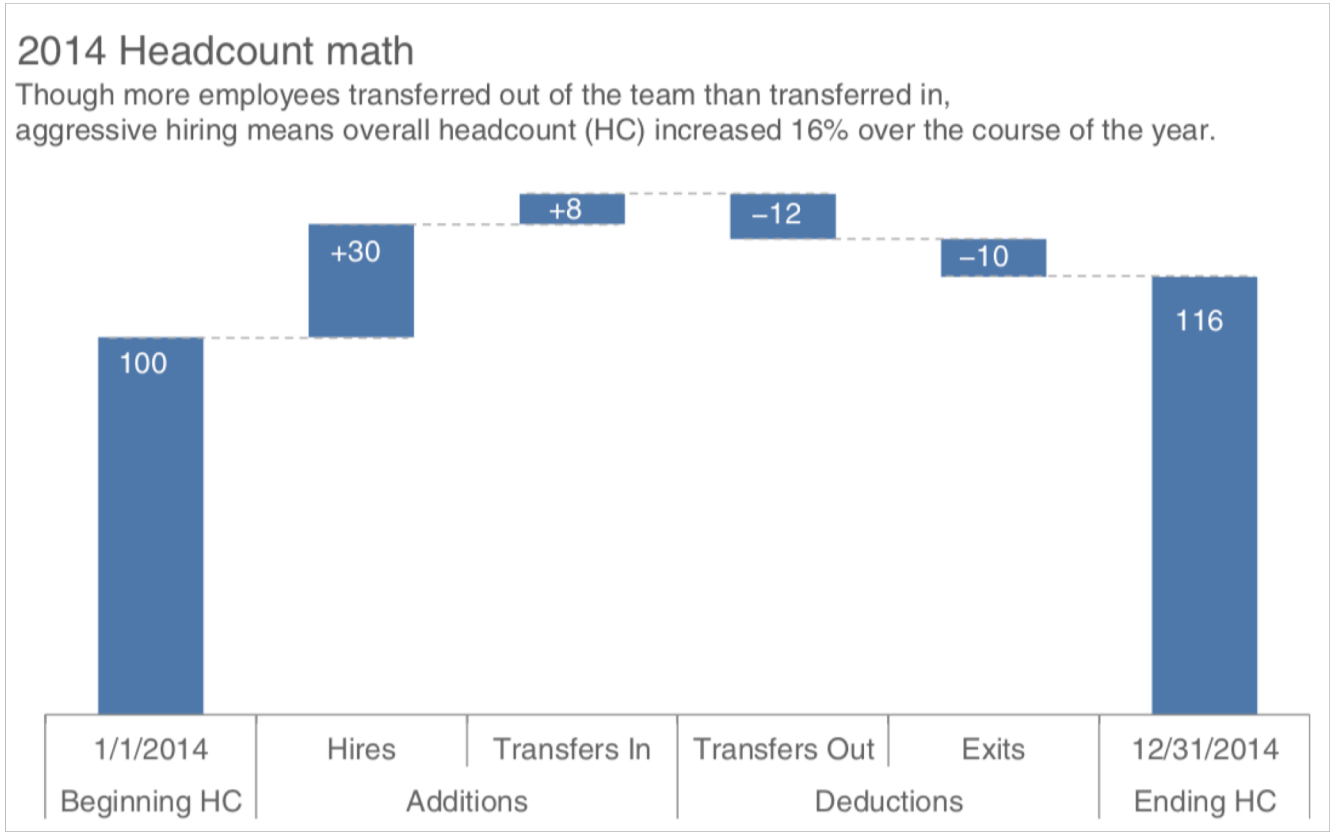
STACKED HORIZONTAL BAR

- Similar to the vertical bar chart
- Shows values across different categories
- They can show absolute value or sum to 100%




Survey results
Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree
Percent of total
0%
20%
40%
60%
80%
100%
Survey item A
Survey item B
Survey item C
Survey item D
Survey item E

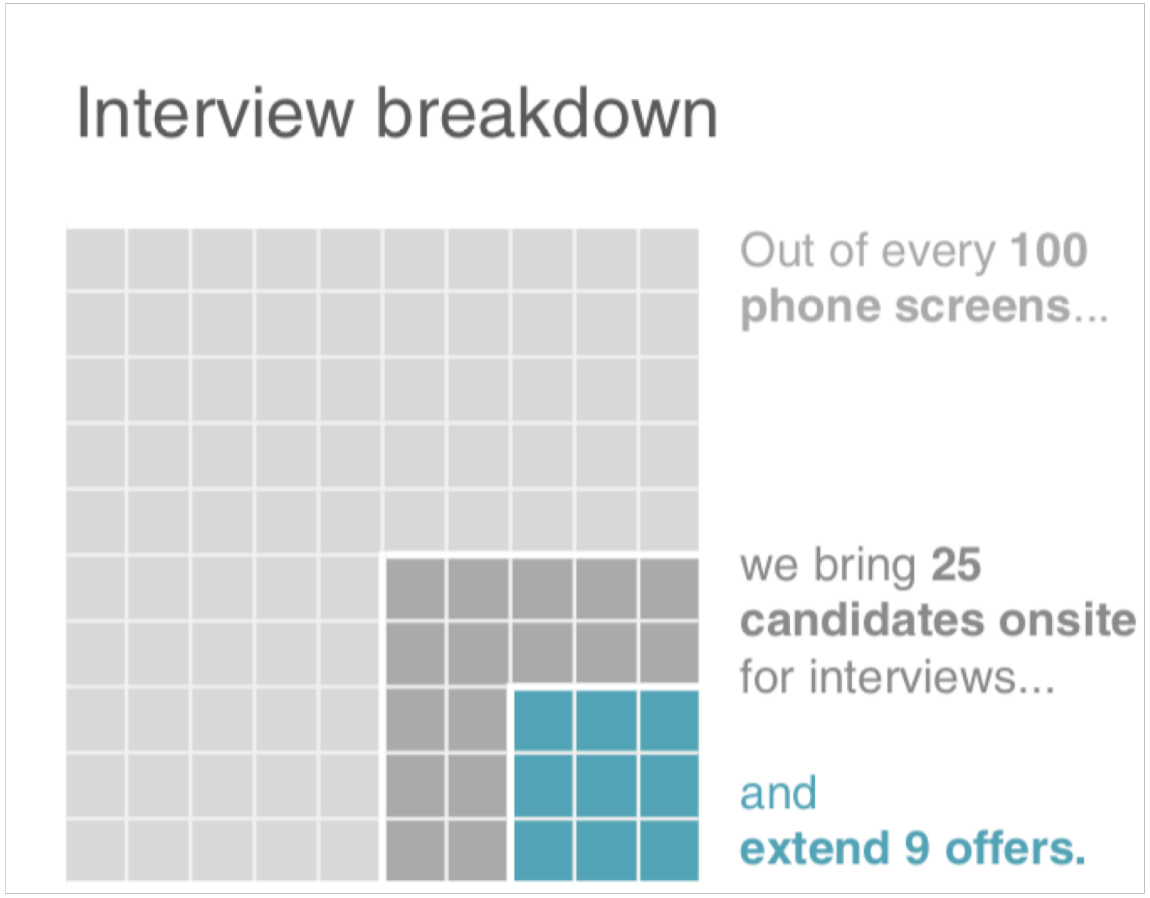
WATERFALL



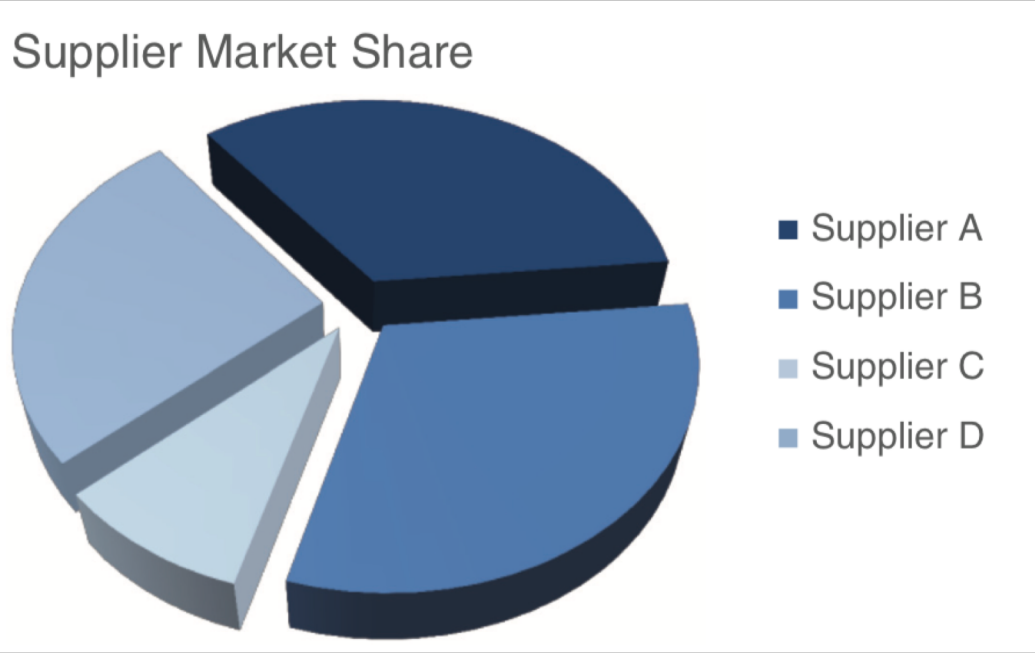
- Pull apart a stacked bar chart to focus on changes at a given time
  - Show starting point → increase/decrease → ending point

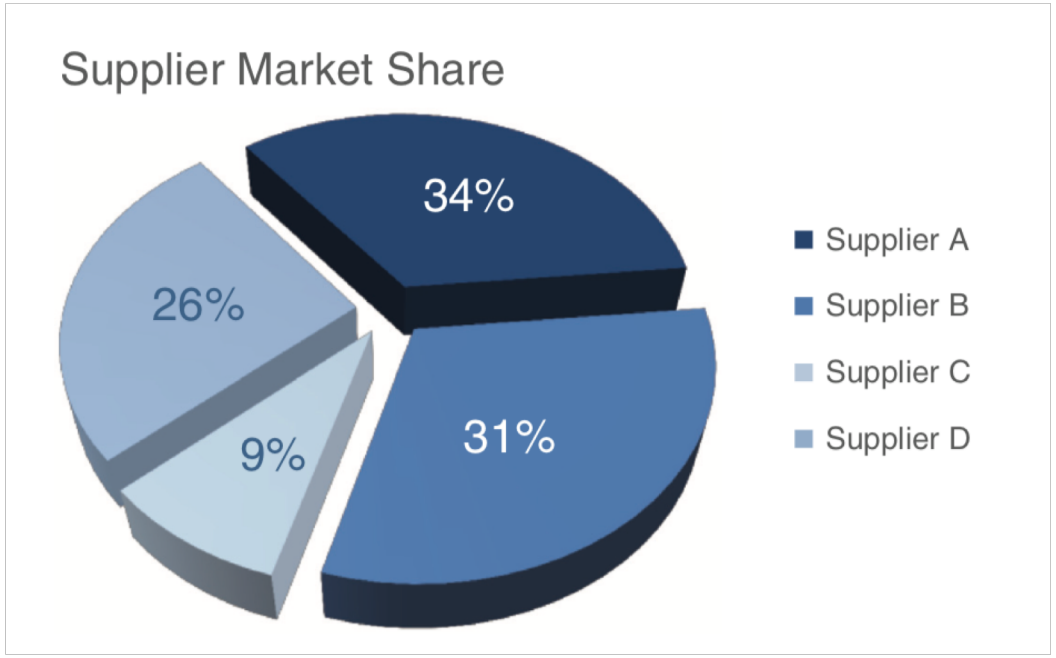
AREA

- Quantitative value in 2-D space
- Areas can be represented in various ways
- Be cautious that it makes sense

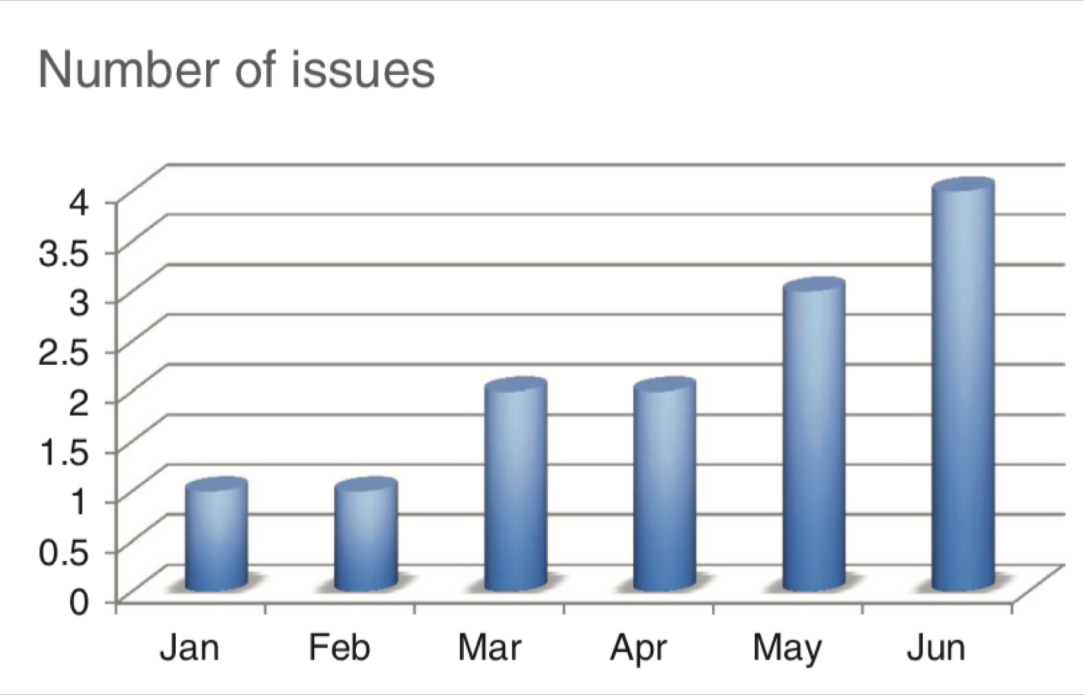


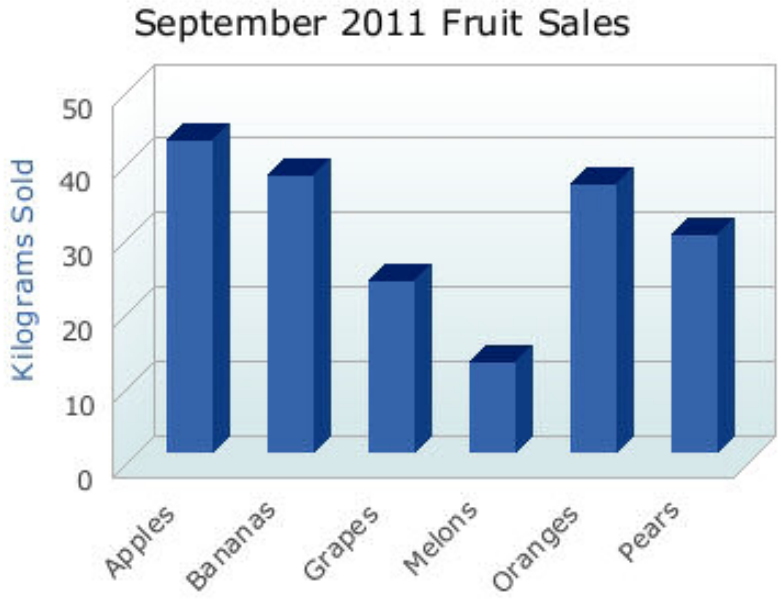
COMMON MISTAKES



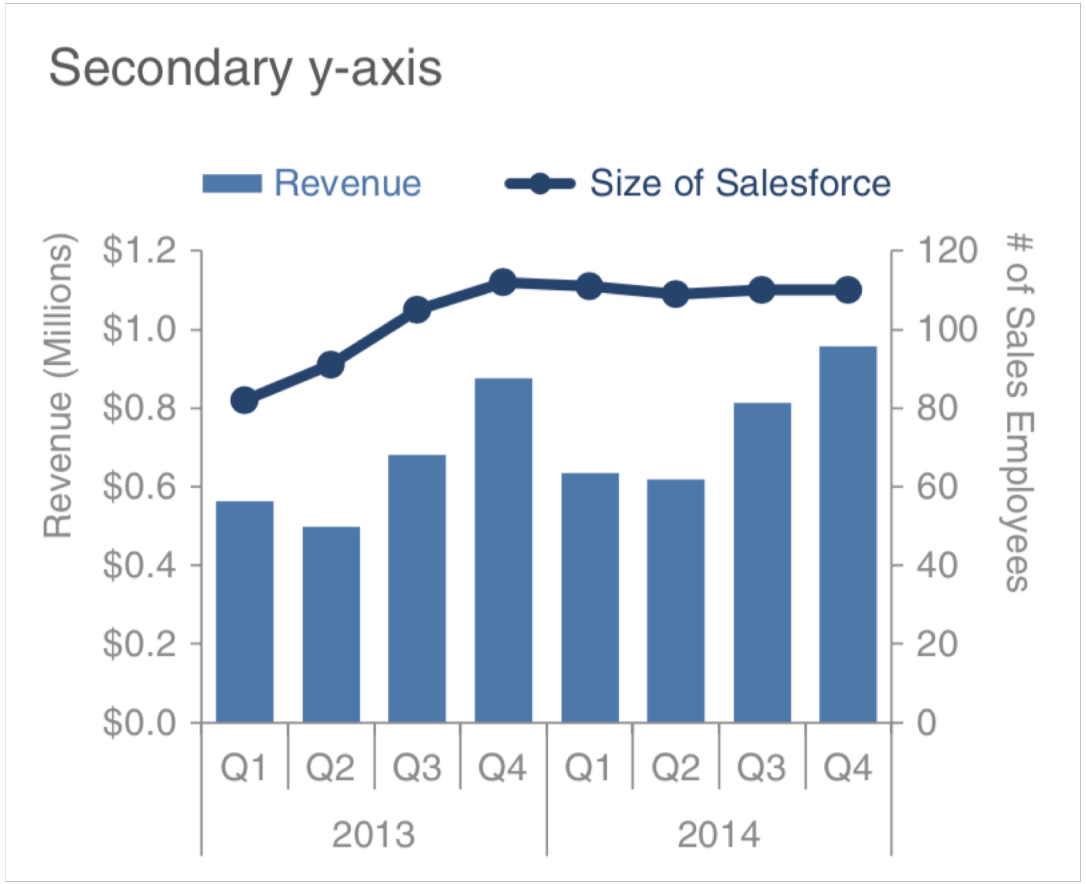


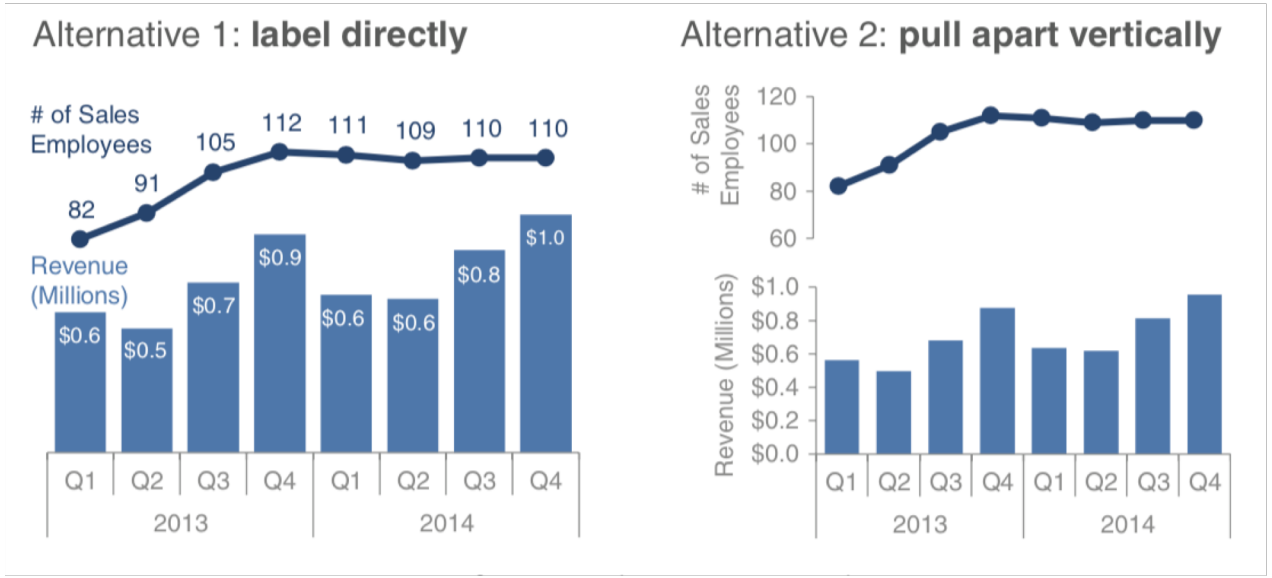
COMMON MISTAKES





COMMON MISTAKES





ACTIVITY

- Sales Heatmap (highest-lowest sales)
- Line Graph (sales by quarter)
- Bar Chart (sales by person)
- 2 Simple Text (sales by quarter, sales by country)

Order #	First Name	Last Name	Sales	Country	Quarter
1	Will	Smith	$16,753.00	UK	Qtr 3
2	Randy	Johnson	$14,808.00	USA	Qtr 4
3	Nate	Williams	$10,644.00	UK	Qtr 2
4	Jimmy	Jones	$1,390.00	USA	Qtr 3
5	John	Brown	$4,865.00	USA	Qtr 4
6	Nate	Williams	$12,438.00	UK	Qtr 1
7	Randy	Johnson	$9,339.00	UK	Qtr 2
8	Will	Smith	$18,919.00	USA	Qtr 3
9	Jimmy	Jones	$9,213.00	USA	Qtr 4
10	Jimmy	Jones	$7,433.00	UK	Qtr 1
11	John	Brown	$3,255.00	USA	Qtr 2
12	Nate	Williams	$14,867.00	USA	Qtr 3
13	Nate	Williams	$19,302.00	UK	Qtr 4
14	Will	Smith	$9,698.00	USA	Qtr 1