

# Visualization II

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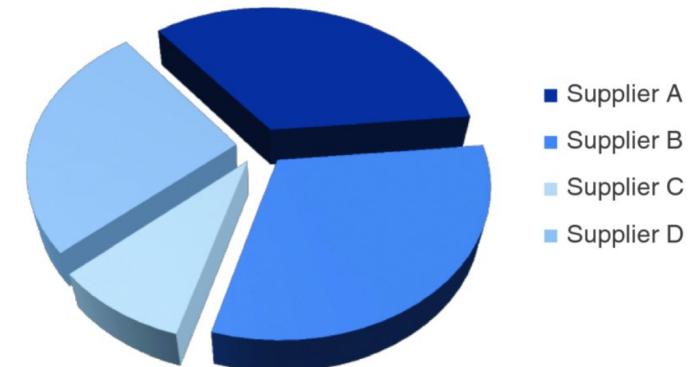
*Business Intelligence*  
Spring 2021



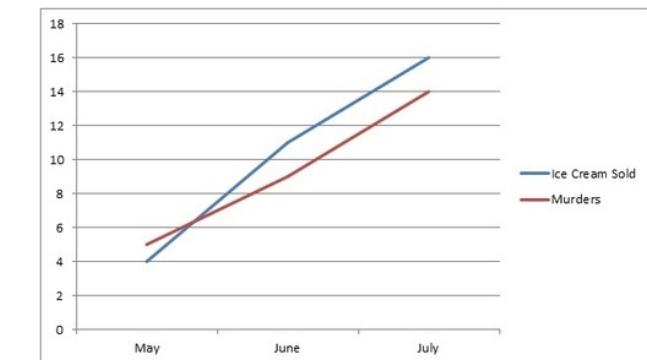
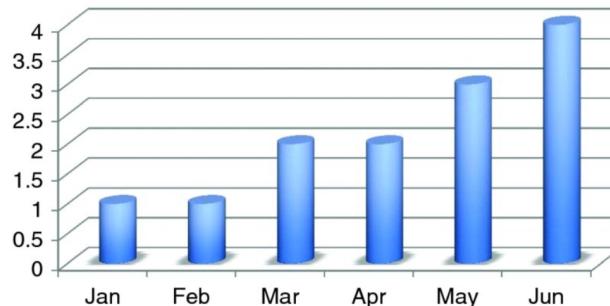
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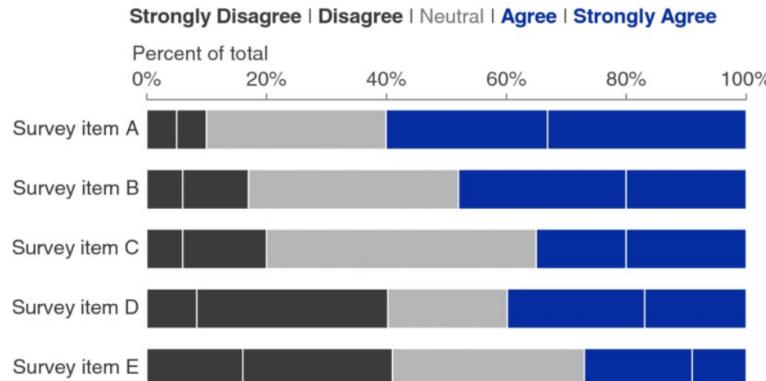
Supplier Market Share



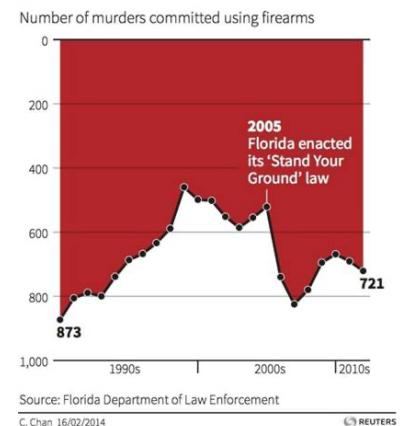
Number of issues



Survey results



Gun deaths in Florida



# A Few Lessons from Knafllic (2015)

1

Understand the context

2

Choose an appropriate visual display

3

Eliminate clutter

4

Focus attention where you want it

5

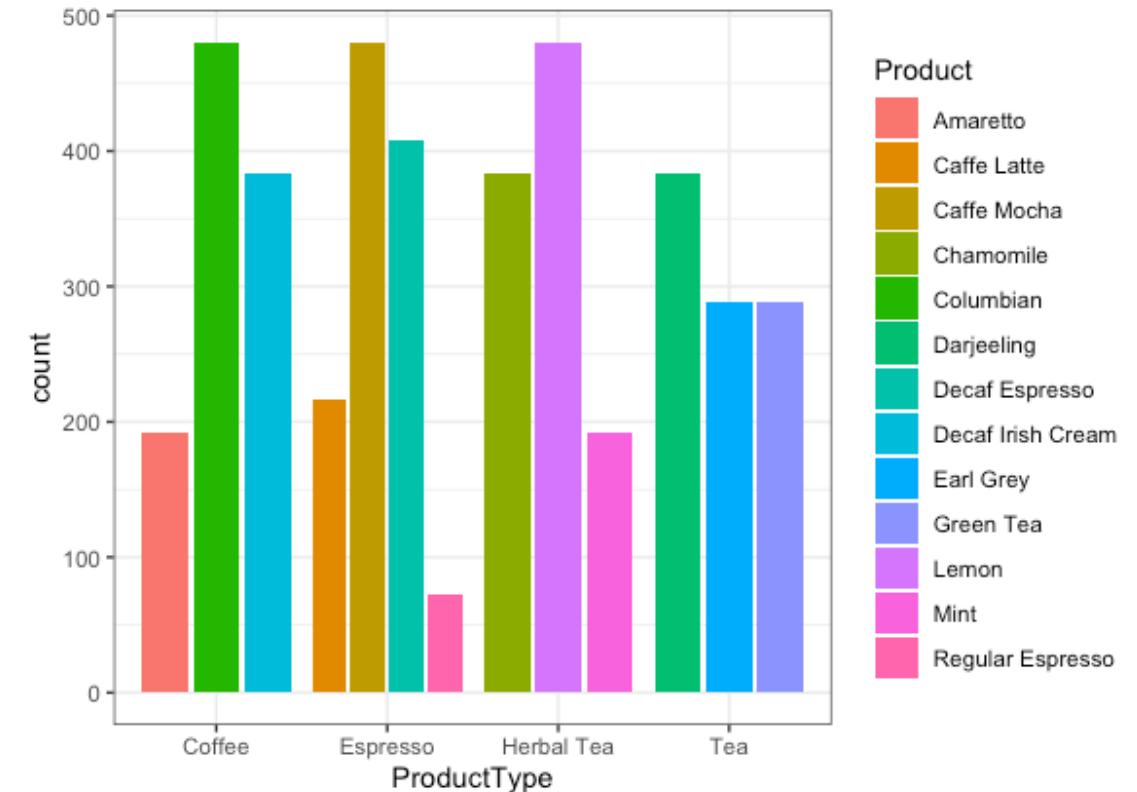
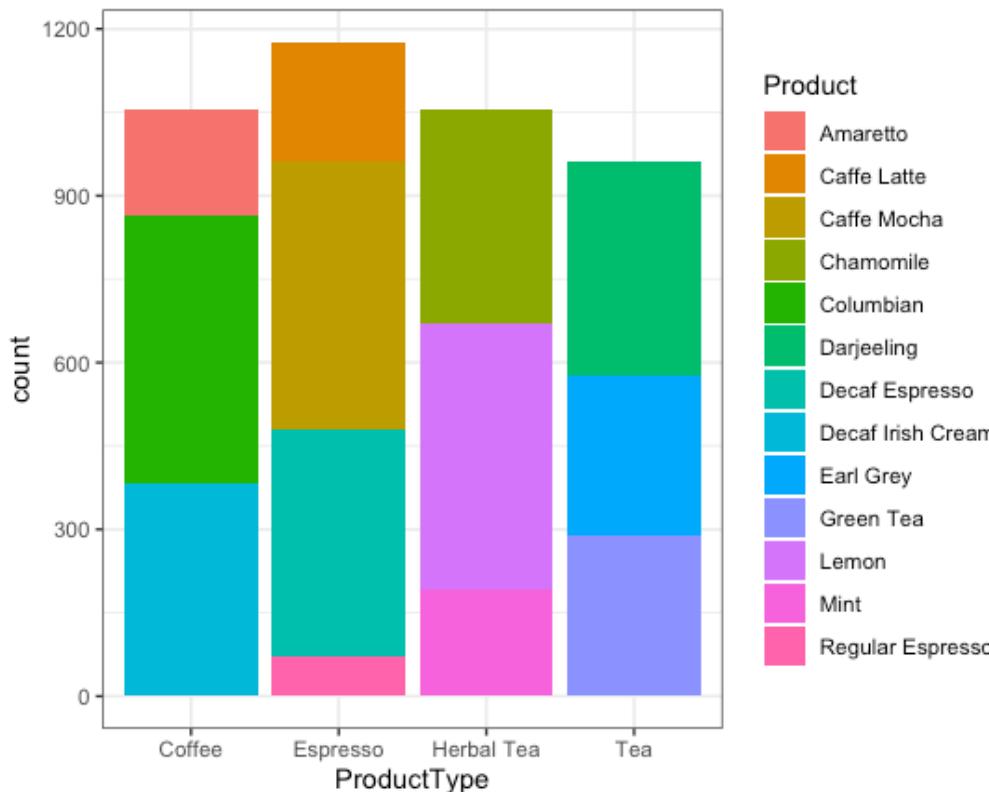
Think like a designer

6

Tell a story



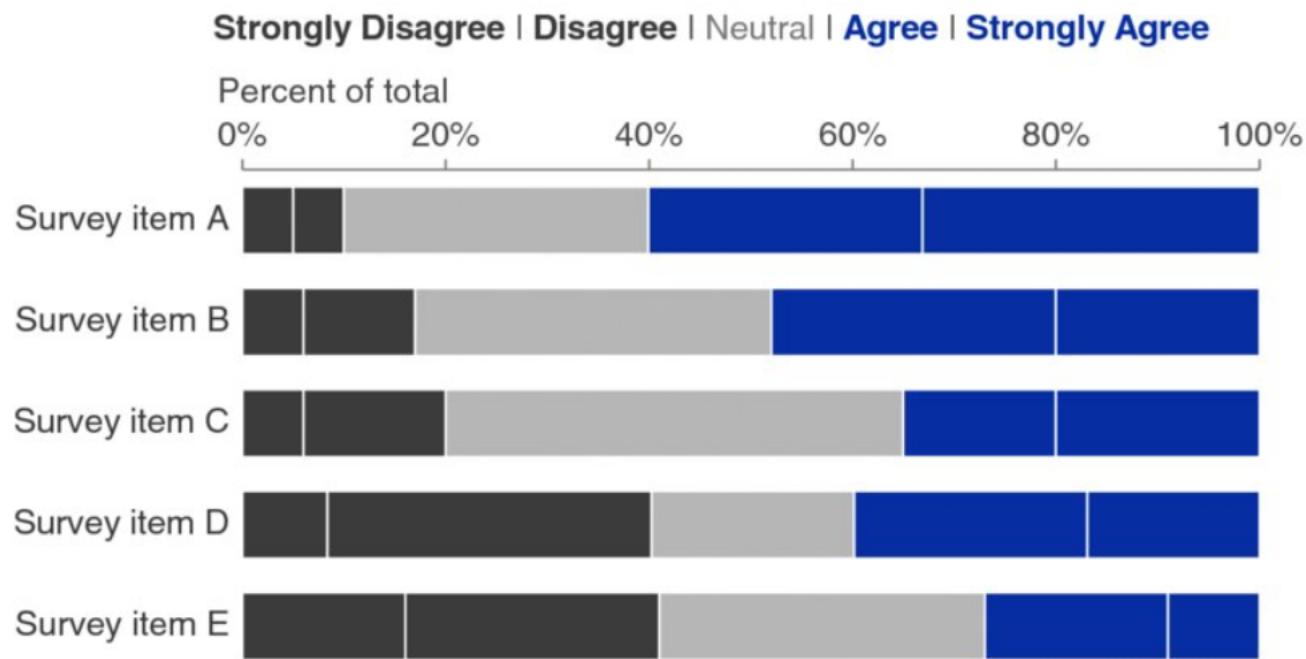
# At-Home Exercises



# Bars

## Stacked horizontally

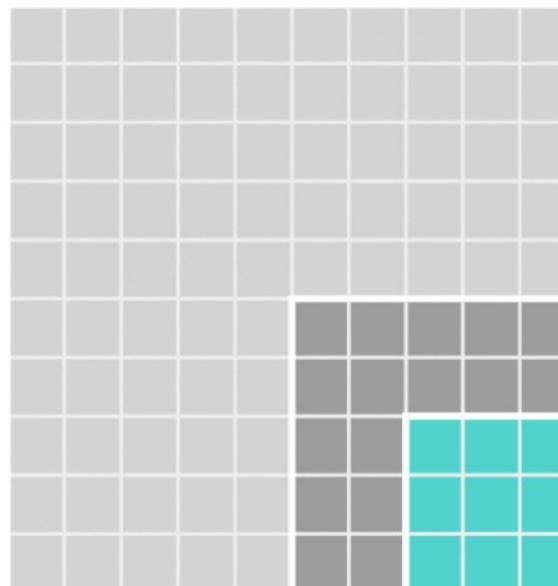
Survey results



# Area

Use when you need to visualize numbers of different magnitudes

## Interview breakdown



Out of every **100**  
**phone screens...**

we bring **25**  
**candidates onsite**  
for interviews...

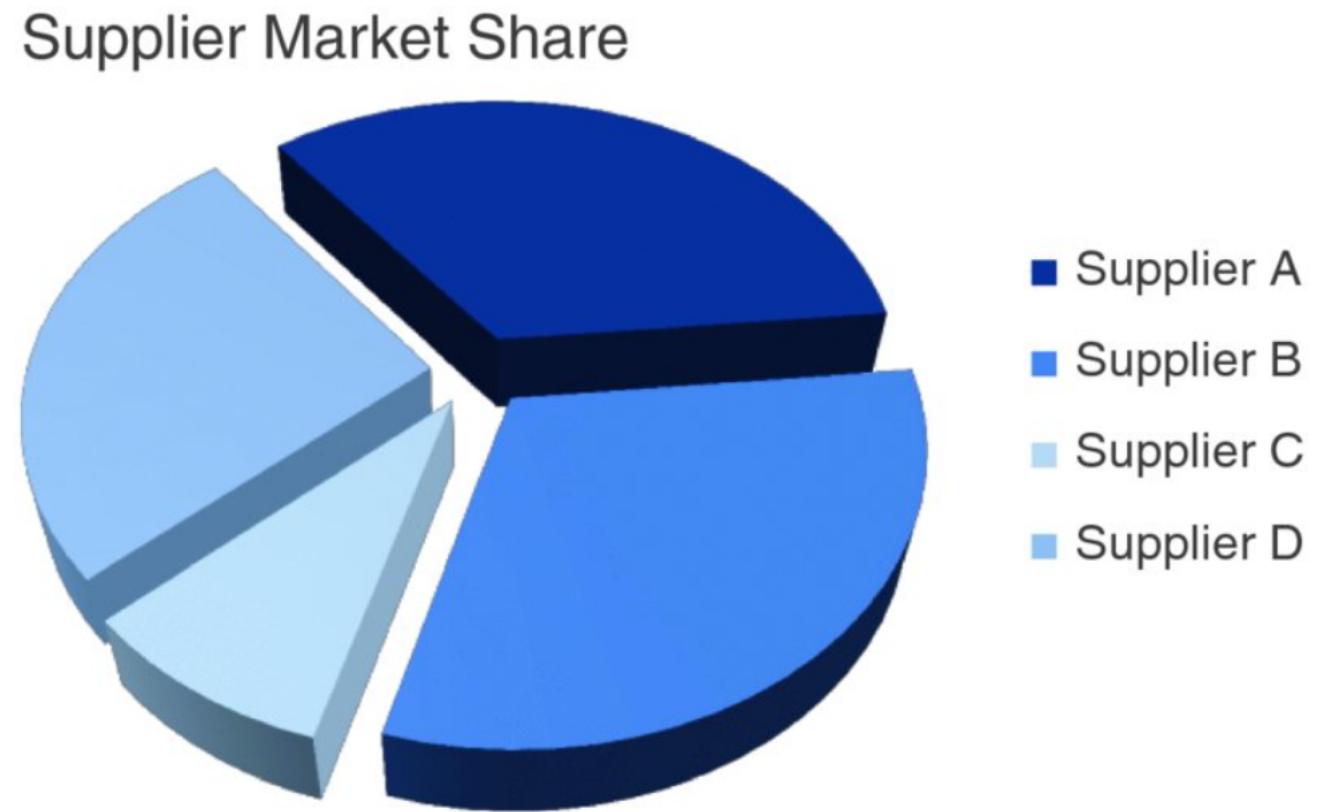
and  
**extend 9 offers.**



# Pie charts are evil

Which is largest?

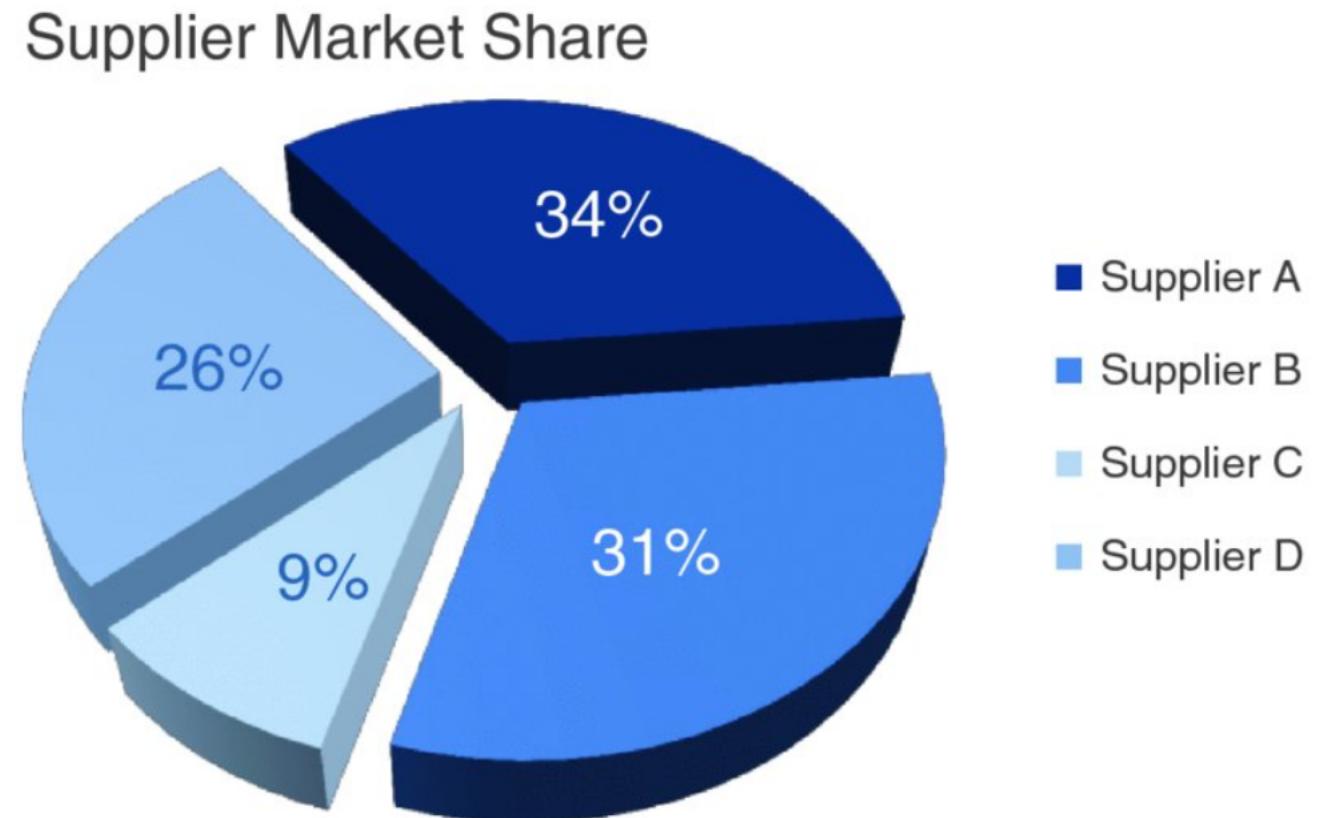
If you had to estimate  
by what proportion,  
what percent would  
that be?



# Pie charts are evil

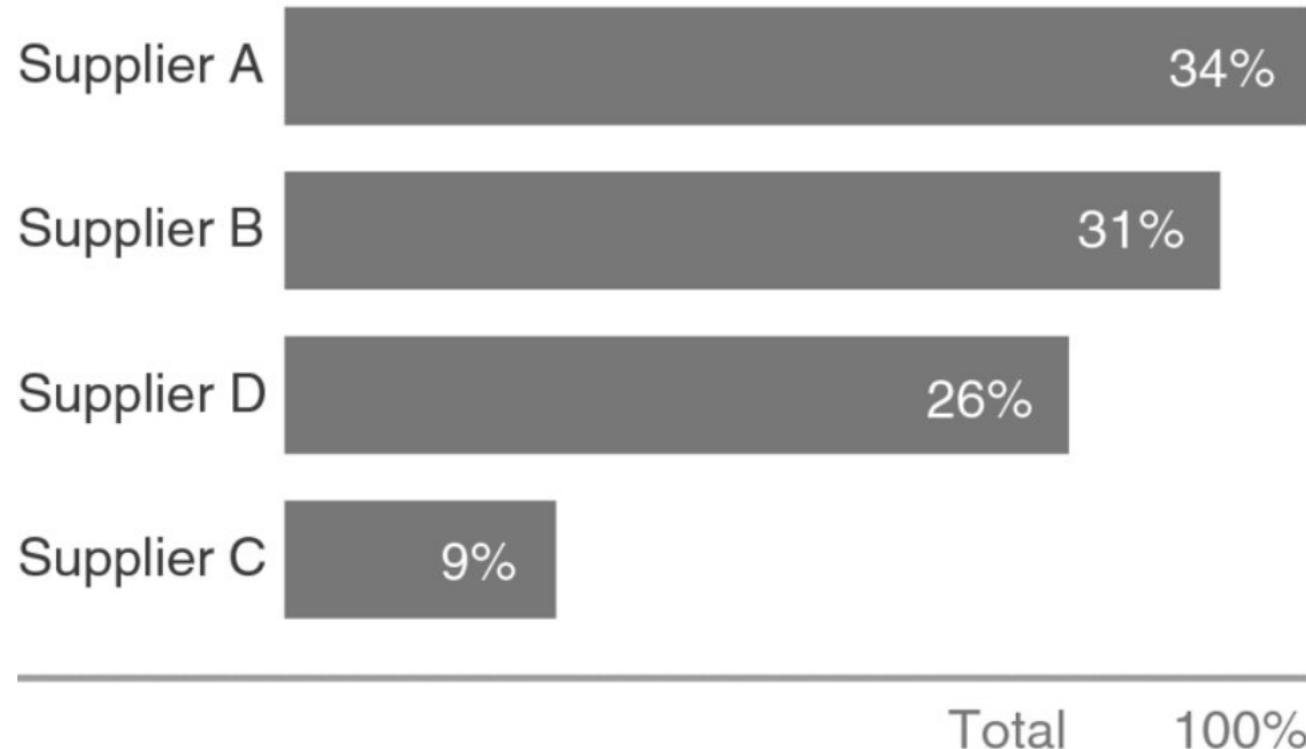
Hard to read

If you *really* want to  
use pie charts, add  
data labels



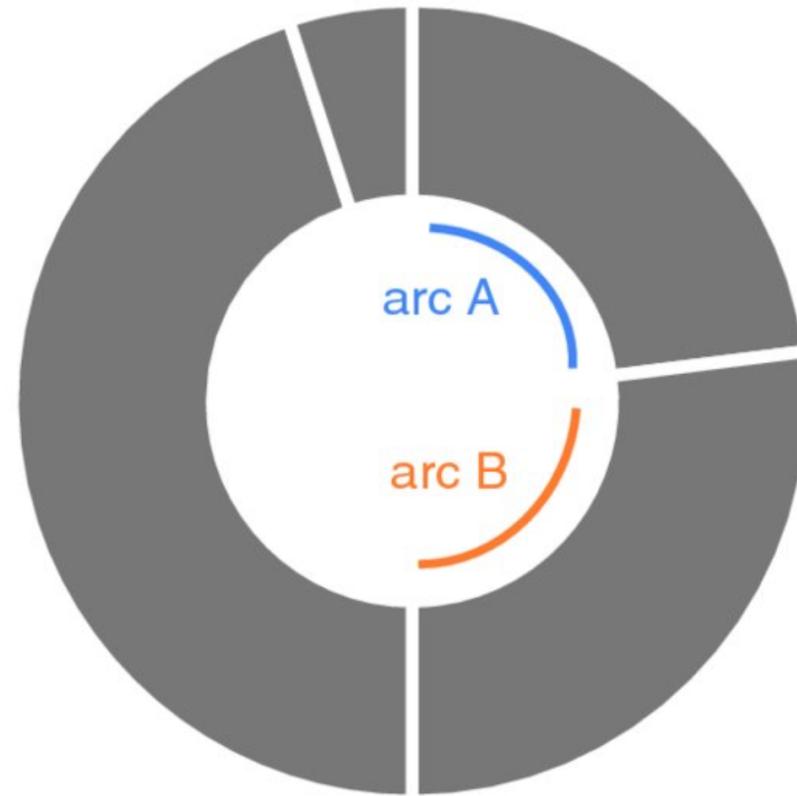
# Use bar chart instead

Supplier Market Share



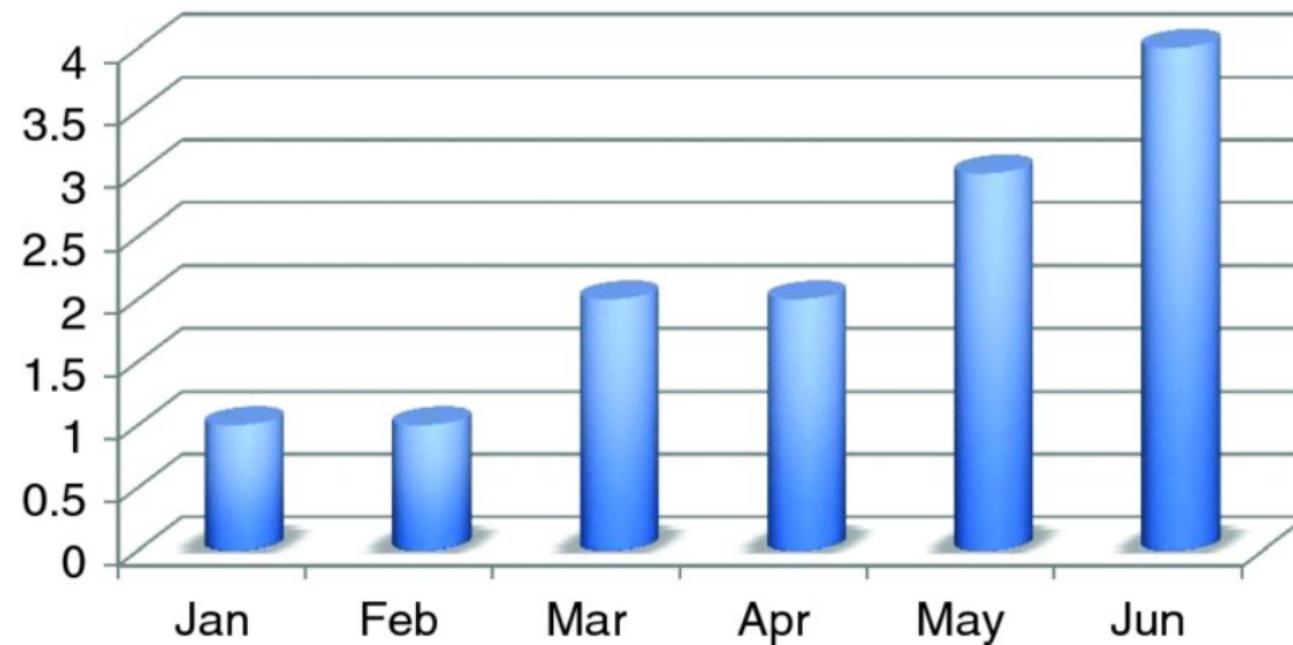
# Don't use the donut chart

The donut chart



# Never use 3D

Number of issues



# Don't go for secondary y-axis

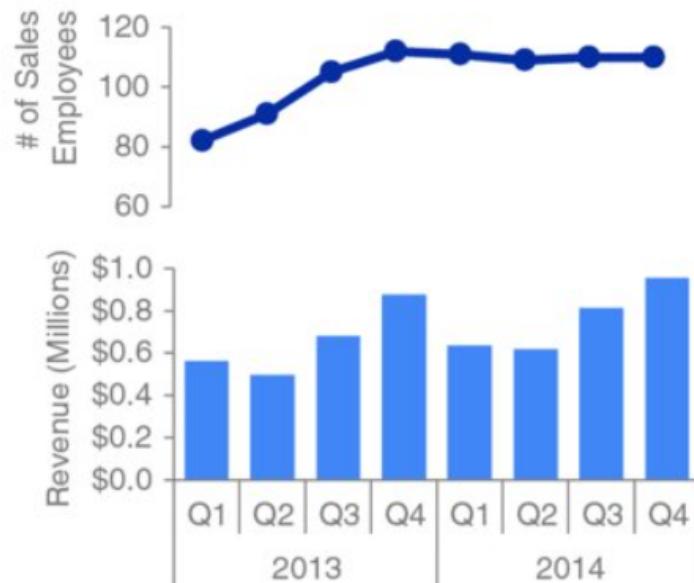


# Alternatives

Alternative 1: label directly

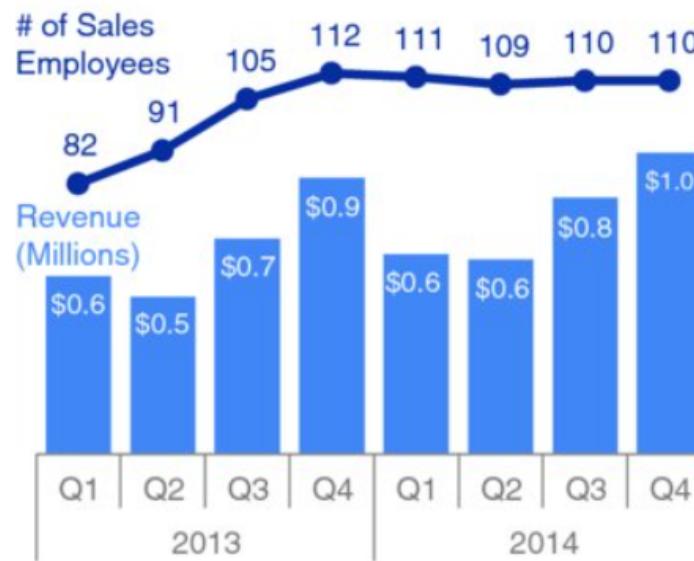


Alternative 2: pull apart vertically



# Compare and contrast

Alternative 1: label directly



Secondary y-axis



# Compare and contrast

Alternative 2: pull apart vertically



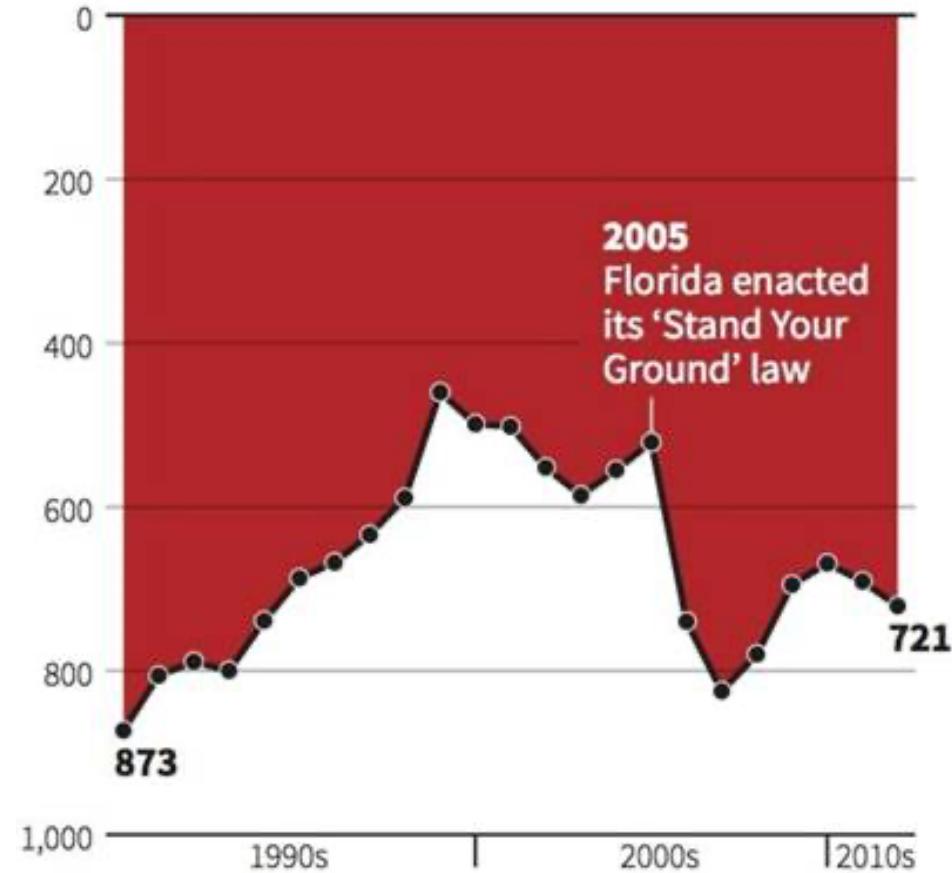
Secondary y-axis



# How do you feel?

## Gun deaths in Florida

Number of murders committed using firearms



Source: Florida Department of Law Enforcement

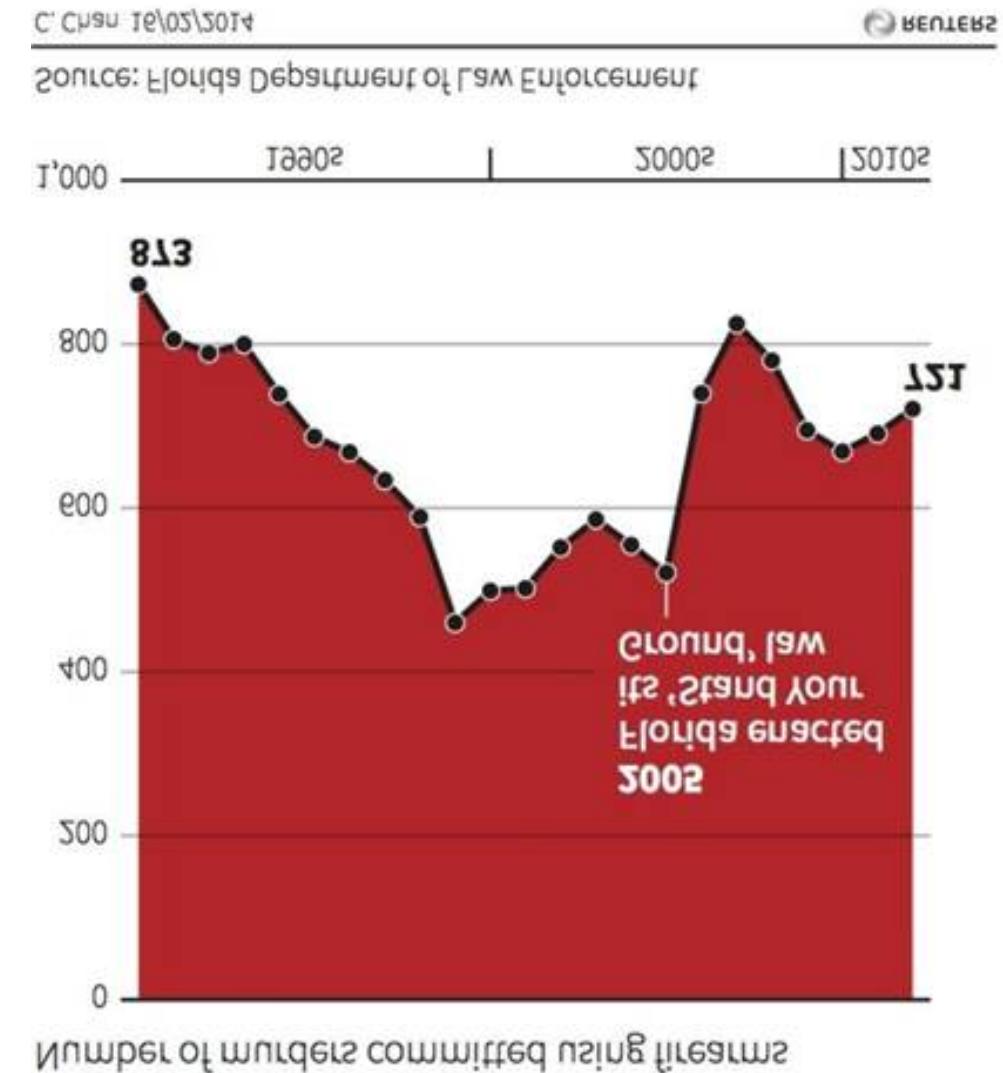
C. Chan 16/02/2014

REUTERS



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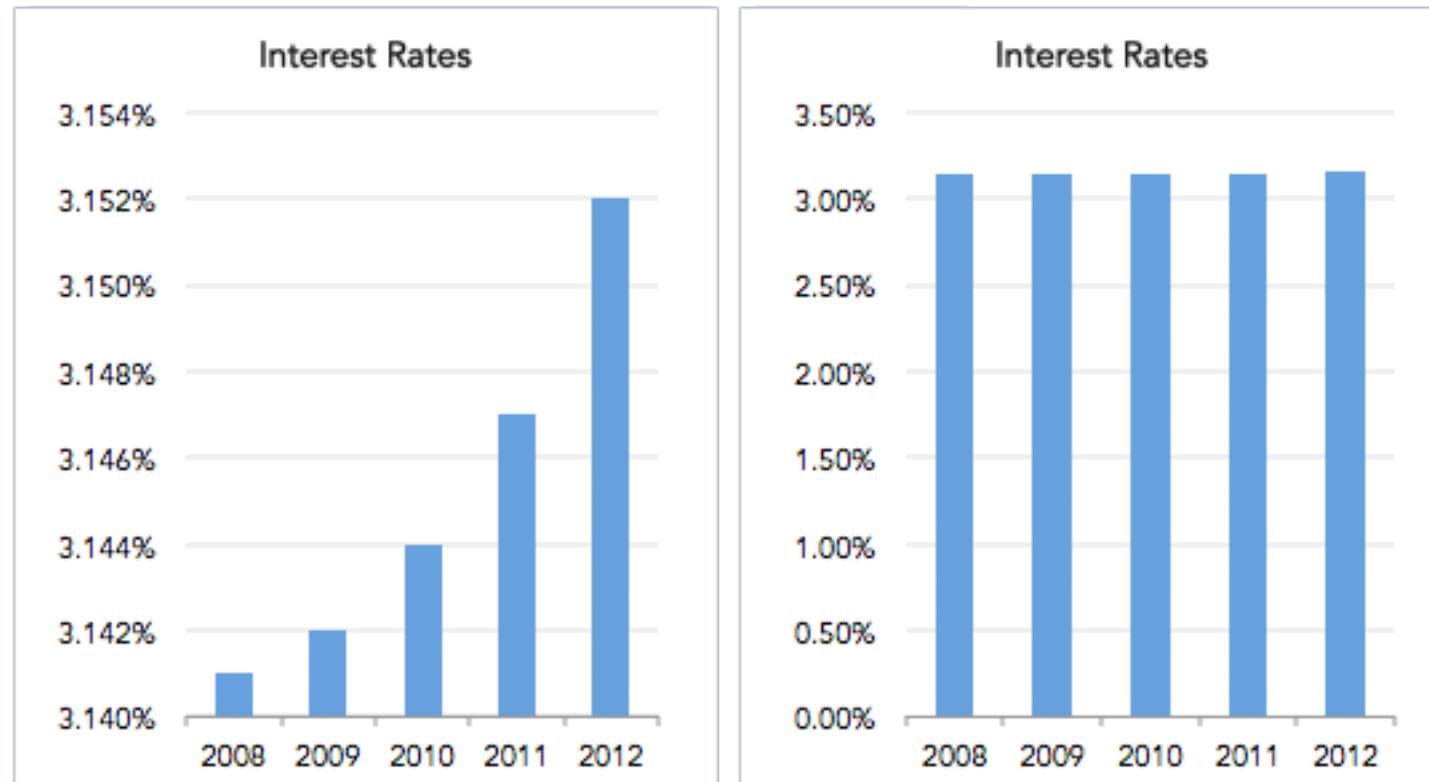
# What about now?



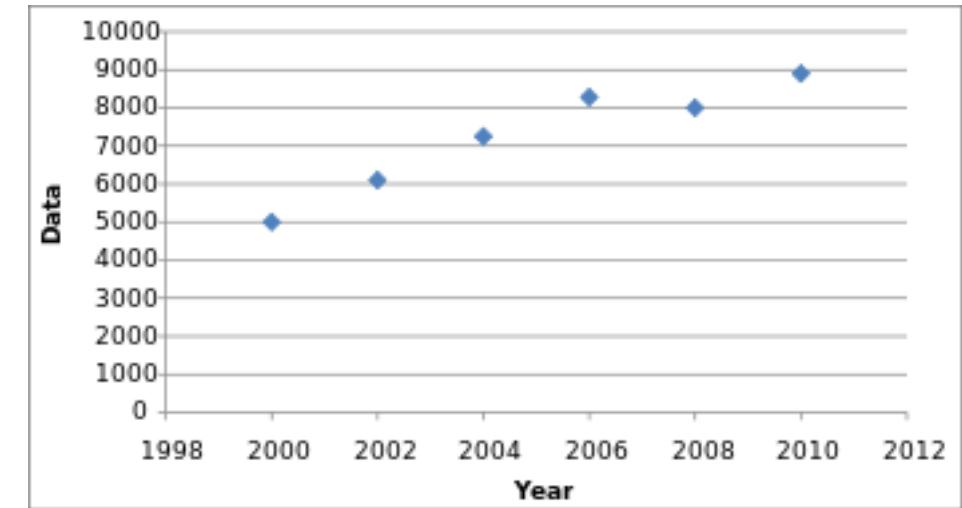
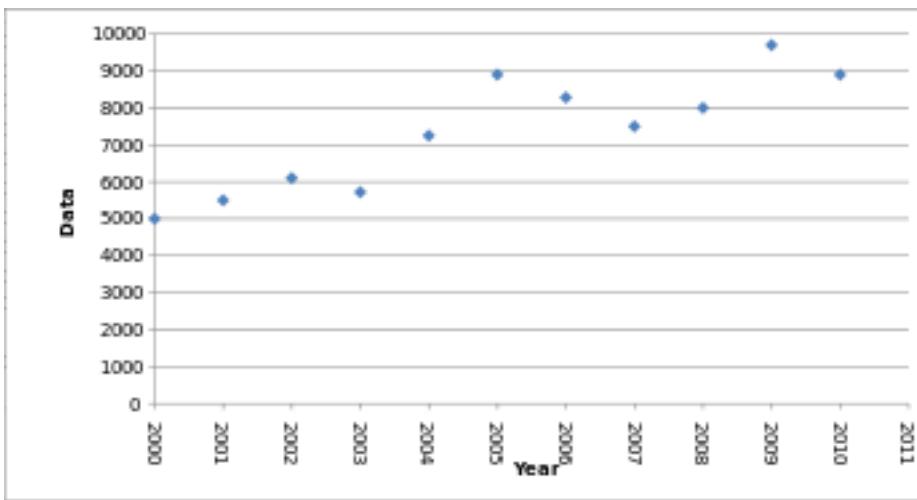
**en de la Egipt**



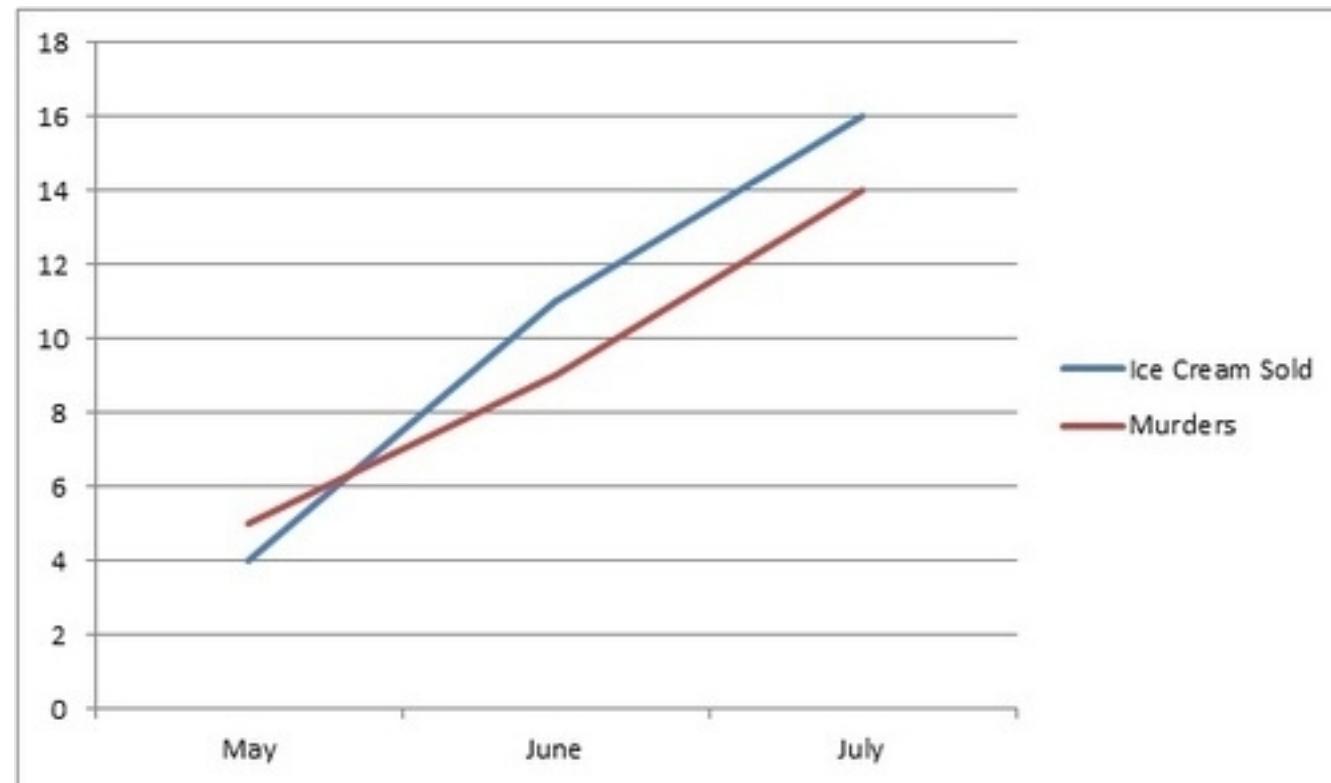
# Same data, different Y-axis



# Data omission



# Correlating causation



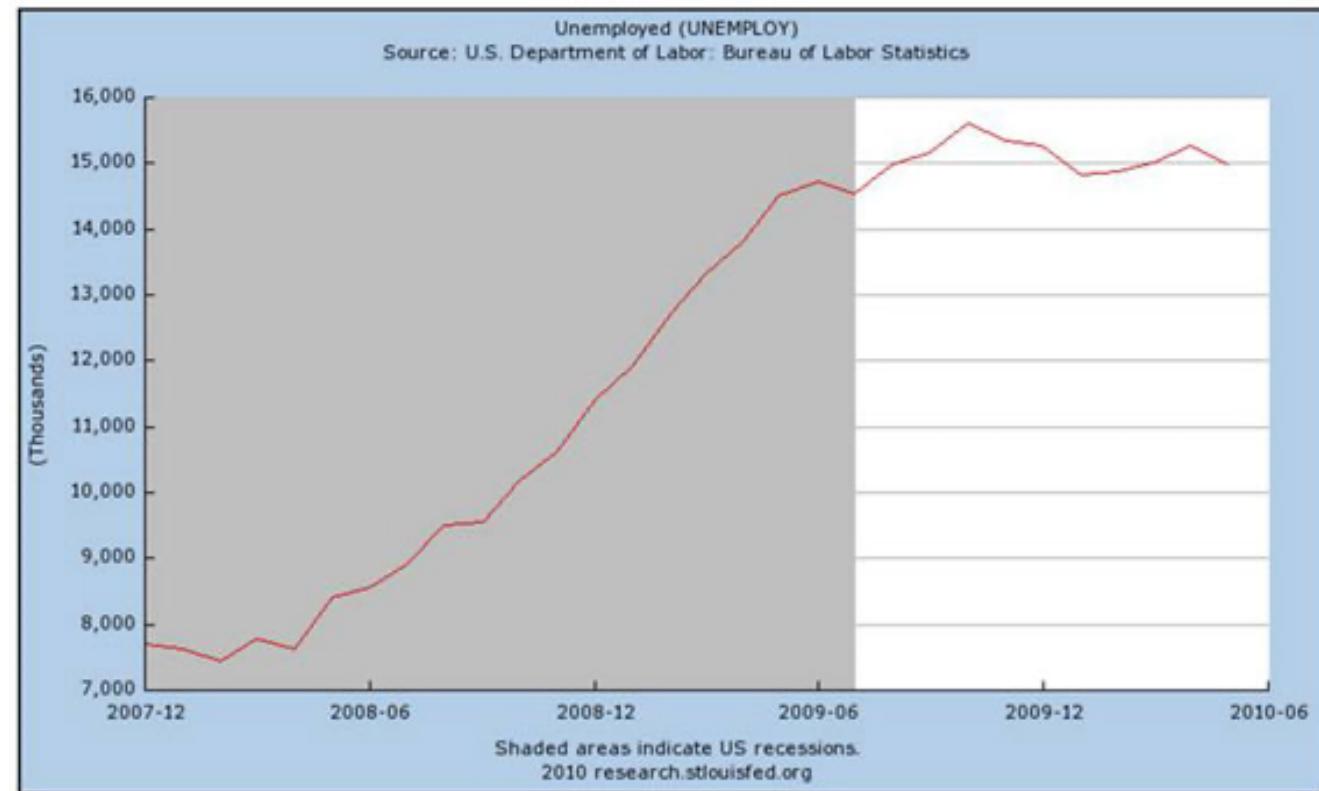
# Quiz “Question”

What problem(s) does this graph have?



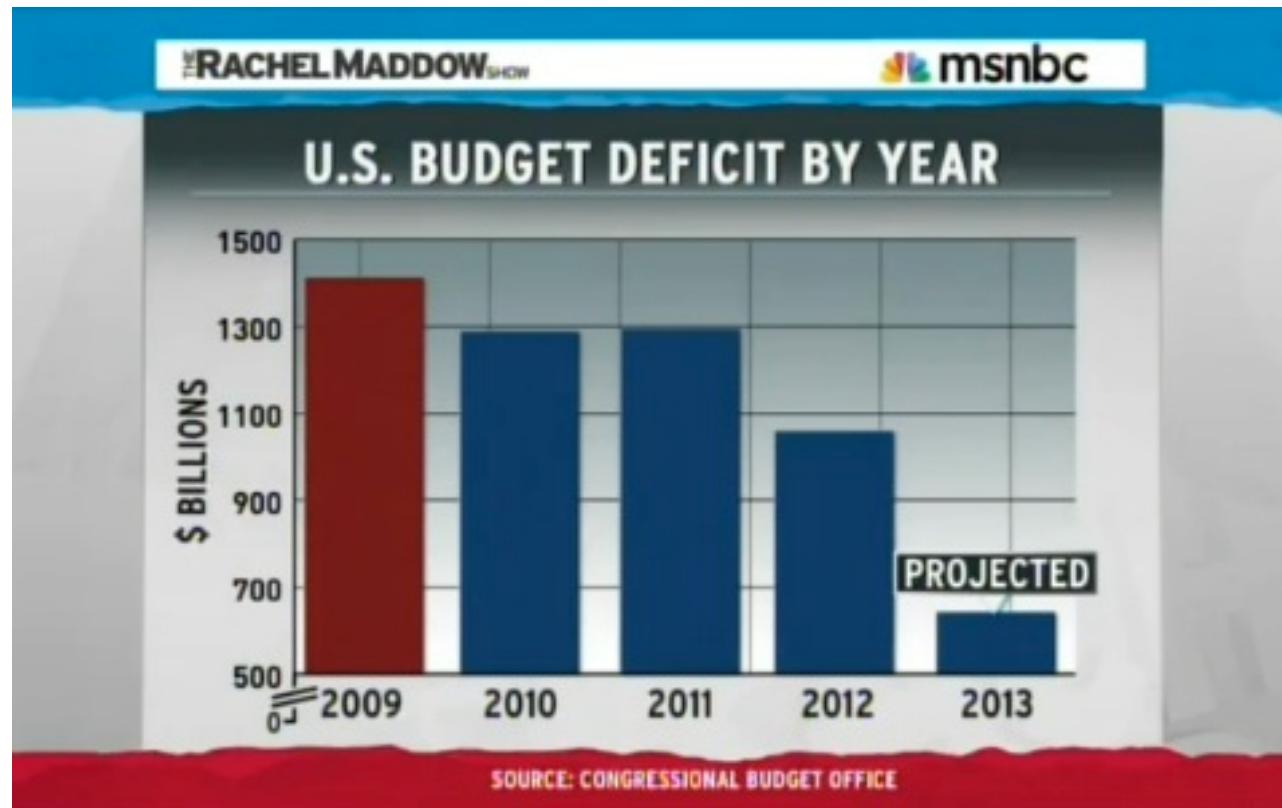
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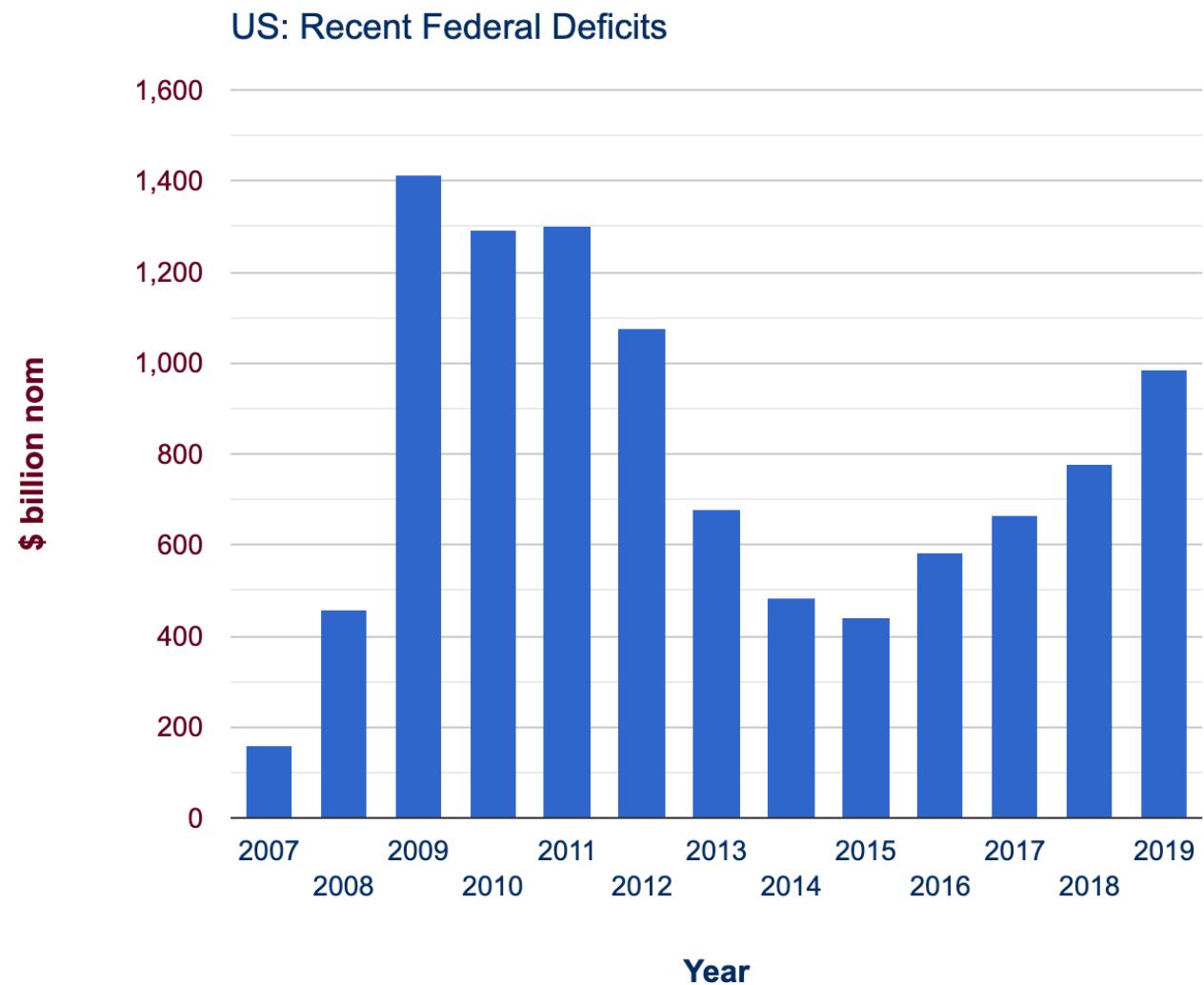
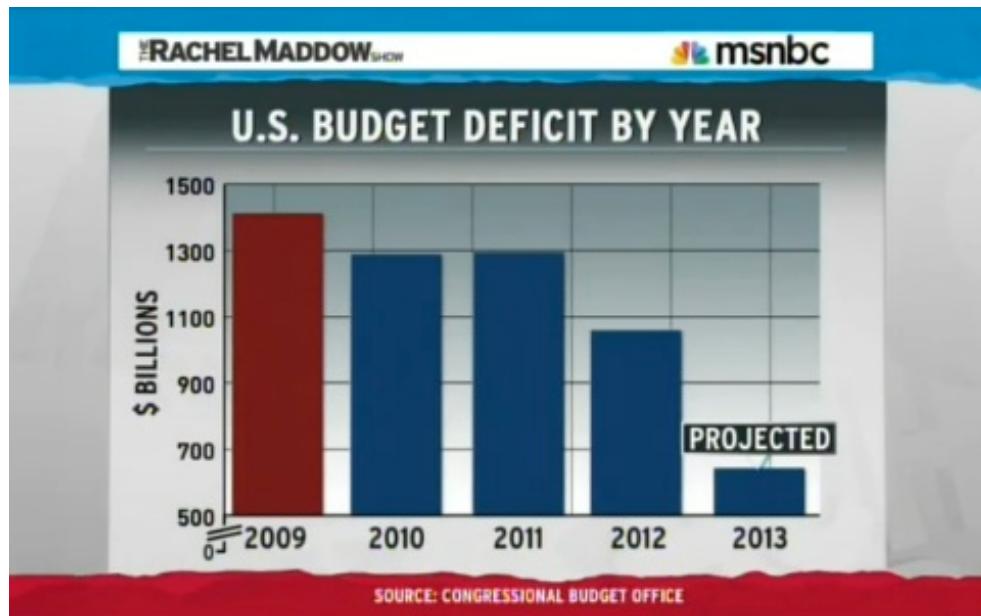
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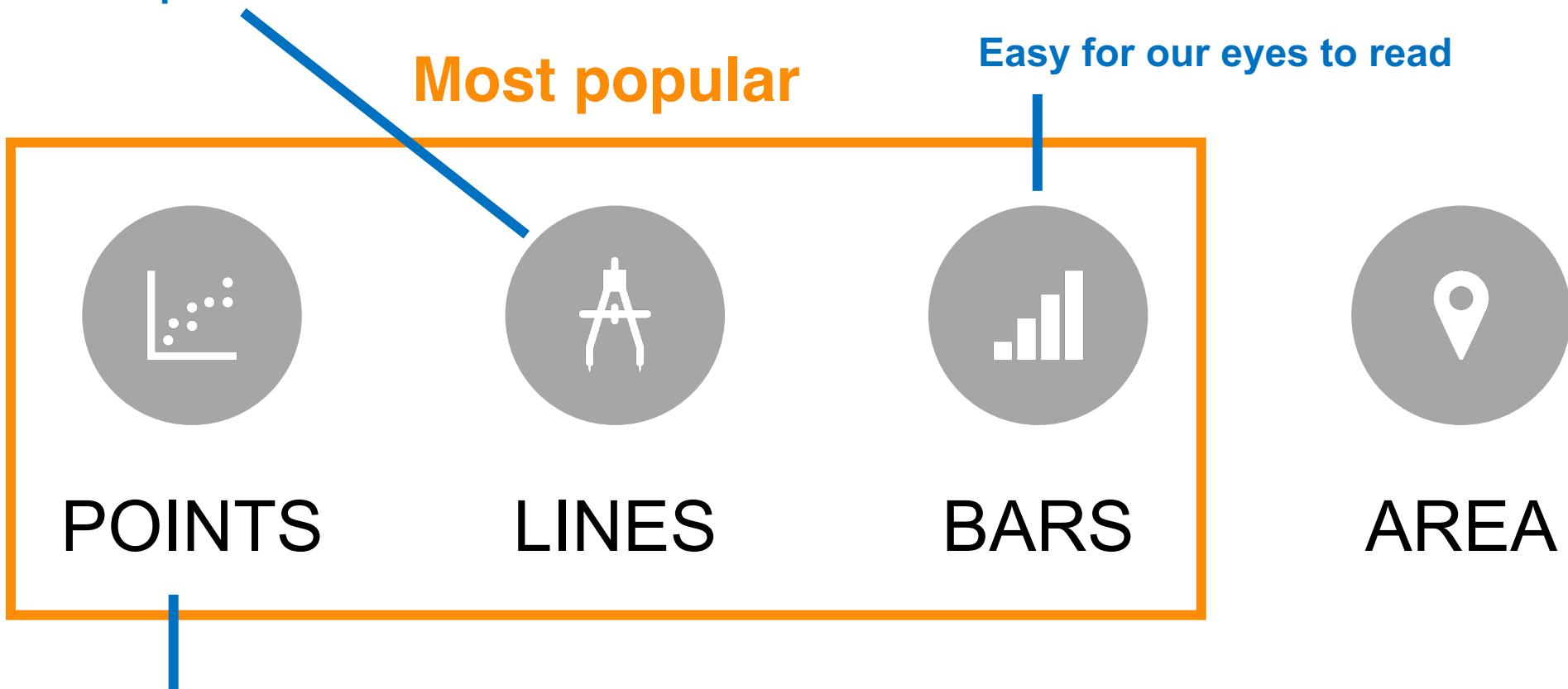
**“The greatest value of a picture is when it forces us to notice what we never expected to see”**

John Tukey



# Choosing an effective visual – graphs

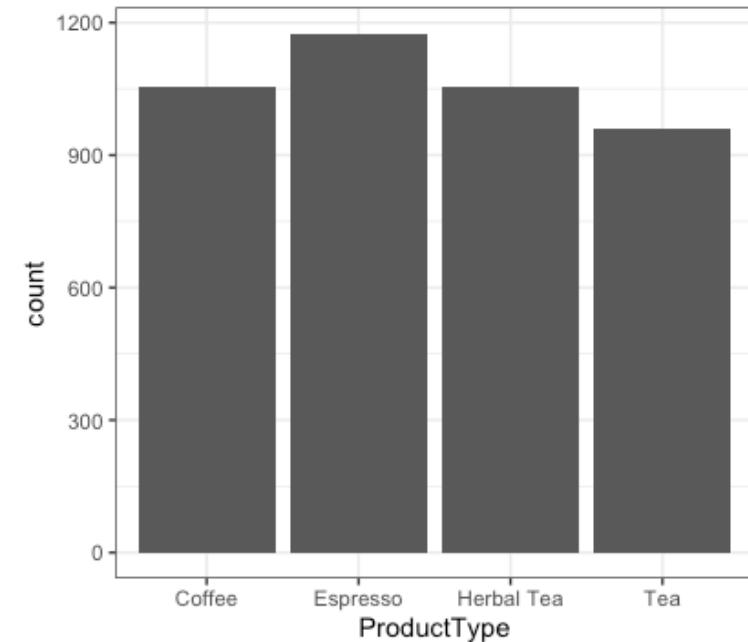
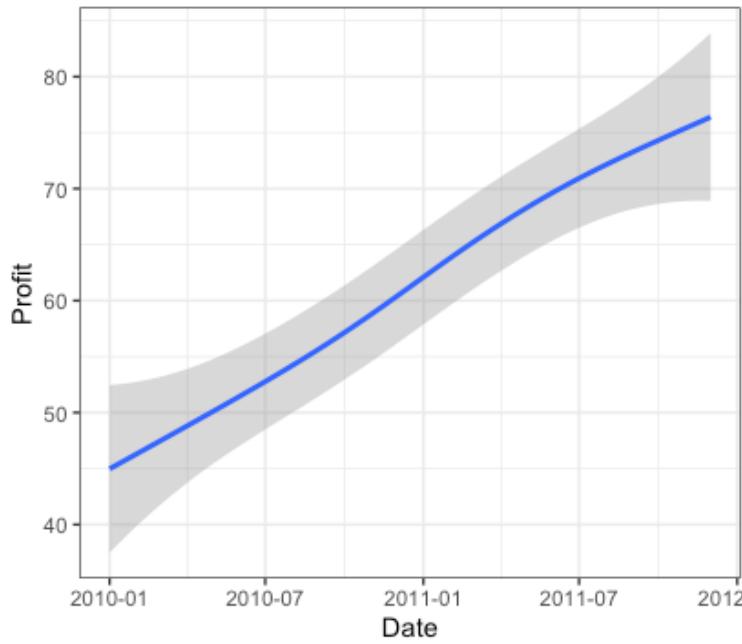
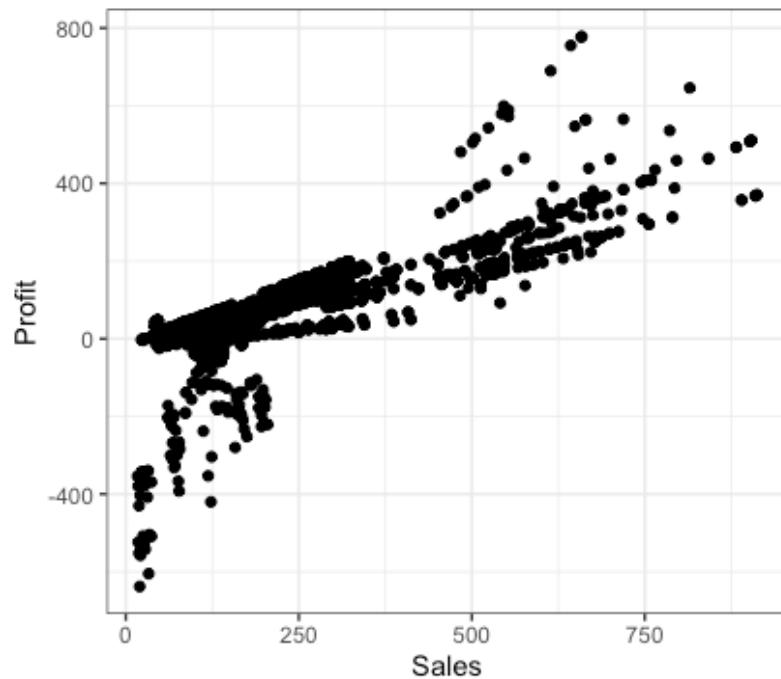
Most used to plot continuous data



Useful for showing relationship between two things



# Choosing an effective visual – graphs



# A couple of notes in ggplot2

`coord_flip()` switches the x and y axes. This is useful for long labels

```
library(tidyverse) # load package
library(readxl)

CoffeeChain <- read_excel("CoffeeChain.xlsx")

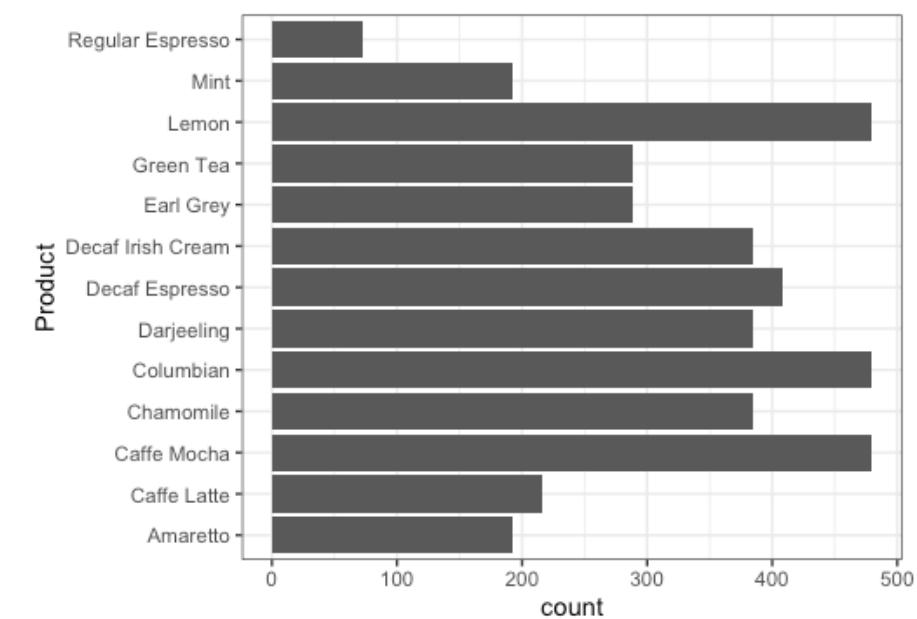
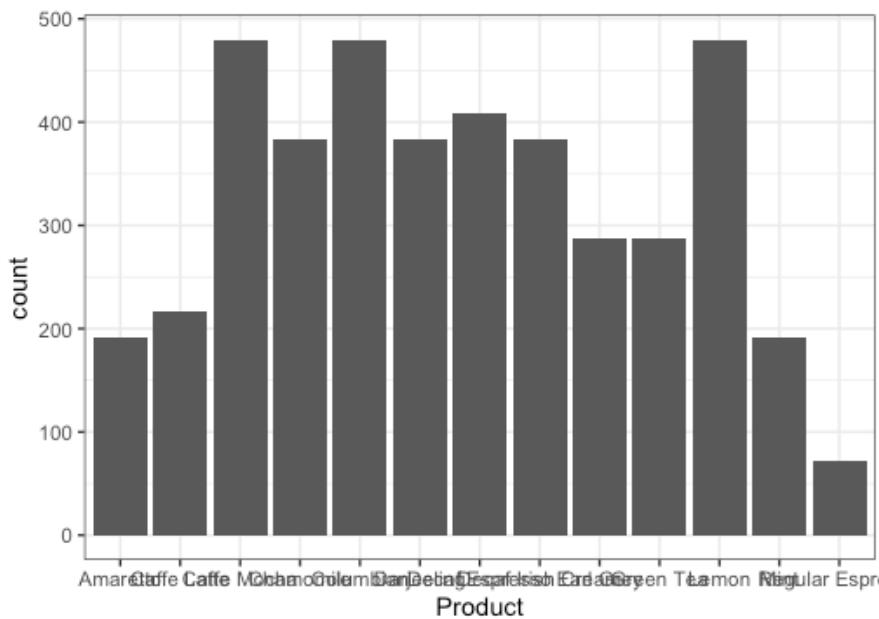
ggplot(data = CoffeeChain, mapping = aes(x = Product)) +
  geom_bar() + theme_bw()

ggplot(data = CoffeeChain, mapping = aes(x = Product)) +
  geom_bar() + theme_bw() +
  coord_flip()
```



# A couple of notes in ggplot2

`coord_flip()` switches the x and y axes. This is useful for long labels



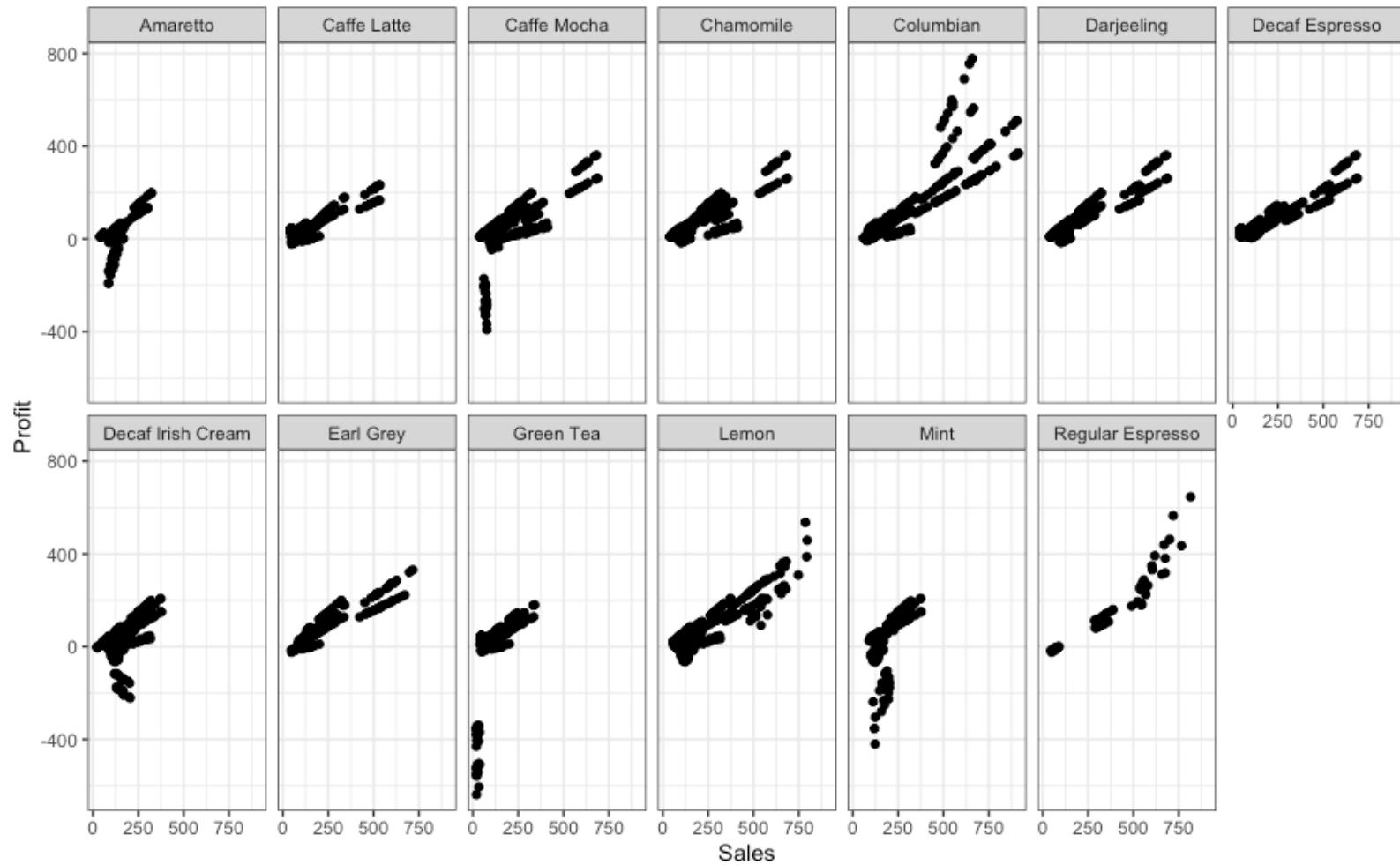
# A couple of notes in ggplot2

Split your plot into **facets**, subplots that each display one subset of the data. This is useful for categorical variables

```
ggplot(data = CoffeeChain) +  
  geom_point(mapping = aes(x = Sales, y = Profit)) +  
  facet_wrap(~ Product, nrow = 2) +  
  theme_bw()
```

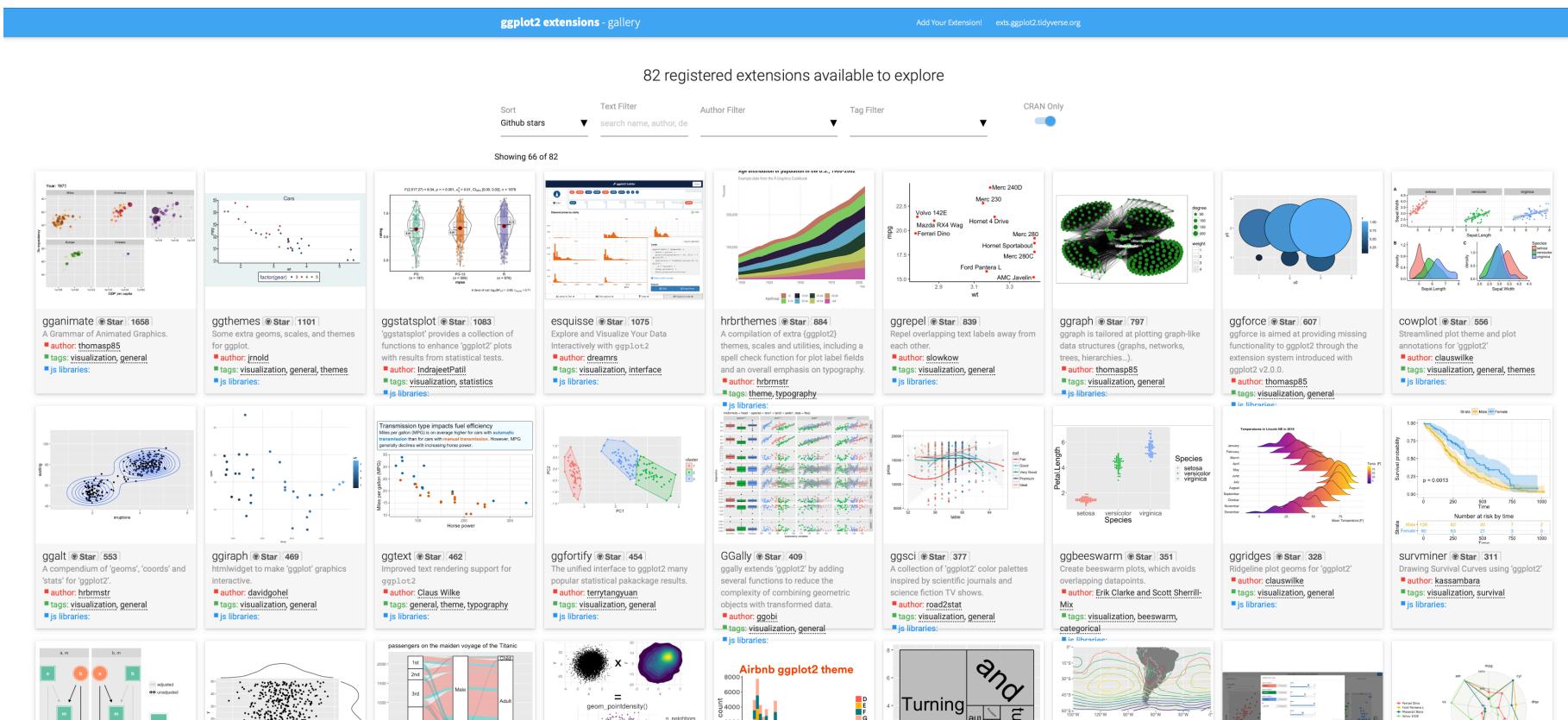


# A couple of notes in ggplot2



# A couple of notes in ggplot2

Many extensions available – the sky is the limit!



# At-Home Exercises

Practice, practice, practice...

Open the CoffeeChain dataset in R. Then create visuals that help answer these questions:

- What products are under performing?
- What correlates with profit?
- Are there issues with certain product lines, products, markets, margins, and costs?

Next, try to use Tableau to create the same visualizations you conducted in R. You getting similar types of visuals?

Check out the ganimate (<https://ganimate.com>) and esquisse (<https://github.com/dreamRs/esquisse>) packages. Also play with different themes (<https://github.com/jrnold/ggthemes>)



# *Thank You!*



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