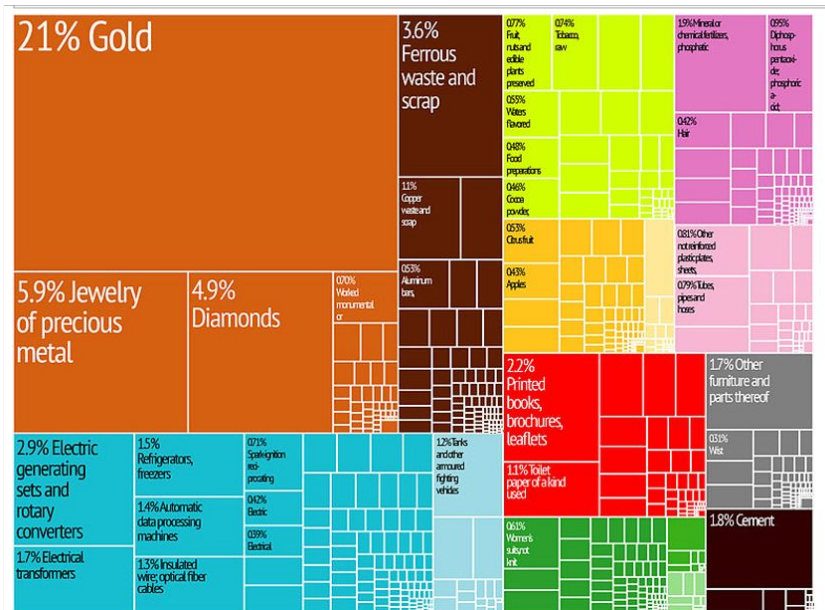


Q: Which visual cue do tree maps use to encode data?



- A. Position common scale
- B. Position non-aligned scales
- C. Length
- D. Direction
- E. Area





CPSC 100

Computational Thinking

**From Perception to Story:
Visual Design & Storytelling**

Instructor: Parsa Rajabi
Department of Computer Science
University of British Columbia



Agenda

- Course Admin
- Learning Goals
- Visualizations
 - Implications of Visualizations
 - Storytelling

Course Admin



Course Admin

- **PC Quiz 7**
 - Due Monday, March 31, 11:59pm
- **Lab 8 Visualization** (last lab! 🎉)
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- **Project Milestone 3** (*have you started yet?!*)
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 - Tuesday, April 22, 7pm; Location: SWING 121



Learning Goals



Learning Goals

After this **today's lecture**, you should be able to:

- Explain the **important of representation** as it relates to visualization design and usage.
- Assess the **suitability of a visualization** for a specific task.
- Compare **effective** and **flawed** visualizations using examples from media.
 - State the **strengths** and **weaknesses** of these data visualizations.
- Assess the **ethical responsibility of designers** in crafting visualizations that truthfully reflect data.

Implications of Visualizations

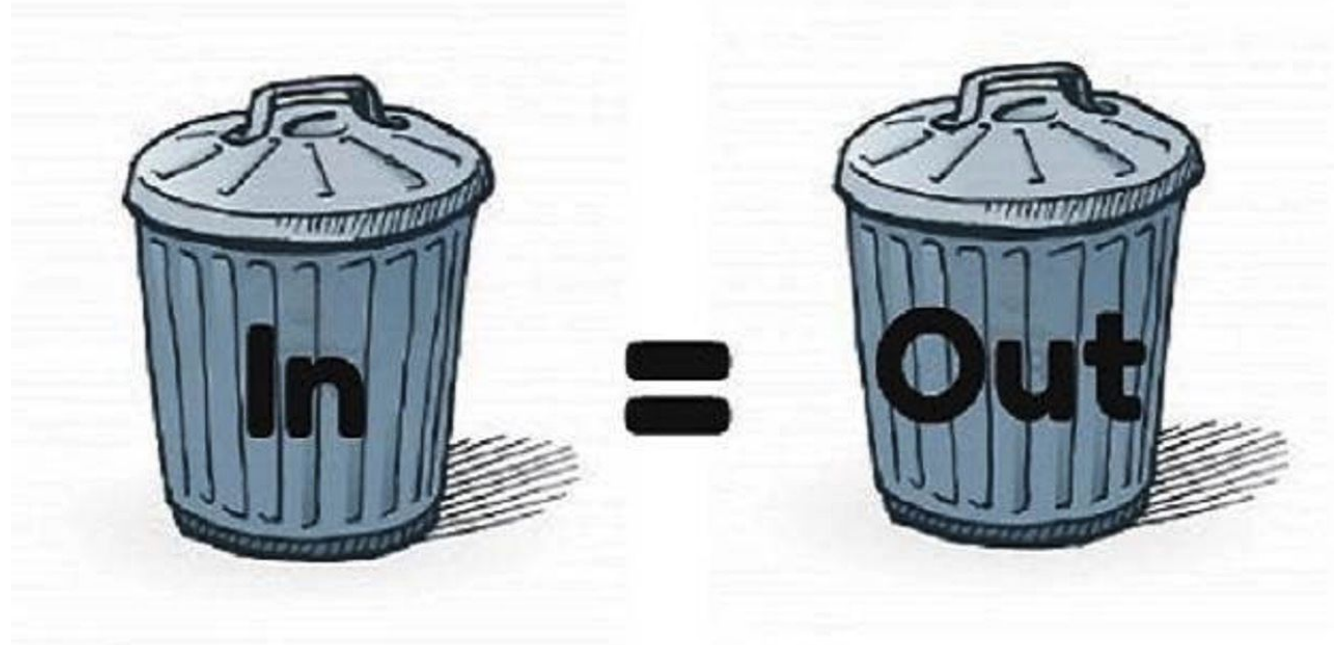


Ethical Considerations

- Visualizations are **NOT** facts
- A visualization's accuracy is dependent upon
 - The quality of the data used
 - The manner in which the data is conveyed
(i.e., its representation)
 - The objectivity of its creator (i.e., what's the goal/motive?)

Implications of Visualization

- Incorrect data
- Missing data
- Insufficient data





Implications of Visualization

- Truncated graphs
- Exaggerated scaling
- Incorrect Attribute to Channel Mapping
- Improper extraction
- Misusing metaphors
 - Is green good or bad? Is red good or bad?
 - Flawed representations

Examples & Discussion





AROUND
The
WORLD


GIANT HORNETS KILL 42 PEOPLE IN CHINA

LIVE
CNN

LIVE
RIGHT NOW

CHICAGO  71°

DETROIT  66°

HOUSTON  77°

HEALTH EVALUATION IN MIRIAM CAREY'S HOME AFTER DC C

CNN.com

<https://www.mediamatters.org/fox-news/dishonest-fox-charts-obamacare-enrollment-edition>

Dishonest Fox Charts: Obamacare Enrollment Edition

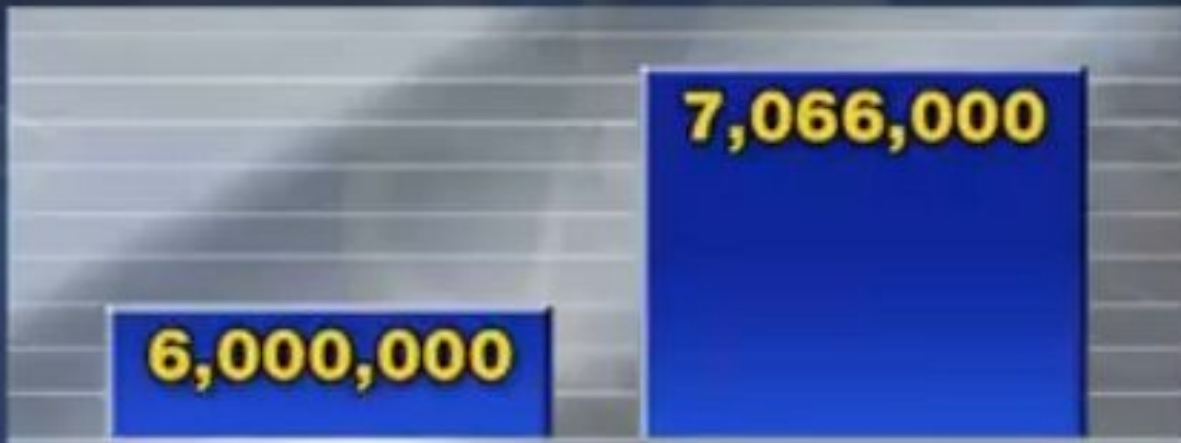
WRITTEN BY [SAMANTHA WYATT](#)

PUBLISHED 03/31/14 11:49 AM EDT

Fox News showed a dramatically skewed chart to suggest enrollment for the Affordable Care Act (ACA) would come up far short of the initial estimate of 7 million enrollees.

On March 27, health insurance enrollment through the ACA's exchanges [surpassed 6 million](#), exceeding the [revised estimate](#) of enrollees for the program's first year before the March 31 open enrollment deadline. Enrollment appears on track to hit the Congressional Budget Office's initial estimate of [7 million](#) sign-ups, and taking Medicaid enrollees into account, the ACA will have reportedly extended health care coverage to at least [9.5 million](#) previously uninsured individuals.

OBAMACARE ENROLLMENT



AS OF
MARCH 27

MARCH 31
GOAL



8:13 CT

SOURCE: HHS

STUDIO ESTIMATES... TEEN SCI-FI FLICK "DIVERGEN" S&P FUT ▲ 10.50

OBAMACARE ENROLLMENT



FOX NEWS
channel

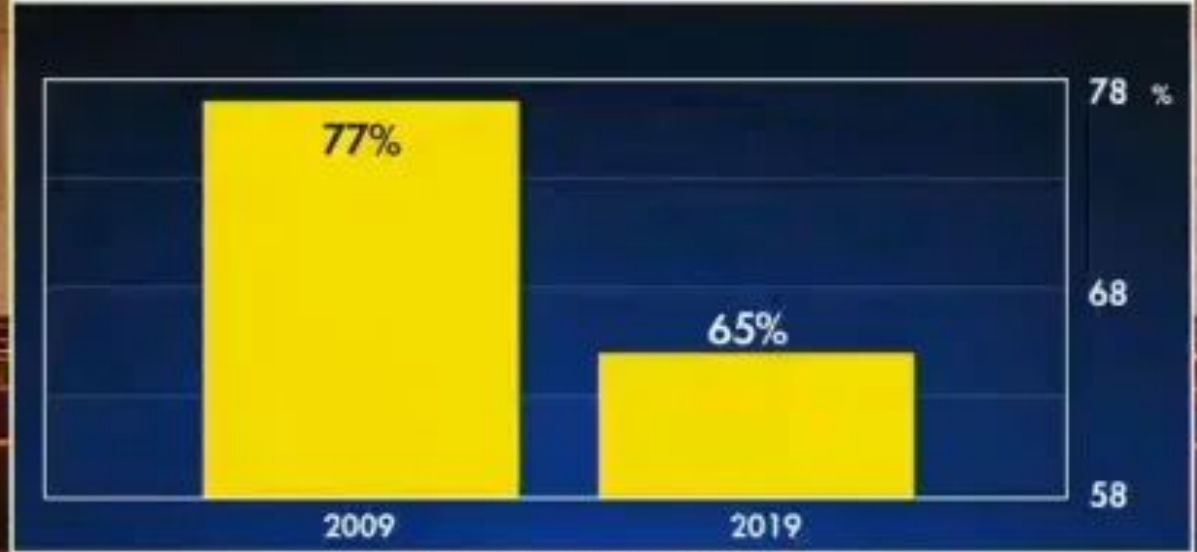
SOURCE: CBO

AMERICA'S
newsroom

ERED DISCOUNTED FUEL TO FMR UKRAINIAN PRES V S&P FUT ▲ 6.50



PERCENTAGE OF AMERICANS THAT IDENTIFY AS CHRISTIANS



PEW RESEARCH CENTER

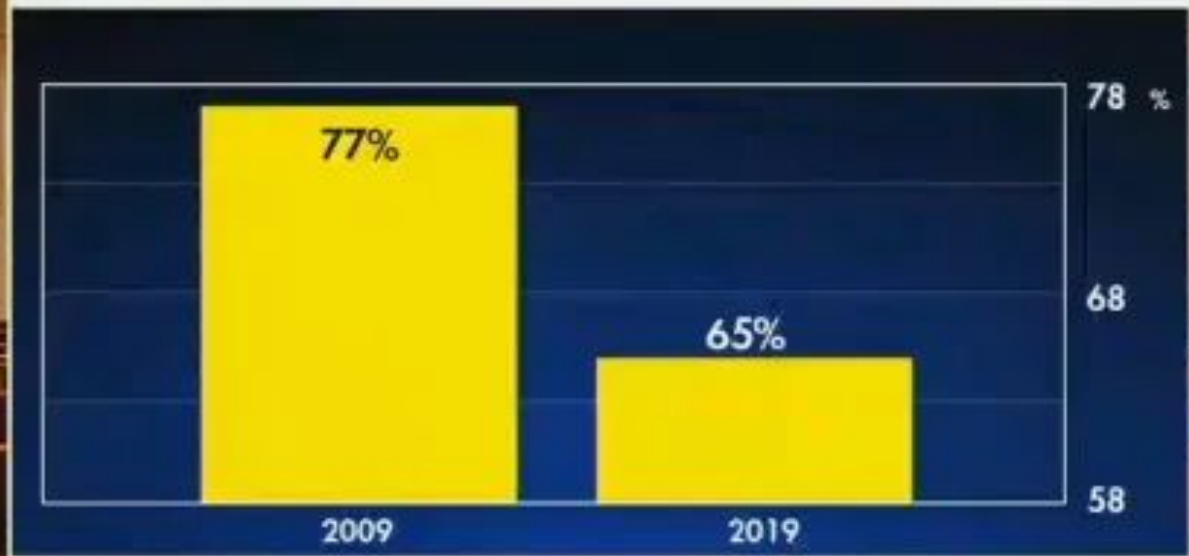


WE USED TO BE AN ENTHUSIASTICALLY CHRISTIAN NATION

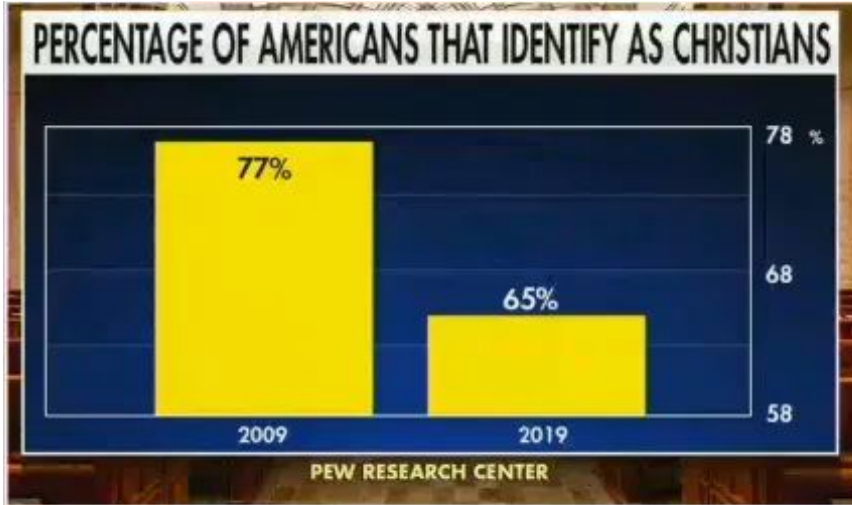
TUCKER CARLSON • TONIGHT •



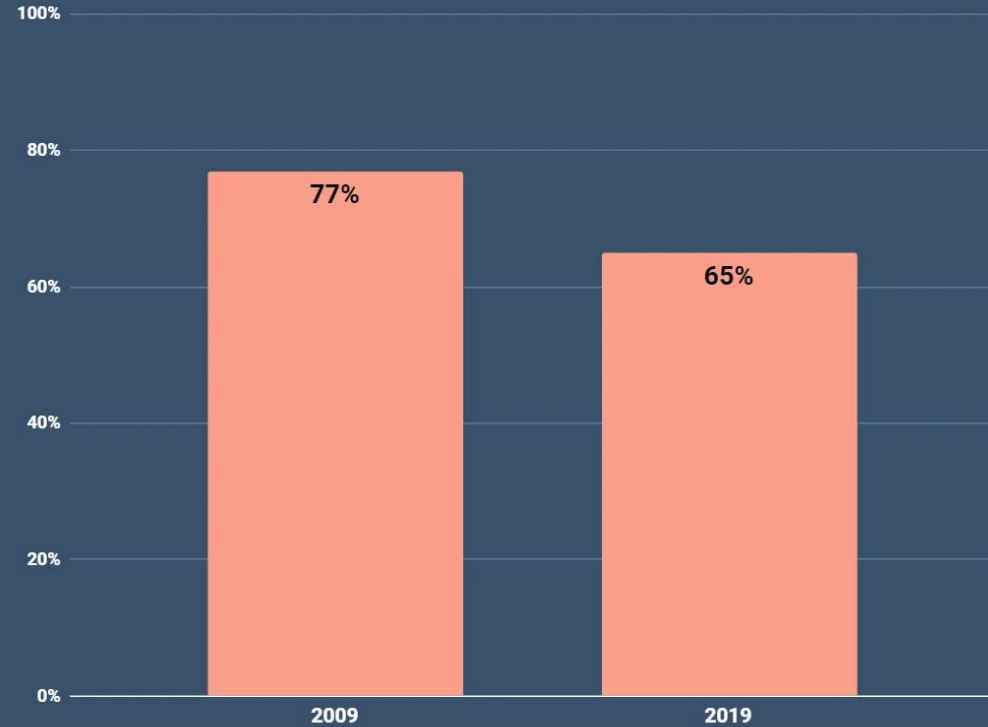
PERCENTAGE OF AMERICANS THAT IDENTIFY AS CHRISTIANS



PEW RESEARCH CENTER



Percentage of Americans That Identify as Christians



YANG WINS IOWA'S OFFICIAL YOUTH STRAW POLL!

YANG 22.5%

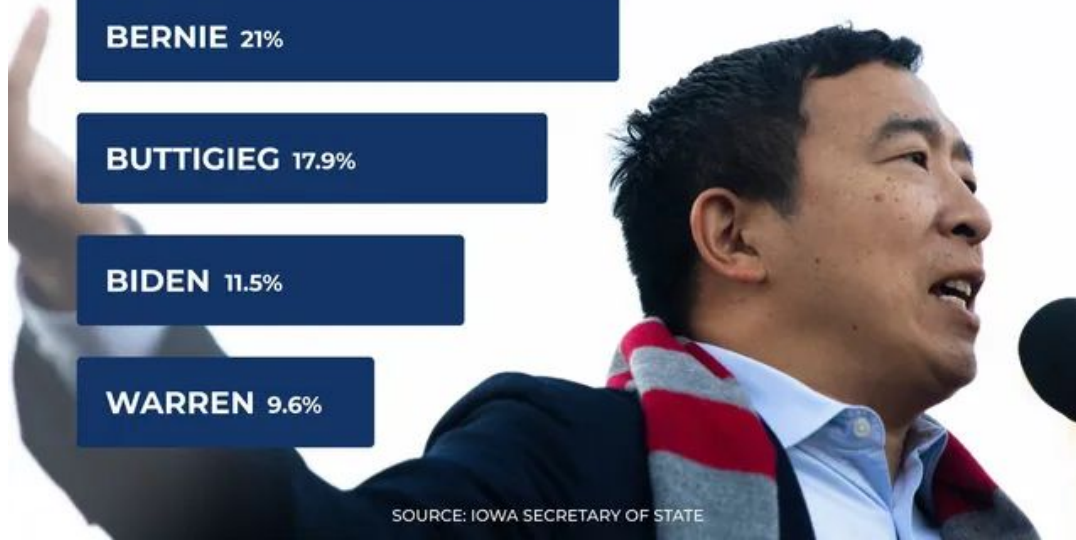
BERNIE 21%

BUTTIGIEG 17.9%

BIDEN 11.5%

WARREN 9.6%

SOURCE: IOWA SECRETARY OF STATE



Yang 2020

YANG WINS IOWA'S OFFICIAL YOUTH STRAW POLL!

YANG 22.5%

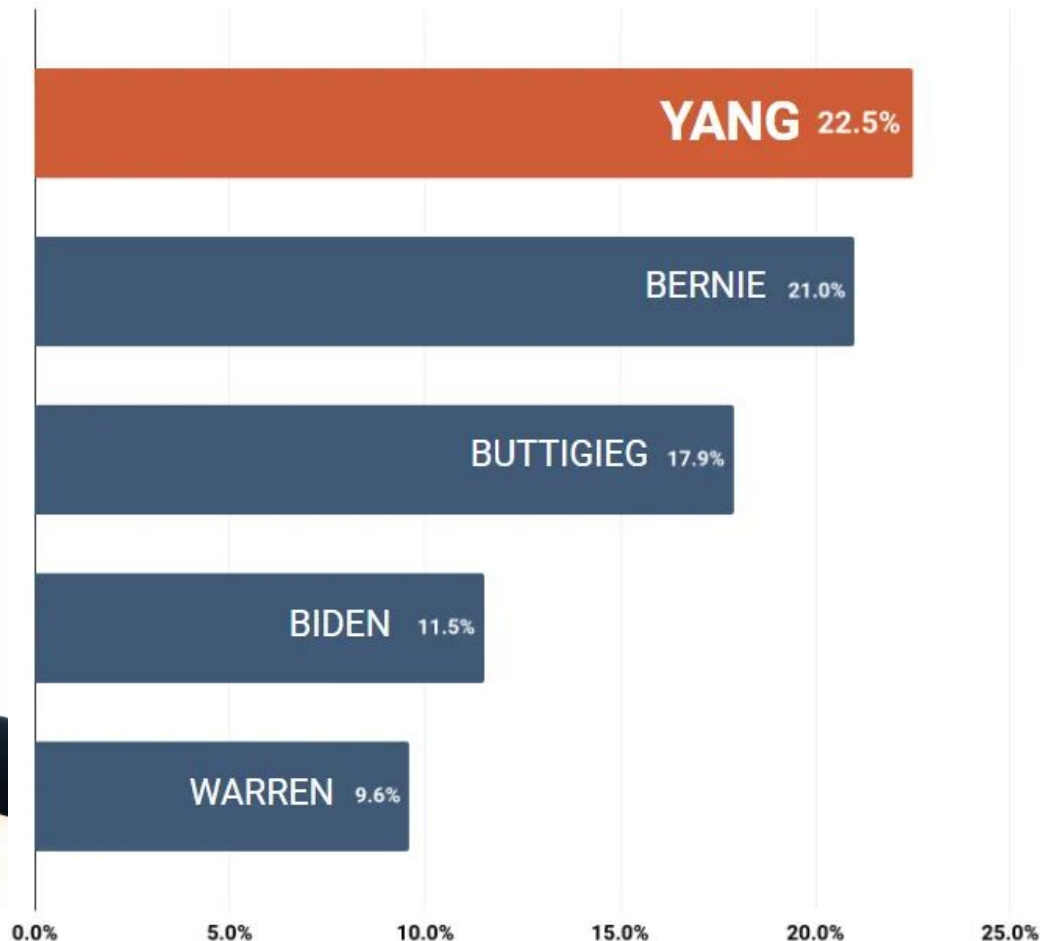
BERNIE 21%

BUTTIGIEG 17.9%

BIDEN 11.5%

WARREN 9.6%

SOURCE: IOWA SECRETARY OF STATE





DAVIDsTEA

1d · 🌐

On a scale of 1 to Energizer Bunny, how much caffeine do you need today? Please refer to the chart above and plan accordingly 🧐

<https://bit.ly/DTShopAll>

caffeine ratings





DAVIDsTEA

1d • 🌍

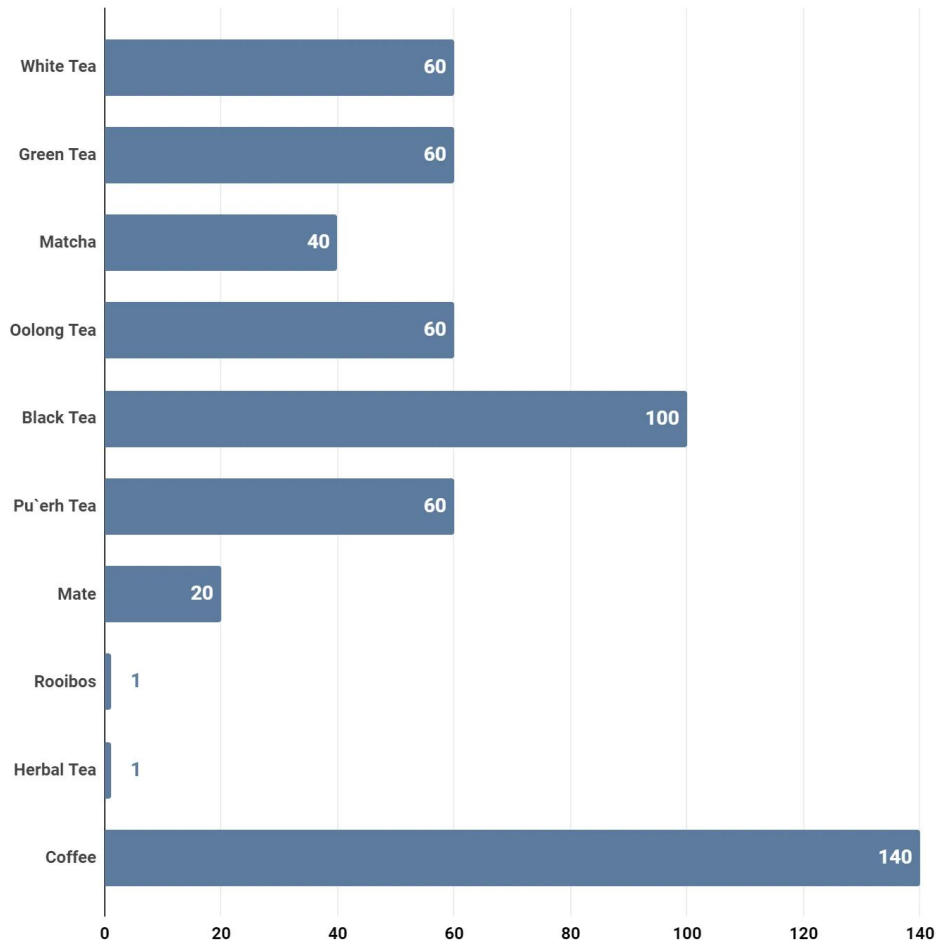
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caffeine ratings



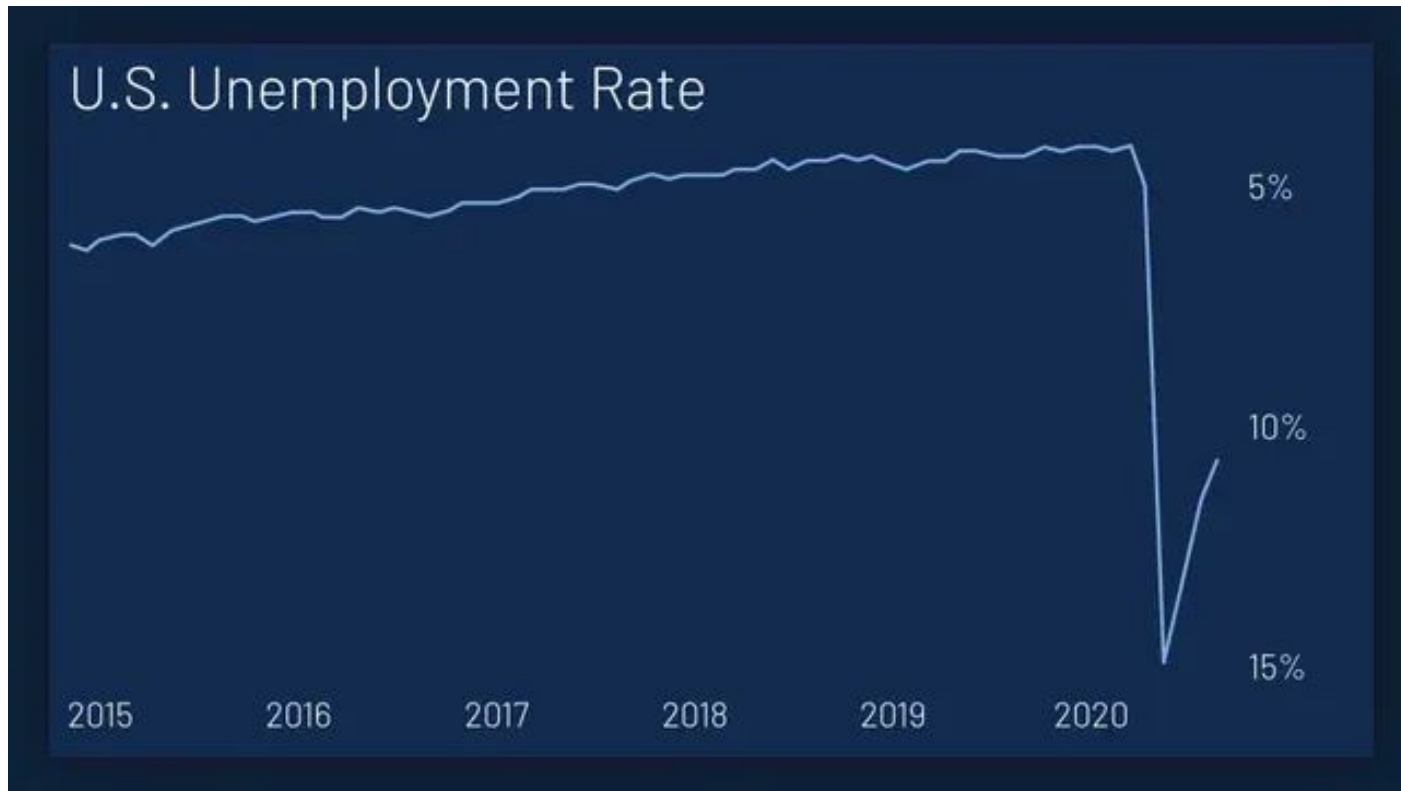
Caffeine Ratings



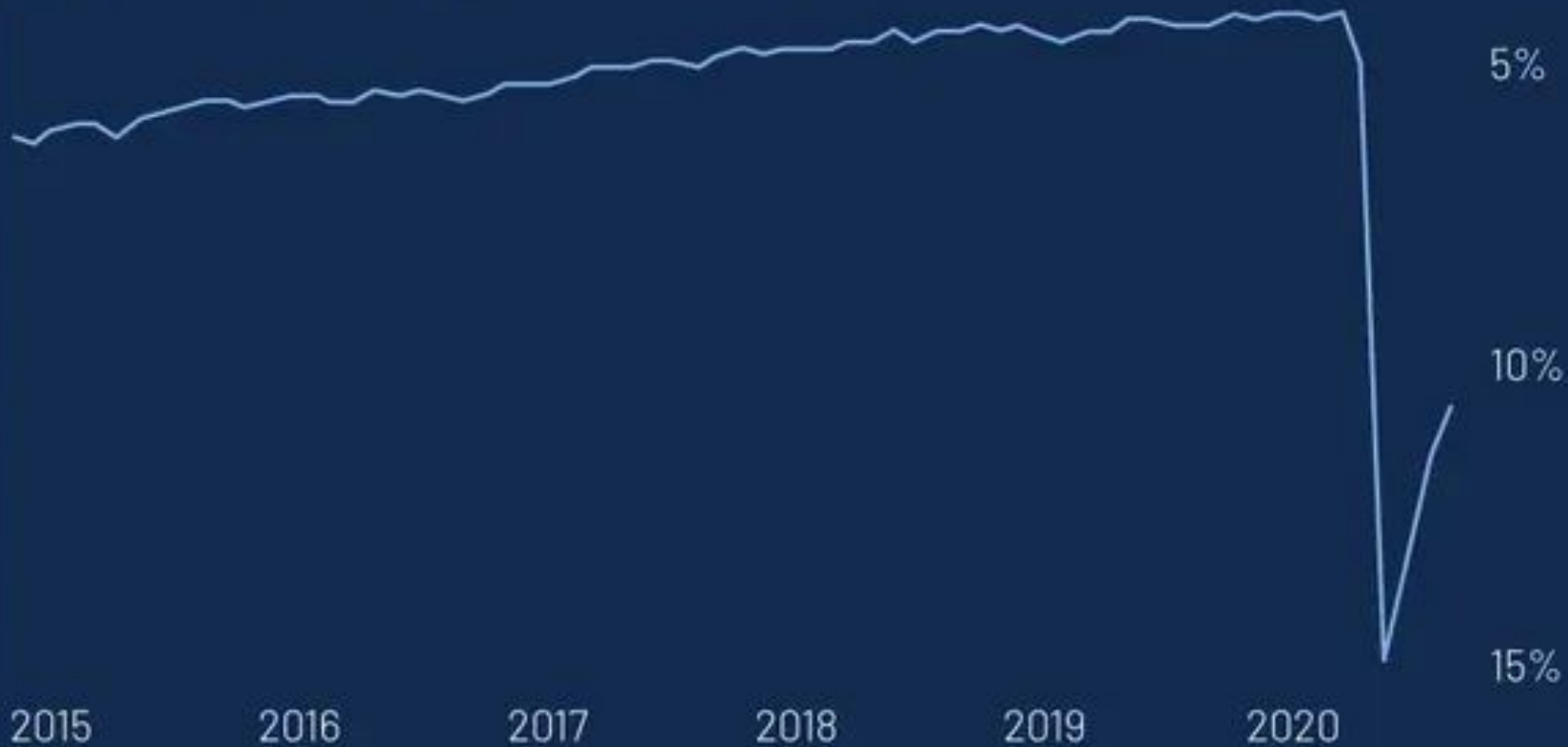
Q: What is wrong with the following graph?



iClicker



U.S. Unemployment Rate



U.S. Unemployment Rate



U.S. Unemployment Rate



U.S. Unemployment Rate



■ SE DESPLOMA EL COBRE POR EFECTO DEL CORONAVIRUS



FUENTE: AGENCIAS



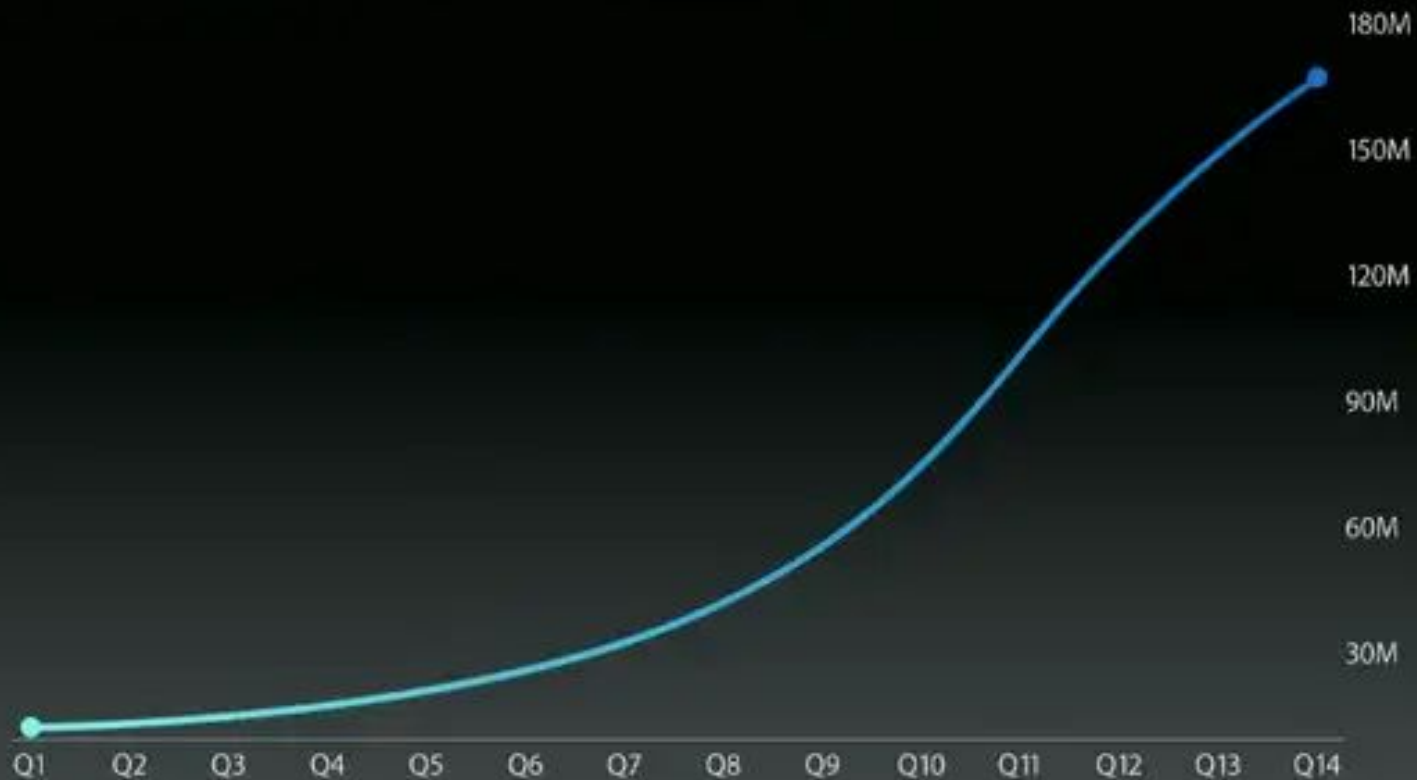
■ SE DESPLOMA EL COBRE POR EFECTO DEL CORONAVIRUS



FUENTE: AGENCIAS



Cumulative iPad sales



Cumulative iPad sales



M3 family performance cores

🍏 M3 family



🍏 M2 family



15% faster

🍏 M1 family



30% faster

COVID COMMUNITY LEVELS

AS OF JUNE 30

PROVIDENCE
LOW

KENT
MEDIUM

WASHINGTON
LOW

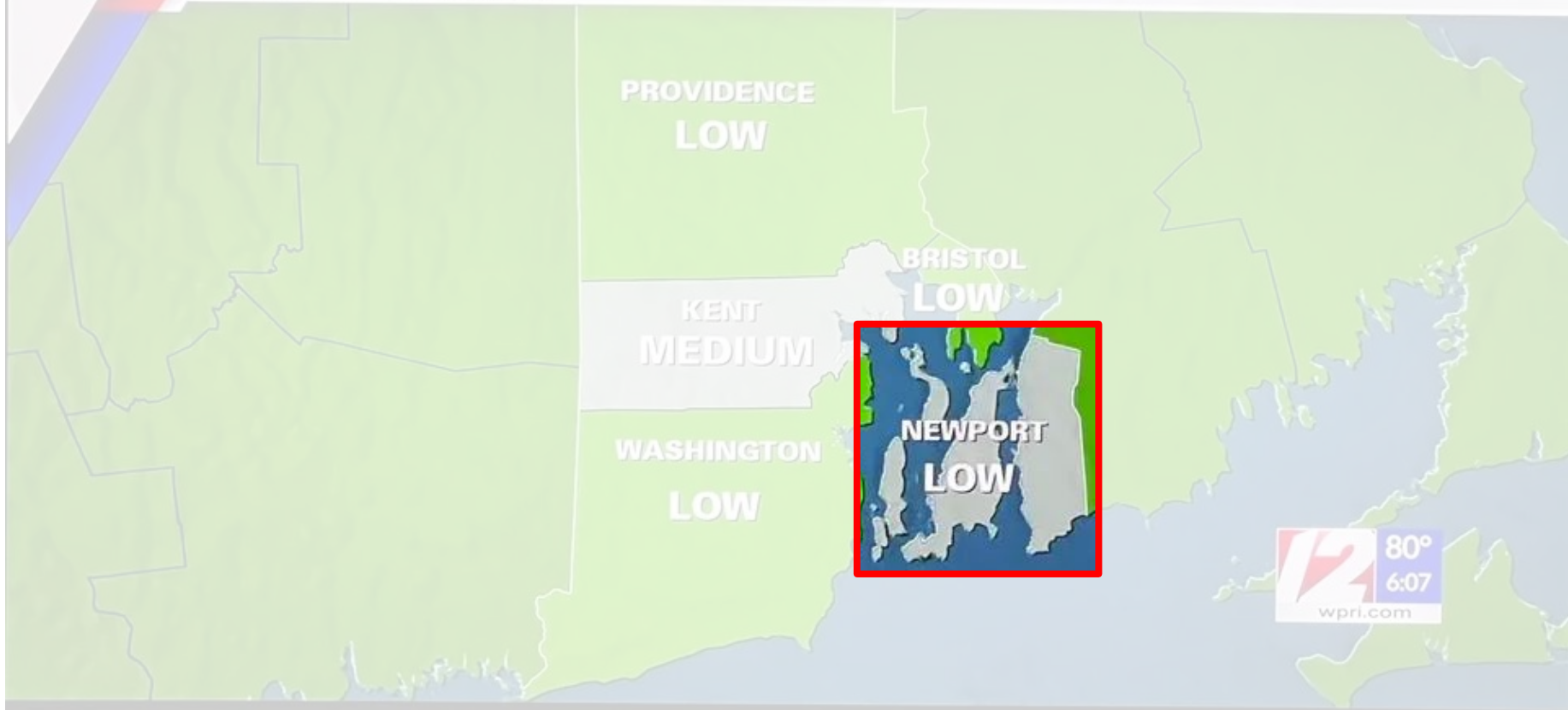
BRISTOL
LOW

NEWPORT
LOW



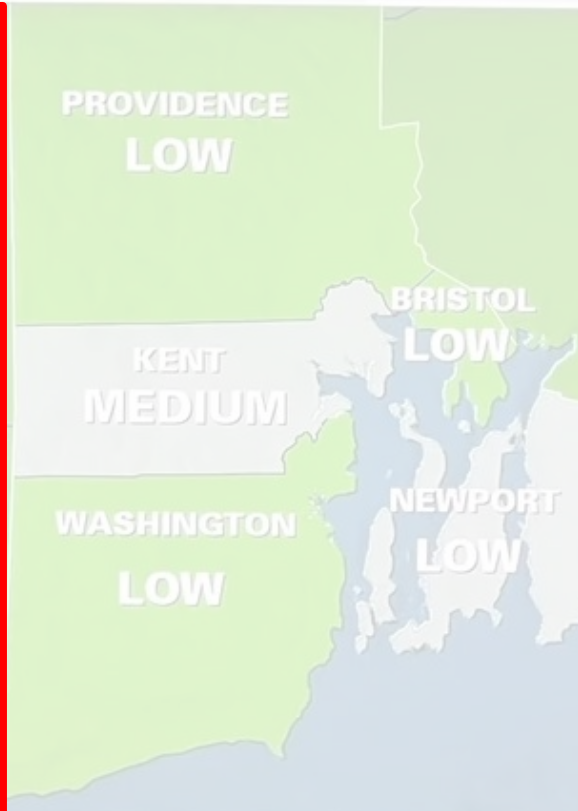
COVID COMMUNITY LEVELS

AS OF JUNE 30



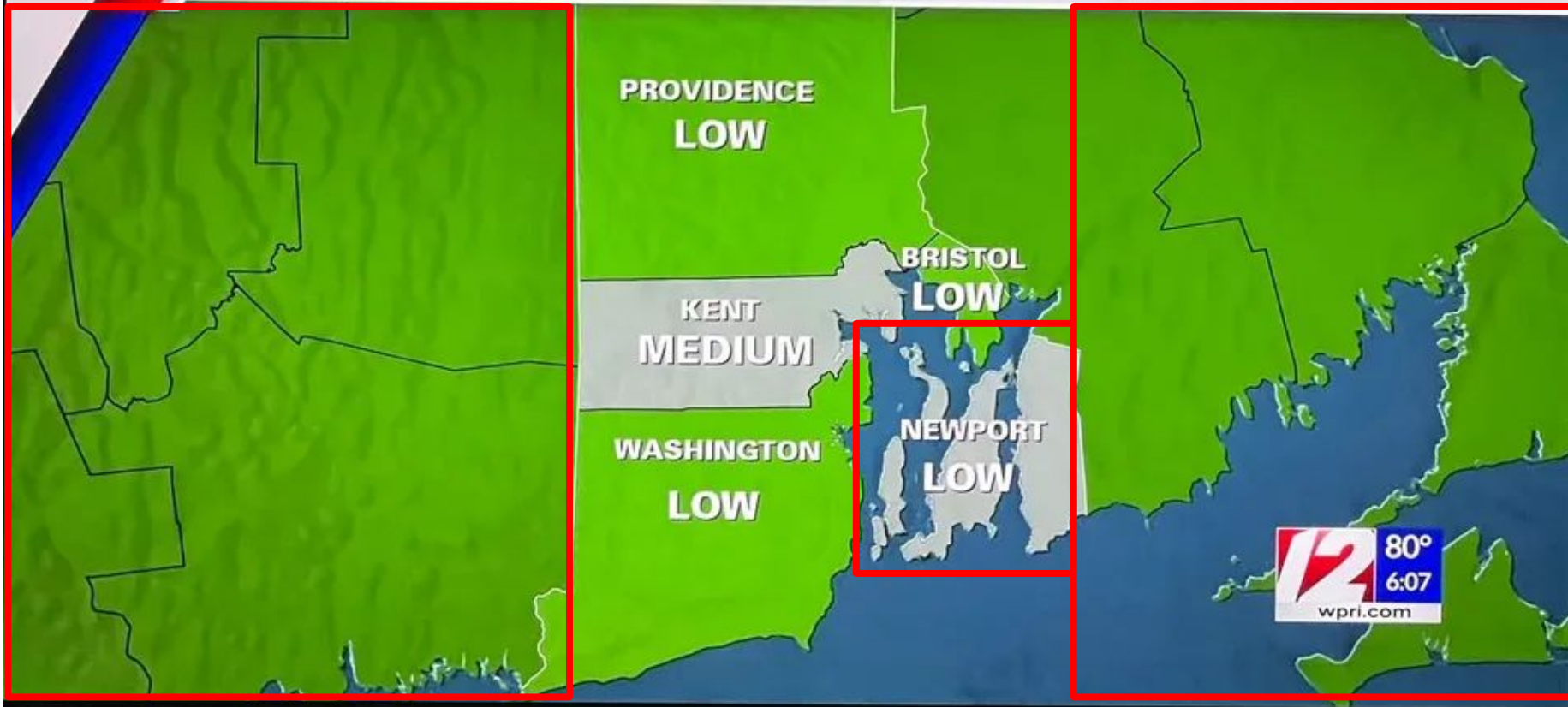
COVID COMMUNITY LEVELS

AS OF JUNE 30



COVID COMMUNITY LEVELS

AS OF JUNE 30







Objectivity of Creator

Can statistics lie?

- Statistics don't lie, people do.
- Numbers can be manipulated to skew a story
- You should check who is producing or promoting a statistic
 - Are they directly related?
 - Do they have an agenda they want to push?
 - **How** did the number come about?



When looking at visualizations...

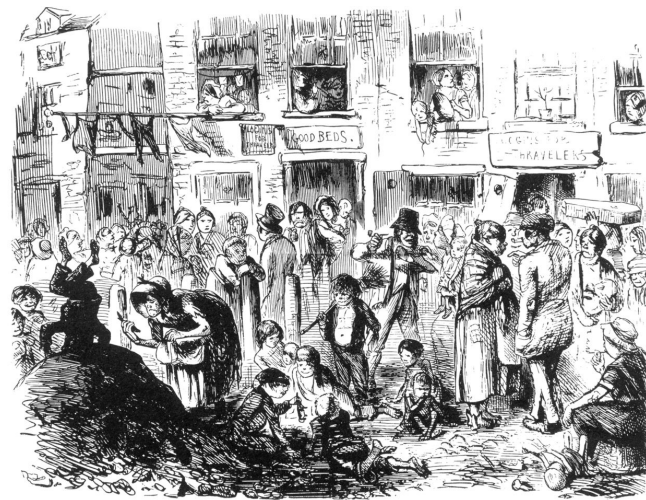
- A lot of the same rules apply!
- You want to look at
 - who the visualization is from
 - what kind of agenda they may have
 - how the numbers they are using came about
- Sometimes, visualizations will take advantage of **people's first impressions...**



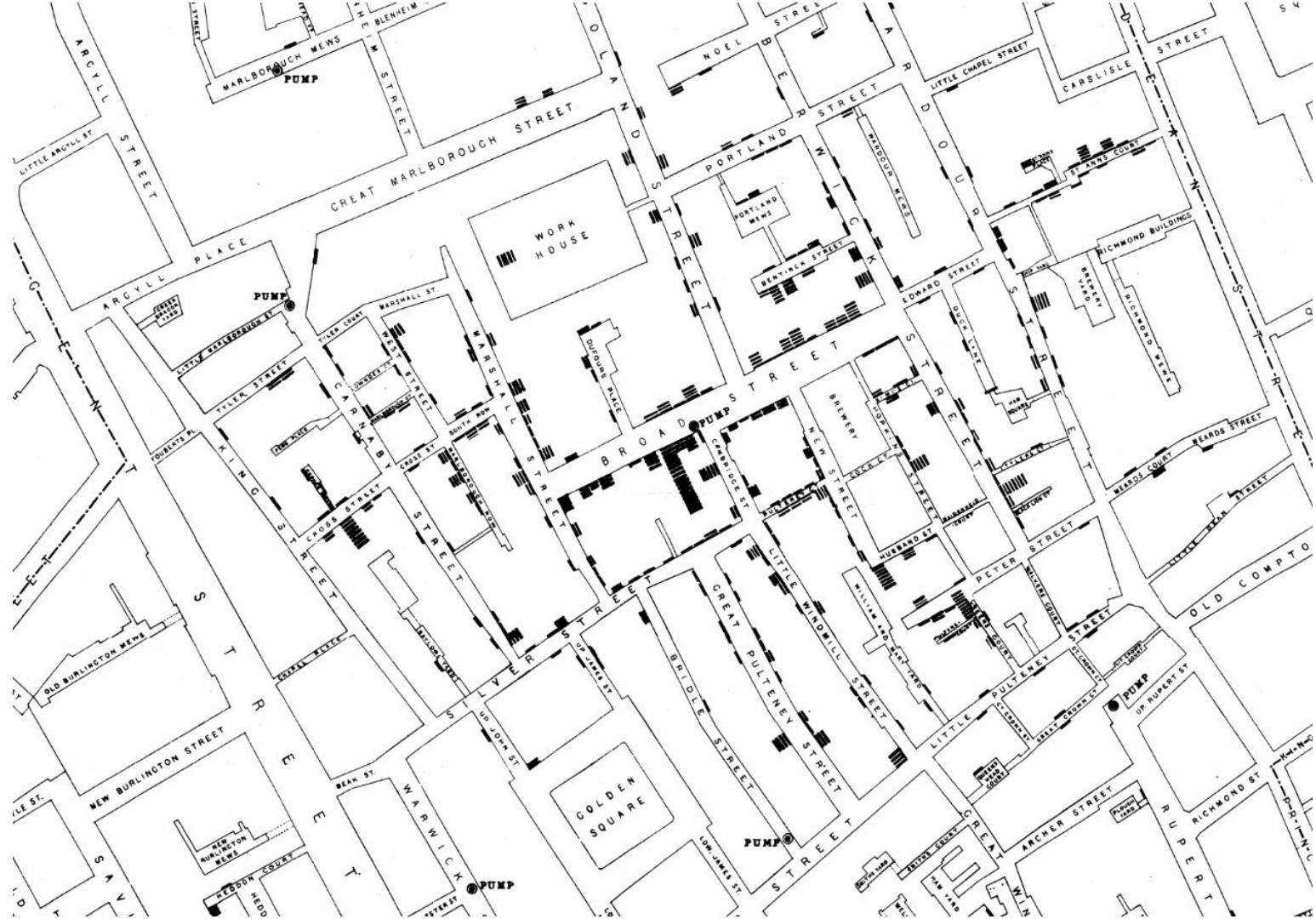
Mini-Activity

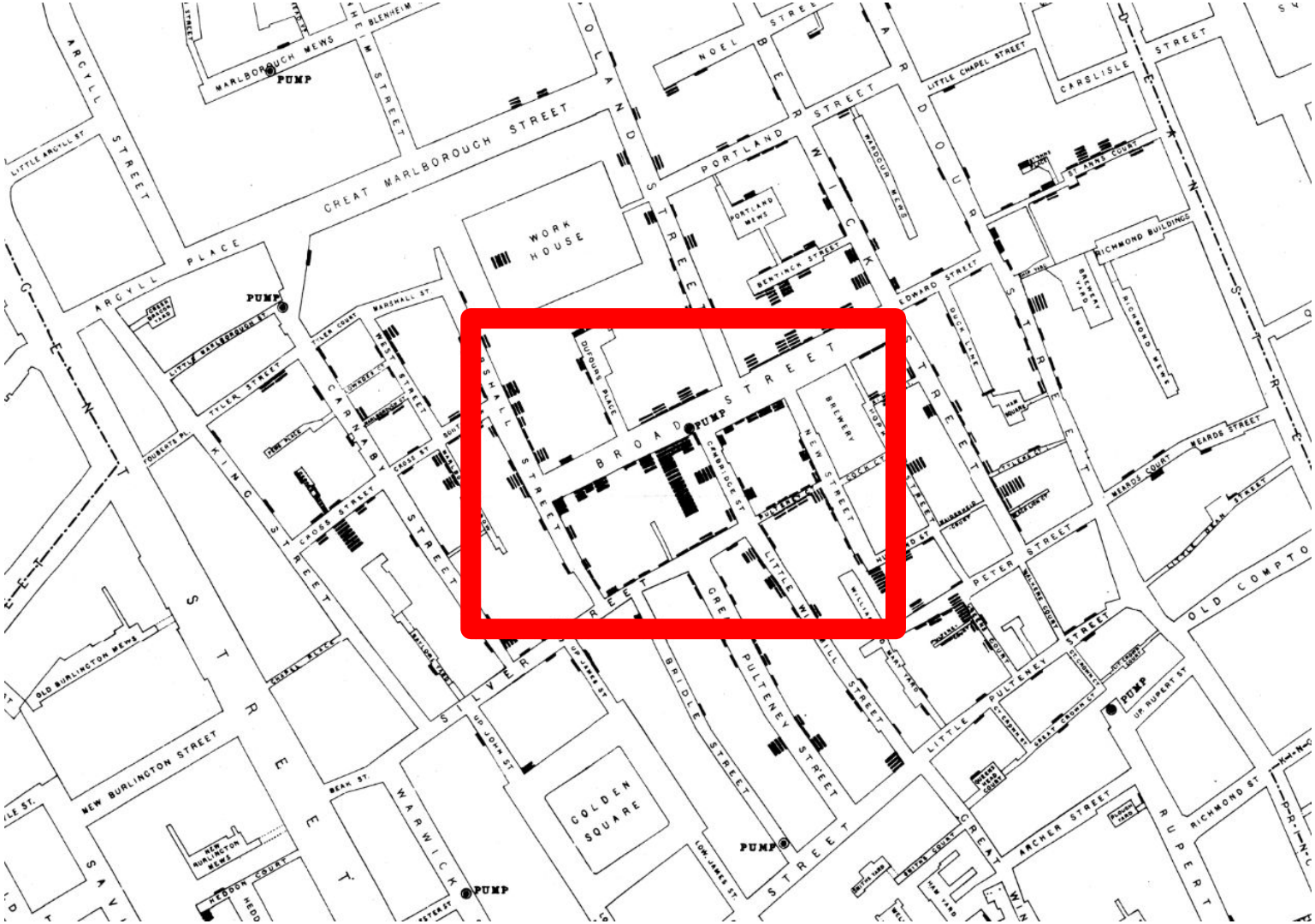
In groups of 2-3: Solve the Cholera Outbreak!

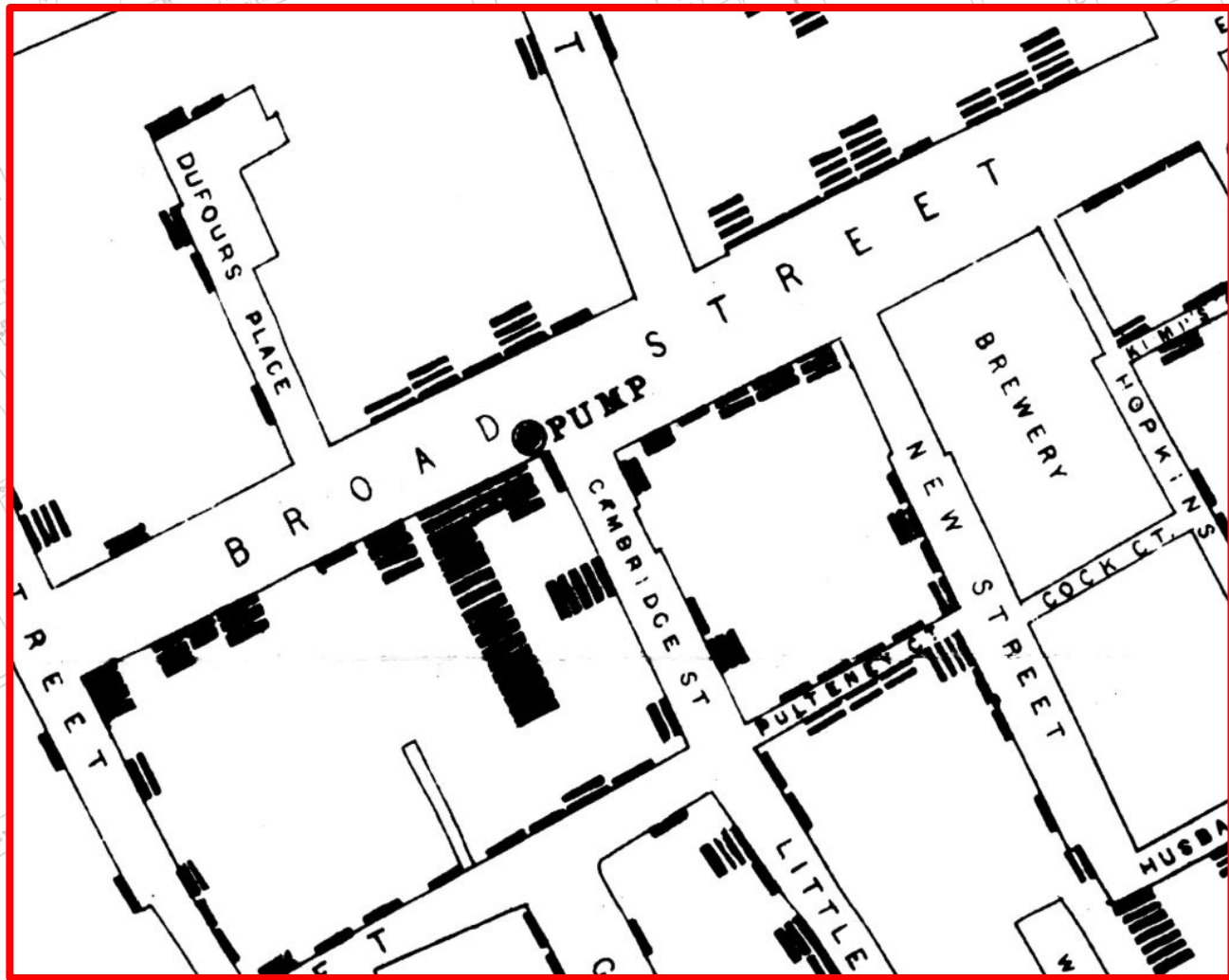
- It is **1854** (remember: no computers!) and the government has told you to find the source of the outbreak.
 - What would you do?
 - What kind of information would you want to collect?
 - What would you do with the information? Since there are no computers help organize information, how would you deal with the amount of information that you get?

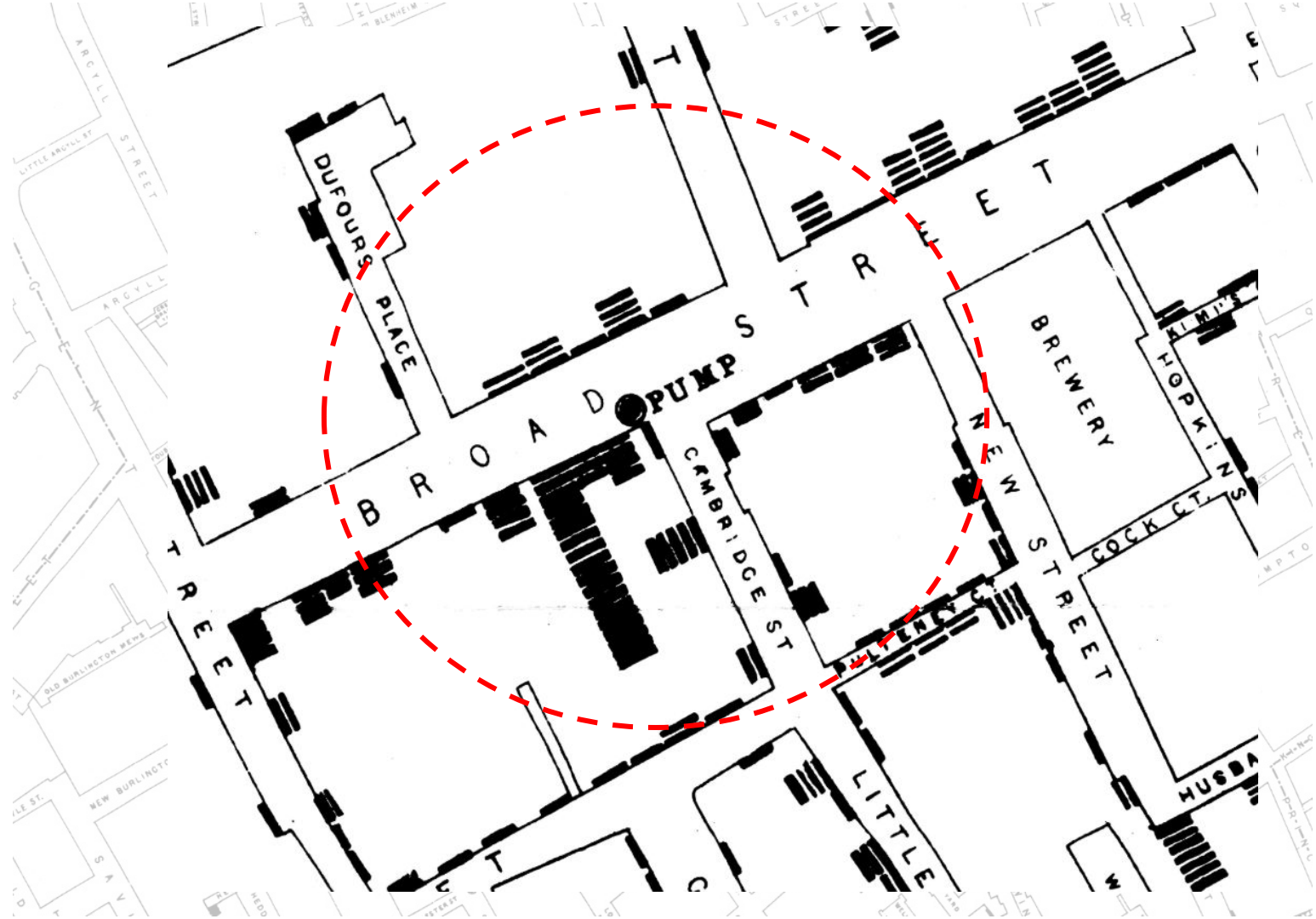


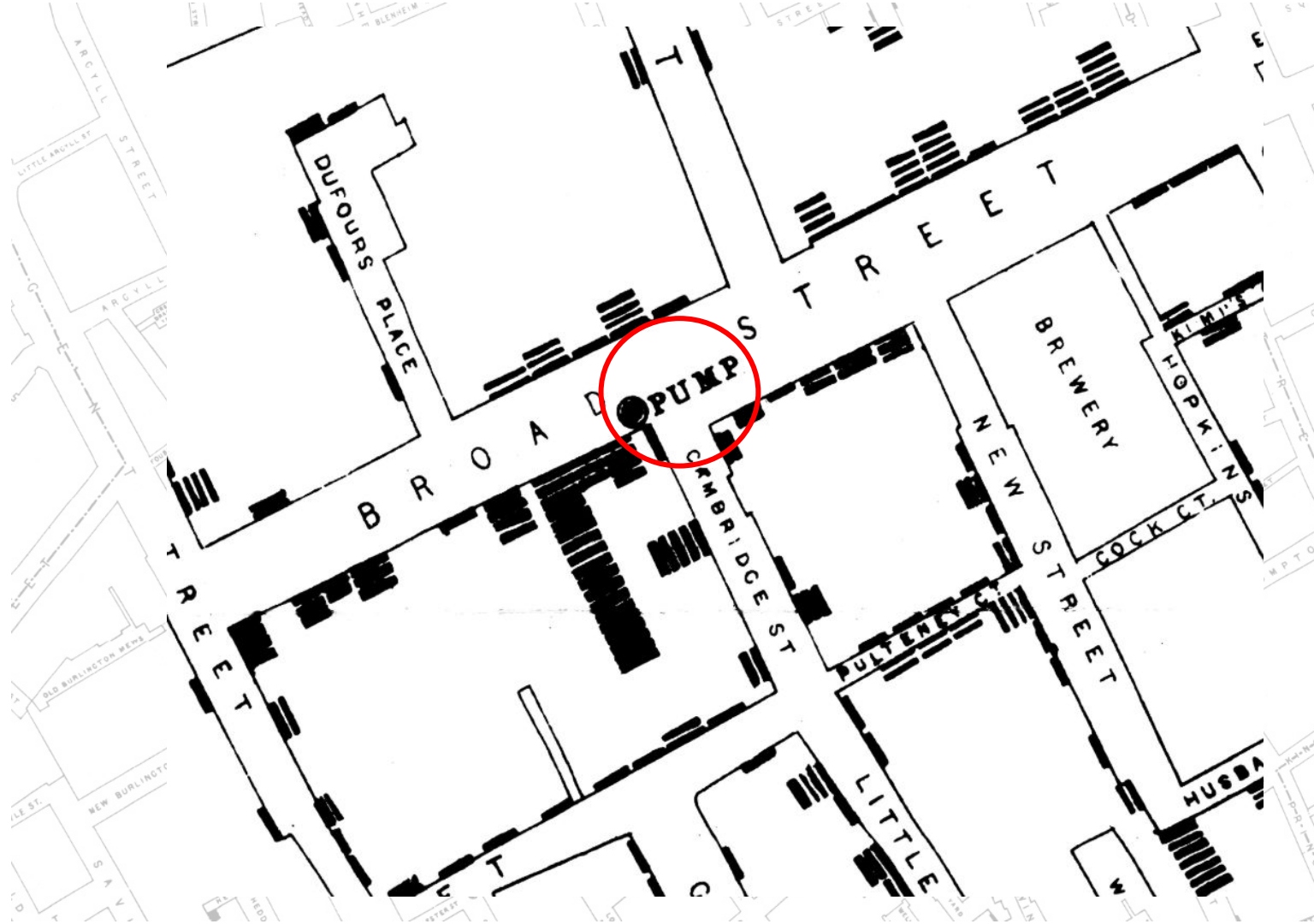
A COURT FOR KING CHOLERA.





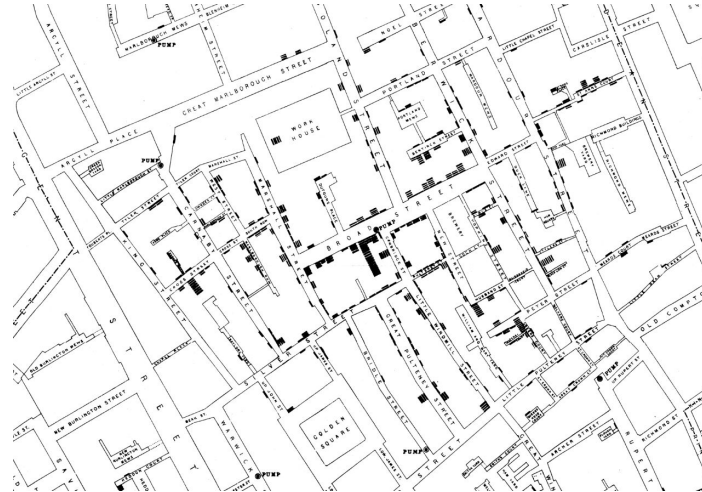






Cholera in 1854 London

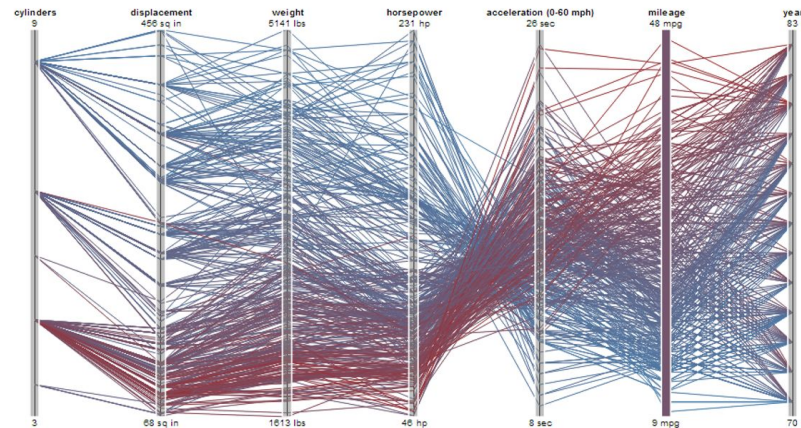
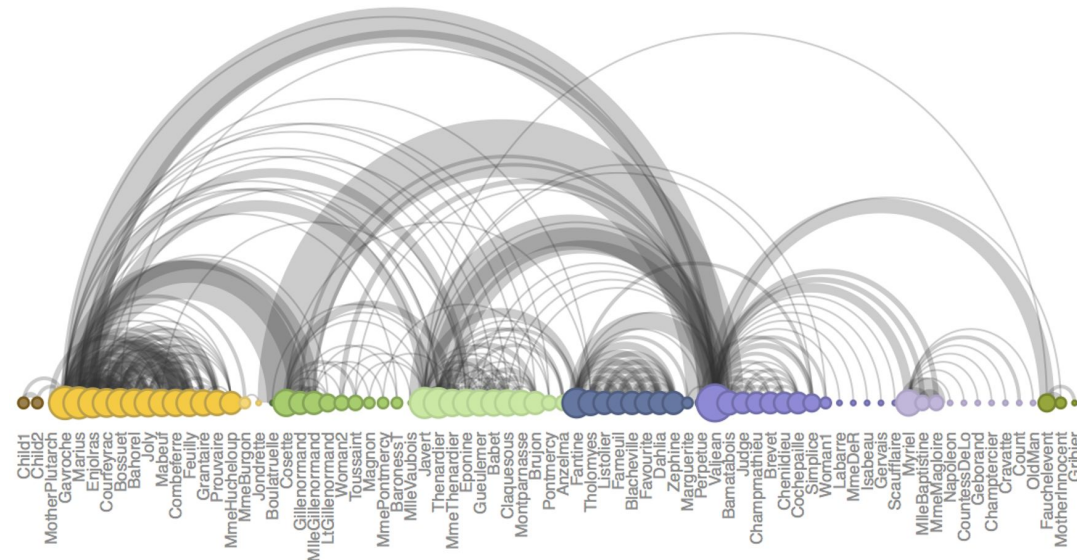
- Dr. John Snow plotted cholera deaths based on where the patient lived
- He eventually isolated the cause that the public water pump was infected
- The government took away the water pump's handle to stop people from using it; the outbreak died down





Limitations of Static Visualization

- Difficult to represent large amounts of data
- Inability to properly support the question and answer process involved in data analysis
- But how do we fix this...?



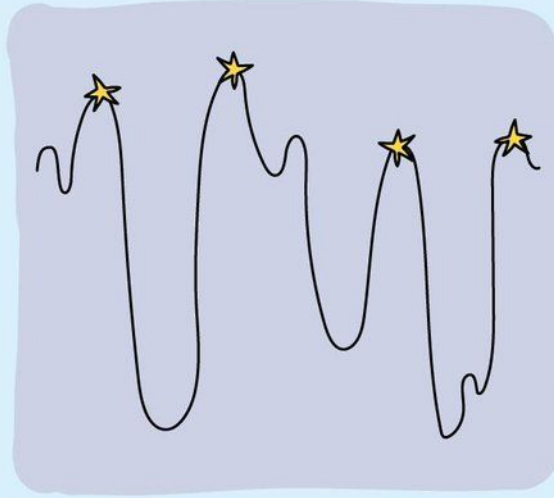
Wrap up



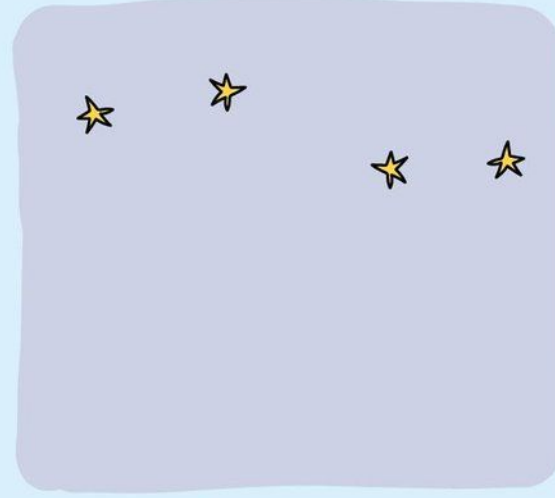
Wrap Up

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LIFE



WHAT WE SEE
ON SOCIAL MEDIA



LIZ FOSSLIE



What was your main takeaway from today's session?



Take Home Reading

Visualization: Fact or Fiction?

<https://www.business.com/articles/data-visualization-downfalls/>

Fact or Fiction: Common Downfalls of Data Visualizations

Learn how to create better visuals in your presentations that will foster trust and communication.



Written by: Sanket Shah, Senior Editor

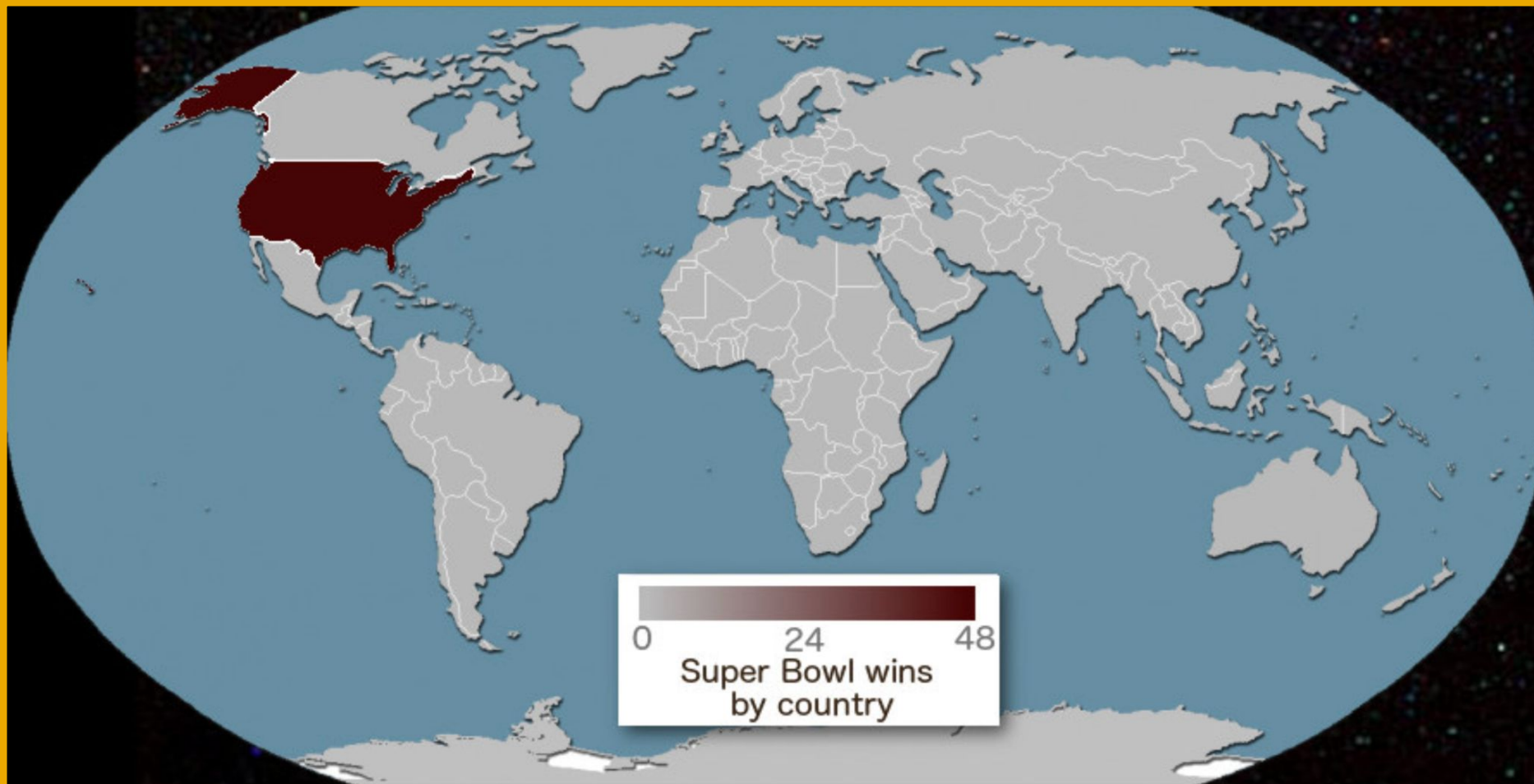


Editor Verified: Gretchen Grunburg, Senior Editor

Updated May 02, 2024

Take Home Activity

**What's wrong with
the following
visualizations?**



AMERICANS WHO HAVE TRIED MARIJUANA

CBS NEWS POLL

51%
TODAY

43%
LAST YEAR

34%
1997



Source: MOE +/- 4%

HIGH SUPPORT FOR LEGALIZING MARIJUANA

MORE THAN HALF OF AMERICANS SAY THEY'VE TRIED POT

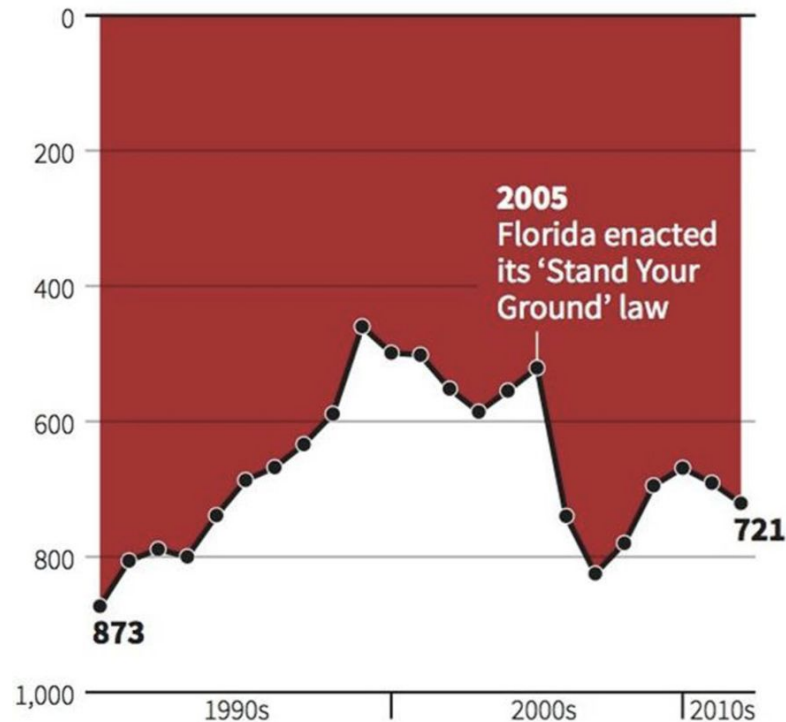


LIVE

CBSN

Gun deaths in Florida

Number of murders committed using firearms



Source: Florida Department of Law Enforcement

M3 CPU performance

