

WiFi LIVE ONLINE TRAINING

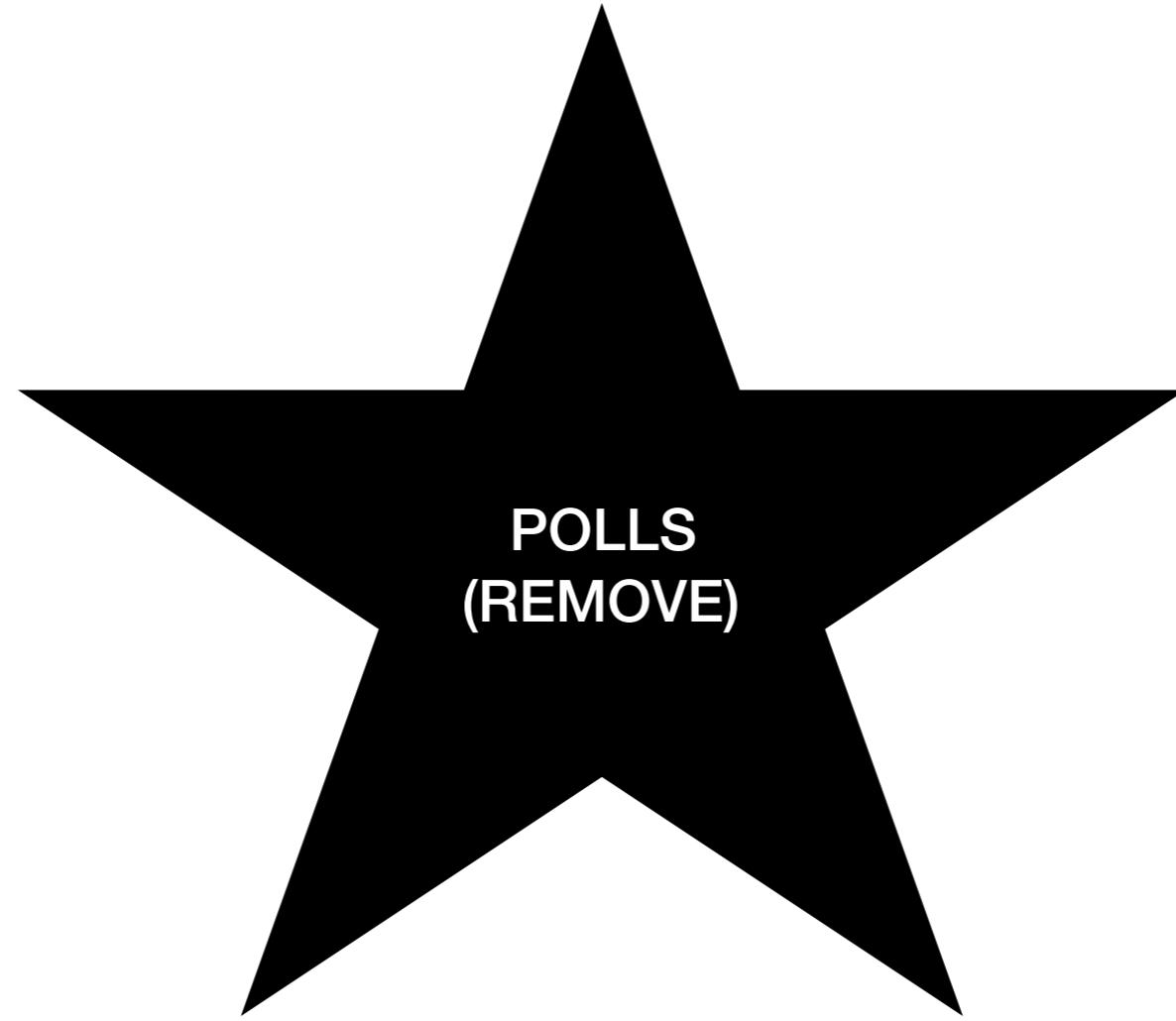
# First Steps: Visualization with Altair



<https://resources.oreilly.com/binderhub/first-steps-visualization-with-altair>

April 6, 2020

9:00pm – 11:00pm +07



1. Do you actually like matplotlib?
2. Have you ever used ggplot2?

**NYC / 2016**



NYC / 2016

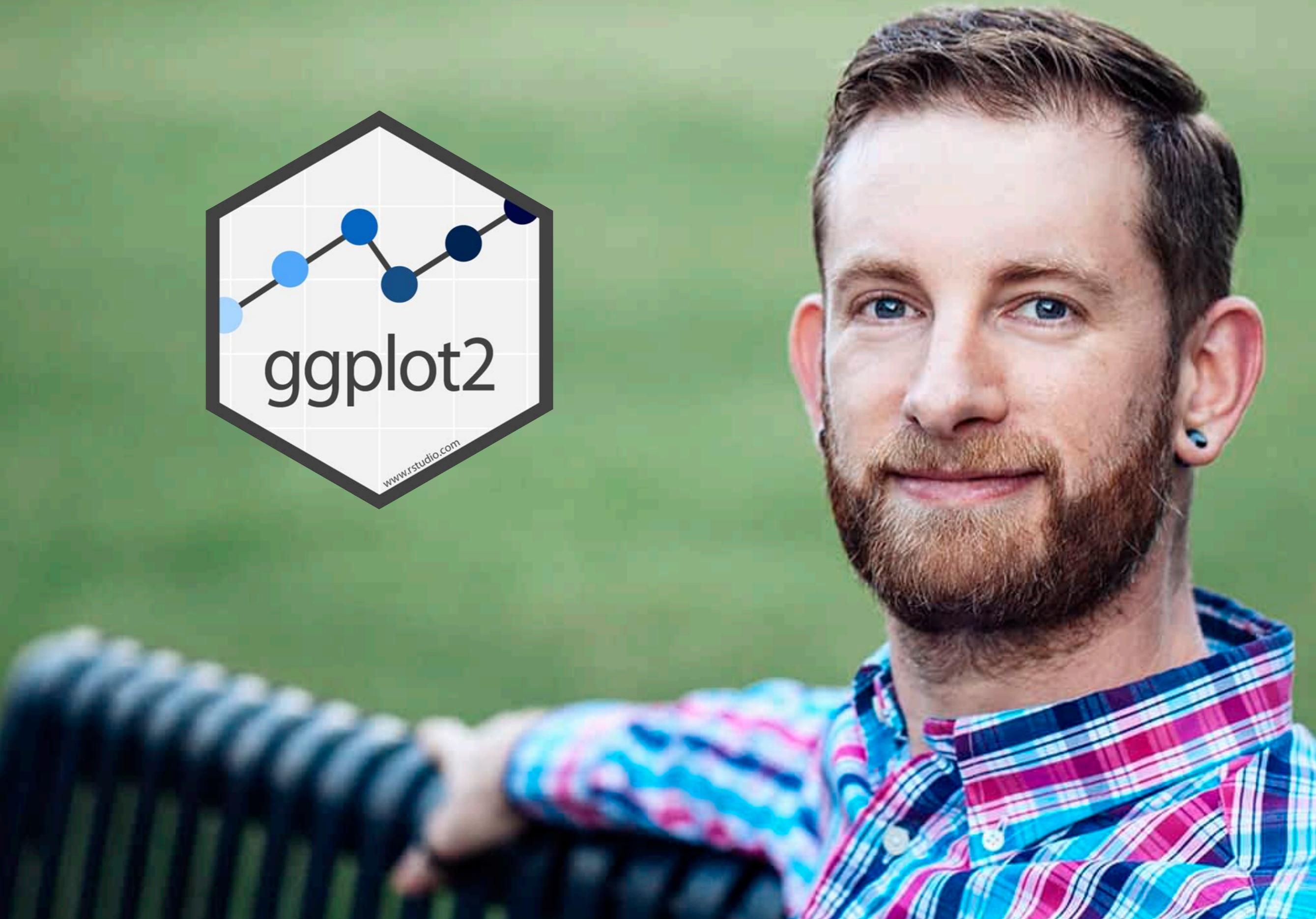
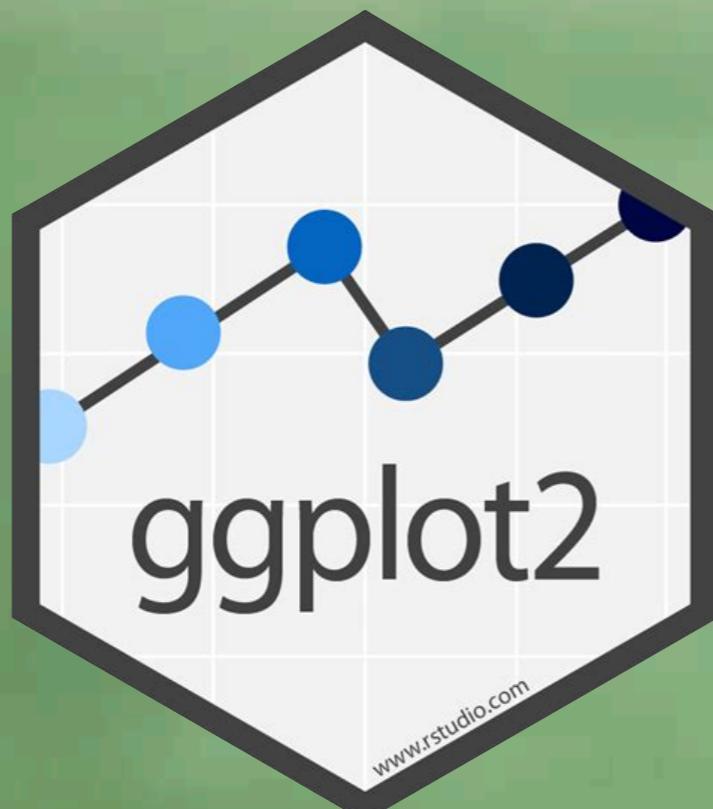


1 - General

2 - General

3 - R

4 - Python





**ggplot2**

>>>>>



**matplotlib**

# FiveThirtyEight

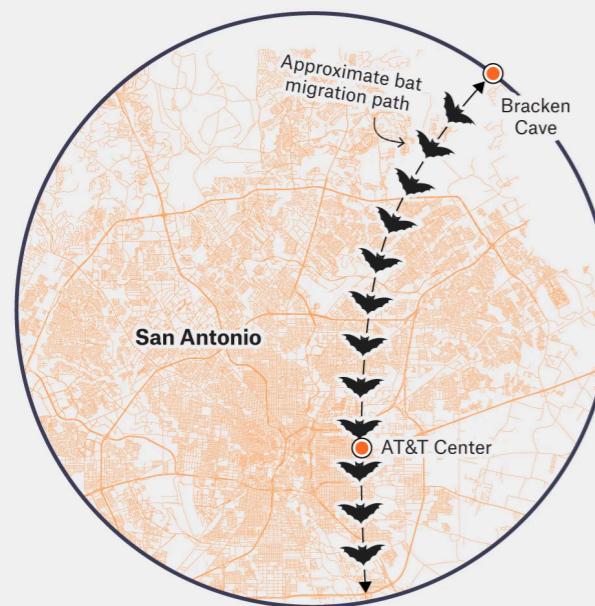
Politics   Sports   Science & Health   Economics   **Culture**

DEC. 27, 2019, AT 6:00 AM

## The 56 Best — And Weirdest — Charts We Made In 2019

### The Spurs' biggest fans are a bunch of bats

AT&T Center stands in the migration path of millions of bats, who fly to Mexico in the fall before returning to Bracken Cave

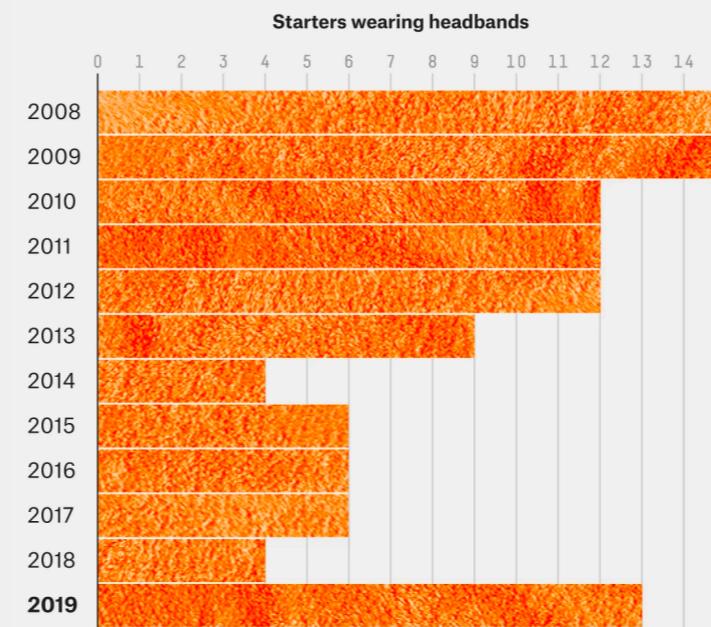


FiveThirtyEight

SOURCE: CITY OF SAN ANTONIO

### Playoff headbands are back

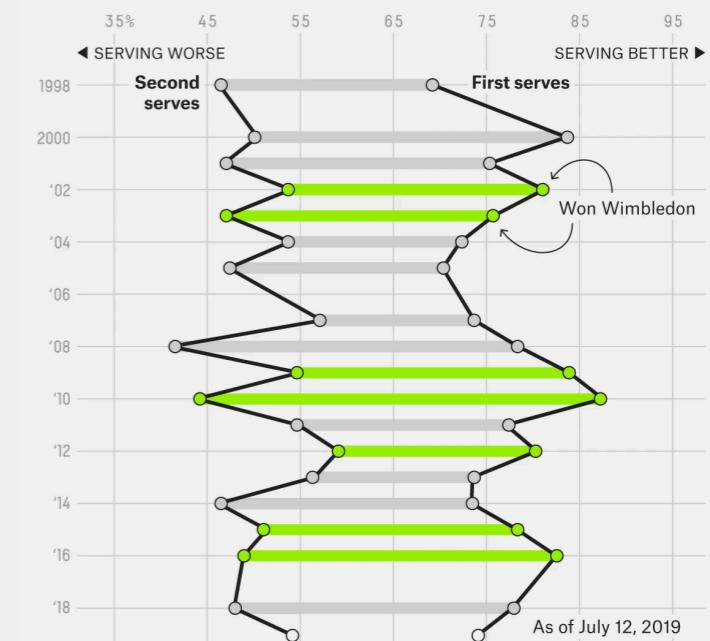
Number of players to start at least one playoff game wearing a headband, 2008-19



FiveThirtyEight

### Serena Williams has made a living off her first serve

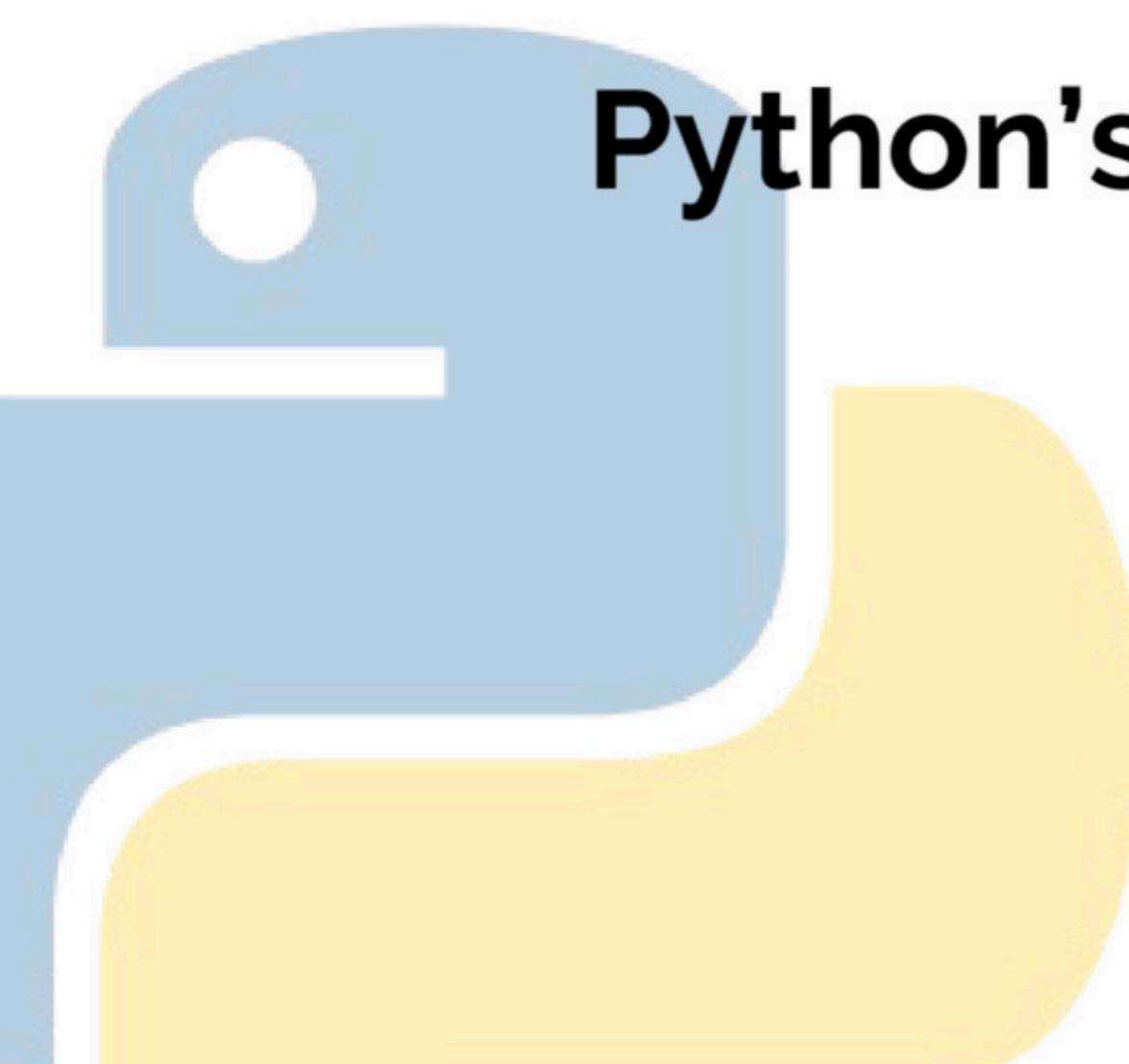
Share of first and second serves won by Serena Williams at Wimbledon



FiveThirtyEight

SOURCE: IBM/WIMBLEDON

<https://fivethirtyeight.com/features/the-56-best-and-weirdest-charts-we-made-in-2019>



# Python's Visualization Landscape

Jake VanderPlas  
@jakevdp #PyCon2017

# [Python's Visualization Landscape]

*From the abstract:*

"In this talk I'll give an overview of the landscape of dataviz tools in Python . . ."



**Jake VanderPlas** @jakevdp · Apr 10

My @pycon talk is a survey of Python viz tools. Any others I should check out?

-matplotlib

-seaborn

-bokeh

-bqplot

-ggpy

-altair

-chaco

53

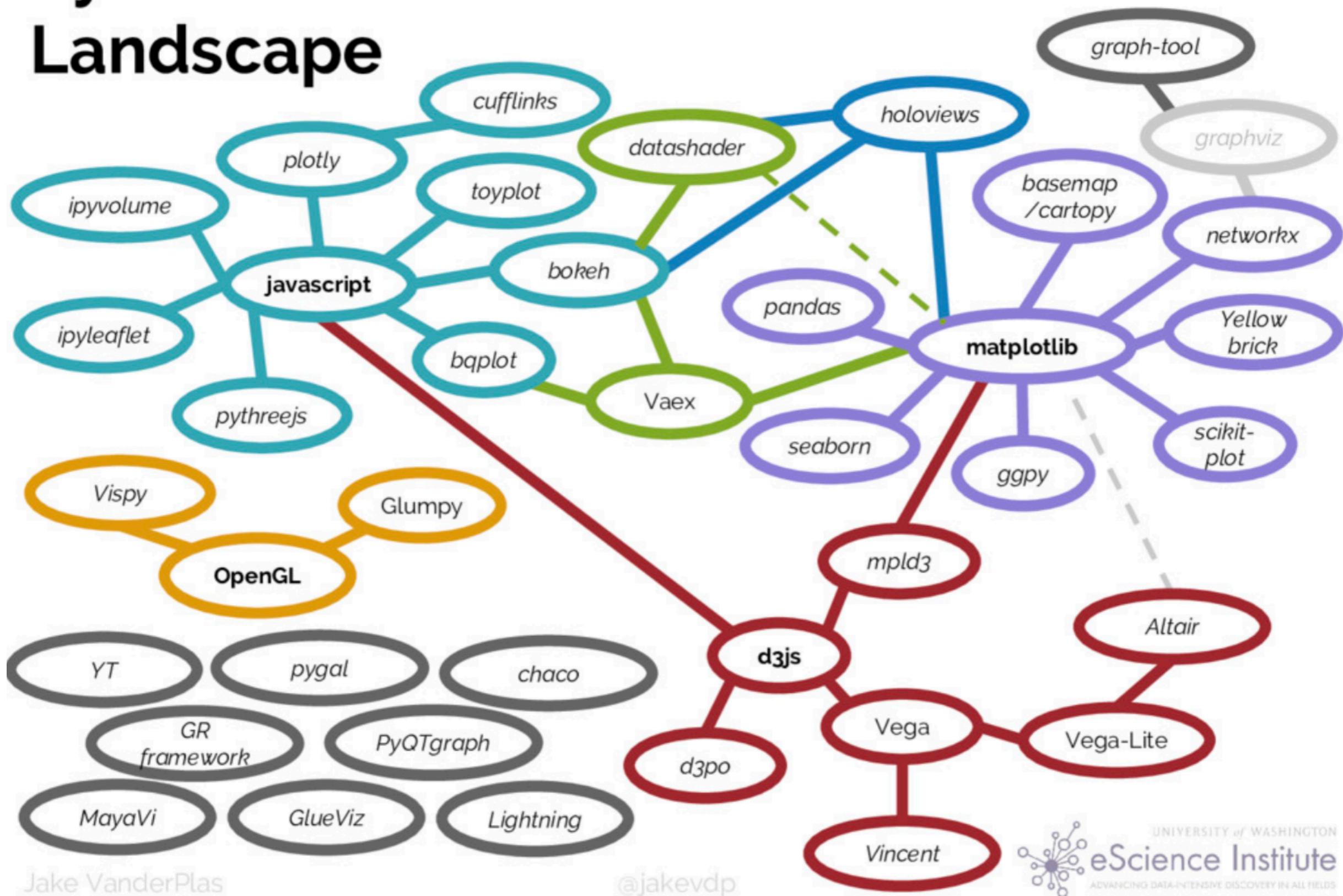
30

146



@jakevdp

# Python's Visualization Landscape





**PYCON2018**

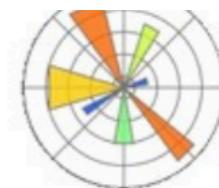


# Exploratory Data Visualization with Altair

Jake VanderPlas @jakevdp  
PyCon 2018

Materials at <http://github.com/altair-viz/altair-tutorial>

# Plotting with Matplotlib



## Strengths:

- Designed like MatLab: switching was easy
- Many rendering backends
- Can reproduce just about any plot with a bit of effort
- Well-tested, standard tool for 15 years

## Weaknesses:

- API is imperative & often overly verbose
- Poor/no support for interactive/web graphs

# Toward a well-motivated *Declarative Visualization*

## Imperative

- Specify *How* something should be done.
- Specification & Execution intertwined.
- “*Put a red circle here and a blue circle here*”

## Declarative

- Specify *What* should be done.
- Separates Specification from Execution
- “*Map  $x$  to a position, and  $y$  to a color*”

Declarative visualization lets you think about **data** and **relationships**, rather than incidental details.

on Jan 14

v4.0.1 ...

o ec5b4df zip tar.gz

Latest release

v4.0.0

o 8aa8cdf

Compare ▾

## Version 4.0.0 Release



jakevdp released this on Dec 11, 2019 · 93 commits to master since this release

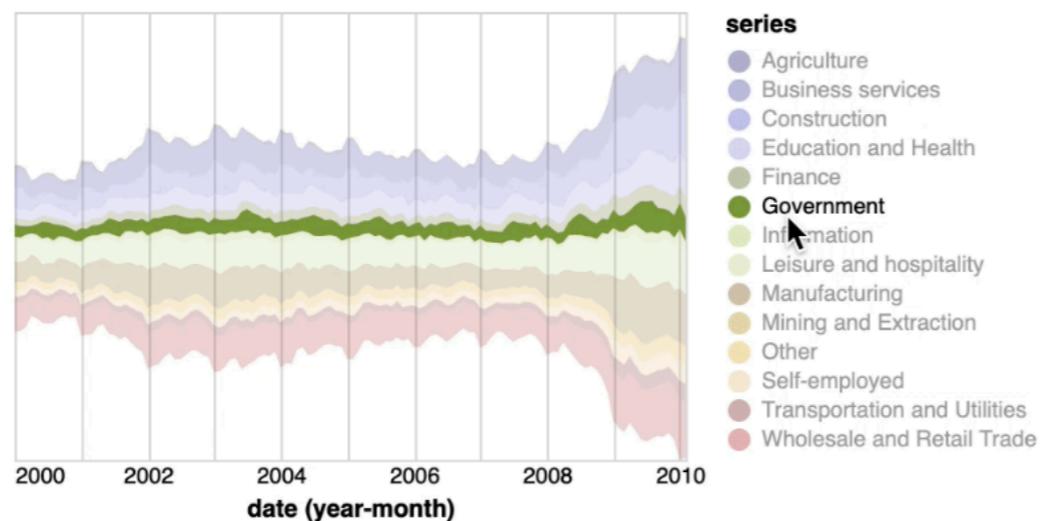
## Altair Version 4.0.0 release

Version 4.0.0 is based on Vega-Lite version 4.0, which you can read about at <https://github.com/vega/vega-lite/releases/tag/v4.0.0>.

It is the first version of Altair to drop Python 2 compatibility, and is tested on Python 3.5 and newer.

## Enhancements

- Support for interactive legends: ([Example](#))



1

Basics

2

Customization

3

Layering

4

Interactivity

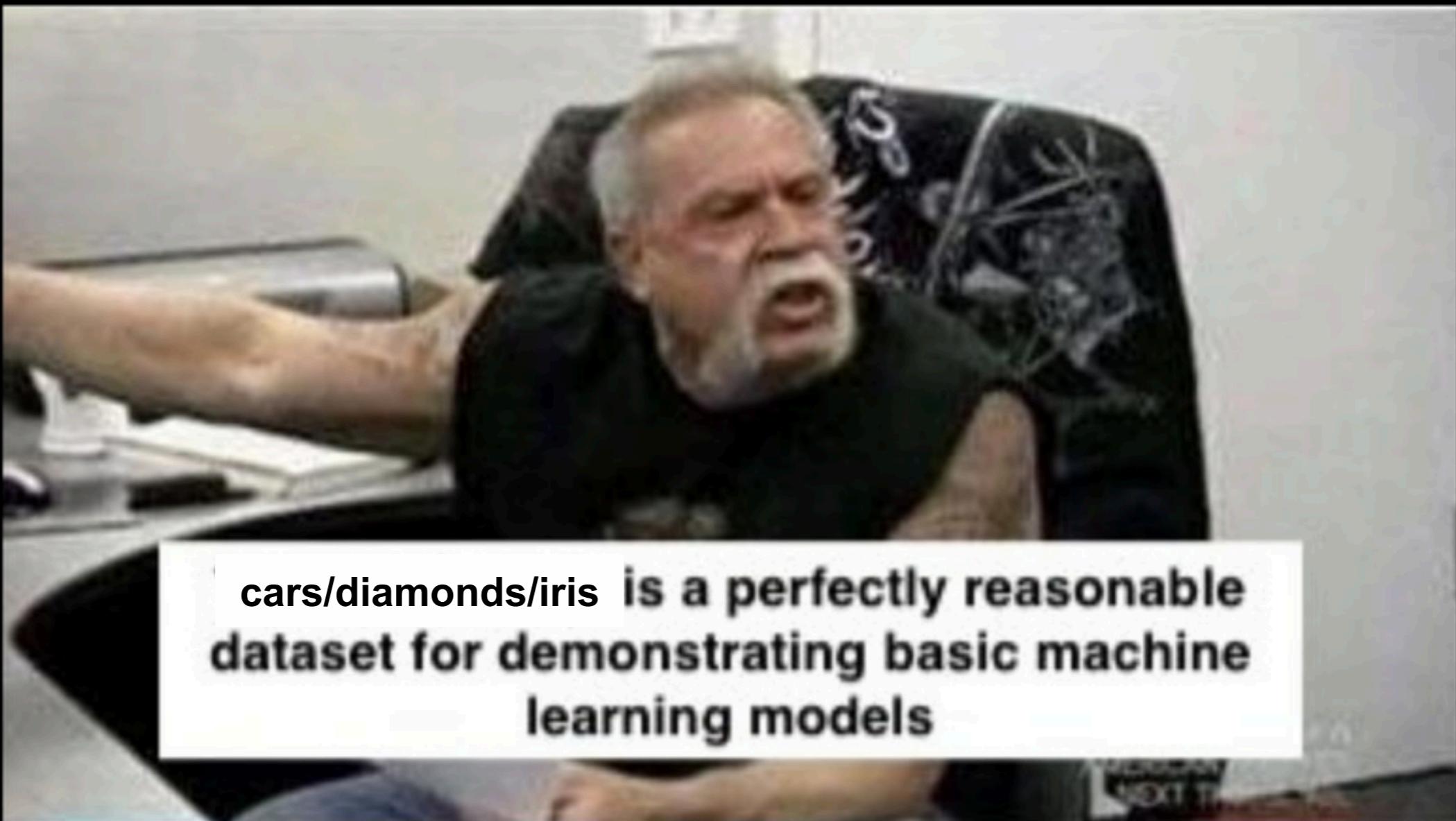
But first



DATA

Full  
stack  
developer





**cars/diamonds/iris** is a perfectly reasonable  
dataset for demonstrating basic machine  
learning models



**It lulls beginners into falsely  
thinking working with data is  
easy**



**EVERYONE NEEDS TO START  
SOMEWHERE**

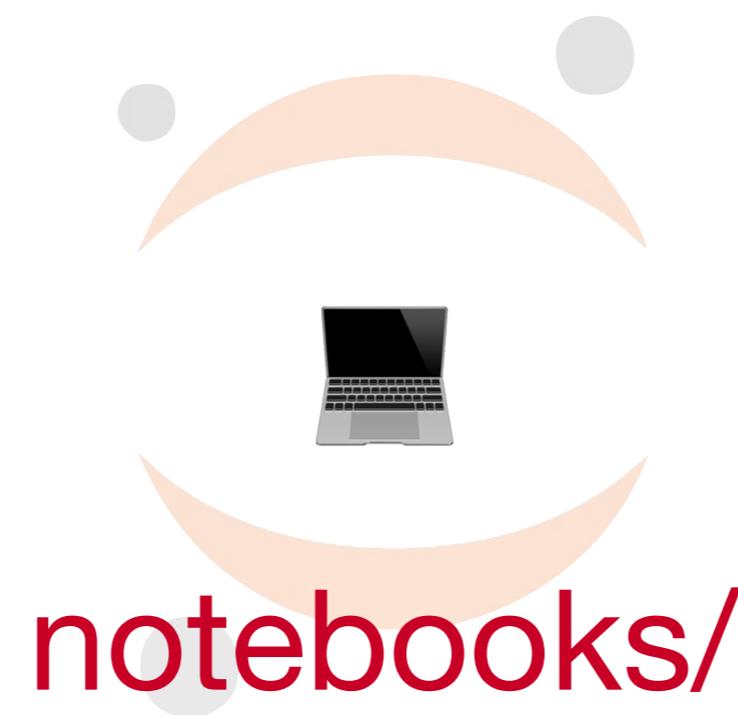
IT'S THE WRONG  
PLACE FOR  
BEGINNERS TO  
START

AMERICAN DREAM  
NEXT THURSDAY



**YOU DON'T  
REMEMBER  
WHAT IT'S LIKE  
TO BE A  
BEGINNER**



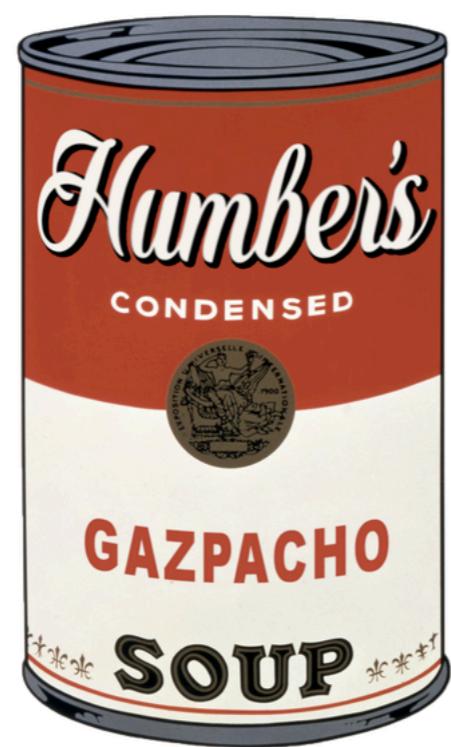


notebooks/

Q&A

*That's all Folks!*

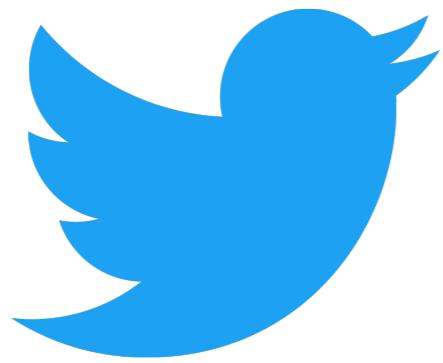




[github.com/maxhumber/gazpacho](https://github.com/maxhumber/gazpacho)



[github.com/maxhumber/gif](https://github.com/maxhumber/gif)



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