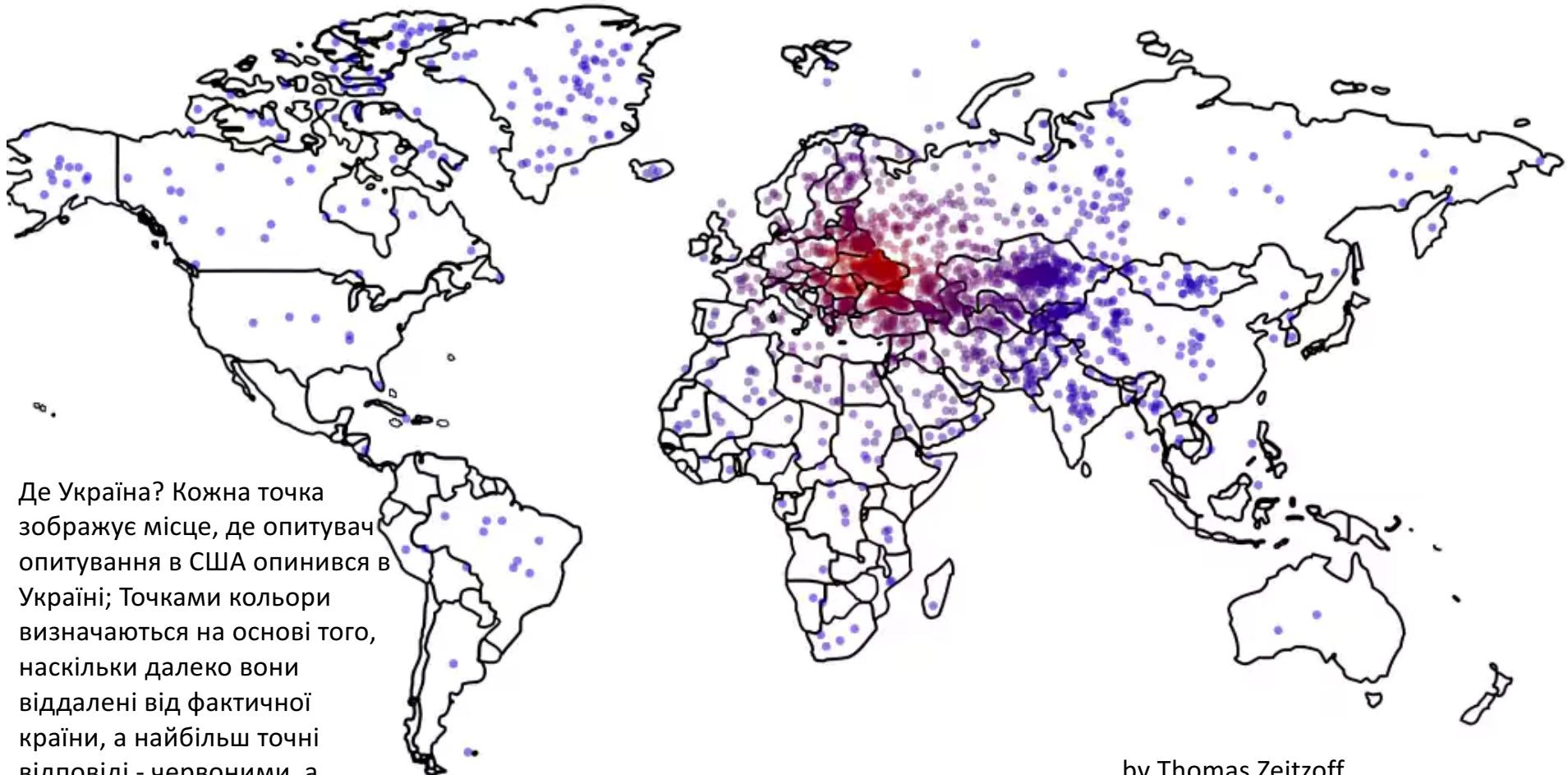


Data Visualization in Python

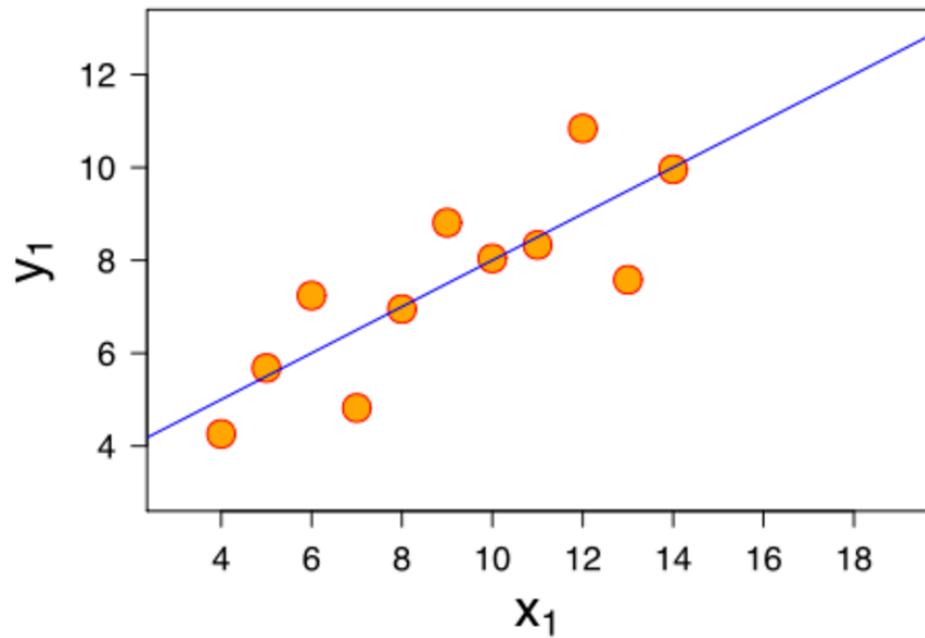
Data Science Bootcamp – University Professors



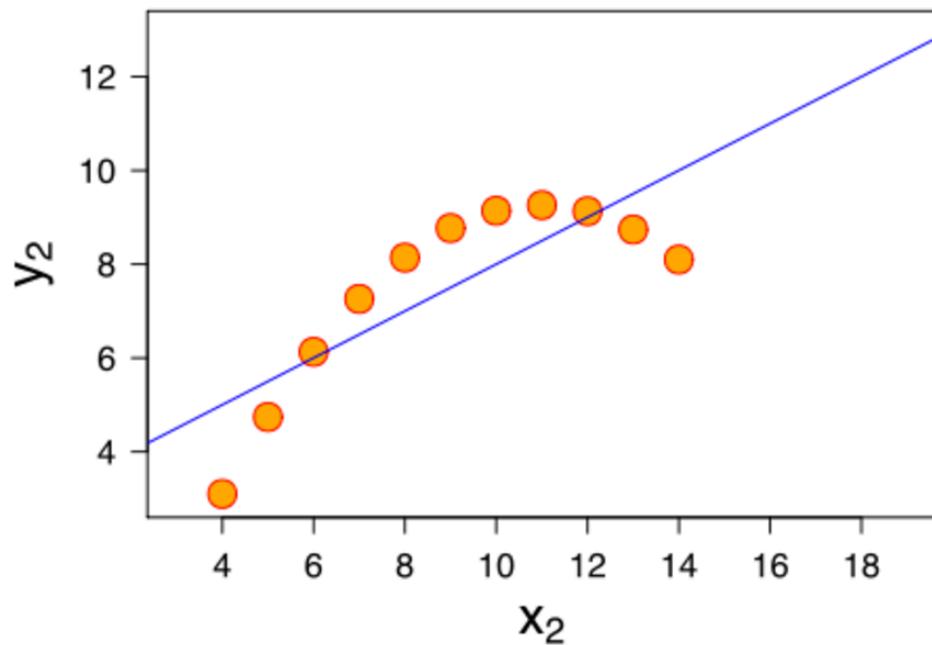
Де Україна? Кожна точка зображує місце, де опитувач опитування в США опинився в Україні; Точками кольори визначаються на основі того, наскільки далеко вони віддалені від фактичної країни, а найбільш точні відповіді - червоними, а найменш точні - синіми.

by Thomas Zeitzoff
<http://www.zeitzoff.com/>

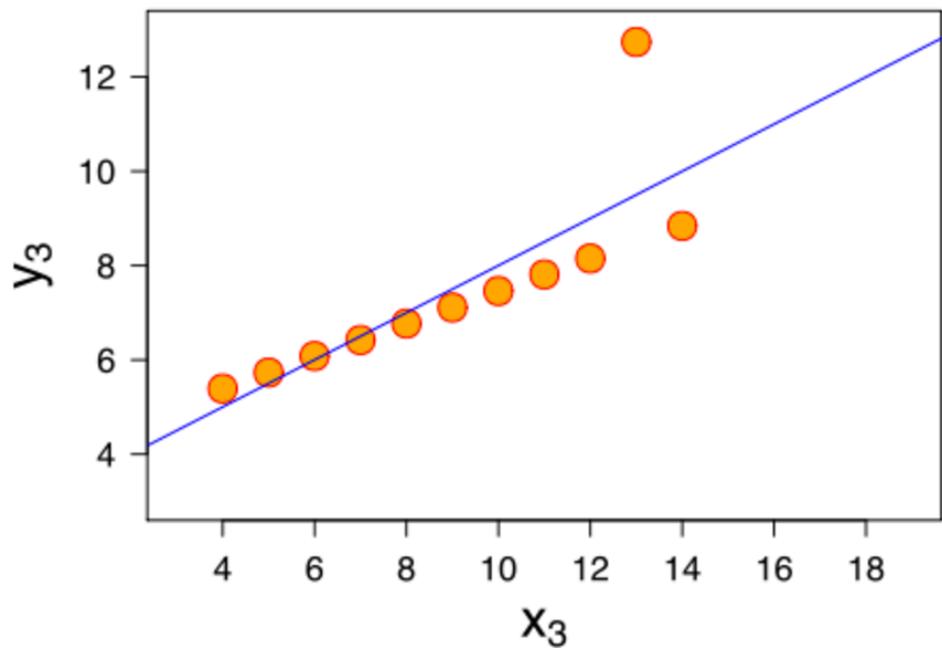
1. What can you tell me about this data?



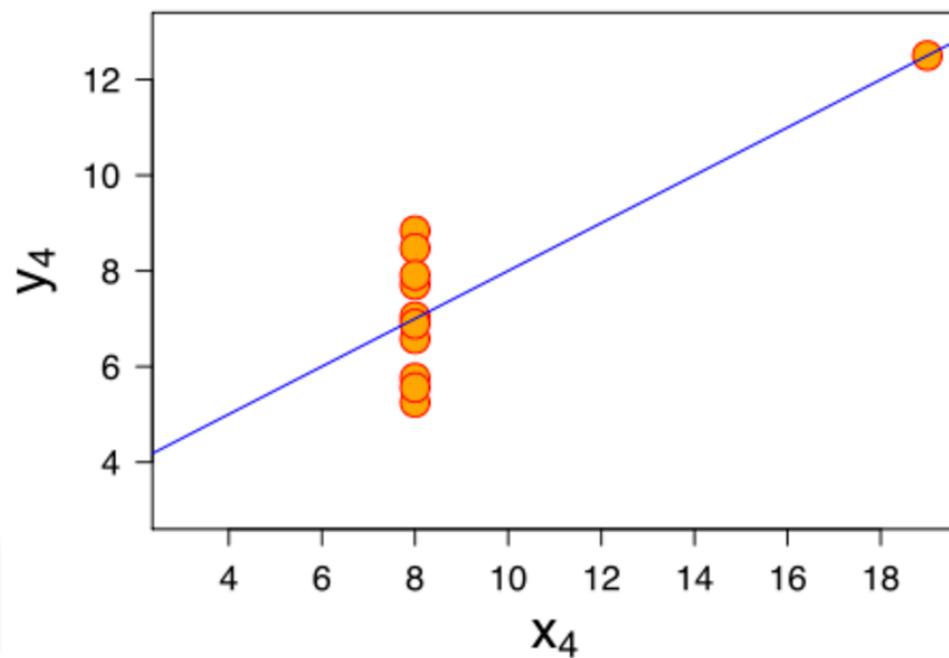
2. What can you tell me about this data?



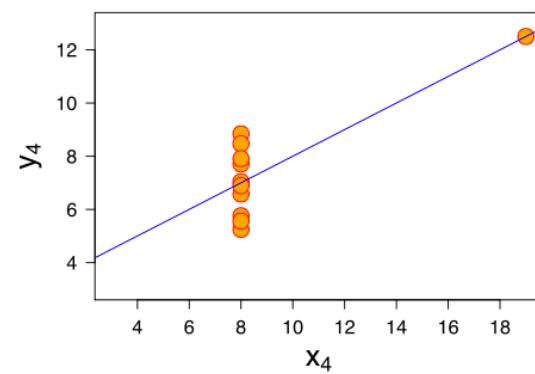
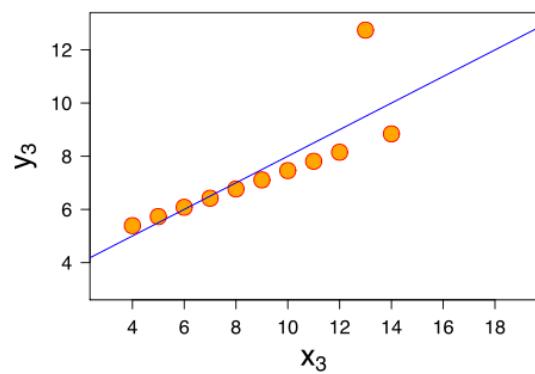
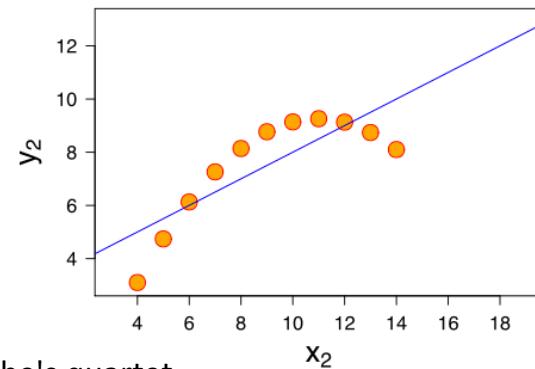
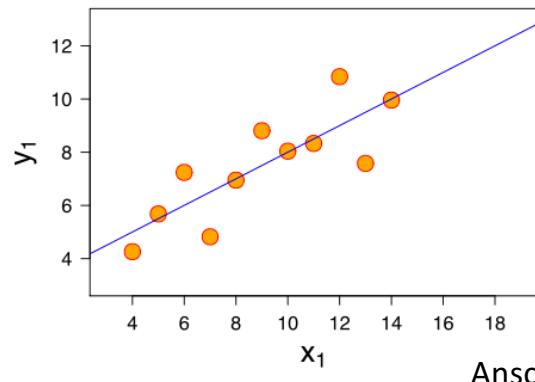
3. What can you tell me about this data?



4. What can you tell me about this data?



Importance of Visualization



Same properties:

- $\text{mean}(x) = 9$
- $\text{mean}(y) = 7.5$
- $\text{correlation}(x,y) = 0.816$

$$y = 3.00 + 0.500x$$

When to use visualization?

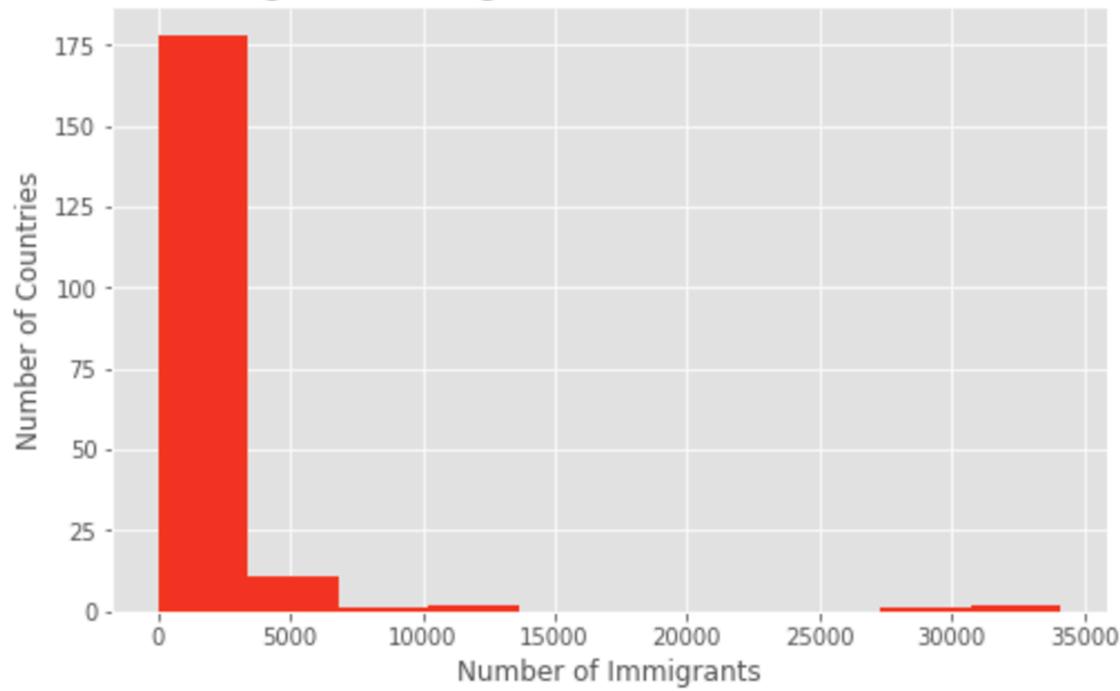
1. As **early** as you can, before heavy data analysis
2. To spot **trends**
3. To spot **outliers**
4. To **share** insights

and:

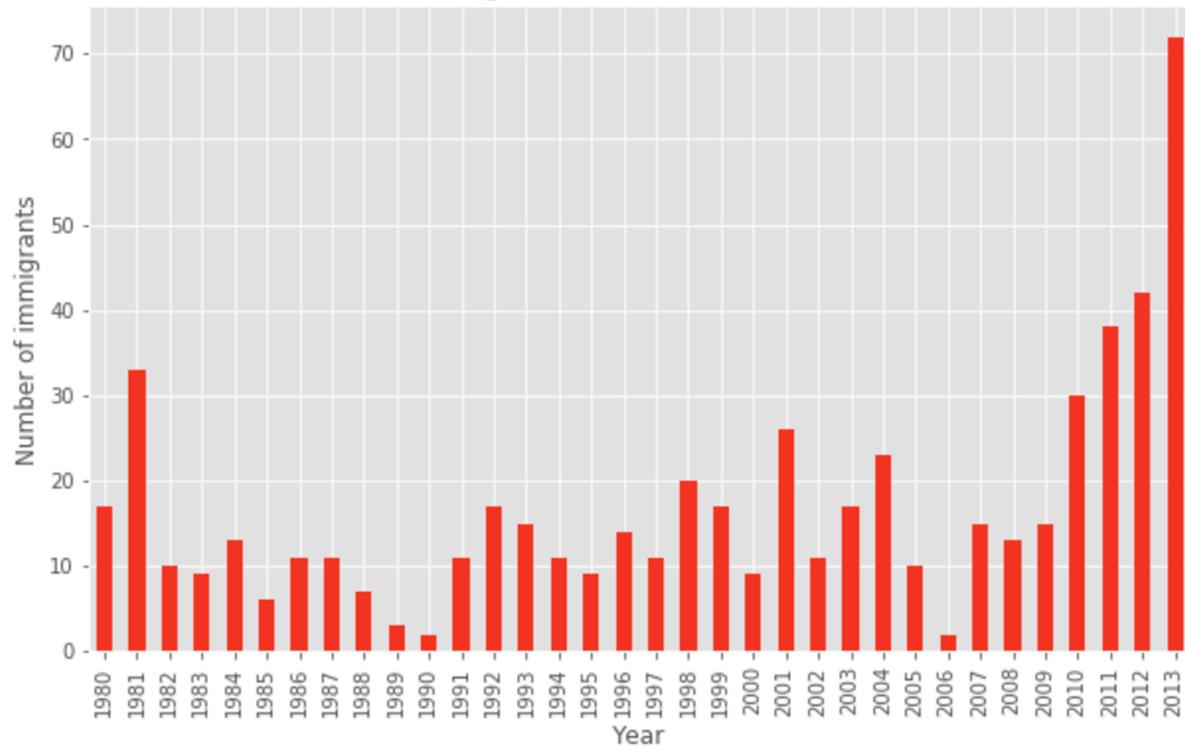
To understand the data

Different Types of Data Visualizations in Python

Histogram of Immigration from 195 countries in 2013

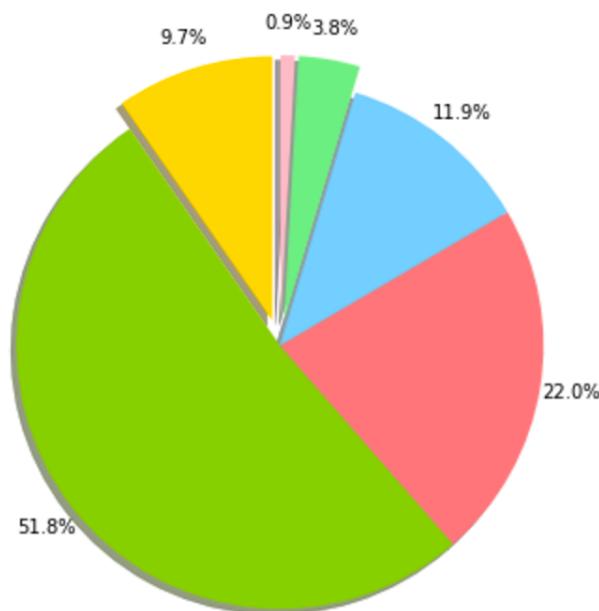


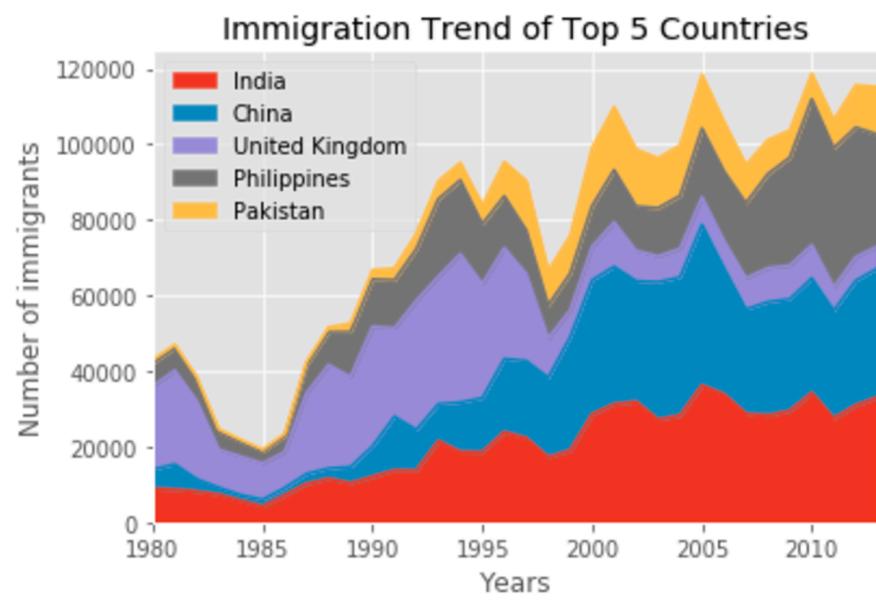
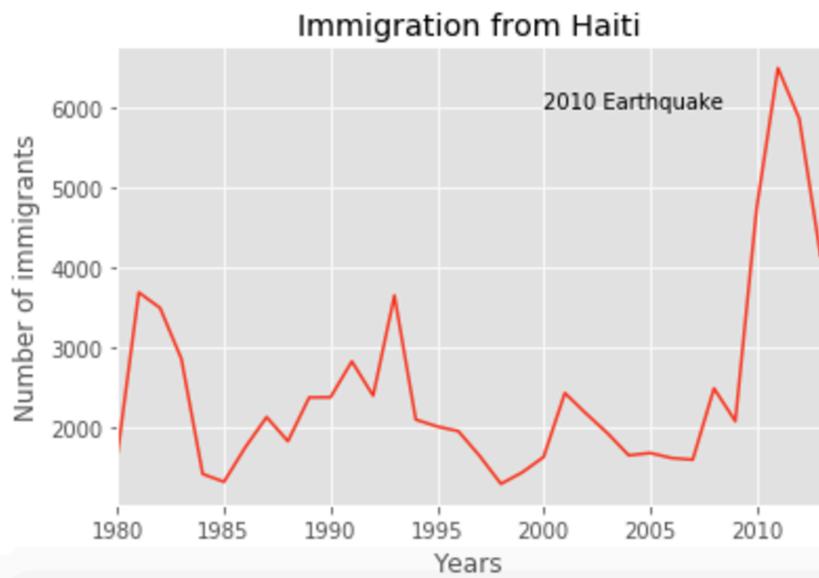
Icelandic immigrants to Canada from 1980 to 2013



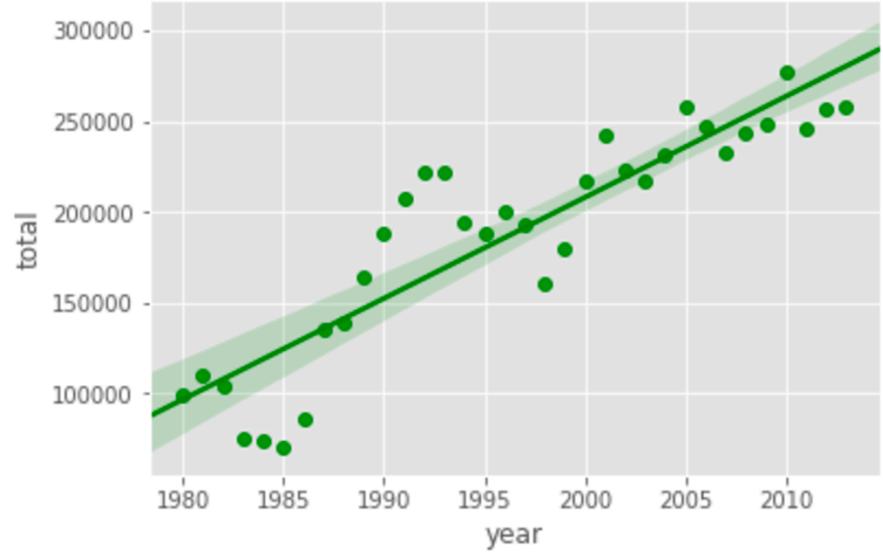
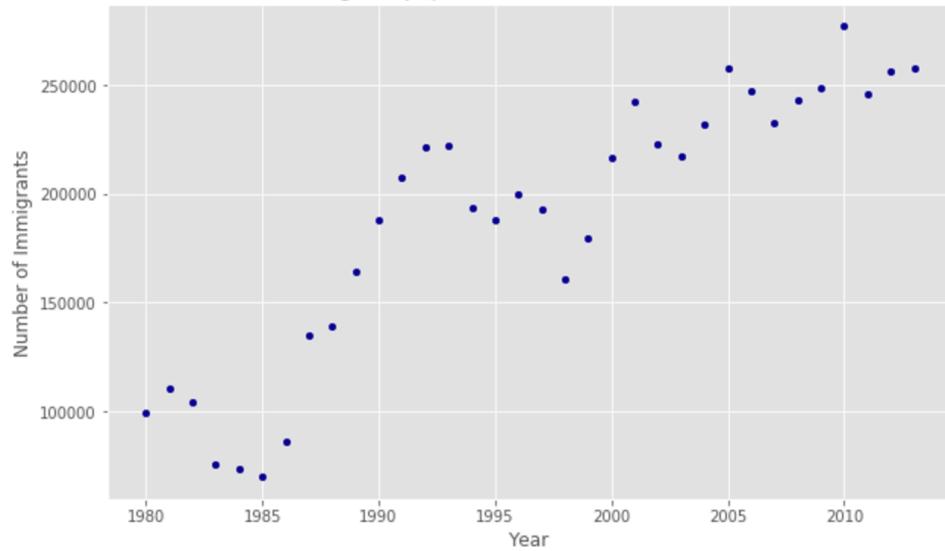
Total

Immigration to Canada by Continent [1980-2013]

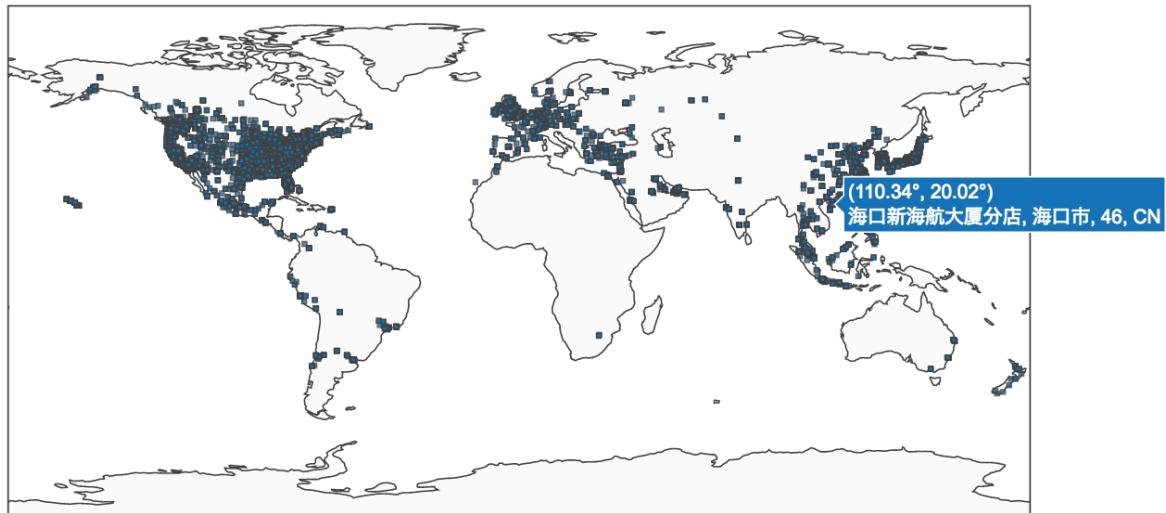




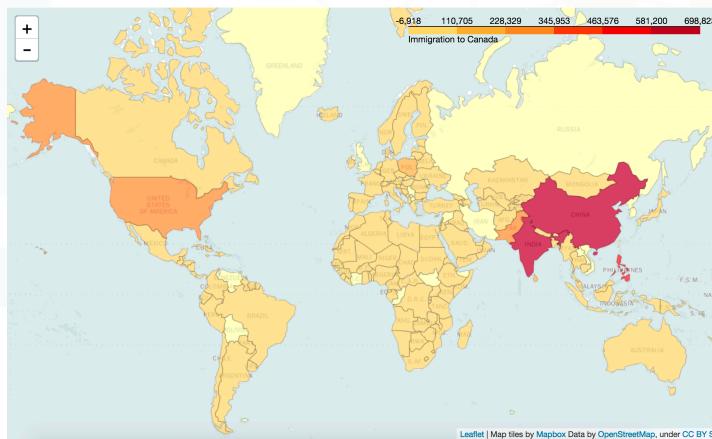
Total Immigrant population to Canada from 1980 - 2013



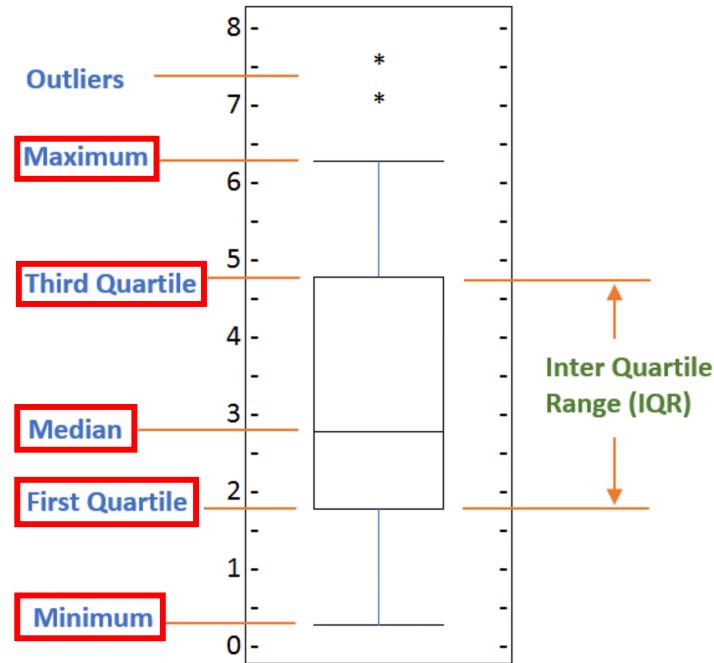
Location of 25,600 Starbucks in the World



	Brand	Store Number	Store Name	Ownership Type	Street Address	City	State/Province	Country	Postcode	Phone Number	Timezone	Longitude	Latitude
0	Starbucks	47370-257954	Meritxell, 96	Licensed	Av. Meritxell, 96	Andorra la Vella	7	AD	AD500	376818720	GMT+1:00 Europe/Andorra	1.53	42.51
1	Starbucks	22331-212325	Ajman Drive Thru	Licensed	1 Street 69, Al Jarf	Ajman	AJ	AE	NaN	Nan	GMT+04:00 Asia/Dubai	55.47	25.42



Box Plots



Bandusky 2

After leaving Reavis, I must attend college because it is definitely a requirement for becoming a veterinarian. In fact, a bachelor's degree is necessary in order to even enter a veterinarian program. One must also possess excellent communication, leadership, public speaking, and organizational skills. I have put a lot of thought and consideration into college, and I have decided that I would like to go to the University of Illinois. It is a wonderful school, and they even have a graduate program designed for students who want to become veterinarians.

Once I have completed a veterinarian program, I will be able to pursue my dream career. This career provides numerous benefits, the first of which is salary. The average veterinarian salary is \$60,000 a year, a salary that would definitely allow me to live a comfortable life. Secondly, it is a rewarding job. This job would provide me with the satisfaction of knowing that I am helping or saving an animal's life. Finally, becoming a veterinarian would assure me a lifetime of happiness. I know I would love going to my job every day, because I would be working with what I love most: animals.

In summary, when I graduate from Reavis, I plan to go to college to become a veterinarian. I love animals and I want to do anything that I can to help them. I know I am only a freshman, but I also know that I am growing up quickly. As Ferris Bueller quotes, "Life moves pretty fast. If you don't stop and look around once in a while, you could miss it!"

working with what I love most: animals.

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Bandusky 2

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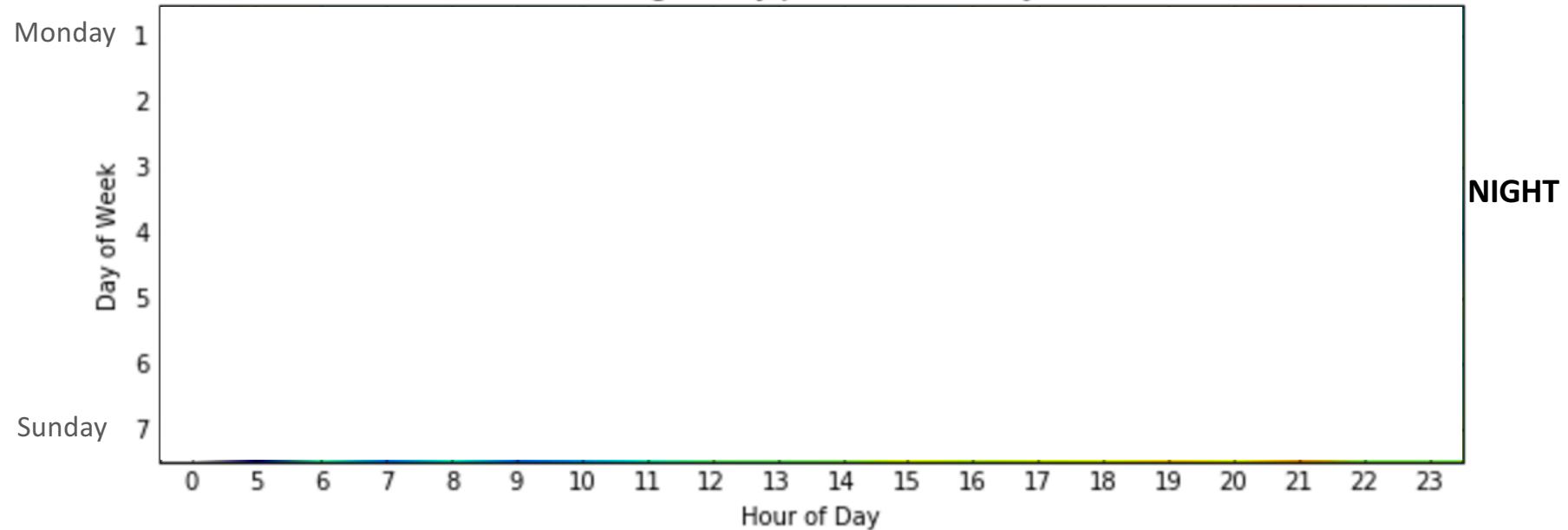


A vibrant word cloud centered on the theme of recruitment. The most prominent word is 'RECRUITMENT' in large, bold red letters. Surrounding it are various other words related to the process, such as 'SEARCH', 'JOB', 'PERSON', 'TALENT', 'CANDIDATES', 'AGENCIES', 'APPLICATION', 'BENEFITS', 'ABILITY', 'TRAINING', 'ONLINE', 'SALES', 'PROCESS', 'DATA', 'REQUIREMENTS', 'SCREENING', 'ANALYSIS', 'RELATIONSHIPS', 'PERSON', 'TALENT', 'PROCESS', 'TESTING', 'RESEARCH', 'HIRING', 'SKILLS', 'CAREER', 'HELP', 'OFFER', 'WEBSITES', 'ORGANIZATIONS', and 'ADVERTISING'. The words are rendered in a variety of colors including purple, green, blue, yellow, and orange, creating a dynamic and professional visual representation of the recruitment industry.

Which weekday and time of day has the worst delays for flight departures?



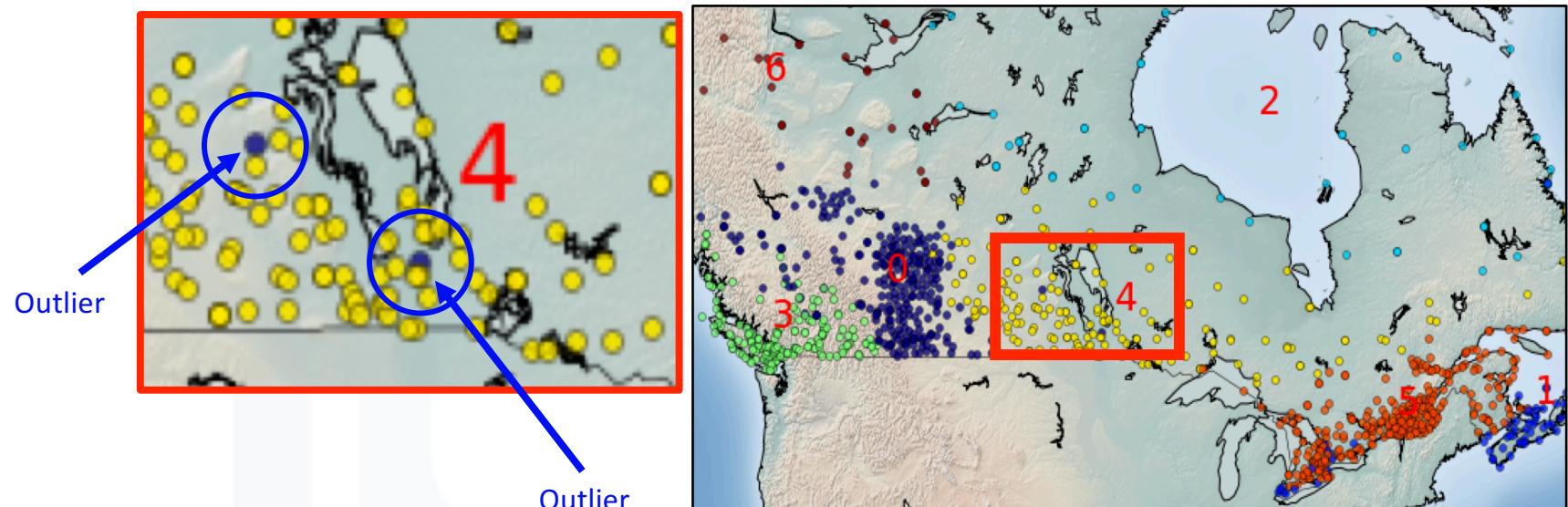
Average delay per hours and day?



Which countries have a low girl-boy ratio in school classrooms?



Which weather station is showing unusual activity in Canada?



*Equipment
malfunction?*



Great/terrible/funny data visualizations



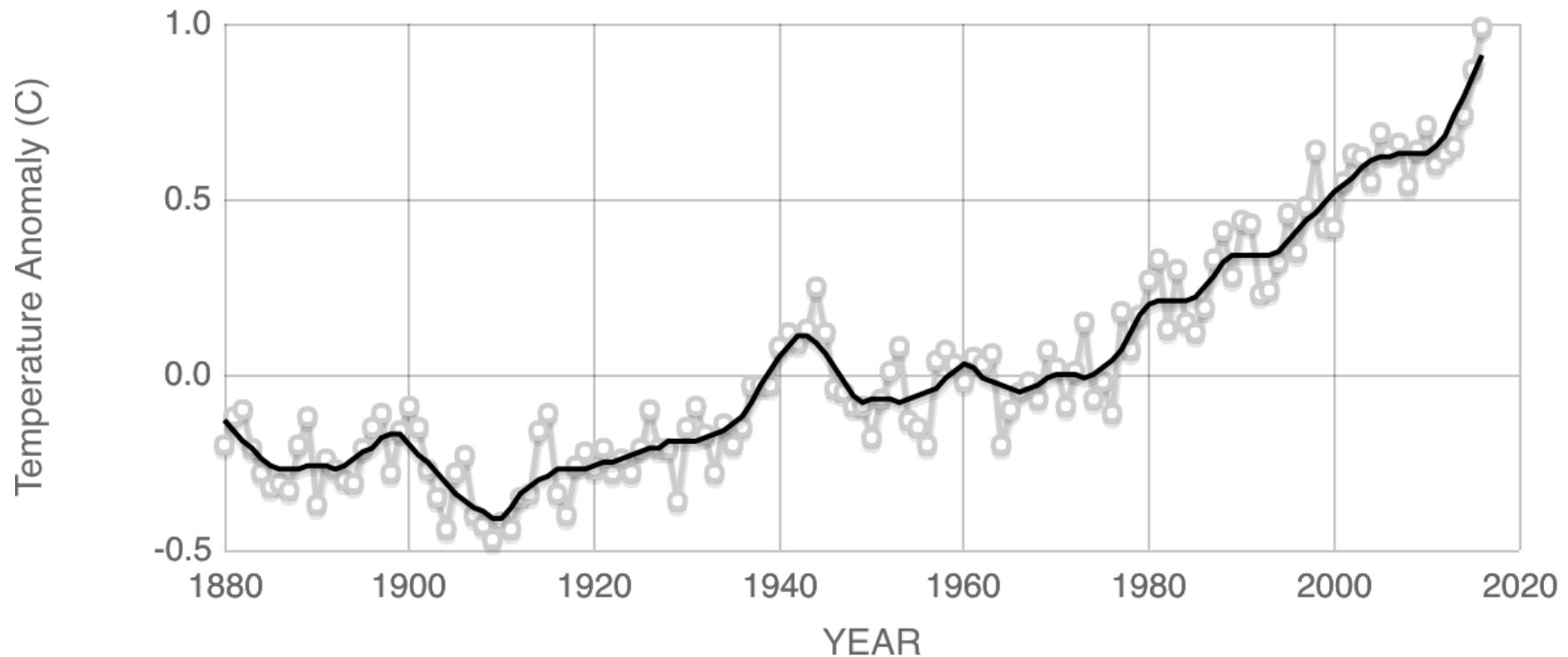
facebook

December 2010



“Visualizing Friendships”
Paul Butler 23

Climate Change



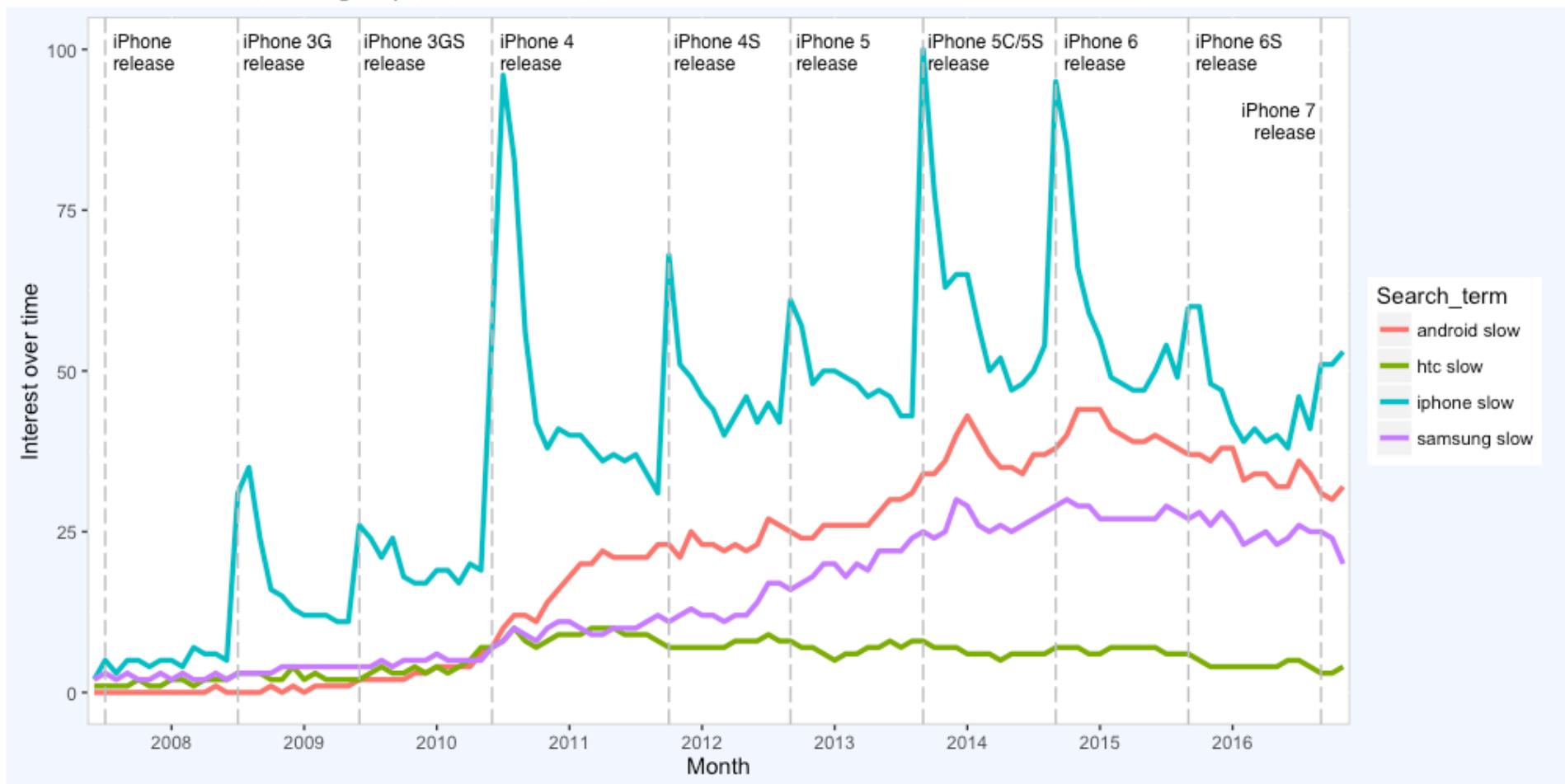
Source: climate.nasa.gov

<https://climate.nasa.gov/vital-signs/global-temperature/>

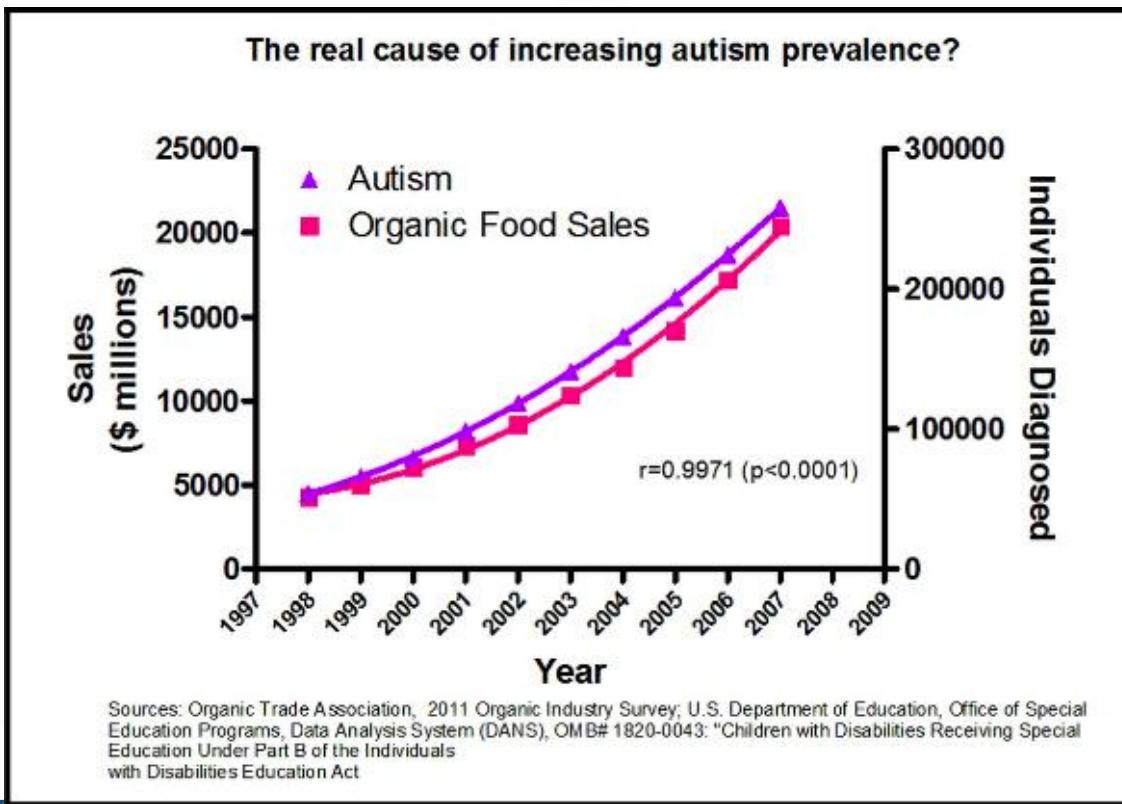
Searches for "iPhone slow" make huge spikes right after every new iPhone release [OC]

submitted 3 months ago by [dreamfall17](#)

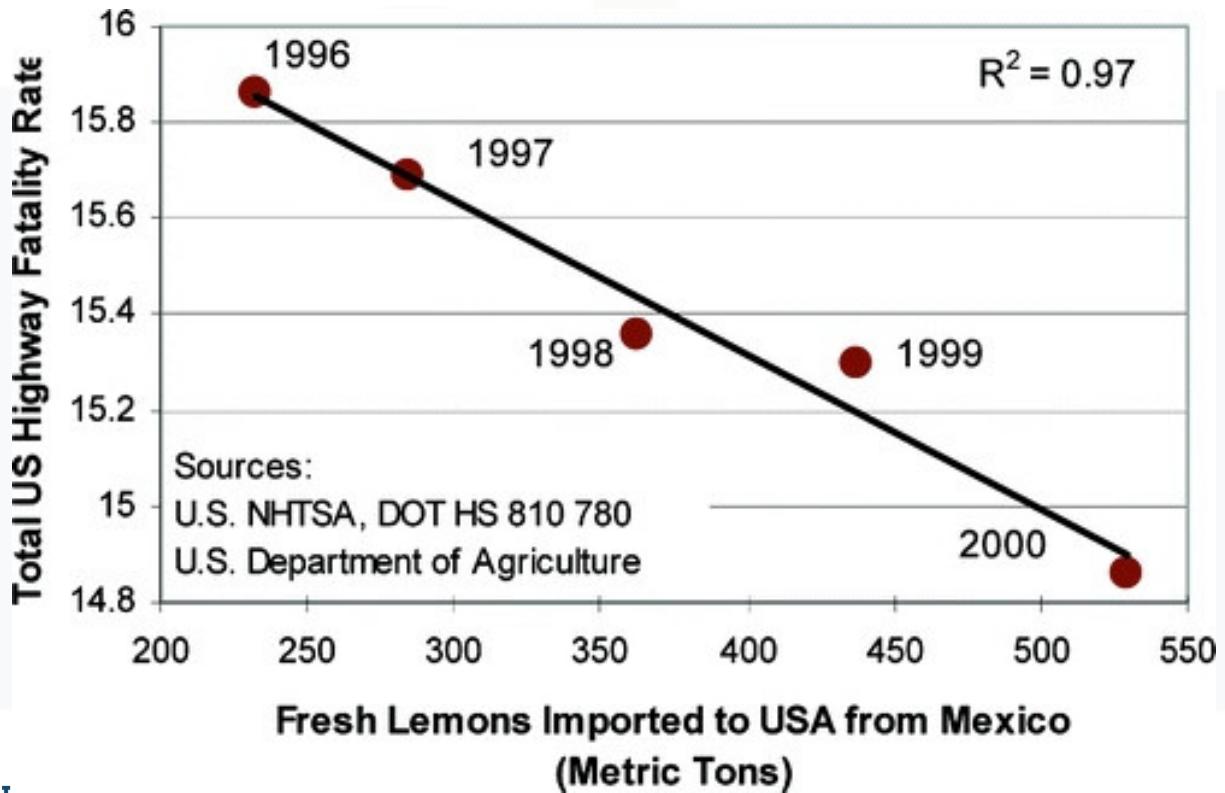
https://www.reddit.com/r/dataisbeautiful/comments/5b3dji/searches_for_iphone_slow_make_huge_spikes_right/



Be careful interpreting data



Be careful interpreting data



Hans Rosling:

The best stats you've ever seen

TED2006 · 19:50 · Filmed Feb 2006

Play

48 subtitle languages ?

View interactive transcript



https://www.ted.com/talks/hans_rosling_shows_the_best_stats_you_ve_ever_seen

<https://www.reddit.com/r/dataisbeautiful/>

The screenshot shows the homepage of the r/dataisbeautiful subreddit on Reddit. The page features a blue header with the subreddit name "DATA IS BEAUTIFUL". Below the header, there are several posts listed in a grid format:

- Post 1:** "Have a dataset that needs visualizing? Want to practice making graphs? We're connecting the two in DataisBeautiful's Data-Related Subreddit of the Month for August: /r/DataVizRequests" by zonation. It has 108 upvotes and was submitted 14 days ago.
- Post 2:** "Dataviz Open Discussion Thread for /r/dataisbeautiful" by AutoModerator. It has 37 upvotes and was submitted 10 days ago.
- Post 3:** "How many kisses when greeting a friend in France by region?" by jmmosez. It has 755 upvotes and was submitted 17 hours ago.
- Post 4:** "A beautiful set of data for the best Waffle Houses to see the upcoming Eclipse." by williamhungster. It has 962 upvotes and was submitted 15 hours ago.
- Post 5:** "If a North Korean nuke hit the center of NYC, its explosion wouldn't even reach the north of Central Park." by HarboringOnALament. It has 38 upvotes and was submitted 11 hours ago.
- Post 6:** "Looking for blue skies for the August 21 eclipse? I analyzed 16 years of data to see where the skies are clearest [OC]" by Geographist. It has 24.8k upvotes and was submitted 1 day ago.

On the right side of the page, there is a sidebar for the "Dataisbeautiful" community:

- Search:** A search bar with a magnifying glass icon.
- Login:** Fields for "username" and "password", a "remember me" checkbox, a "reset password" link, and a "Login" button.
- Community Stats:** "Subscribe" (12,222,218 readers), "Submit a visualization you found", "Submit your own visualization (OC)", and "Submit a question".
- DataisBeautiful Description:** "A place for visual representations of data: Graphs, charts, maps, etc. DataisBeautiful is for visualizations that effectively convey information. Aesthetics are an important part of information visualization, but pretty pictures are not the aim of this subreddit."
- Links:** "Best Of DataisBeautiful" and a link to "https://www.reddit.com/r/dataisbeautiful/".