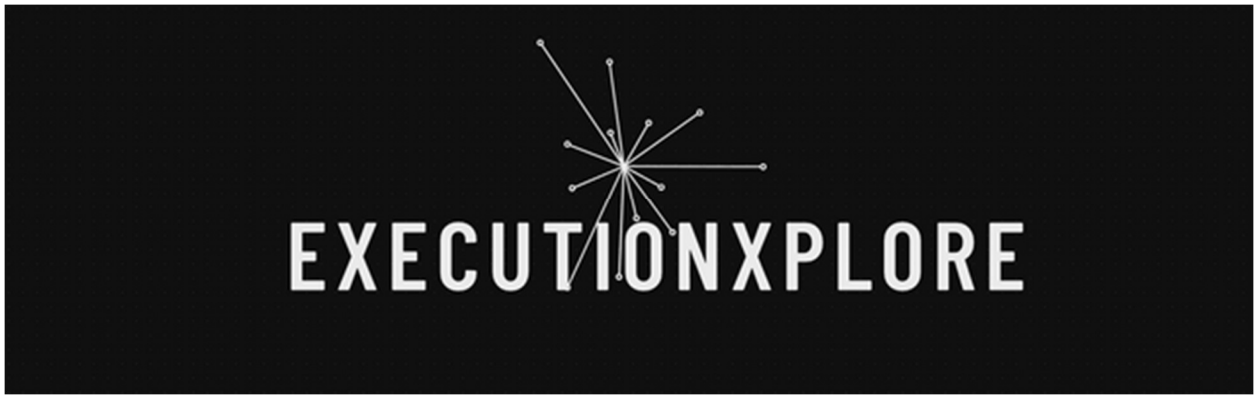


Execution Statistics of The United States

The analysis of death executions across the United States serves as a crucial undertaking in understanding and evaluating the complex issue of capital punishment.

Project 3 – Group 3

John Banowsky

Daniel D Hall

Alex Perez

INTRO

Capital punishment has been a controversial issue in the United States for decades, raising questions about ethics, justice, and human rights. In 1972 under Furman v. Georgia, the U.S. Supreme Court ruled that capital punishment was unconstitutional. However, in 1976, because of public support, the Supreme Court reinstated the death penalty. Our research analyzes the executions following this decision. We hope to shed light on underlying patterns, disparities, and trends. Our group believes that understanding this data will enable us to foster informed discussions, encourage empathy, and potentially contribute to the ongoing national dialogue on criminal justice reform.

DATA

Our primary Kaggle dataset with inmate information was supplemented with geographical U.S. Census Bureau data. The inmate data included demographics, county of execution, method of execution, and date of death. We pulled in geographic information to be able to use the locations of inmate executions to make an interactive map.

Executions in the United States, 1976-2016 | Kaggle
https://www.kaggle.com/datasets/usdpic/execution-database
US County Boundaries — Opendatasoft
https://public.opendatasoft.com/explore/dataset/us-county-boundaries/

We chose our data because it was complete and had all the needed information for the analysis we wanted to do. Cleaning the data was straightforward as we only had to exclude a few columns that we weren't going to be using for our analysis. Merging the county geolocations was relatively easy, but we did have initial hiccups with the formatting of the latitude and longitude. Once we figured out how to code our for-loops appropriately, our inmates were properly located on our Leaflet map.


```
// Create an overlays object.
let markers = L.markerClusterGroup();
let coords = [];
for (let i = 0; i < data.length; i++){
    let inmate = data[i];
    let location = [inmate.Latitude, inmate.Longitude];

  if (location) {
    let coord = location;
    let marker = L.marker(coord).bindPopup(`${inmate.Name}<hr>${inmate.Age}`);
    markers.addLayer(marker);

    coords.push(coord);
  }
}
```

RESEARCH QUESTIONS

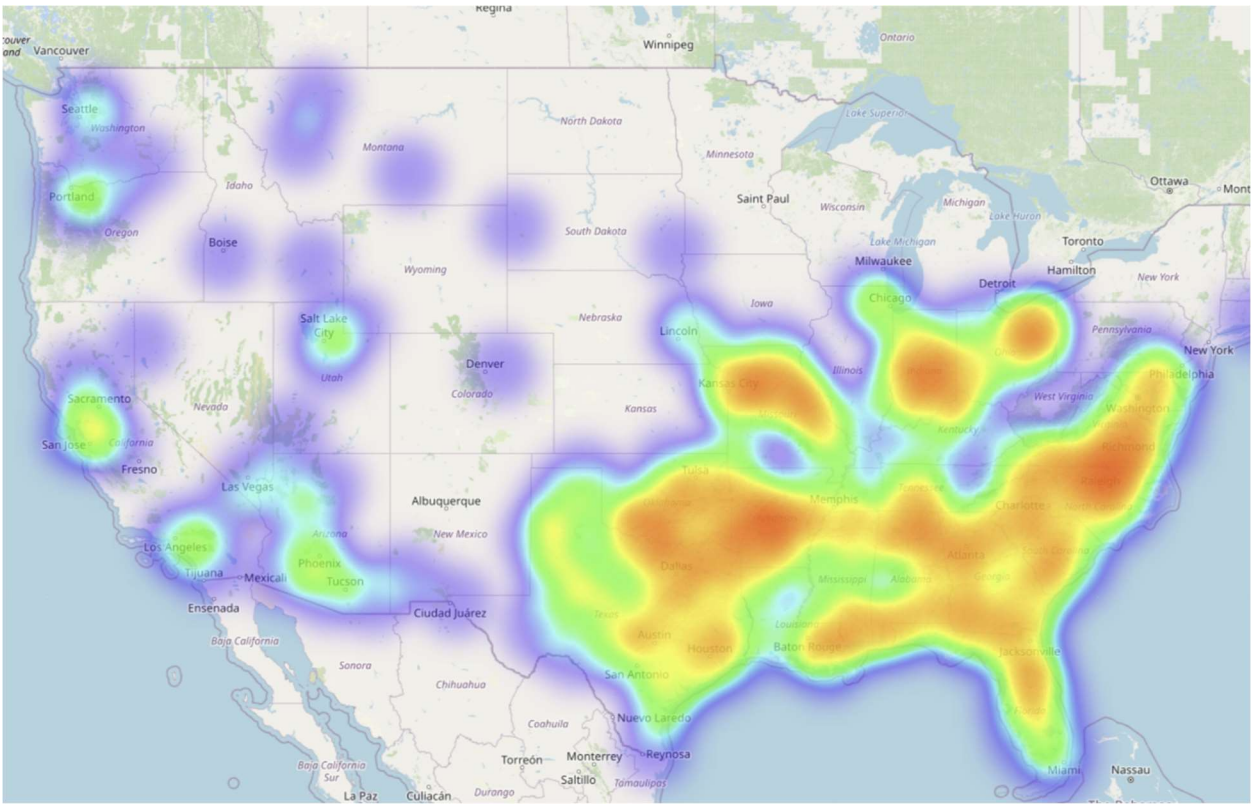
Below are some questions we wanted to explore as we made our visualizations. Our goal was to have interactive plots and graphs so that users could choose criteria to be able to visually analyze our dataset.

- Which states had the most executions?
- Is there a trend over time when it comes to a certain method of execution, number of executions, or demographic of the executed?
- What region in the United States are death penalties more common?

CONCLUSIONS

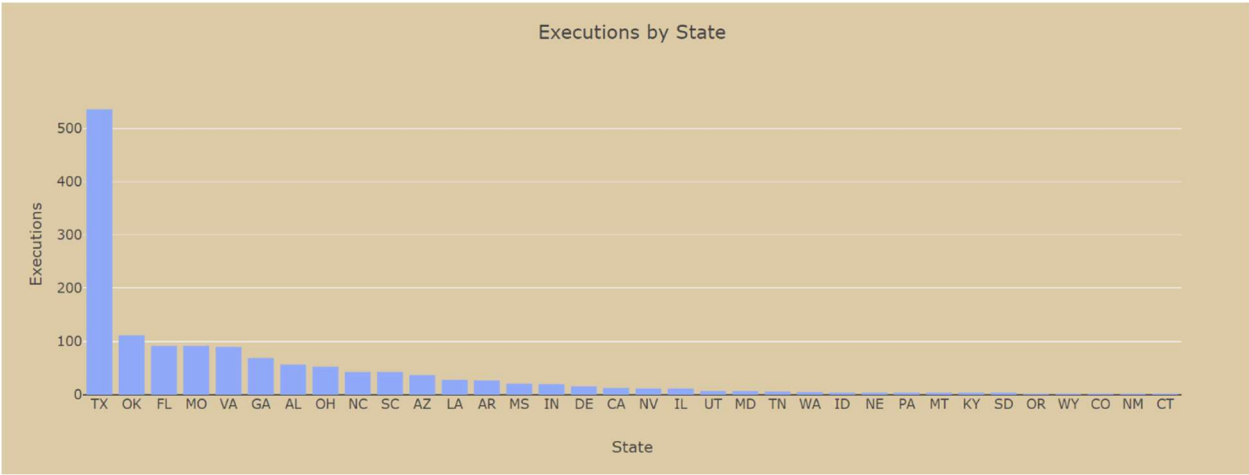
The Majority of Executions

The states with the most executions are in the Southern region. This is easily seen in our heatmap, and like the plots above indicated, we can easily see the higher density of executions in those southern states. The number of executions in the southern states (AL, AR, FL, GA, KY, LA, MS, OK, NC, SC, TN, TX, VA, WV) account for 80.5% of executions in the US.



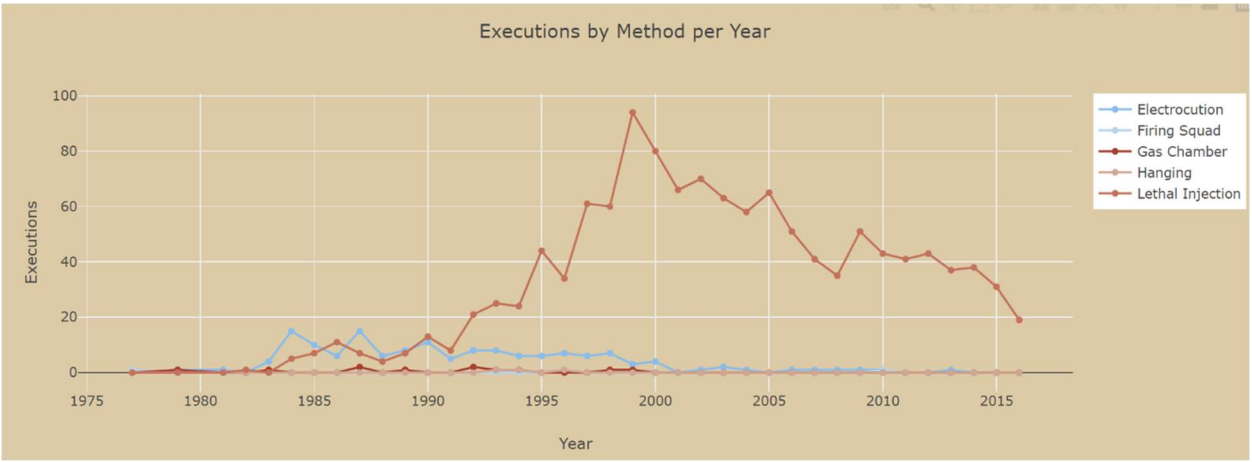
Texas Leads the Nation

Our bar chart confirms our observation from our map. The state of Texas has a total number of 536 executions. This is the outlier. With the next highest number of 112 executions occurring in Oklahoma. The majority of executions took place in Southern states.



What Caused the Rise and Fall of Executions

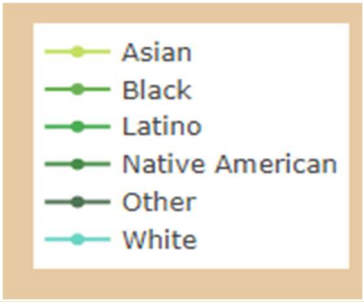
Measuring our data over time, we noticed that the 'popularity' of lethal injections increased from the late 1980's. Lethal injections replaced electrocution as the preferred method of execution. Some type of societal event must have taken place in the 1990's to account for the drastic increase in executions. Likewise, some event must have taken place after 1999 to account for the decline in the number of executions. It is our belief that the “humane” approach of lethal injection may have accounted for the increase.

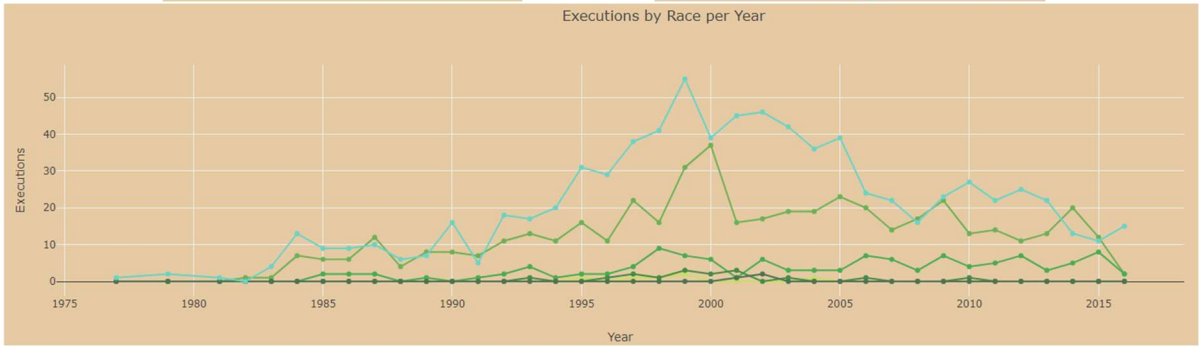


The increase in human rights awareness most likely accounts for the decrease in executions after 1999. The following are likely reasons for the observed decline: not all states have a death penalty, we can see states ceasing capital punishment (i.e., California has inmates on death row, but are not currently carrying out executions), the argument of not taking human lives regardless of background (the sanctity of human life) is gaining in popular opinion and attempting to avoid executing inmates that have been wrongfully convicted.

Racism Existed in the Executions

The percent of Black Americans in the US during this time frame was never higher than 15%. However, 33.8% of the total executed were black. Over time, the number of black inmates executed consistently hit disproportionate values compared to white inmates, while other minorities stayed low or non-existent. In 1987, 1989, 2008, 2014 and 2015, there were more black inmates executed than any other race. This indicates a strong racial bias and probable systemic issue with death row sentencing against black Americans.

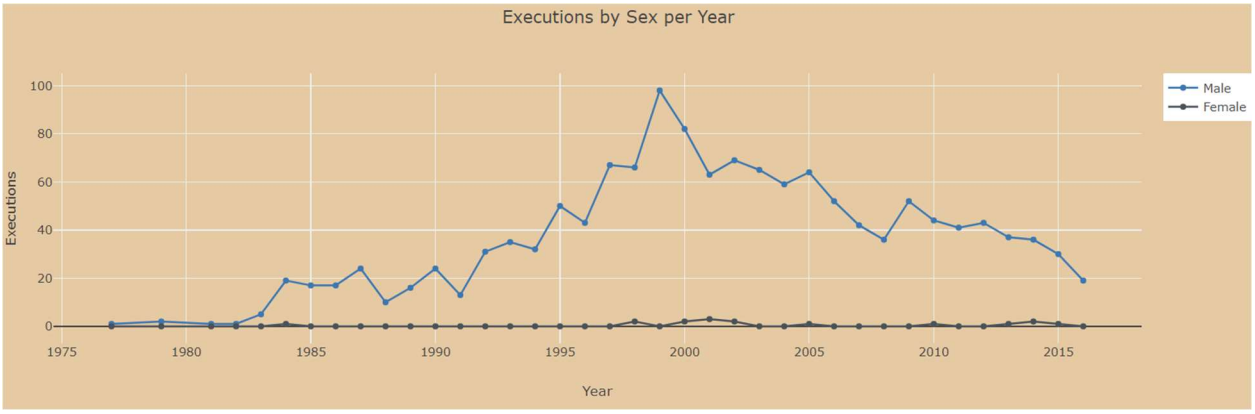


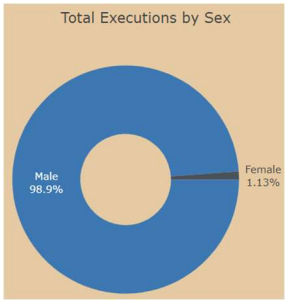


Rarity of Female Executions

Executions have a definitive bias against men. Only 8 states executed a female convict, and only three states executed more than 1 female. Female executions became more prevalent only after the dip in executions after 2000. Our hypothesis is that it was originally viewed as inappropriate to execute females, but that viewpoint is changing. Another likely reason is that during sentencing, females are

given greater leniency. It would be interesting to measure public opinion on if they would pursue a death penalty in identical cases with the only variable being the sex of the guilty party.





LIMITATIONS & BIASES

Our initial limitation was the lack of geolocation data of our inmates, which we were able to supplement with another data source. Our data includes executions from 1976-2016. This only includes executions after the Supreme Court reinstated the death penalty in 1976, so our data does not include executions prior to when the Supreme Court suspended the death penalty in 1972.

Another limitation was our experience with full stack development. Compared to our time cleaning the data, most of our time was spent editing code for our plots, map, and website. Much of our time was learning syntax and connecting our JavaScript, HTML, and CSS files appropriately.

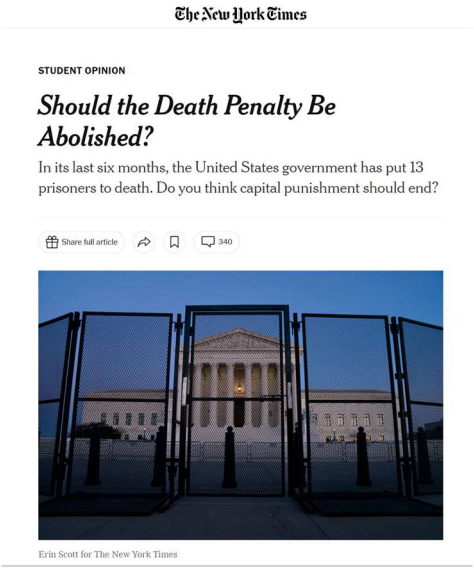
We would have also liked to have data on incarceration information for each inmate. As we looked at the number of executions, we were curious about how the time on death row might have been a factor on the number of executions per year. Through legislation and the effect of social justice popular opinions, it would have been nice to see if any data could shed light on the trends we were seeing in our plots.

FUTURE WORK

Our hope is that as visitors dive into the data with the plots and map on our website, they start to ask questions about the correctional system in the US. They can start to assess where they stand on the

issue, and how they could be a part of change in their county, their state, and/or the US. We have provided a link for our visitors to learn more about capital punishment in the US:

https://www.nytimes.com/2021/01/20/learning/should-the-death-penalty-be-abolished.html



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https://www.kaggle.com/datasets/usdpic/execution-database

US County Boundaries — Opendatasoft.
https://public.opendatasoft.com/explore/dataset/us-county-boundaries/

Historic information on US Capital Punishment.
https://en.wikipedia.org/wiki/Capital_punishment_in_the_United_States

Bootswatch for website theme
https://bootswatch.com/

Bootstrap for HTML, JavaScript, and CSS resources used for our website.
https://getbootstrap.com/

Code Beautify for aiding in debugging code
https://codebeautify.org/

Plotly libraries for our interactive charts
https://plotly.com/javascript/

Leaflet for JavaScript libraries used in our interactive map.
https://leafletjs.com/

Resource for website visitors to explore discussion about capital punishment.
https://www.nytimes.com/2021/01/20/learning/should-the-death-penalty-be-abolished.html