Behind the Gavel: Unveiling the Statistics of Death Penalties in the United States

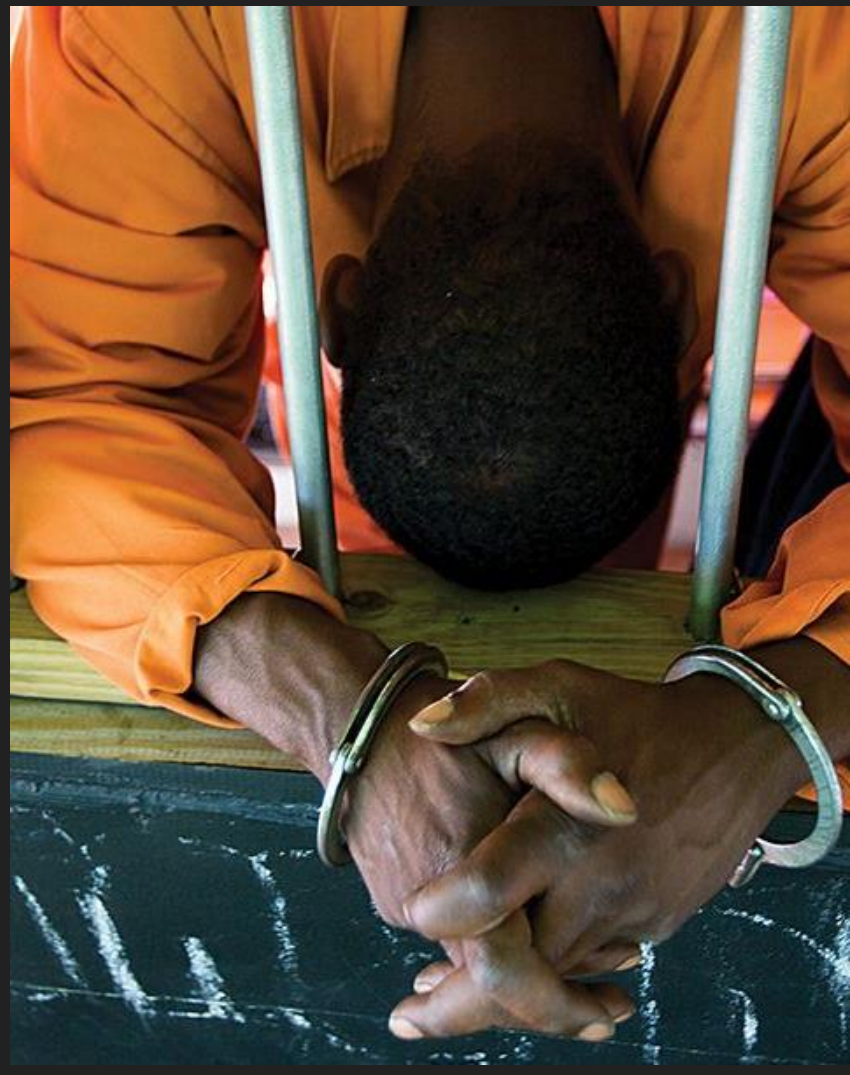
Daniel Hall

Alex Perez

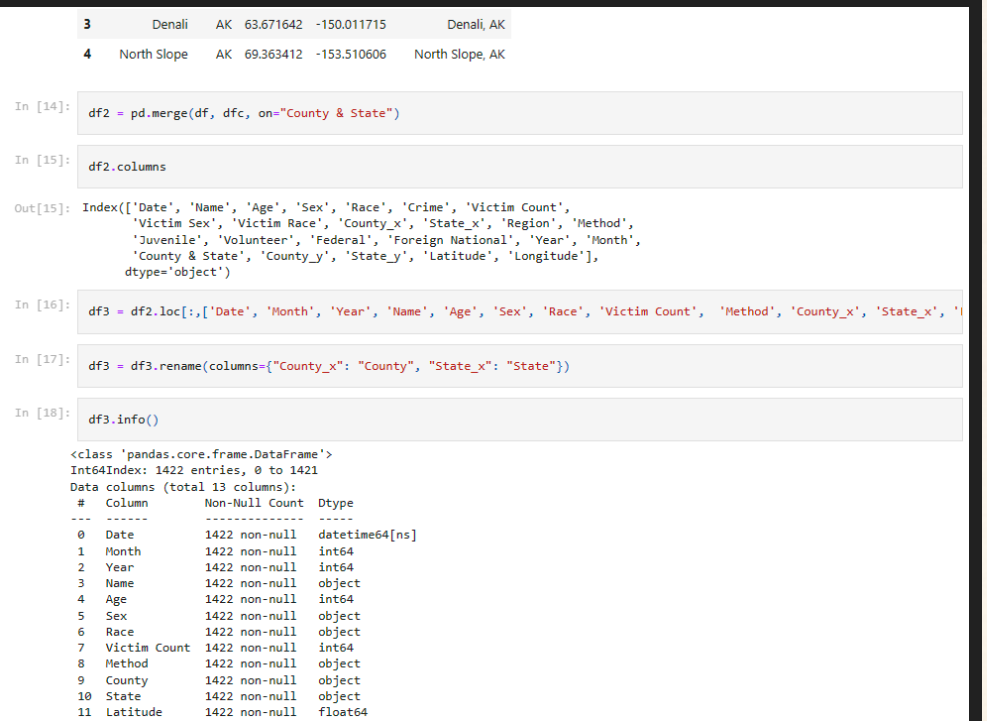
John Banowsky

Introduction

We decided to make our website and visualizations over the data of executions across the United States. Capital punishment has been a controversial issue in the United States for decades, raising questions about ethics, justice, and human rights. By delving into the data behind executions, 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.



Latitude	Longitude
56.2936	-132.1292
55.2245	-161.9472
52.6802	-92.4881
63.6716	-150.0117
69.3634	-153.5106
64.8078	-146.5654
55.4885	-131.0305
61.1483	-149.1886
62.1600	-163.5255
59.5600	-135.3367
58.4439	-134.2303
55.7272	-133.1930
57.6603	-153.7492
60.1194	-151.6981



3	Denali	AK	63.671642	-150.011715	Denali, AK
4	North Slope	AK	69.363412	-153.510606	North Slope, AK

```
In [14]: df2 = pd.merge(df, dfc, on="County & State")

In [15]: df2.columns

Out[15]: Index(['Date', 'Name', 'Age', 'Sex', 'Race', 'Crime', 'Victim Count',
                'Victim Sex', 'Victim Race', 'County_x', 'State_x', 'Region', 'Method',
                'Juvenile', 'Volunteer', 'Federal', 'Foreign National', 'Year', 'Month',
                'County & State', 'County_y', 'State_y', 'Latitude', 'Longitude'],
               dtype='object')

In [16]: df3 = df2.loc[:,['Date', 'Month', 'Year', 'Name', 'Age', 'Sex', 'Race', 'Victim Count',  'Method', 'County_x', 'State_x', '

In [17]: df3 = df3.rename(columns={"County_x": "County", "State_x": "State"})

In [18]: df3.info()

<class 'pandas.core.frame.DataFrame'>
Int64Index: 1422 entries, 0 to 1421
Data columns (total 13 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   Date          1422 non-null   datetime64[ns]
 1   Month         1422 non-null   int64
 2   Year          1422 non-null   int64
 3   Name          1422 non-null   object
 4   Age           1422 non-null   int64
 5   Sex           1422 non-null   object
 6   Race          1422 non-null   object
 7   Victim Count  1422 non-null   int64
 8   Method        1422 non-null   object
 9   County        1422 non-null   object
 10  State         1422 non-null   object
 11  Latitude      1422 non-null   float64
```

Our Dataset

We used two datasets, one was from Kaggle which had inmate's information, the state they were executed, as well as the method which was used for the execution. Our second was a excel worksheet published by U.S. Census Bureau that had longitude & latitude columns that we needed to make an interactive map. Once we turned our excel worksheet into a csv file, we were then able to merge two Data Frames and turn it into an SQLite database.

Executions in the United States, 1976-2016 | Kaggle

US County Boundaries — Opendatasoft

Research Questions

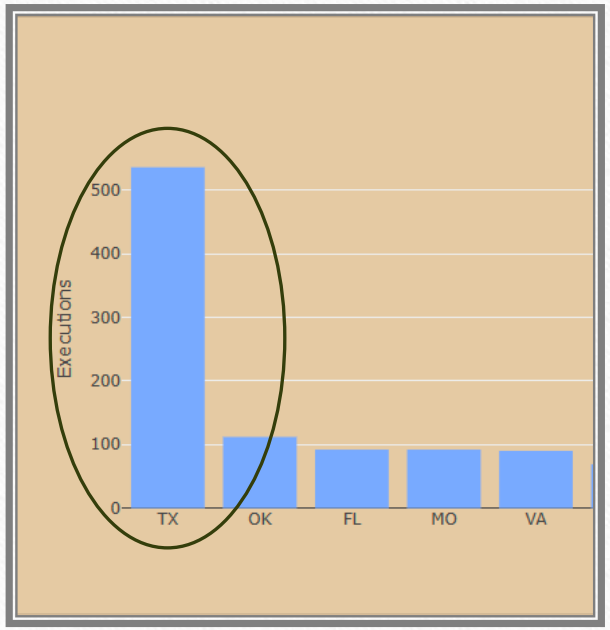
- Which state has the most executions ?
- Is there a trend over time when it comes to a certain method of execution ?
- What region in the United States are death penalties more common ?

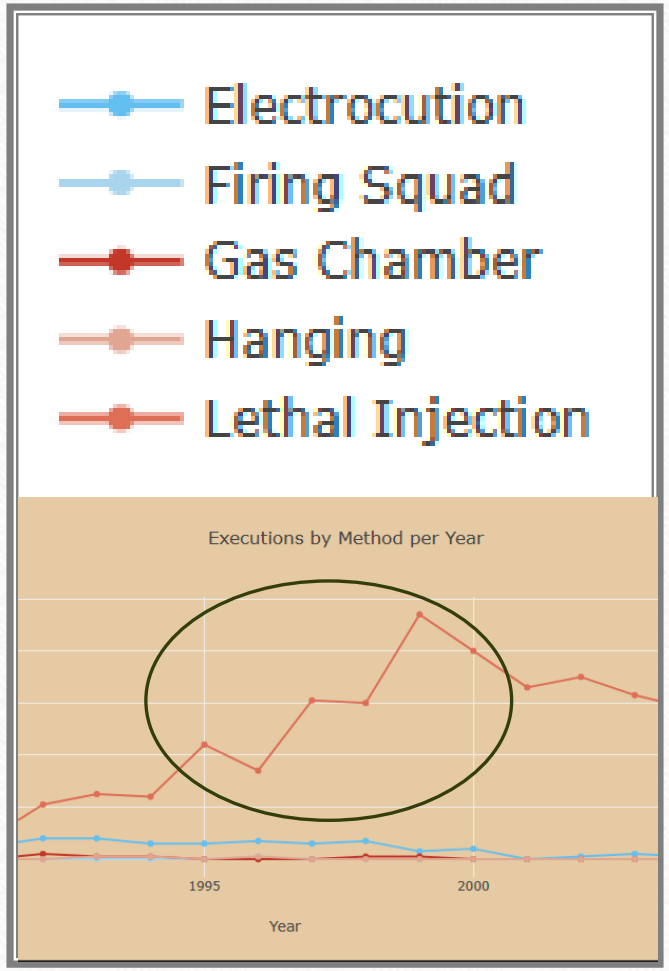
Our Website

ExecutionXplore (dannyphantom2023.pythonanywhere.com)

Conclusion

In conclusion with our bar chart, we were able to see the total amount of executions in each state. The state of Texas is the outlier on our graph which has a total amount of executions of 536. To get a better understanding of how astronomical this number is, take into perspective that every other state has total amount of executions that are in the double digits, besides the state of Oklahoma which is 112, which is still a measly number compared to Texas.



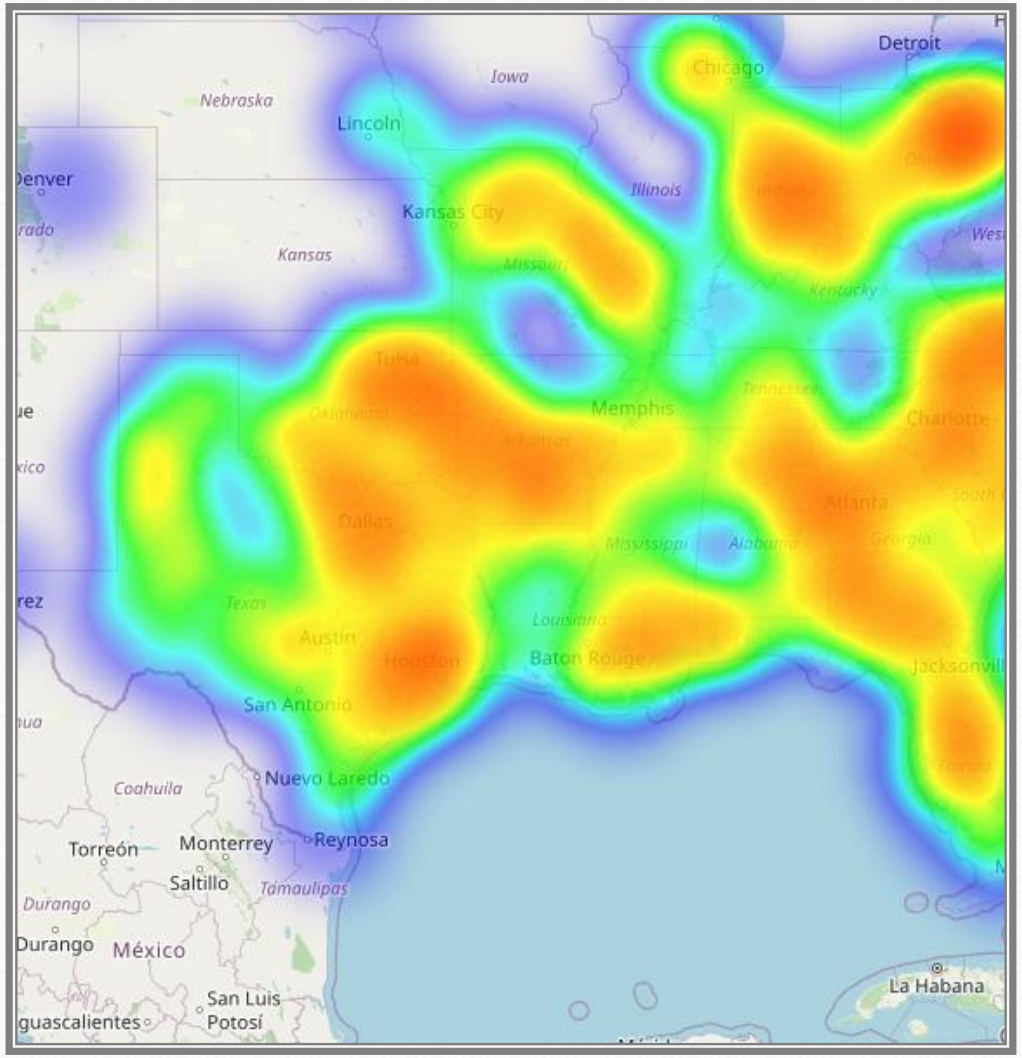


Line Plot

Our line plot allowed is to answer our second research question, which shows us that there is a upward trend in lethal injection which shows that lethal injection has become the preferred method to use on inmates that may face the death penalty.

Leaflet Map

Thanks to our leaflet map it gives us, as well as viewers an understanding where majority of executions were taken place. As seen with our heat map filter, we can see that majority of executions are all in the southern region.



Limitations

- Our Dataset didn't have much variety with certain values so we couldn't broaden our stories as much.
- Our 'Crime' column only had one unique value which was 'murder'. This didn't really give us an option to make a graph based on inmates who were executed due to other crimes as well. Which could have shown over time that the death penalty took stricter requirements to receive.
- Our Dataset was from the range of 1976-2016, this caused us to miss out on a story with recent data to show the rate of executions in this current time, this could have allowed the viewers to be more intrigued by the numerous of executions that are still happening today.

Future Work

Due to the size of our data as well as the time frame, we couldn't add other interesting topics. if we had more time & resources we would focus on:

- Making a graph that shows the different crimes committed that caused inmates to get a death penalty.
- Add another filter to our map to give viewers more options to choose from with the map.

THANK YOU

Alex Perez
John Banowsky
Daniel Hall