Final Project Presentation

By: Hiba, Robin, Ricky, Sergio

The Database

About the Data

- Data about jail populations by race, state, and date
  - Admissions
  - Releases
  - Incarcerated
- Data for every state as far back as 1990
- Races included:
  - White, Black, Hispanic, Asian, Native American, Other
- Issues:
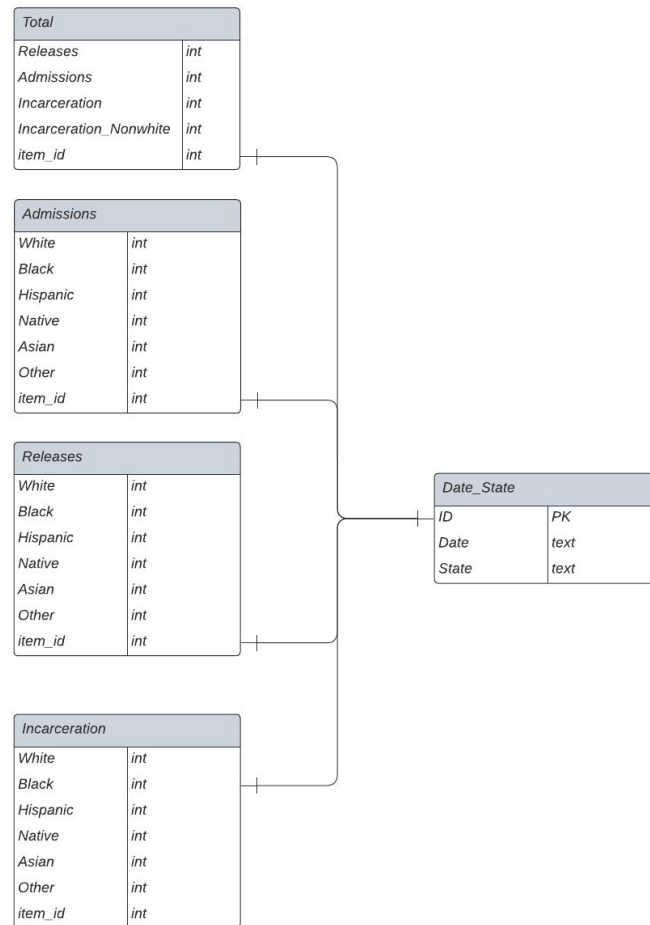 - Not all data available for every state and for every month

Example

date	state	admissions_total	admissions_white	admissions_black	admissions_hispanic
2/1/2015	Arizona	1583	600	193	633
3/1/2015	Arizona	1580	615	189	640
4/1/2015	Arizona	1779	706	235	701
5/1/2015	Arizona	1821	730	260	669
6/1/2015	Arizona	1689	704	215	618
7/1/2015	Arizona	1871	758	223	738
8/1/2015	Arizona	1784	760	206	670
9/1/2015	Arizona	1623	659	177	629
10/1/2015	Arizona	1673	673	236	636
11/1/2015	Arizona	1780	734	205	696
12/1/2015	Arizona	1526	550	219	626
1/1/2016	Arizona	1569	614	199	588
2/1/2016	Arizona	1547	618	205	577
3/1/2016	Arizona	1449	581	198	520
4/1/2016	Arizona	1660	672	179	631
5/1/2016	Arizona	1627	657	176	649
6/1/2016	Arizona	1608	621	190	630
7/1/2016	Arizona	1615	648	180	634
8/1/2016	Arizona	1457	600	179	532
9/1/2016	Arizona	1474	616	186	530
10/1/2016	Arizona	1583	622	215	613
11/1/2016	Arizona	1478	604	196	538
12/1/2016	Arizona	1327	534	186	487

The Schema

- Relational Database
- Normalizing Process
  - Create a single primary key for simplicity
    - All data depends only on date and state
  - Separating the data by type
    - Admissions, Releases, Incarceration
  - Put totals in separate table,
    - Otherwise violates third normal form

Total	
Releases	int
Admissions	int
Incarceration	int
Incarceration_Nonwhite	int
item_id	int

Admissions	
White	int
Black	int
Hispanic	int
Native	int
Asian	int
Other	int
item_id	int

Releases	
White	int
Black	int
Hispanic	int
Native	int
Asian	int
Other	int
item_id	int

Date_State	
ID	PK
Date	text
State	text

Incarceration	
White	int
Black	int
Hispanic	int
Native	int
Asian	int
Other	int
item_id	int

Queries

Ricky's Queries

--question: Which race had the highest releases in 2017?
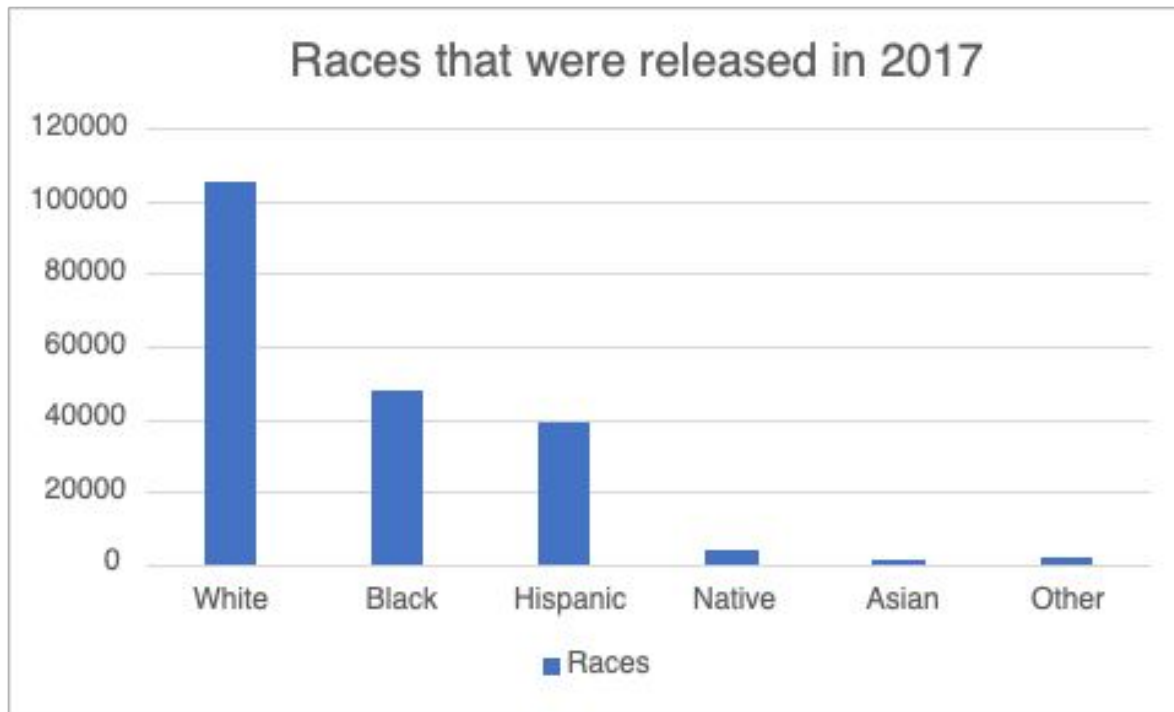SELECT SUM(r.White), SUM (r.Black), SUM(r.Hispanic), SUM(r.Asian), SUM(r.Other)
FROM Date_State as ds, Releases as r
WHERE ds.ID = r.item_id
AND ds.Date >= '2017-01-01' AND ds.Date < '2017-12-30';

--question: Which state had the highest admitted number of black admissions in 2020?
SELECT ds.State, SUM(a.Black)
FROM Date_State AS DS, Admissions as a
WHERE ds.ID = a.item_id
AND ds.Date >= '2020-01-01' AND ds.Date < '2020-12-30'
GROUP BY ds.State;

Ricky's Visualization

Races that were released in 2017

Sergio's Queries

__Question 1: What year had the highest number of incarcerated people?__

SELECT Date_State.Date, ROUND (MAX(Total.incarceration), 2) AS Total
FROM Date_State, Total
WHERE Date_State.ID = Total.item_id;
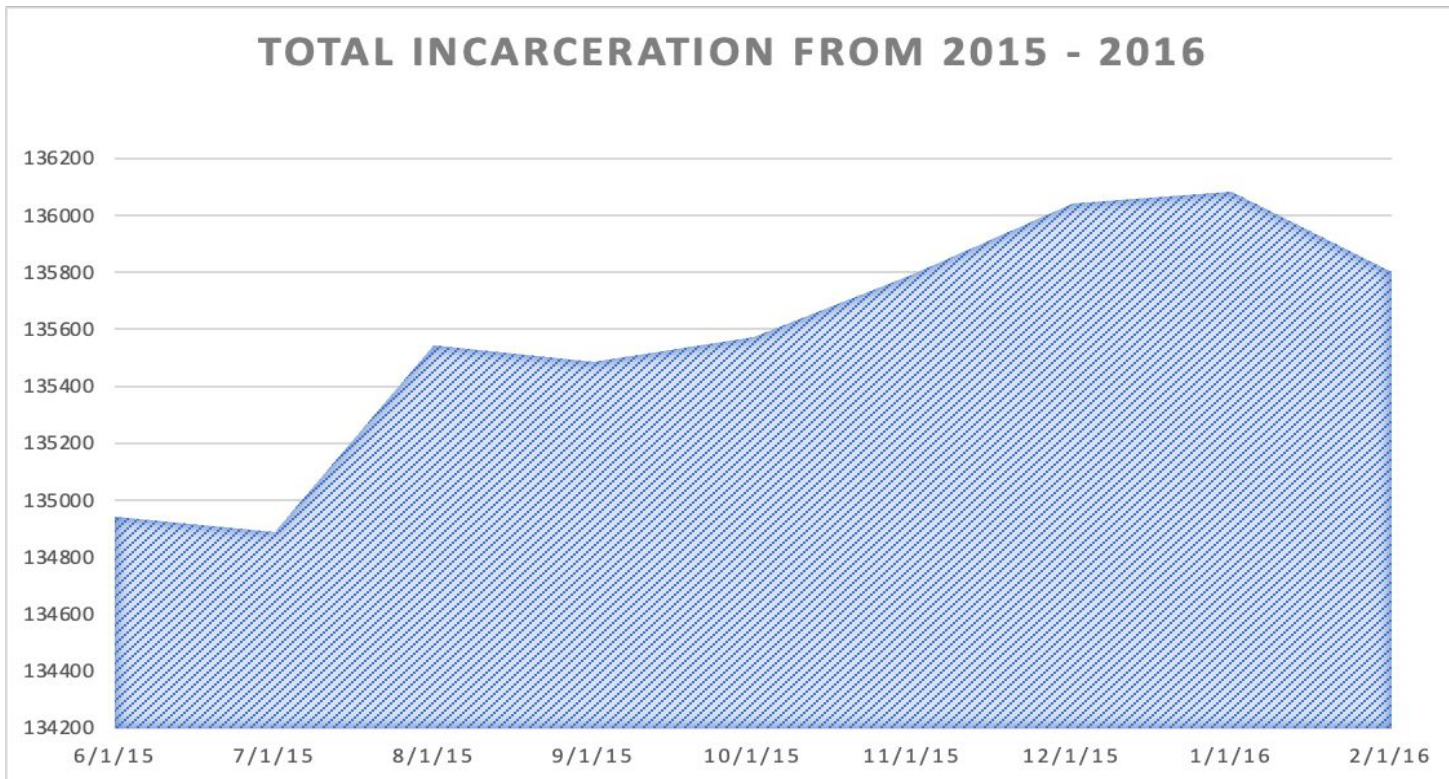
Result: 2016, with a number around 136083

__Question 2: What was the admission/release ratio for Hispanics in 2020?__

SELECT Date_State.Date, SUM(Admission.Hispanic / Releases.Hispanic) AS Ratio
FROM Admissions
INNER JOIN Releases ON Admissions.item_id = Releases.item_id
INNER JOIN Date_State ON Admission.item_id = Date_State.ID
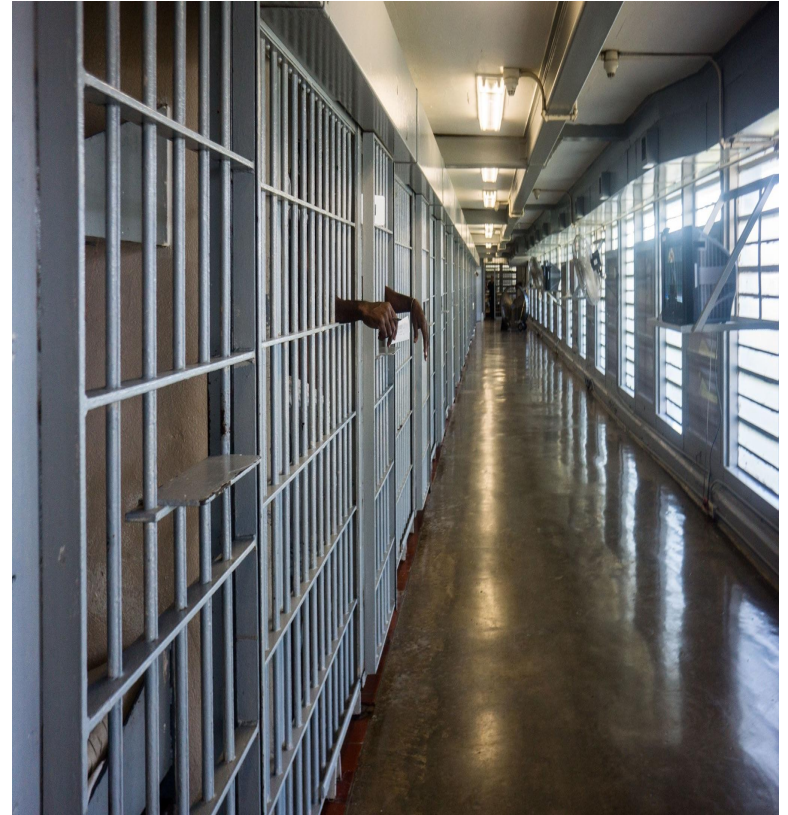WHERE Date_State.Date LIKE '2020%';

Result: 48/100

Sergio's Visualization

TOTAL INCARCERATION FROM 2015 - 2016

Why I choose them...

- Interested in knowing how the number of incarcerated people has changed over the years
- External factors that could be playing a role in this numbers
- Choose 2020 because it was when the pandemic started
- Curious if this played a role in people getting released from prison
- Taking the steps to be more conscious about this social problems and the impact they have on our society

Hiba's Queries

Question 1: **Which states have had the most significant increase in prison admissions?**

```
SELECT
    ds.State,
    (
        MAX(COALESCE(a.admissions, 0)) - MIN(COALESCE(a.admissions, 0))
    ) AS admissions_difference
FROM
    Date_State AS ds
LEFT JOIN
    (
        SELECT
            item_id,
            SUM(White + Black + Hispanic + Native + Asian + Other) AS admissions
        FROM
            Admissions
        GROUP BY
            item_id
    ) AS a ON a.item_id = ds.ID
GROUP BY
    ds.State
ORDER BY
    admissions_difference DESC;
```

Results:
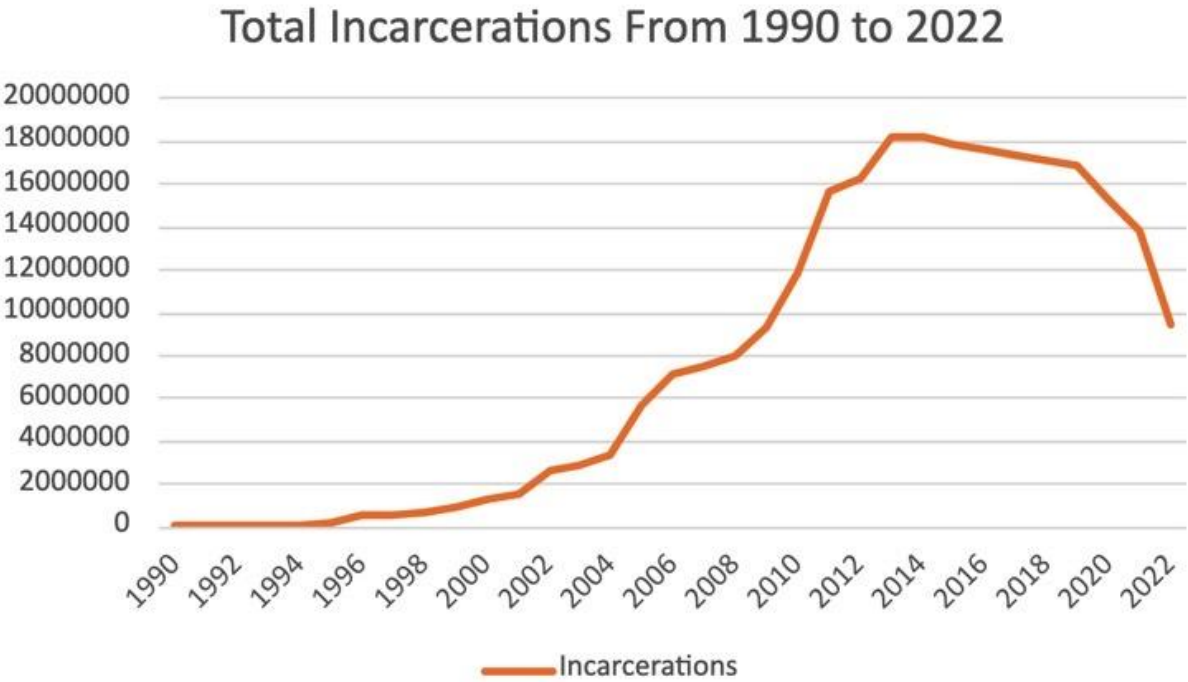Texas, California, and Kentucky have had the most significant increase in their prison admissions

Question 2: How has the number of incarcerations changed over the years?

SELECT strftime('%Y', ds.Date) AS Year, SUM(i.White + i.Black + i.Hispanic + i.Native + i.Asian + i.Other) AS TotalIncarcerations
FROM Incarceration AS i
JOIN Date_State AS ds ON i.item_id = ds.ID
GROUP BY Year
ORDER BY Year;

Hiba's Visualization

Total Incarcerations From 1990 to 2022

Robin's Queries

- **What was the ratio of the average number of black admissions to white admissions in 2015?**
  - See whether there is a sizable difference between how black people were admitted compared to how many white people were admitted

Result:

- ❖ White people were admitted 8.667 times more than black people in 2015

Analysis:

- ➤ This doesn't take into account that there are more white people in total than black people
- ➤ Shows that what matters is the proportion of admittances to the total population of the subgroup
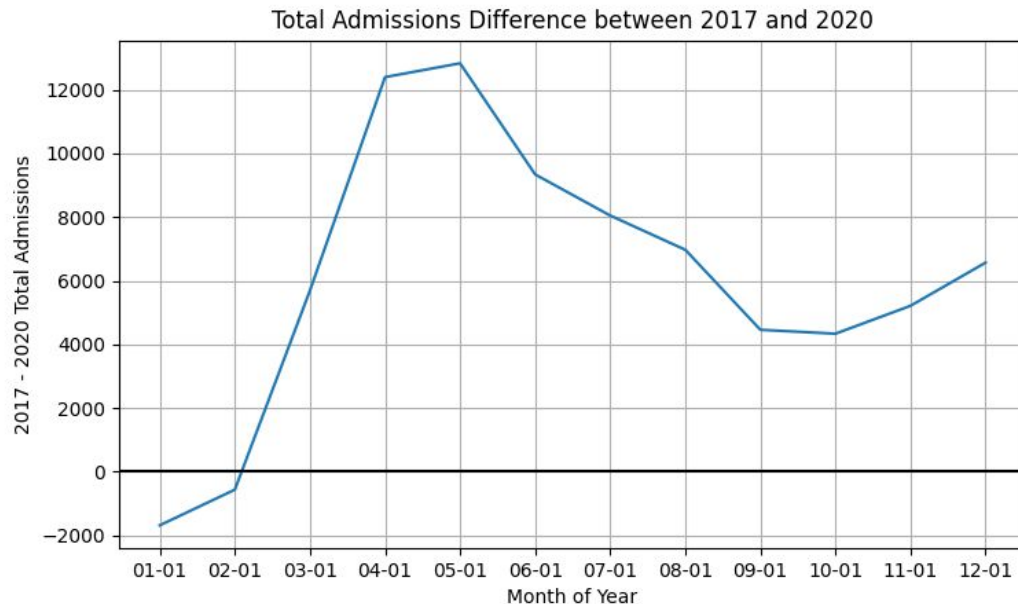
Robin's Queries

- **What was the difference in the total number of admissions between 2017 and 2020?**
  - What effect did the pandemic have on on admittances?
  - Use 2017 as a control year
    - No notable events that would have an effect on incarceration rates
  - By month and for every state

Robin's Visualization

Total Admissions Difference between 2017 and 2020

- Overall there were more admittances in 2017 than in 2020, with the peak difference occurring in May
- Lockdowns for covid began in March of 2020

Conclusion

Results

- Seeing how each state had a drastic difference between admissions during that year. We would need to factor in that each state has a different population, so more people living in that state we can assume naturally have a higher increase in admissions.
- COVID Pandemic had a large impact on incarceration rates
- Use the proportion of incarcerated people to the total number of people in a population group for comparisons
- Kentucky has an unusually high number of prison admissions in comparison to their population, how does that compare to their crime rates?
- How does the crime rate over the years compare to the incarceration rate over the years?
- Question what other external factors could be at play and influencing this numbers
- Learn how much does the ratio of admission/releases vary per race