

THE COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART
ALBERT NERKEN SCHOOL OF ENGINEERING

**MISSISSIPPI JAIL PROJECTIONS:
UNDERSTANDING THE BAILABLE
POPULATION**

by

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A thesis submitted in partial fulfillment of the requirements for the degree of
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Advisor

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THE COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART
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Mississippi Jail Projections: Understanding the Bailable Population

As the Bail Project, a non-profit providing free bail assistance, expands into Mississippi, the organization is interested in learning more about the state's pre-trial population and the individuals that can be bailed. Through this thesis, data is scraped daily from the 17 Mississippi counties that publish their jail rosters online and analyzed to assess the resources needed to bail out individuals from each county. The collected data is fed into an interactive analysis tool that provides insights on the composition of the jails and trends on the bail amounts set for the individuals based on the county, charge, among other criterion.

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SECTION 1

INTRODUCTION

The pretrial population, the number of individuals accused of a crime who are held in jail, comprises about two-thirds of the 740,000 total people in local jails in the United States [12]. Although, these individuals have not been convicted of crime, or in other words, presumed innocent, they must remain in jail unless they post bail. In most cases, individuals who cannot pay their bail have have two options: Plead innocence and sit in jail for an undefined time waiting for trial while not being able to go to work or take care of their family; Plead guilty to quickly settle the case to leave jail but receive a criminal record affecting job prospects, housing applications, etc. Both options leave the individual in a bind.

Mississippi in particular ranks the 3rd highest in the rate of incarceration in state prisons in the United States [38]. From 2005 to 2015, in Mississippi, the rate of jail admissions increased 13% and the pretrial population increased 9%, while the rate of jail sentenced population increased by only .01% [17]. Cliff Johnson, director of the MacArthur Justice Center at the University of Mississippi School of Law, says "individuals face long pre-trial incarceration in Mississippi as grand juries meet as little as two to three time a year in many rural counties and that the Mississippi Supreme Court rarely enforces Mississippi's Speedy Trial Act." With the delays in processing, individuals waiting for trial often wait 1-2 years before they get to court. The MacArthur Justice Center estimates that Mississippi spends at the least \$90 million per year on pretrial incarceration [9].

The Bail Project, a non-profit providing free bail assistance, is looking to get a better understanding of the pretrial population of Mississippi as they continue to expand their reach into the state and work with The Mississippi Collective

Bail Fund [22], a local bail fund of social workers, attorneys, and activists working to bail individuals across Mississippi. The objective of this thesis is to collect and analyze the data from the 17 county jails in Mississippi that publish their jail rosters online, assess the resources needed to bail out individuals from each county and learn more about each jail's operations. In order to consolidate all the information from the 17 jails a regularly updated interactive tool [43] was made to provide actionable insights on the individuals that The Bail Project can provide free bail assistance to.

SECTION 2

BACKGROUND

2.1 History of Cash Bail and Pretrial Incarceration

Bail was first introduced as a means of accountability to ensure that an individual accused of a crime would return for court without having to hold that individual in jail. If the accused person returned for all their court visits, regardless of whether they were found guilty or not, the bail amount would get refunded.

Cash bail has existed for more than 1,500 years in the forms of personal surety and commercial surety. Personal surety is when the bail amount is paid by a third party only upon default, and commercial surety is when a bail bond company pays your bail at an interest. Colonial America's bail laws borrowed heavily from England's bail laws, mostly the Bill of Rights, the Habeas Corpus Act, and the Petition of Right which consisted predominantly of allowing personal sureties [6]. These personal sureties, or "unsecured bonds" are otherwise known as a "system of recognizances" in which it was rare for the amount to be so high that no one would want to pay the amount. The American Bar Association notes that "historically speaking, bail meant release" [39]. In fact, the eighth amendment of the U.S. Constitution is "Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted" [35].

Starting in the 1800s, the system of bail changed to one in which bail did not mean release. As less people were willing to serve as personal sureties, judges required the individuals to pay themselves and transitioned to "secured

bonds” in which the amount had to be paid prior to release from jail. When the accused individual could not pay this bail amount themselves, instead of recognizing the amount as excessive and therefore unconstitutional, judges claimed instead that the large amount was “unintentional, and merely a byproduct of the process” [39]. An early instance of unattainable cash bail was the \$1,500 bail set in 1835 for the person accused of attempting to kill president Andrew Jackson. The court issued the statement that “This sum, if the ability of the prisoner only were to be considered is, probably, too large; but if the atrocity of the offence alone were considered, might seem too small; but taking both into consideration, and that the punishment can only be fine and imprisonment, it seemed to him to be as high as he ought to require” [6]. In other words, as long as the judge claimed the excessive bond amount was “unintentional” this loophole in the bail system allowed judges to purposefully hold a defendant in jail [39].

The commercial bail bond industry grew to new heights in the 1900s as commercial sureties allowed for bail bondsmen to profit with bail bonds. Accused individuals had to pay a fee upfront to bail bondsmen and provide collateral on the bond [6]. For context, typical interest rates for bail bonds in 2020 are 10% [26]. This bail bond industry has grown to a \$2 billion dollar industry [11]. If the defendant does not show up to court, the bondsmen often hire bounty hunters who will find the defendant to retrieve the money.

Louis Schweitzer and Herb Sturz founded Vera Institute of Justice in 1961 after recognizing and researching the inequalities of the bail system as a result of wealth disparity. The first initiative of the organization, The Manhattan Bail Project, assessed flight risk of defendants based on their residential stability,

employment history, family contacts, and prior criminal history [2]. When a defendant satisfied the criteria, they were released on personal recognizance and reminded of their court date. The organization recorded that over three years that 3,505 accused persons were released using Vera's flight risk assessment of which only 1.6% did not return for court [27]. The results of the Manhattan Bail Project ushered new efforts for bail inform. In 1962, in the National Conference on Bail and Criminal Justice, Bernard A Botein reported that in New York 28% of accused persons cannot afford bail as low as \$500. Of the 58,458 individuals incarcerated in New York City awaiting trial, the average time spent in jail was one month during which they could not prepare for trial and take care of family [1].

As a result of the The Manhattan Bail Project among other initiatives, it became more evident that the pretrial incarceration system favored wealthy individuals. The first wave of bail reform came with the Bail Reform Act of 1966 which encouraged the use of personal sureties and other non-monetary methods along with research that takes into account the accused individual's financial resources, record of convictions, among other characteristics to determine the bail amount [41].

However, the second wave of bail reform was prompted when the American court system started noticing that some defendants released on bail were fleeing or committing other crimes. The D.C. Court Reform and Criminal Procedure Act of 1970 and the Federal Bail Reform Act of 1984 allowed intentional detention in the case of flight risk or public safety but placed limits on the amount of money that can be placed for bail so that defendants were not in jail because they could not pay.

These reforms were subsequently not well taken by the states and entrenched flaws in the bail system have now led to the large pretrial populations in the 21st century. Between 1970 and 2015, the pretrial population has grown by 433 percent from 82,922 people to 441,790 [12]. The Vera Institute of Justice attributes this growth to the increased reliance on financial conditions for pretrial release, citing that "Between 1990 and 2009, for example, the percentage of pretrial releases in felony cases in the largest urban counties that involved financial conditions increased from 37 percent to 61 percent. Nearly all of that increase was due to greater use of commercial surety bonds, which are posted by a for-profit bail bond company after the person pays a nonrefundable 10 percent fee" [12].

2.2 Alternatives to Cash Bail

In The Justice Policy Institute (JPI)'s report "Bail Fail: Why the U.S. should end the Practice of using Money for Bail" the organization advocates that cash bail should be replaced by non monetary options such as release on recognizance and the use of validated risk assessments. These risk assessments take into account factors such as previous criminal history, residence stability, and caregiver responsibilities to determine how likely they are to return for trial or commit a crime while released on bail. These risk assessments must be designed carefully so as to not replace an existing biased system with a different bias system as data used in the assessments are biased by social prejudices or economic disparities [40]. Other reforms JPI lists include: eliminating the for-profit bail bond industry, increasing community programs that help defendants navigate the pretrial process, using citations/summons to reduce the number of arrests and people

passing through jails, and sending court notifications to remind defendants to show up for court [21].

Eliminating (or significantly reducing) cash bail, in practice, has shown no increase in criminal activity. As part of the New Jersey Criminal Justice Reform Act in 2017, cash bail was eliminated for the most part, and defendants were kept in jail only if the judge deemed that they were a threat to the public. In 2018, the New Jersey Court published a Report to the Governor and Legislature that reported that the New Jersey pretrial jail population declined 43.9% since December 31, 2015 and that there was no significant increase in crime or failures to appear to court. The report also showed that the number of summons (instead of custodial arrests) increased from 69,469 in 2014 to 98,473 in 2017, leading to 99.6 percent of defendants released within 48 hours of arrest [14].

The report "A Decade of Bail Research in New York City" found that cash bail only decreased flight risk for those who were evaluated as high risk using the risk assessments. For low risk individuals, cash bail made no difference on court appearance when compared to released on personal recognizance [34]. The report also concluded that a supervised release program could serve as an alternative to cash bail for people who pose higher risk [12].

2.3 The Bail Project and their Mission

The Bail Project is a non-profit organization whose mission is to fight mass incarceration through a "National Revolving Bail Fund" [37]. In other words, the bail-fund is continually used to release individuals from jail. When a defendant shows up to court and the money is returned, the money is recycled

again through the organization to bail out another individual. Robin Steinberg, founder of the The Bail Project, said that in her experience with the Bronx Freedom Fund, she found out that “when the Bronx Freedom Fund pays bail, 96 percent of clients return for every court appearance” and that “if you’re held in jail on a misdemeanor, 90 percent of people will plead guilty. But when the fund pays bail, over half the cases are dismissed” [42].

In the report “A Framework for Reimagining Pretrial Justice”, The Bail Project outlines their road map to change the pretrial system that “criminalizes poverty and is a structural linchpin of mass incarceration and racial inequality” [36]. To create this change, the organization has prioritized removing pretrial detention (unless it is clear that the individual will not return to court or pose a public threat) as well as fighting against the racial bias in the legal system.

The Bail Project’s “Community Release with Support” employs *Bail Disruptors*, who work in the community to pay bail for individuals living in poverty and help them throughout the court process. These bail disrupters interview the individuals to learn and help them through any challenges they may have in appearing to court for their trial such as transportation and work with them to send court reminders and connect them to community programs. Even though the individuals’ personal money is not on the line, in most sites, the individuals return for court 90 percent of the time with failures to show up often a result of “involuntary circumstances, such as housing instability, work schedule conflicts, and health or childcare crises” [36].

The Bail Project also advocates for decriminalization and using noncustodial citations in lieu of arrests. If an individual is arrested, there should be enough hearings with robust due process protections where the presumption is uncon-

ditional release. Replacing cash bail with other monitoring devices such as curfews, mandatory alcohol/drug testing, home incarceration, and electronic monitoring often perpetuate the harms of cash bail. These methods can also hurt employment, make childcare difficult, hinder medical treatment, as well as cause "involuntary technical violations that trigger rearrest, again re-creating the harms of cash bail" [36].

Not only does mass incarceration perpetuate racial and economic inequality, it does little to reduce crime and violence. The Bail Project is focused on investing in methods that provide support to individuals and uses pretrial incarceration, jails and prisons as the last resort. The support should include court reminders, transportation assistance, childcare assistance, and referrals to social services. In regards to court, nonessential hearings should be optional for the defendant, the system for scheduling/rescheduling should be improved, and there should be grace periods for nonappearance.

The data fed into pretrial risk assessment algorithms are effected by racial and social disparities and therefore the results of the algorithms further perpetuate racial and economic inequality. These assessments can be adjusted to fit more or less people into the "low", "medium" and "high" risk categories, allowing for manipulation of the pretrial population. As the result of these assessments are only suggestions, The Bail project reports that "In a recent Harvard experiment, participant interactions with risk assessment tools introduced new forms of bias into decision-making: when evaluating Black accused people, participants were 25.9% more strongly influenced to increase their risk prediction at the suggestion of the risk assessment and were 36.4% more likely to deviate from the risk assessment toward higher levels of risk" [36].

SECTION 3

METHODOLOGY

3.1 Data Collection

As The Bail Project expands operations to more states in the United States, the organization seeks to determine how to best operate in each state, and learn the particularities of the counties within. Typically, to determine theailable population, the Bail Disruptors from The Bail Project visit county jails and request for jail rosters, interview individuals, and determine how they can provide funds to bail individuals. As part of this thesis, the publicly available jail rosters in Mississippi were web scraped and analyzed to determine theailable population in advance. Appendix table A.1 shows the counties in Mississippi that published jail information online along with the URL where the site was accessed. Seventeen Mississippi jails were scraped daily starting from mid February to mid August. The data collected for each jail varied on the data made available on the website, but typically contained first and last name of the accused individual, arresting agency, race, gender, charge(s), bond amount(s), bond type(s), and arrest date. All the counties had comprehensive bond data except for Hinds, Yazoo, and Kemper, limiting the amount of analysis we can conduct for these counties.

All the data collected from the daily web scraping is stored in CSV format in Google Drive folders and shared with The Bail Project. This data is also regularly fed into an interactive tool created on Google Colab (link: [43]), and shared with The Bail Project. The interactive tool allows the organizations to analyze and visualize the pretrial population in each county.

In scraping the jails, a captcha code was manually entered in everyday for those that required it while the rest was automatically scraped using a cron job. Figure 3.1 is a high level overview of the setup used for web scraping and updating the interactive tool. Appendix section A.1 contains further details on the code.

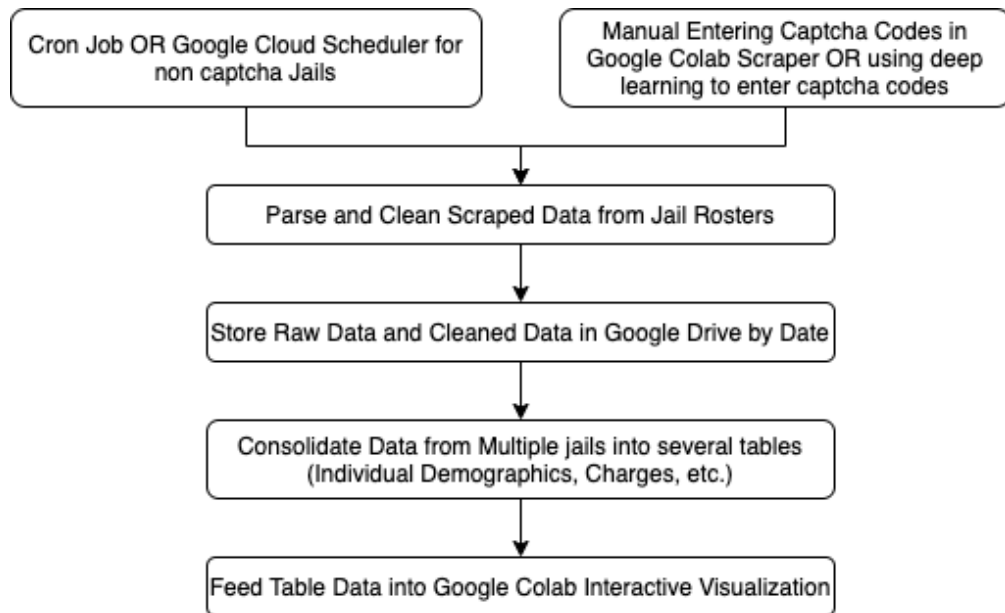


Figure 3.1: High Level Overview of Data Flow

3.2 Analysis and Visualization of Collected Data

The following sections break down how the scraped jail data was analyzed and the resulting findings.

3.2.1 Scraped Counties and their Jail Population

The choropleth map in figure 3.2 provides a visualization of the 17 counties that were scraped and their respective population. The figure shows an example of how hovering over a county in the map in the interactive Google Colab [43] shows a pop up that displays the name of the county as well as demographic information from the 2019 US Census Population Division [7].

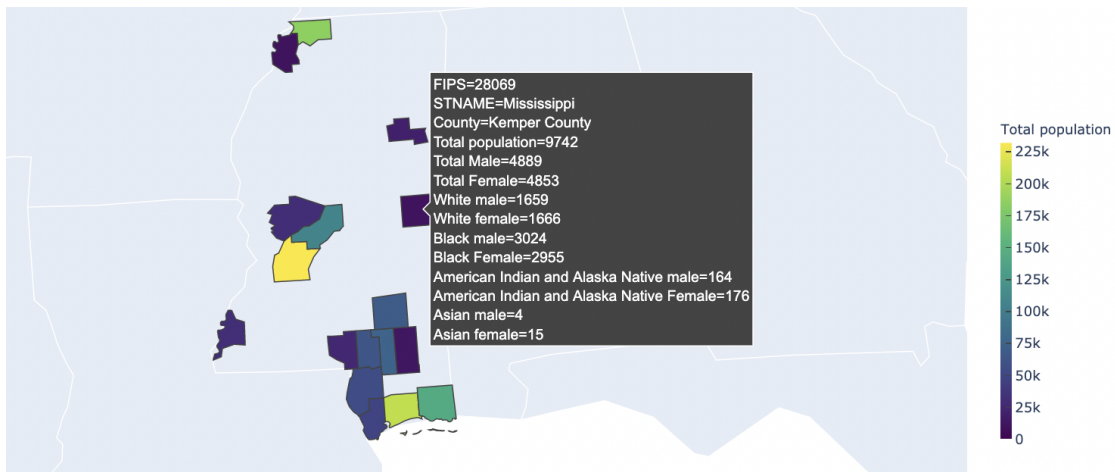


Figure 3.2: Mississippi Choropleth Map with Census Demographics

Out of 82 counties in Mississippi, 17 counties published their jail rosters online. For context, the total population of the counties that publish their jail data online is 1,318,583 which is about 45% of the total population of Mississippi of 2,961,279 as of 2020 [8].

Jail population over time

The graph in figure 3.3 tracks the total number of individuals held in jail for the days that were scraped. Most jails were scraped daily starting on February 3th 2021. For certain jails such as Kemper and Jones, the daily scraping was started at a later date, February 23rd 2021. Pearl River was added on June 22nd 2021, however, the jail population for Pearl River is constant as the last date the roster was updated was January 2021, which was prior to the daily scraping.

The graph in the Google Colab [43] is interactive, so you can move around the dates, and zoom in to certain date ranges as well.

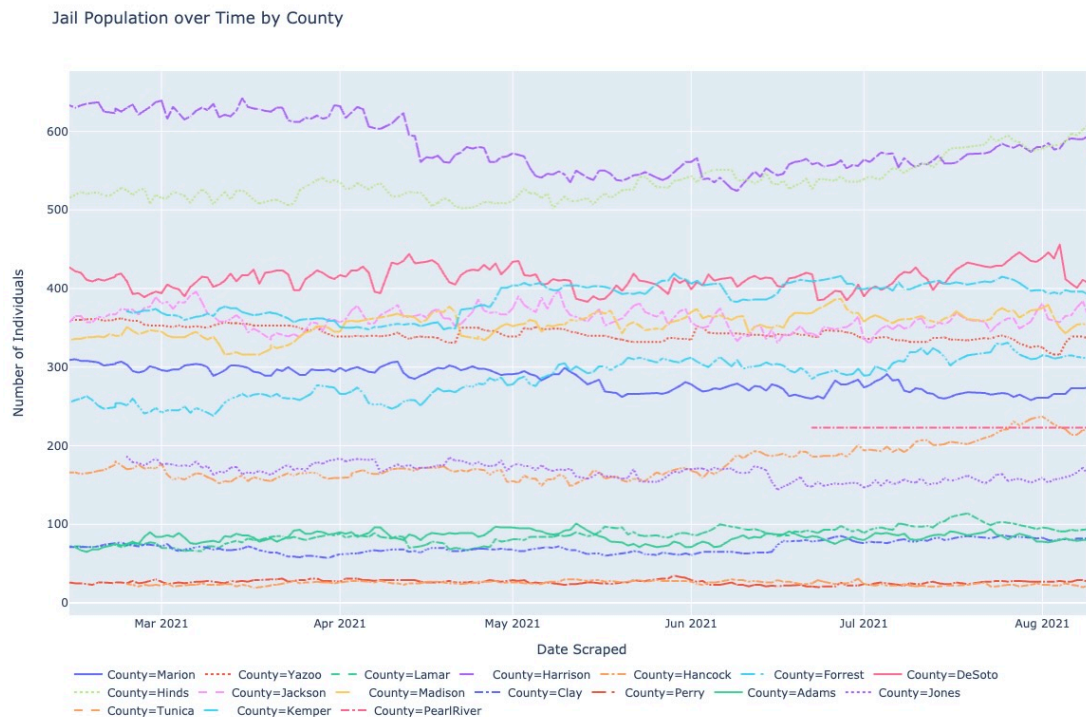


Figure 3.3: Jail Population Over time

While terms "jail" and "prison" are used colloquially used interchangeably, jails tend to hold individuals waiting for court or convicted for minor crimes

whereas prison holds individuals convicted of more serious crimes [28]. Jails are funded by county level taxpayer dollars and request to hold state and federal detainees for additional funding whereas prisons are funded by state and federal tax dollars [33]. In 2013, of the total 11,575 individuals in local Mississippi jails, 6,378 were held for state prisons and 256 were held for federal prisons. In the same year, the total Mississippi prison population was 21,969 [3]. As of 2019, Mississippi has the 3rd highest incarceration rate for state prisons in the United States [38].

From figure 3.3, the average number of individuals in jail in each county and compared with the 2019 average jail population shows that jail population has on average decreased. However, according to the Vera Institute, reductions in the jail population is not necessarily due to the changes in policy or enforcement [31]. Especially in the 2020-2021 years that were effected by the coronavirus pandemic, reduction in jail population can be due to fewer resources for court or law enforcement or even individuals in jail being transferred and treated for coronavirus.

3.2.2 Classification Criteria

The Bail Project uses jail projections to determine how much funding and resources they need to use for each jail. These projections classify the individuals into categories of "Not Bondable", "Bond Greater Than X Amount", "Sex Offender or Domestic Violence charge", "Inmate Released in Y days" and "Remainder".

The following details why each category is important and the criteria that is used in the code to classify the individual into the respective category.

Categories:

1. **Not Bondable** - The number of individuals with bond amounts and their respective bond amount is necessary to determine the resources The Bail Project needs for the particular jail. Some individuals may not be granted bail due to the severity of the accused crime, violation of probation, threat to public, etc.

- (a) **Criteria:** Depending on the jail, the bond amount is shown as a total for all accused charges, or there is a bond amount for each respective charge. An individual is *Not Bondable* if either their total bond amount or one of the bond amounts for their charges is zero. If a bond amount is zero, they cannot be bailed and released from jail. An inmate is also marked as *Not Bondable* if one of their charges included the word "hold" which likely means that another jurisdiction has placed a warrant or accused charge on the individual.

In the event that an individual has multiple charges, but the jail only

reports a total bond amount, it is not possible to determine if one of the charges' bond amount is zero if the other bond amounts are not zero. In this case, the individual would be marked as bondable, and further clarification would be required from the county jail.

- (b) **Example:** If an individuals' charges were ['POSSESSION OF CONTROLLED SUBSTANCE-SYNTHETICS', 'POSSESSION OF MARIJUANA IN A MOTOR VEHICLE', 'PROBATION VIOLATION-MDOC'] for the amounts of ['15000.00', '1000.00', '0.00'], this inmate would be considered *Not Bondable*, as they have a charge with the amount zero.

2. **Bond Greater Than X amount** - If the individual has a bond amount it is helpful to know if the amount exceeds a certain threshold. This helps The Bail Project allocate funds accordingly. X is a threshold that The Bail Project can specify in the interactive tool.

- (a) **Criteria:** If the sum of all bond amounts for an individual's charge are greater than X then the individual is categorized as *Bond Greater Than X amount*.

- (b) **Example:** If an individual's bond amounts for their three charges were ['1000', '5000', '6000'] and if $X = 5000$, the inmate would be classified as *Bond Greater Than 5000 Amount*.

3. **Sex Offender or Domestic Violence charge** - This category is used to determine if additional resources are needed, as individuals accused of this crime require additional interviews to make sure there is a safe environment for involved parties upon release.

- (a) **Criteria:** If one or more of the individuals' charges contain the word "sex" or "domestic violence" the inmate is classified as *Sex Offender* or *Domestic Violence charge*.
 - (b) **Example:** Here are examples of these charges: "sexual battery", "failure to register as a sex offender", "sexual cyberstalking", "aggravated domestic violence", etc.
4. **Released in Y days** - The Bail Project is interested in identifying the number of days the individuals were released in (given that they were released) for a selected time frame to estimate the flow of individuals in and out the jail. This helps The Bail Project determine how fast they have to act to bail out individuals.
- (a) **Criteria:** If the individual was only included in the jail roster for Y or less days, they are categorized as *Released in Y days*. To use the category *Released in Y days*, the selected time frame for analysis cannot include the last Y days the jails were scraped, otherwise all the individuals entered in the roster in the last Y days would have been in jail for less than Y days.
 - (b) **Example:** If an individual appeared in the jail roster for the last 3 days, including today, they will NOT be marked as *Released in 5 days* as they may be kept for more than 5 days even though they have only appeared in the jail rosters for 3 days so far.
5. **Remainder** - This category gives an estimate of the number of individuals that do not fall into the other categories (not bondable, Bond greater than X amount, Sex Offender or Domestic Violence charge, ...).
- (a) In other words, the Remainder is calculated as using equation 3.1.

$$\begin{aligned}
\text{Remainder} = & [\text{No. of Total individuals}] - [\text{No. of Not bondable Individuals}] \\
& - [\text{No. of Individuals with a bond greater than } X \text{ amount}] \\
& - [\text{No. of Individuals with a sex offender or domestic violence charge}] \\
& - [\text{No. of Individuals released in } Y \text{ days}]
\end{aligned}
\tag{3.1}$$

3.2.3 Mississippi Jail Projections

Jail projections are used by The Bail Project to assess the composition of a particular jail. These projections are typically tabulated on a spreadsheet using data from the prior two weeks to calculate how many individuals fall into each of the categories mentioned in section 3.2.2. In these jail projections, it is possible that an individual can fit into multiple categories, so the priority is given to the column that is listed first (furthest left column on the spreadsheet).

After scraping the Mississippi jails for several months, this traditional spreadsheet based approach was expanded to incorporate more granularity using Google Colab. Figure 3.4 shows the jail projections using all the data collected from February to August, and figure 3.5 shows the jail projections for one day (configured to be the latest day). The Google Colab allows tuning the parameters so you can modify the values and columns used in the spreadsheet. In both figures 3.4 and 3.5, Hinds, Yazoo and Kemper were separated into a different table as they did not have comprehensive bond information.

For both jail projections, figures 3.4 and 3.5, the majority of individuals in most jails fall into the *Released in Y days* category, with *Not Bondable* being the second highest category. Increasing the number of days, Y , for *Released in Y days* using the dropdown in the Google Colab, increases the number of individuals that fall into this category, however, the rate of increase decreases. This effect is further visualized in figure 3.9 which plots the distribution of *Released in Y days* for all the counties. An overwhelming amount of individuals fall within the histogram buckets of *0-4 Days to Release*, and then *5-9 Days to Release*.

Similar to the *Released in Y days* category, increasing X in the *Bond Greater*

Mississippi Jail Projections for ALL days scraped

The following interactive table allows you to :

- Select Filter Amounts**

If you receive an error while changing the counties, please refer to the top of this link where the first cell has instructions on how to use the interactive visuals.

Release_Within_X_Days:

Charge_Greater_than_X_Amount:

Sex_DV_charge: include column

[Show code](#)

Counties with bond information:
 ** note that if X days are chosen, then the last X days of scraped data is excluded. For example, if the filter is 'Released w/i 5 days' then the last 5 days of scraped data is excluded.

	Days Tracked	Total Bookings Over Days tracked	Released w/i 6 days	Not Bondable/Holds	Sex/DV charge	Charge Over \$7500	Remainder
Clay	166	334	167	89	8	38	32
Harrison	170	2840	1010	1493	29	189	119
Madison	166	1360	571	720	5	41	23
Hancock	170	1196	613	409	14	61	99
Jackson	165	2368	1383	745	21	110	109
DeSoto	170	3380	2055	1032	41	134	118
Forrest	168	1767	872	718	19	86	72
Lamar	170	500	236	197	10	33	24
Marion	168	1021	452	367	8	94	100
Perry	168	205	120	54	3	23	5
Adams	163	685	445	155	7	54	24
Jones	154	1058	623	246	6	115	68
Tunica	153	206	135	36	8	13	14
PearlRiver	42	223	0	198	2	8	15

Counties with NO/limited bond information:

	Days Tracked	Total Bookings Over Days tracked	Released w/i 6 days	Not Bondable/Holds	Sex/DV charge	Charge Over \$7500
Hinds	161	1861	707	n/a	43	0
Yazoo	170	581	87	492	0	1
Kemper	154	876	165	n/a	1	0

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Overall, there is not a statistically significant difference between the latest day jail projections and the all day projections when tested among different days. The latest day jail projections give The Bail Project actionable insight on the current jail populations if Bail Disruptors were to visit the county jail whereas the all days jail projection allows The Bail Project to estimate how to plan resources for a jail over time.

Mississippi Jail Projections for ONLY latest days scraped

Bail Projections for **ONLY** Latest Day Scraped

Select Filter Amounts for Latest Day Scraped

For this table, only ONE day of data is used (the data from the latest day the jail was scraped). If you receive an error while changing the counties, please refer to the top of this link where the first cell has instructions on how to use the interactive visuals.

OneDay_Charge_Greater_than_X_Amount: 4500

OneDay_Sex_DV_charge: include column

[Show code](#)

☒ Counties with bond information:

	Date Used	Inmates in Jail	Not Bondable	Sex/DV charge	Charge Over \$4500	Remainder
Clay	08-10-2021	79	52	1	21	5
Harrison	08-10-2021	564	444	9	94	17
Madison	08-10-2021	340	323	1	14	2
Hancock	08-10-2021	213	162	5	23	23
Jackson	08-10-2021	366	280	9	50	27
DeSoto	08-10-2021	406	318	17	56	15
Forrest	08-10-2021	312	248	7	48	9
Lamar	08-10-2021	93	68	4	19	2
Marion	08-10-2021	266	206	2	44	14
Perry	08-10-2021	27	17	2	8	0
Adams	08-10-2021	82	45	3	32	2
Jones	08-10-2021	165	75	2	79	9
Tunica	08-10-2021	22	15	1	5	1
PearlRiver	08-10-2021	223	198	2	12	11

☐ Counties with NO/limited bond information:

	Date Used	Inmates in Jail	Not Bondable	Sex/DV charge	Charge Over \$4500
Hinds	08-10-2021	595	6	18	0
Yazoo	08-10-2021	336	336	0	0
Kemper	08-10-2021	390	0	0	0

Figure 3.5: Sample Screenshot of Google Colab: Mississippi Jail Projections for ONLY days scraped

In the interactive Google Colab, the jail projections are also shown in pie

chart and bar chart format. The pie chart format, as shown in figure 3.6, allows for easy visualization of the jail composition for each county. The bar chart format, as shown in figure 3.8, allows for easy comparison between the counties.

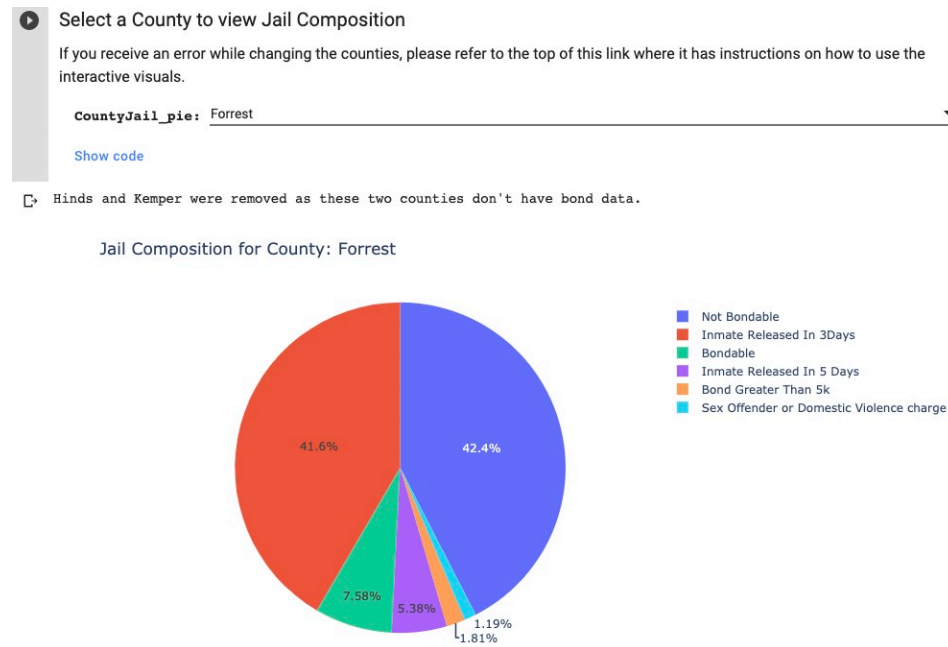


Figure 3.6: Jail Projections Pie Chart for each County in Interactive Google Colab

The pie charts in figure 3.7 use only the *Not Bondable* category for each county. Clay county has the largest percentage of population with bail set whereas Pearl River has the smallest. These pie charts show that the percentage of individuals that can be bailed dramatically increase when the *Released in Y days* is removed. For example, removing the filter *Released in 3 days* for Clay county, increases the number of individuals that can be bailed from 96 to 180. A limitation in scraping the jail rosters online is that these jail rosters may not contain individuals that were bailed out immediately or before the jail was scraped at 8pm; if included, the count of individuals that had bail set per county would be higher.

Jail Population: Feb/13/2021 - Aug/10/2021

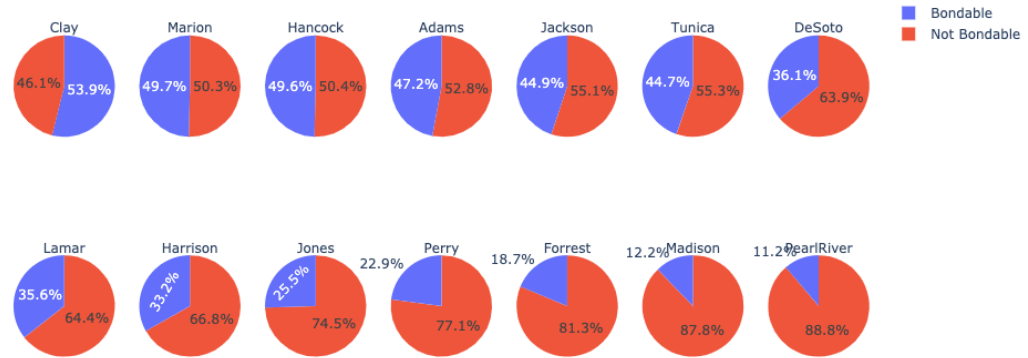


Figure 3.7: Jail Composition per County with Bail Amount

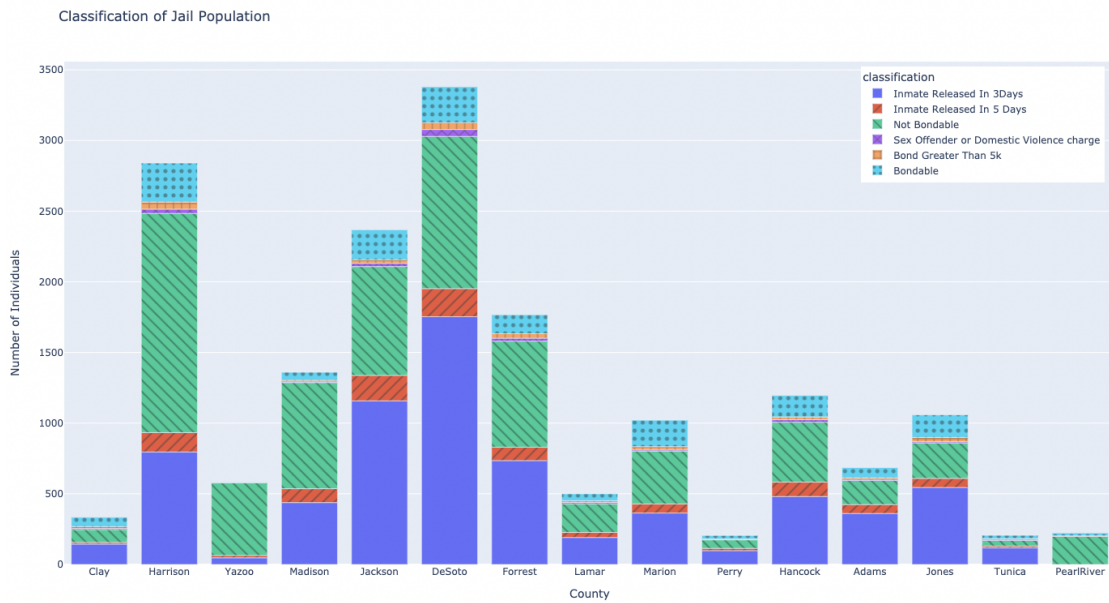


Figure 3.8: Jail Projections: Comparison of Jail Population in each County

Distribution of Days to Release by County

More than half of all persons arrested for felony offenses from the 75 largest counties in the United States are kept in jail for less than 48 hours after arrest and those accused of misdemeanor offenses are likely dismissed sooner [4]. This trend is observed in figure 3.9 for the scraped counties in Mississippi. The majority of the individuals fall in the first bucket in the histogram, released within 0-4, days, and the next bucket, released within 5-9 days.

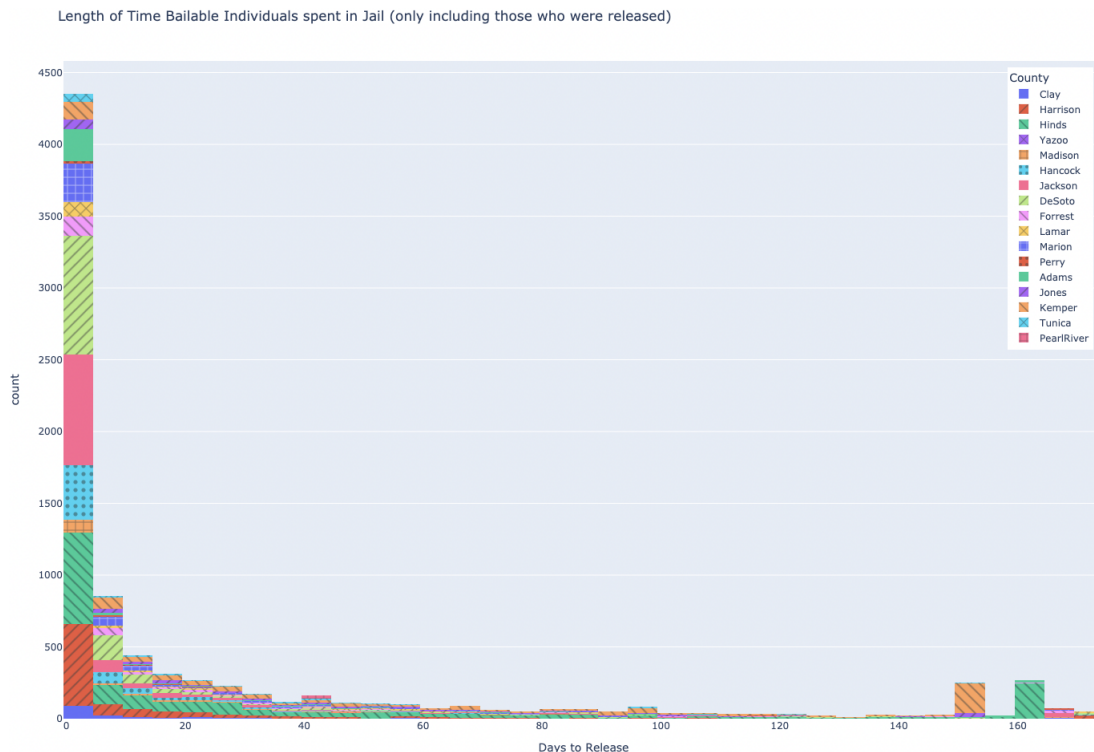


Figure 3.9: Days to Release by County

The scraped counties contain sparse data on whether the charges are felonies or misdemeanors. Harrison County which reports the charge type, shows that in the span of Feb/10/2021-Aug/13/2021, 75.77% of the individuals that were booked were accused of a felony charge of which 12.9% were released within

48 hours. In parsing through the charges for Jackson and Hancock, 51.3% and 13.4%, respectively, of individuals had the "Felony" key term in their charges, had 14.6% and 13.6%, respectively, were released within 48 hours.

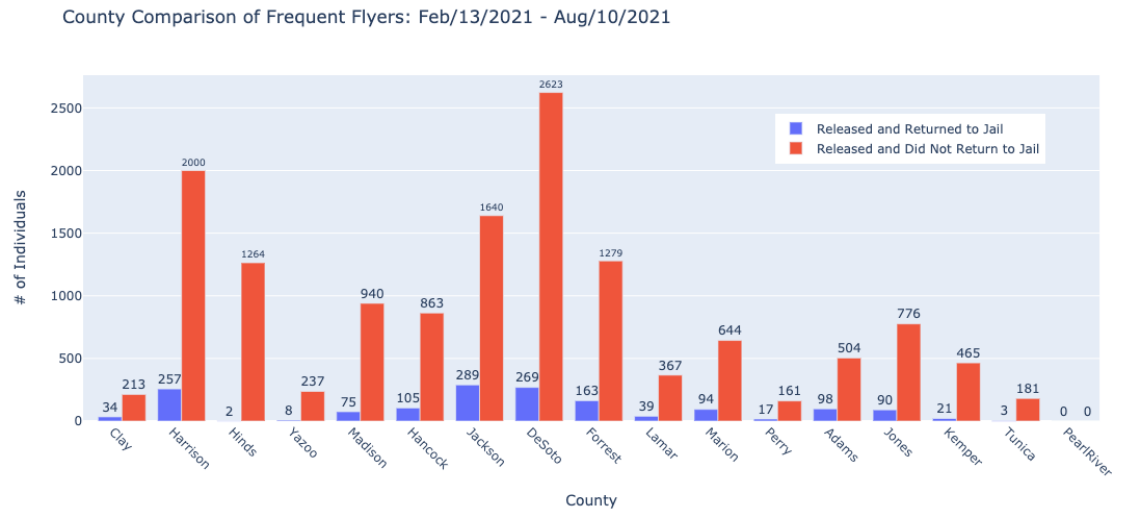


Figure 3.10: County Comparison of Frequent Flyers

Frequent Flyers are individuals who enter jail for multiple brief periods in a given year [4]. Figure 3.10 shows the count of frequent flyers for a 6 month time frame of Feb/13/2021 - Aug/10/2021. The Marshall Project reported that in a study of frequent fliers in New York City, many often have mental-health and housing issues that are made worse by setting bail and incarceration [16]. The most common charges for frequent flyers from Jackson, the county with the highest amount of frequent flyers, are "Probation Violation", "Public Drunk" and "Drug Court Violation", and "Return per Court Order".

In the most recent data published by the Mississippi Department of Corrections (MDOC), there is a 35.9% recidivism rate based on Inmate Releases During Fiscal Year 2012 and who returned to jail within the within 3 years of re-

lease. MDOC defines recidivism as "all offenders from the releases above who were subsequently returned to inmate status. The report does not distinguish between offenders who violate supervision and those who complete the sentence for which they were released and commit new offenses"[18]. As the data used in 3.10 only covers a six month time frame, the recidivism rate cannot be measured using this data alone.

3.2.4 Demographics

The data reported by the county jails for "Race" and "Gender" are not comprehensive, as each county reports these categories using different criteria [44]. Figure 3.12 and 3.11 was created by standardizing the race data as seen in table A.2 from each jail roster. The county jails as reported "Gender" as "Female" using the terms 'Female, or F' and "Male" using the terms 'Male' or 'M'.

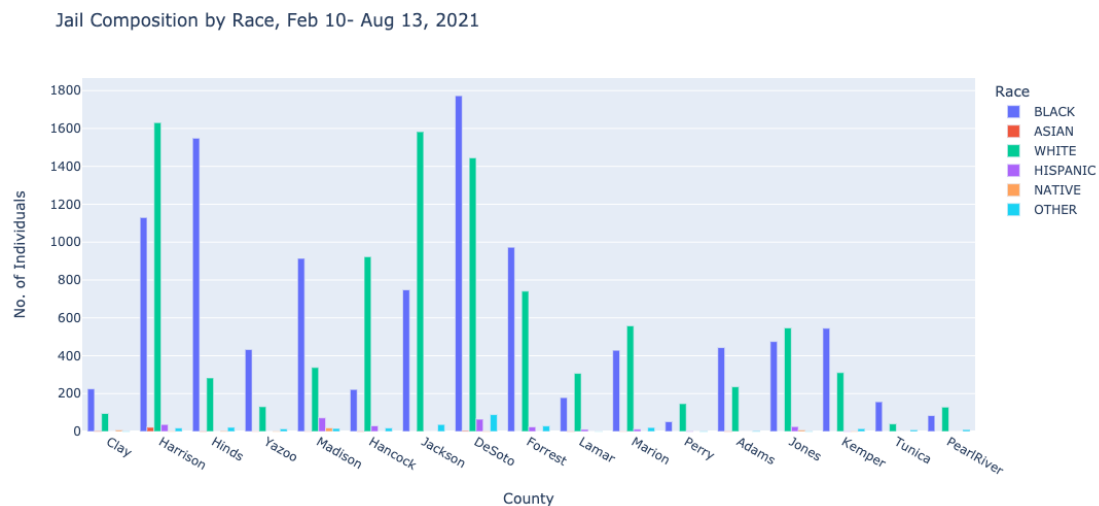


Figure 3.11: Jail Composition by Race

Average Days spent in jail by Race

In the data collected in the 6 month time period, 2/14-8/10 in 2021, the largest racial disparity in average days spent in jail per person is between the categories White and Native by 25.5 days, with the second largest disparity between Black and White by 8.8 days. The most updated data for imprisonment in Mississippi as a whole shows that in 2014 the Black:White ratio is 3.0 and Hispanic:White ratio is 0.6. For context, Mississippi ranked the 49th in terms of Black/White

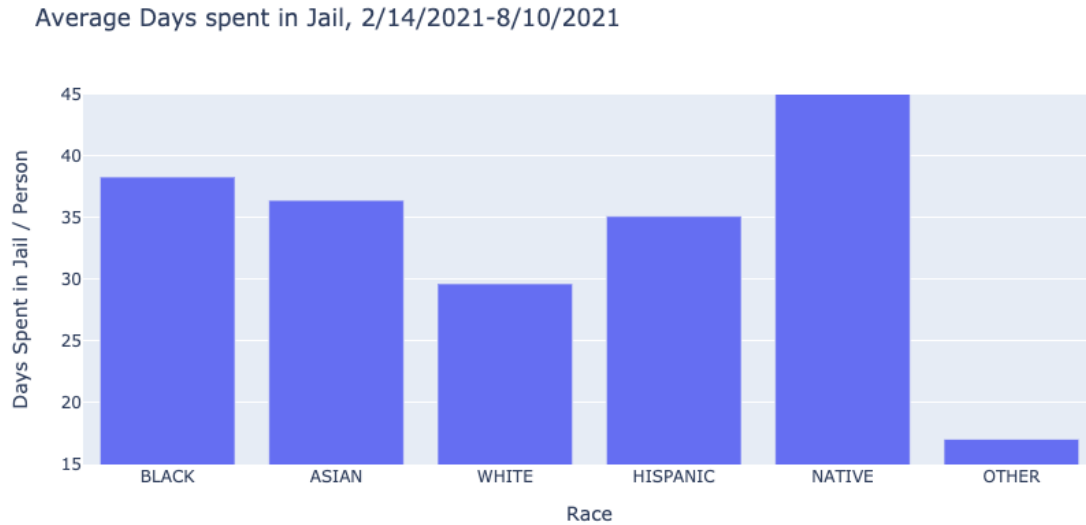


Figure 3.12: Ratio of Average Days Spent in Jail Per Person for Each Race

racial disparity and 11th highest for Hispanic/White racial disparity for rate of incarceration in the United States [38].

Race, Age and Gender

Figure 3.13 shows a histogram of how many individuals fall into different age buckets based on their race and gender classification.

In the scraped jails, the average age for each "Race, Gender" category fell between 30-40 years. For each age from 0-75 years, more black males were incarcerated than any other demographic.

Mississippi has a relatively low Juvenile detention rate when compared to the rest of the United States. Mississippi held 273 Juveniles in custody in 2015, with a 0 juveniles per 100,000 persons rate compared to the United States total of 138 juveniles per 100,000 persons in 2015.

Select a County to view Age and Gender Demographics

If you receive an error while changing the counties, please refer to the top of this link where the first cell has instructions on how to use the interactive visuals.

CountyJail: All

[Show code](#)

Histogram of Inmate Demographics

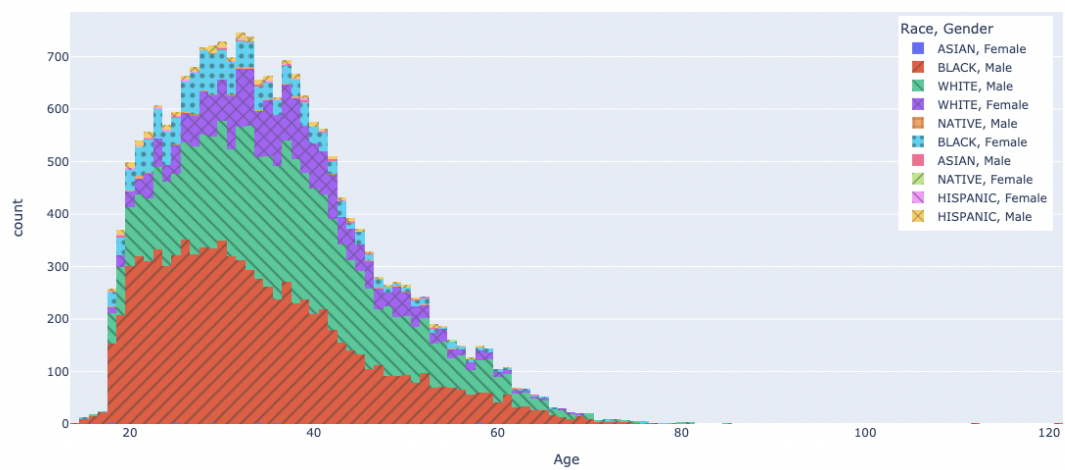


Figure 3.13: Age and Gender Demographics

3.2.5 Bonds: Charges, Amounts and Type

As there is no standardization in how bond charges, amounts, and types are reported, the jail rosters contained numerous variations for the same information. For example, some of the ways a possession charge was reported across different counties are "Controlled Substance: Illegal Possession", "Controlled Substance Violations", "TWO COUNTS OF POSSEDDION", "CONT. SUBSTANCE Possession of Schedule I - II", "CS-POSS OF CONTROLLED SUBSTANCE", among many others. In other cases the same charge is reported in multiple ways within the same county. The table in figure 4.1 was produced by searching for key words in the charges for each county.

	Clay	Harrison	Hinds	Yazoo	Madison	Hancock	Jackson	DeSoto	Forrest	Lamar	Marion	Perry	Adams	Jones	Kemper	Tunica	PearlRiver
[possession, possession, poss, drug, substance]	66	1310	396	46	362	364	676	980	586	204	382	70	85	305	28	10	42
[hold, holding]	37	8	31	20	42	147	96	2	41	12	3	1	92	17	32	64	131
[work program]	40	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
[contempt of court]	4	263	36	4	69	252	95	1216	104	53	109	8	35	26	125	5	24
[probation]	3	105	9	6	27	111	416	215	218	53	48	14	6	28	3	0	40
[bench warrant]	58	289	0	1	0	20	83	0	41	38	34	7	3	75	0	0	0
[drunk, intoxication]	5	64	3	4	12	43	344	59	41	8	29	0	1	78	4	4	1
[domestic violence, sex offender, sexual, rape, fondling]	24	215	46	18	112	94	229	357	166	43	31	11	41	48	5	35	6
[failure to appear]	58	209	13	0	0	324	258	9	2	0	42	2	18	8	0	4	0
[murder]	3	37	160	17	22	5	25	44	25	19	18	0	17	17	6	7	6
[sleepers]	0	0	0	0	0	0	0	0	0	0	0	0	124	0	0	0	0
[DUI, driving under the influence]	6	149	88	5	170	87	148	414	119	19	245	15	40	70	12	10	4
[weapon, weapo, shooting]	8	219	21	9	100	41	53	126	163	44	32	2	13	39	16	4	8
[trespass]	8	90	13	8	9	69	60	42	44	17	21	5	6	20	10	20	6
[no drivers license, driving while license suspended]	9	37	6	1	0	0	39	147	1	47	14	6	1	49	0	0	0
[robbery, theft, shoplifting, burglary, unlawful taking]	27	625	379	13	129	107	267	359	222	60	76	9	25	87	18	12	12
[Disorderly Conduct, Failure to Comply, Resisting Arrest]	14	171	46	5	40	93	165	195	158	40	60	20	33	60	20	18	1
[simple assault]	22	162	34	7	11	77	212	253	102	38	16	9	21	46	6	8	5

Figure 3.14: Frequency of Selected Key Words in Accused Individuals' Charges

Charge related analysis and comparison among different counties was heavily limited by the lack of official standardization in reporting. The results of the key word search showed that the most frequent charge among all the counties had one of the following words: possession, posession, poss, drug, substance. The incorrect spelling of possession also returned matches, proving how the lack of standardization leads to difficulty in quantifying the accurate amount of each charge. Other standout charges were the 1,216 charges that contained the phrase "contempt of court" and 414 charges that contained the phrases "DUI" or "Driving under the influence" in Desoto as well as the 1310 charges that contained one of the words "possession", "possession", "poss", "drug", "substance" in Harrison.

Overall, drug/possession showed as the most frequent charge for for most counties when bond amount was available, whereas violation of probation or contempt of court was most frequent for most counties when bond amount was not available. The results for the average bond amount for the same charge varied significantly by the individual and county. This can be a result of biases in the legal system and/or a result of the limitations in the amount of data reported and lack of charge description standardization.

Figures 3.15 and 3.16 can be viewed in higher resolution in the interactive Google Colab [43]. To view the average charge amount for various charges in each county, a drop down was added to the interactive Google Colab as shown in appendix figure A.4. The distribution of bond amounts for each charge is displayed in figure 3.17 showing that the majority of bond amounts for the counties fall under \$5k.

Most Frequent charges by Jail when Bail is available

Most Frequent Charges, when bond amount is available

[Show code](#)

	1st Most	1-frequency	1-AverageCharge	2nd Most	2-frequency	2-AverageCharge	3rd Most	3-frequency	3-AverageCharge
Clay	POSS. OF CONTROLLED SUBSTANCE	11	6363.64	BENCH WARRANT "FAILURE TO APPEAR"	9	1347.25	DISORDERLY CONDUCT	5	243.45
Harrison	BENCH WARRANT	46	790.946	CAPIAS	24	705.692	Receiving Stolen Property	13	10642.7
Yazoo	ATTEMPTED MURDER	1	100000	ARSON	1	1000	CHILD EXPLOITATION	1	100000
Madison	Controlled Substance Violation	23	14032.6	Conspiracy	10	38150	DUI - First Offense DUI	10	817.6
Hancock	CONTEMPT OF COURT - FAILURE TO APPEAR	127	514.567	CONTROLLED SUBSTANCE: ILLEGAL FELONY POSSESSIO...	58	18681	CONTEMPT FAILURE TO APPEAR	52	722.115
Jackson	PUBLIC DRUNK	167	350.808	FAILURE TO APPEAR	104	685.766	DOMESTIC VIOLENCE SIMPLE ASSAULT	45	959.844
DeSoto	CONTEMPT OF COURT	294	3092.25	CONTEMPT OF COURT/FTA (MISD)	112	3128.58	POSSESSION OF PARAPHERNALIA	44	696.591
Forrest	CS-POSS OF CONTROLLED SUBSTANCE	23	8369.57	WEAPON, POSSESSION BY CONVICTED FELON : F :	17	14117.6	CONT. SUBSTANCE Possession of Schedule I - II ...	17	4941.18
Lamar	POSSESSION OF CONTROLLED SUBSTANCE FELONY	18	22055.6	SIMPLE ASSAULT/ DOMESTIC VIOLENCE	10	933.725	POSS. OF CONTROLLED SUBSTANCE	9	8000
Marion	DUI: FIRST OFFENSE --(1)(b) Under the Influen...	39	1133.33	CONTEMPT OF COURT	37	385.969	FAILURE TO APPEAR	28	620.196
Perry	DISORDERLY CONDUCT-RESISTING ARREST, FAILURE T...	3	1000	POSSESSION OF CONTROLLED SUBSTANCE METH	2	5000	SIMPLE ASSAULT-DOMESTIC VIOLENCE	2	1750
Adams	SIMPLE ASSAULTDOMESTIC VIOLENCE	6	583.333	SIMPLE DOMESTIC VIOLENCE	6	583.333	DISTURBING THE PEACE	5	600
Jones	GRAND LARCENY-MORE THAN \$1000.00	9	5277.78	POSS. OF CONTROLLED SUBSTANCE	7	10000	BURGLARY-BREAKING AND ENTERING DWELLING	6	9166.67
Tunica	AGGRAVATED DOMESTIC VIOLENCE/FELONY	6	14186.7	AGGRAVATED ASSAULT/FELONY	4	152500	TRESPASSING/UNKNOWN	3	500
PearlRiver	Controlled Substance ViolationsUnknown	7	17428.6	Malignous MischiefUnknown	4	500	Controlled Substance: Illegal PossessionUnknown	3	3000

Figure 3.15: Most Frequent charges by Jail when Bail is available

Most Frequent charges by Jail when bail is not available

Most Frequent Charges when NO bond is available

[Show code](#)

	1st Most	1-frequency	2nd Most	2-frequency	3rd Most	3-frequency
Clay	INMATE WORK PROGRAM	38	MITTIMUS	19	SENTENCE TO MDOC	17
Harrison	POSSESSION OF CONTROLLED SUBSTANCE	98	BURGLARY	55	POSSESSION OF A CONTROLLED SUBSTANCE	42
Hinds	DOMESTIC VIO	122	VIOLATE TRAFFIC ORDINANCE	87	SIMP ASSAULT-DOMES	75
Yazoo	MURDER	6	POSSESSION OF STOLEN PROPERTY	5	AGGRAVATED ASSAULT	4
Madison	Conspiracy	377	Controlled Substance Violation	93	Felon Carrying Concealed Weapo	54
Hancock	HOLD FOR OTHER AGENCY	94	PROBATION VIOLATION	71	PAROLE VIOLATION	53
Jackson	PROBATION VIOLATION	177	DOMESTIC VIOLENCE SIMPLE ASSAULT	90	NCIC HIT	84
DeSoto	CONTEMPT OF COURT	207	FUGITIVE FROM JUSTICE	178	CONTEMPT OF COURT/FTA (MISD)	56
Forrest	PROBATION VIOLATION	137	CUSTODY ORDERS	70	FOREIGN WARRANT -FUGITIVE;HOLDING	26
Lamar	VIOLATION OF PROBATION	40	VIOLATION OF DRUG COURT	24	CONTEMPT OF COURT (JUSTICE COURT)	20
Marion	PROBATION VIOLATION	39	CONTEMPT OF COURT	20	BENCH WARRANT	14
Perry	PROBATION VIOLATION-MDOC	9	POSSESSION OF CONTROLLED SUBSTANCE METH	8	COURT ORDER	5
Adams	SLEEPER	124	FOREIGN WARRANT FUGITIVE HOLDING	38	FOREIGN WARRANT FUGTIVE HOLDING	18
Jones	BENCH WARRANT	62	WARRANT FROM OTHER AGENCY	62	PUBLIC DRUNKENNESS	60
Kemper	CONTEMPT OF COURT; MUNICIPAL COURT	54	CONTEMPT OF COURT; JUSTICE COURT	52	HOLD; DETAINER FOR OTHER AGENCY	20
Tunica	FOREIGN WARRANT	57	SIMPLE DOMESTIC VIOLENCE	18	DISORDERLY CONDUCT	15
PearlRiver	HOLD	70	HOLD FOR USM	39	Probation ViolationUnknown	26

Figure 3.16: Most Frequent charges by Jail when bail is not available

Distribution of Bond Amounts by County

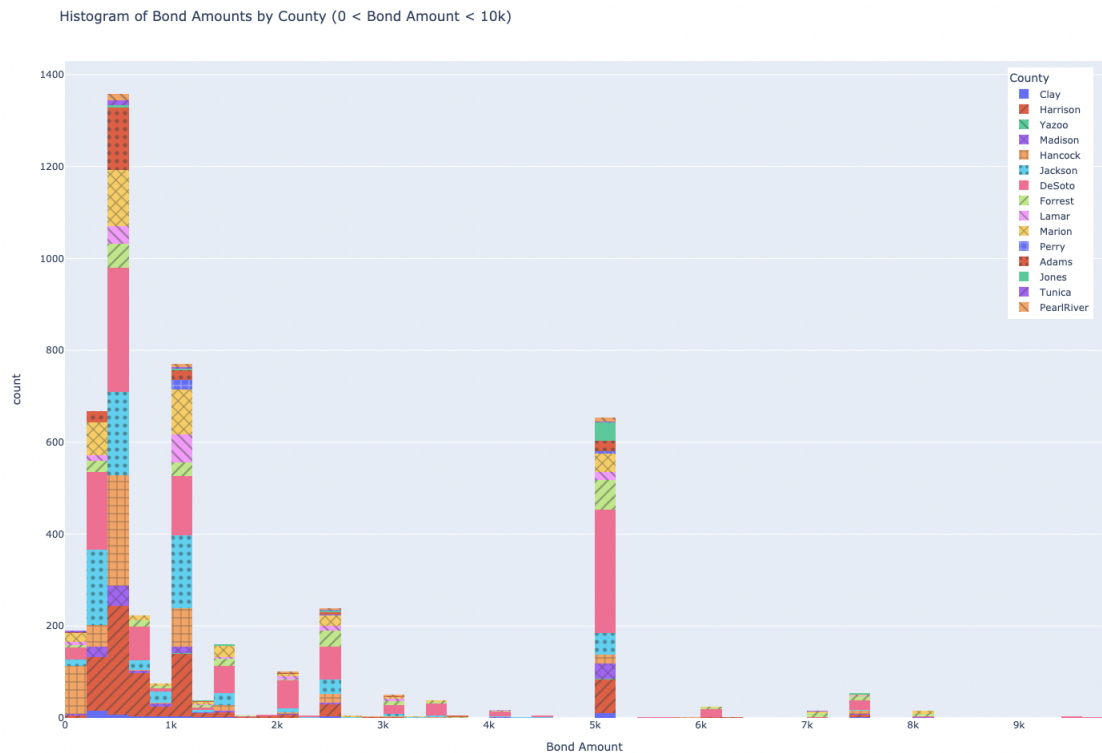


Figure 3.17: Distribution of Bond Amounts for each Charge

Types of Bonds in Each County

Table 3.1 shows the raw data of how many individuals received different types of bonds in each jail. For example, "['1']" means the county entered ""(empty) as the bond type for 1 individual in the jail, and "['Surety Bond' '1003']" means that the county entered "Surety Bond" as the bond type for 10003 individuals. There is no standardization of bond types among the jails, and not all jails reported the bond types. For some counties, the raw data shows us the types of bonds such as "Cash Bond", "Own Recognizance" as well as if a bond company was used to pay bail such as "Hamptons Bail Bonding" or "Pugh Bail Bonds".

County	Bond Type Breakdown
Clay	N/A
Harrison	[[" '2'], ['A Sonshine Bail Bonds' '2'], ['A-Grant Curtis Bonding' '1'], ['Afab Bail Bonding' '2'], ['Aw Shucks Bail Bonds' '1'], ['Capias Cash Not A Bondable Ch' '2'], ['Cash Bond' '18'], ['Cash Bond With Conditions' '4'], ['D And D Bail Bonds' '3'], ['Hamptons Bail Bonding' '2'], ['Holmes Bonding' '3'], ['No Charge' '587'], ['Not Bondable' '663'], ['None' '1'], ['Ob' '1'], ['Off Bond' '101'], ['Or' '1'], ['Own Recognizance Bond' '200'], ['Pugh Bail Bonds' '3'], ['Serving Sentence' '391'], ['Surety Bond' '1003'], ['Surety Bond With Conditions' '61']]
Hinds	N/A
Yazoo	[[" '306'], ['None' '168']]
Madison	N/A
Hancock	[[" '1'], ['Bench Warrant' '1'], ['Capias Cash Not A Bondable Ch' '1'], ['Carlitos Way' '5'], ['Charges Dismissed' '1'], ['Hold Dropped' '2'], ['Indigent Bond' '26'], ['Mittimus Release' '2'], ['Nb' '129'], ['Not Bondable' '21'], ['No True Bill' '2'], ['Nolle Pros' '1'], ['None' '27'], ['Or' '1'], ['Other' '2'], ['Own Recognizance Bond' '4'], ['Pass To File' '53'], ['Sentenced' '2'], ['Serving Sentence' '56'], ['Surety Bond' '1'], ['Time Served' '104'], ['Warrant Withdrawn' '1'], ['Written Bond' '437']]
Jackson	N/A
DeSoto	[[" '37'], ['Cash' '31'], ['None' '1147'], ['None' '11'], ['Ror' '173'], ['Surety' '994'], ['Surety & None' '1'], ['Surety Or Cash' '17']]
Forrest	[['Cash Bond' '11'], ['None' '1181']]
Lamar	[['Bond Revoked By Court - No Bond' '5'], ['Cash' '17'], ['No Bond' '157'], ['None' '2'], ['Pr Bonded Per Justice Court' '3'], ['Released Per Court' '16'], ['Surety' '148'], ['Total Bond For This Case #' '30']]
Marion	[[" '121'], [' 10 % Bond' '338'], ['10% Circuit Court' '2'], ['Bond Revoked' '4'], ['Cash Only' '49'], ['No Bond' '35'], ['None' '228']]
Perry	[['Cash Bond' '1'], ['Commercial Bond' '38'], ['None' '71']]
Adams	N/A
Jones	N/A
Kemper	N/A
Tunica	N/A
Pearl River	N/A

Table 3.1: Types of Bail Bonds in each County

3.3 County Comparison

Roderick & Solange MacArthur Justice Center along with the University of Mississippi School of Law publishes a database of individuals held in Mississippi by collecting information from county sheriffs and manually entering the information for over 5,700 individuals [9]. Similar to the jail rosters published online, the collected data from the counties are not standardized, and many counties do not provide comprehensive data.

Table 3.2 includes data collected through the MacArthur Justice Center, Vera institute, and the 17 scraped Mississippi jails to allow for comparison among the different counties. The following lists contains definitions for the Columns in table 3.2 :

- Approved jails are those that are allowed to to host state inmates, or otherwise called work program inmates, who do free labor to the county sheriff and municipalities through construction, jail maintenance, clean up, etc. According to the Mississippi Department of Corrections, there are 3 state prisons, 3 private prisons, 15 regional facilities, 55 approved county jails and 59 unapproved county jails [29].
- Total jail population is the average daily population and excludes federal jails and inmates in local jails held for federal authorities, such as U.S. Immigrations and Customs Enforcement and U.S. Marshals Service [32].
- Pretrial jail population is June 30th snapshot and are those individuals categorized as “unconvicted” in the BJS data. Single day counts tend to fluctuate more than the average daily population [32].

County Name	Adams County	Clay County	DeSoto County	Forrest County	Hancock County	Harrison County	Hinds County	Jackson County	Jones County	Kemper County	Lamar County	Madison County	Marion County	Pearl River County	Perry County	Tunica County	Yazoo County	Total	Mississippi Average
2020 Census Population estimate [8]	30275	19352	188275	75009	48000	208801	227966	143802	67993	9521	64165	106871	24441	55876	11862	9392	26982	1318583	
Average Individuals in Jail from 2/2021-8/2021	83.5	70.9	413.1	284.7	177.4	582.2	534.2	361.5	166.2	386.6	85.4	353.6	284.3	223.0	26.3	25.0	343.0	4400.8	
Percent of Population in County Jail	0.276	0.366	0.219	0.380	0.369	0.279	0.234	0.251	0.245	4.061	0.133	0.331	1.163	0.399	0.222	0.266	1.271		0.636
2018 Pretrial jail incarceration rate Per 100,000 residents age 15-64, [32]	343	598	268	538	302	566	382	226	488	676	252	444	313	364	266	970	104		350
2018 Jail Admissions Per 100,000 residents age 15-64, [32]	14994	4263	7460	5181	7256	7146	3149	3459	11691	14505	4574	5210	19591	9463	12448	84338	2664		8341
2018 Jail Population Per 100k residents age 15-64, [32]	433	1025	290	664	581	646	393	433	685	6408	330	491	2787	759	372	1145	2348		621
Approved County Jail Capacity [30]	0	65	5	0	96	0	216	0	0	0	0	0	112	75	0	0	0	569	
Average Days Held Per Person in 2019 [9]	110	326	81	235	130	92	476	257	98	75	473	161	267	150	67	266	290		166.38

Table 3.2: County Statistics Comparison, Top 3 values in each row are bolded

SECTION 4

RESULTS

4.1 Common trends Among the Scraped Counties

The FBI reported in 2017 that the highest number of arrests in the United States were for drug abuse violations (estimated at 1,632,921 arrests), driving under the influence (estimated at 990,678), and larceny-theft (estimated at 950,357) [13]. This trend mostly held true for the scraped counties in Mississippi as well. The most frequent charge in all the scraped jails was drug/possession related with a total of 5670 charges. The second most frequent charge among all the jails was "contempt of court". The next most popular charges were charges that contained the key words: "Contempt of Court" (2428 charges), "robbery, theft, shoplifting, burglary, unlawful taking" (2427 charges), "DUI, driving under the influence" (1601 charges), and "domestic violence, sex offender, sexual, rape, fondling" (1481 charges).

In looking at the jail population compared to the county population: Kemper, Marion, and Yazoo had the highest percent of the county population in jail at the rates of 4.061%, 1.163%, and 1.271%, respectively. Kemper has the lowest population in the scraped jails and ranks 71 out of 82 counties in Mississippi for total population. The most popular charge for Kemper County is contempt of court with 125 total charges, having more than 100 total compared to other charges in the county.

Some charges had a significantly higher amount in one jail compared to the others in the scraped time frame. In Adams County, for example, the most pop-

ular charge was sleeper with a total of 124. No other county had a charge with the key word "sleeper" in it. Madison County and DeSoto had 420 and 235 individuals, respectively, with a charge having the key word "conspiracy", while the other counties did not exceed more than 35 individuals for this charge. The large disparities in count for these charges can be a result of different terminology used by each jail for the same or related charges. For example, Clay county had 40 individuals' charge as "inmate work program". None of the other jails have anyone under that charge, but are likely to have individuals in an inmate work program. Another explanation for the large differences in charges among the jails can be a result of the differences in court in each county. An analysis by FiveThirtyEight found that the most common bail set by each judge varied by up to \$10k of a difference and that the bail set varied based on the location in New York City [5].

Pearl River has the lowest percentage of population that can be bailed with 11.2%. The most popular charge in Pearl River was "hold" with 131 total. Madison had the second lowest percentage with 12.2% of the population having a bail set. The most popular charge for Madison had the key word "conspiracy" in it. On the other hand, Clay has the highest percentage of the population that can be bailed, 53% have a bail amount. The most frequent charge in Clay county was drug/possession with an average of \$6363.64 for this charge. The second most popular charge in Clay County is failure to appear with an average charge of \$1347.25. Marion, and Hancock were next highest in percent of individuals with a bail amount, 49.7% and 49.6%, respectively. The most popular charge in Marion was drug/possession with 382 total charges among all the individuals, and the next highest was driving under the influence with 245 total charges. The most frequent charge for Hancock at 364 individuals was drug/possession

related and the second most frequent at 324 charges was failure to appear, then 252 for contempt of court and 111 for probation violation. Hancock also has the lowest Black Male: White Male ratio (.09) but has the highest difference between percent of black population arrested and percent of white population arrested, by 7.05%.

Adams and Jackson rank fourth and fifth, respectively, with a percentage of the population with a bail amount at 47.2% and 44.9%, respectively. Adams and Jackson also had the highest rates of those released from jail who came back to jail within the 6-month period, otherwise known as "frequent flyers", at the rates of 16% and 15%, respectively. The most frequent charge for Adams contained "sleeper" and for Jackson was drug/possession related. Of Jackson's population, a significant portion of the population, 416 total individuals, have a probation violation charge and another 258 individuals have a failure to appear charge. Jackson has the second highest population released within 3 days, 1158 out of 2368.

Most bond amounts for individual charges fell below 5k for all the counties that have comprehensive bond information. DeSoto has the most individuals with bond amount over \$5000, 434 individuals out of 3380 individuals booked had a charge total over \$5000 and the second highest for number of individuals with charges above \$10,000, with 216 out of 3380. Harrison had the second highest total of individuals with a bond total above \$5000, with 422 individuals out of 2840 having their charges total more than \$5000, but the highest number of individuals with charges total more than \$10,000, with 306 out of 2840. This is likely due to the fact that in Harrison, 75.77% of all individuals have at least one felony charge and only 24.22% of all individuals had only misde-

meanor charges. Harrison County has the second highest population in the state, but has the highest amount of individuals, 582 total, who stayed in jail in the scraped time frame compared to the other scraped jails. Of all the charges for these individuals, 1310 charges were drug/possession related, the highest amount compared to the other jails.

Hinds County has the largest population in the state compared to the other counties and has the second highest amount of individuals, 534, compared to the other scraped jails in the scraped time frame. Hinds County has the individuals staying in jail the longest, 476 days on average [9]. For Hinds, 296 charges, the highest for the county, were drug/possession related, and the second most frequent charge, 379 of them, contained words involving “theft”.

4.2 Actionable Tools

One of the original goals of this thesis was to create an optimization tool to determine how The Bail Project can best use its resources to maximize impact, or in other words bail the most individuals out of jail. Through conversations with those who worked at bail funds, it was clear that there was no ethical way to achieve this. The main issue with an optimization tool was that it would use data that was biased as a result of racial injustice in the legal system. Minority races are more likely to receive larger sentences, and therefore, attempts to maximize the amount of individuals a fund would bail out would negatively harm minorities. As a result, as part of this thesis, a tool was developed to expedite the process in which The Bail Project can find a list of individuals they can bail, instead.

The Bail Project uses jail projections (section 3.2.3) to assess the composition of a county jail, and then has to request a list of individuals in the jail from the county. Then, from this list, the organization interviews the individuals to determine how to bail each one out.

To expedite this process, the Interactive Google Colab contains a tool, as shown in figure 4.1, to configure the jail projections with the desired parameters and then download a CSV with a list of individuals in the "Remainder" column of the jail projections.

▶ Select a County to view Inmates in the Remainder Column

If you receive an error while changing the counties, please try clicking the play button to the left once more OR please refer to the top of this link where the first cell has instructions on how to use the interactive visuals.

CountyJail_for_Remainder_InmatesList:

[Show code](#)

County: Clay

	Name	Arrest agency	Arrest date	Bondable?	Bond	Age	Sex	Race	Offense(s)
0	MARLON GAYLORD TILLMAN	MHP	03-11-2021	True	333.50	38	MALE	BLACK	['CIRCUIT COURT BENCH WARRANT', 'SPEEDING - 1 ...
1	JUSTIN KEANDREA NANCE	CLAY COUNTY SHERIFFS OFFICE	06-03-2021	True	1592.25	24	MALE	BLACK	['BENCH WARRANT "FAILURE TO APPEAR"', 'BENCH W...
2	RAHEEM SHAMARD JOHNSON	MDOC	06-21-2021	True	1328.50	27	MALE	BLACK	['CIRCUIT COURT ORDER', 'BENCH WARRANT FAILURE...
3	LEJARVIS SANCHEZ HOLMES	WEST POINT POLICE DEPARTMENT	07-17-2021	True	625.75	31	MALE	BLACK	['BENCH WARRANT FAILURE TO APPEAR', 'BENCH WAR...
4	CHRISTOPHER MCKINNEY	CLAY COUNTY SHERIFFS OFFICE	08-04-2021	True	422.75	35	MALE	BLACK	['TRESPASSING']

Generate CSV of Inmates from Remainder Column for ONLY Last day scraped

[48] Select a County to generate CSV for Inmates in the Remainder Column

Generate_CSV_of_Remainder_Inmates_for_This_town:

Save_To_Drive: ☐

[Show code](#)

If Prompted, please accept the popup message to connect your google drive in order to save CSV.

Figure 4.1: Google Colab: View Remainder List and Download CSV

SECTION 5

CONCLUSIONS AND FUTURE WORK

5.1 Conclusions

The interactive Google Colab Notebook provides a regularly updated analysis of the Mississippi jail population and an actionable tool to determine which individuals are likely bailable. Current analysis of the individuals in these jails have shown that Clay, Marion, Hancock, Adams, Jackson, and Tunica have near 50% of individuals with a bail amount set. As more data is collected over time, the Google Colab Notebook will paint a more comprehensive picture of each county jail. While the scraped data gives insight into 17 counties, further understanding of Mississippi's criminal justice system is limited by the jails that do not publish their data online, documentation by the Mississippi Department of Corrections, and standardization of the jail rosters. As more jails rosters are made available in Mississippi, the Google Colab Notebook can be updated to include the individuals in those jails.

5.2 Future Work

A press release by the MacArthur Justice Center mentions that a bill that was introduced to implement standardized electrified reporting was considered by the Mississippi Legislature but did not come into action as of yet [9]. The analysis on charges in Mississippi can be further expanded once the state implements a standardization in how jail roster information is reported. Otherwise, a library

of terms can be developed by going through all the charges to standardize the scraped data. This library can help quantify how bail amounts differ for different charges and different counties.

In 2014, the research report "Out of Sight: The Growth of Jails in Rural America" reported that 50% of Mississippi's jail population was held for other authorities in the South and West[25]. In other words, Rural Jails expanded their local county jail capacity to house individuals from other counties to increase revenue. This has now created a cycle where Mississippi relies on state prisoners or other non-local individuals and the respective state and federal funding to sustain their local jobs. The Huffington Post reported that in 2016, local jails in Mississippi were worried about the drop in individuals in their jails as they relied on the state government \$29.74 per diem and free labor of each prisoner [15]. Although the Mississippi Department of Corrections publishes a list of jails that are approved to host state inmates, in the scraped jail rosters, there is no standardization in reporting on whether the individuals are state or federal inmates. Further details in reporting can be used to determine the differences between county, state and federal individuals in jail.

As the jails are scraped daily for a longer period of time, further analysis can be done to learn more about the criminal justice system in each county and about the individuals in each of the jails. Court data, with information on individual hearings, can also be combined with the jail rosters to conduct a similar analysis as done by FiveThirtyEight to understand how bail amounts are set [5].

While scraping the jail rosters provides information on who can likely be bailed out of jail, The Bail Project has to then visit the county jail to interview the individual and determine if they can be bailed. In repeating this process, data

can be collected on who The Bail Project was successful in providing free bail assistance to, and who they were not able to. The data obtained through scraping the jail rosters is not comprehensive of all the individuals that were arrested in the counties, as if they post bail or are released before the next scrape, the individual will not show up in the data. In collecting this data, the organization can learn more about how different counties treat bail, and what characteristics allow the organization to bail out individuals.

SECTION A

APPENDIX

A.1 Web Scraping Resources

The daily inmate population in Mississippi in each facility, reported by Mississippi Department of Corrections (MDOC), from 2001-2021 is available at this URL: <https://www.mdoc.ms.gov/Admin-Finance/Pages/Daily-Inmate-Population.aspx>. MDOC also maintains a jail inmate search for MS at this URL: <https://www.ms.gov/mdoc/inmate/Search/Index>. This URL however does not report any bail information.

Table A.1 shows the publicly available jail rosters for Mississippi. As seen in the table, 8 of the jails use <https://omsweb.public-safety-cloud.com> which is maintained by <https://jailtracker.com/> to store their jail data. These websites require a captcha code to be scraped, limiting the ease of automating the web scraping daily. To scrape these jails, the captcha code had to be manually entered everyday. In the future, this process can also be automated by using a paid subscription to use captcha solving APIs or using deep learning to solve the codes. Figure A.1 shows a screenshot of how the captcha image is obtained and solved manually in the google colab notebook. The remaining 9 jails did not require a captcha code, and therefore were easily setup to be automatically scraped as shown in Appendix section A.2.

County	Link to Jail Roster
Clay	http://www.claysheriffms.org/roster.php
Harrison	http://omsweb.public-safety-cloud.com/jtclientweb/jailtracker/index/HARRISON_COUNTY_JAIL_MS
Hinds	http://www.co.hinds.ms.us/pgs/apps/inmate/inmate_list.asp?name_sch=\&submit1=Search
Yazoo	https://omsweb.public-safety-cloud.com/jtclientweb/jailtracker/index/Yazoo_County_MS
Madison	http://www.inmatesearchmississippi.org/Madison_County.html
Hancock	https://omsweb.public-safety-cloud.com/jtclientweb/jailtracker/index/HANCOCK_COUNTY_MS
Jackson	https://www.co.jackson.ms.us/324/Inmate-Lookup
DeSoto	https://omsweb.public-safety-cloud.com/jtclientweb/(S(dir4m10wwwjmivnhzqeosqfy))/jailtracker/index/DeSoto_County_MS
Forrest	https://omsweb.public-safety-cloud.com/jtclientweb/jailtracker/index/Forrest_County_MS
Lamar	https://omsweb.public-safety-cloud.com/jtclientweb/jailtracker/index/Lamar_County_MS
Marion	https://omsweb.public-safety-cloud.com/jtclientweb/jailtracker/index/Marion_County_MS
Perry	https://omsweb.public-safety-cloud.com/jtclientweb/jailtracker/index/Perry_County_MS
Adams	http://www.adamscosheriff.org/inmate-roster/
Jones	https://www.jonesso.com/roster.php
Kemper	https://www.kempercountysheriff.com/roster.php
Tunica	https://www.tunicamssheriff.com/roster.php
Pearl River	https://www.pearlrivercounty.net/sheriff/files/ICURRENT.HTM

Table A.1: Website URLs for Counties in Mississippi with public Jail Rosters as of August 2021

```

31
32 threads = []
33 threadID = 1
34 towns = list(jail_captcha.keys())
35
36 # Create new threads for JailTracker jails
37 for townName in towns:
38     # Get captcha image and enter in captcha information to get validation key
39     captchaMatched = False
40     while (not captchaMatched):
41         captcha_r = requests.get('https://omsweb.public-safety-cloud.com/jtclientweb/captcha/getnewcaptchaclient')
42         captchaKey = captcha_r.json()['captchaKey']
43         image = captcha_r.json()['captchaImage']
44         html = f''
45         display.display(display.HTML(html))
46         userCode = input()
47
48         jail_captcha[townName]['userCode'] = str(userCode)
49         validate_r = requests.post(
50             'https://omsweb.public-safety-cloud.com/jtclientweb/Captcha/validatecaptcha',
51             json={'userCode': jail_captcha[townName]['userCode'], 'captchaKey': captchaKey}
52         )
53         captchaMatched = validate_r.json()['captchaMatched']
54
55     thread = myThread(threadID, townName, validate_r)
56     print("Created new Thread for", townName)
57     threads.append(thread)
58     threadID += 1
59
60 # Create new threads for remaining 9 jails
61 for townName in ['PearlRiver', 'clay', 'adams', 'hinds', 'jackson', 'jones', 'kemper', 'madison', 'tunica']:
62     thread = myThread(threadID, townName, 'None')
63     threads.append(thread)
64     threadID += 1
65
66 for t in threads:
67     t.start()
68     print("ThreadID: ", t.threadID, " TownName: ", t.townName)
69
70 # Wait for all threads to complete
71 for t in threads:
72     t.join()
73
74 print("Exiting Main Thread")
75
...
ZCRf
Created new Thread for DeSoto
8NK

```

Figure A.1: Manually entering the captcha code for a jail in Google Colab to scrape the jail

A.2 Web Scraping Automation

A cron job, as seen in code listing A.1, was created to automatically scrape the jails that didn't have a captcha code. Using the method provided by [23], the code listing A.2 scraped each jail and used the google drive API to upload them to the respective google drive folder.

The cron job is used with these commands: **crontab -r** to delete the crontab file, **crontab -l** to view the crontab file, and **crontab -e** to edit or create the crontab file.

```
1 0 20 * * * cd ~/Documents && python3 driveSaver.py >>  
~/Documents/driveSaverOutput.log 2>&1
```

Listing A.1: Cron command in crontab file to run web scraping script at 8pm Everyday

In the case that the user does not have an available server running continuously to run the cron job at the configured time, Google cloud can be used. The code listing A.2 can be wrapped in a function and placed on Google Cloud Function to create an endpoint, that can be scheduled to run everyday using Google Cloud Scheduler [20].

```

driveSaverOutput.log
Reveal Now Clear Reload Share
Search

----- Starting bailproject_webscraping.py -----
Date used for scraping: 07-06-2021
ThreadID: 1 Starting Scraping town: PearlRiver
ThreadID: 2 Starting Scraping town: clay
ThreadID: 3 Starting Scraping town: adams
ThreadID: 4 Starting Scraping town: hinds
ThreadID: 5 Starting Scraping town: jackson
ThreadID: 6 Starting Scraping town: jones
ThreadID: 7 Starting Scraping town: kemper
ThreadID: 8 Starting Scraping town: madison
ThreadID: 9 Starting Scraping town: tunica
Finished Scraping town: tunica
Finished Scraping town: adams
Finished Scraping town: clay
Finished Scraping town: madison
Finished Scraping town: jones
Finished Scraping town: jackson
Finished Scraping town: kemper
Exiting Main Thread
----- COMPLETED running bailproject_webscraping.py -----
Google Service Details: -client_secrets.json-drive-v3-(['https://www.googleapis.com/auth/drive'],)
Loading existing pickle file with authentication token
Refreshing cred
drive Google API service created successfully
Folder already exists for current day, folder id: 1oi98PWx5k9vsHE1b01jtKWyh9Fx0jNsE
Uploaded file 07-06-2021_PearlRiver.csv Time: 2021-07-06 20:42:05.410445-04:00
Uploaded file 07-06-2021_Clay.csv Time: 2021-07-06 20:42:06.644219-04:00
Uploaded file 07-06-2021_Adams.csv Time: 2021-07-06 20:42:07.641925-04:00
Uploaded file 07-06-2021_Hinds.csv Time: 2021-07-06 20:42:08.786130-04:00
Uploaded file 07-06-2021_Jackson.csv Time: 2021-07-06 20:42:09.979687-04:00
Uploaded file 07-06-2021_Jones.csv Time: 2021-07-06 20:42:11.096327-04:00
Uploaded file 07-06-2021_Kemper.csv Time: 2021-07-06 20:42:12.363558-04:00
Uploaded file 07-06-2021_Madison.csv Time: 2021-07-06 20:42:13.440884-04:00
Uploaded file 07-06-2021_Tunica.csv Time: 2021-07-06 20:42:14.514981-04:00

```

Figure A.2: Output of driveSaver.py script

Name	Date Modified	Size	Kind
▼ scrappedDataSets	Today at 11:14 PM	--	Folder
07-06-2021_Kemper.csv	Today at 8:08 PM	33 KB	CSV Document
07-06-2021_Jackson.csv	Today at 8:06 PM	136 KB	CSV Document
07-06-2021_Jones.csv	Today at 8:04 PM	26 KB	CSV Document
07-06-2021_Madison.csv	Today at 8:03 PM	117 KB	CSV Document
07-06-2021_Clay.csv	Today at 8:01 PM	21 KB	CSV Document
07-06-2021_Adams.csv	Today at 8:01 PM	7 KB	CSV Document
07-06-2021_Tunica.csv	Today at 8:00 PM	3 KB	CSV Document
07-06-2021_Hinds.csv	Today at 3:19 PM	91 KB	CSV Document
07-06-2021_PearlRiver.csv	Today at 3:14 PM	75 KB	CSV Document
bailproject_webscraping.py	Today at 11:12 PM	33 KB	Python Source
driveSaverOutput.log	Today at 8:42 PM	13 KB	Log File
token_drive_v3.pickle	Today at 8:42 PM	717 bytes	Document
driveSaver.py	Today at 2:30 PM	4 KB	Python Source

Figure A.3: File Structure for driveSaver.py script

A.3 Code Samples

```
1 #!/Users/nithm/Documents/scripts/BailProject/bin/python3
2 import pickle
3 import os
4 from google_auth_oauthlib.flow import Flow, InstalledAppFlow
5 from googleapiclient.discovery import build
6 from googleapiclient.http import MediaFileUpload, MediaIoBaseDownload
7 from google.auth.transport.requests import Request
8 from googleapiclient.http import MediaFileUpload
9 from datetime import datetime, date
10 from pytz import timezone
11 import runpy
12
13 # source: https://www.youtube.com/watch?v=cCKPjW5JwKo
14 def Create_Service(client_secret_file, api_name, api_version, *scopes):
15     print("Google Service Details: ", client_secret_file, api_name, api_version, scopes
16         , sep='-')
17     CLIENT_SECRET_FILE = client_secret_file
18     API_SERVICE_NAME = api_name
19     API_VERSION = api_version
20     SCOPES = [scope for scope in scopes[0]]
21     cred = None
22     pickle_file = f'token_{API_SERVICE_NAME}_{API_VERSION}.pickle'
23
24     if os.path.exists(pickle_file):
25         with open(pickle_file, 'rb') as token:
26             print("Loading existing pickle file with auth token")
27             cred = pickle.load(token)
28     if not cred or not cred.valid:
29         if cred and cred.expired and cred.refresh_token:
30             print("Refreshing cred")
31             cred.refresh(Request())
32         else:
33             print("Creating the flow using the client secrets file")
34             flow = InstalledAppFlow.from_client_secrets_file(CLIENT_SECRET_FILE, SCOPES)
35             cred = flow.run_local_server()
36         with open(pickle_file, 'wb') as token:
37             pickle.dump(cred, token)
38     try:
39         service = build(API_SERVICE_NAME, API_VERSION, credentials=cred)
40         print(API_SERVICE_NAME, 'Google API service created')
41         return service
42     except Exception as e:
43         print('Unable to connect.', e)
44         return None
45
46 def convert_to_RFC_datetime(year=1900, month=1, day=1, hour=0, minute=0):
47     dt = datetime.datetime(year, month, day, hour, minute, 0).isoformat() + 'Z'
48     return dt
49
50 print("----- Starting bailproject.webscraping.py -----")
51 runpy.run_path('bailproject.webscraping.py')
52 print("----- COMPLETED running bailproject.webscraping.py -----")
53
54 # Google API setup
55 CLIENT_SECRET_FILE='client_secrets.json'
56 API_NAME='drive'
57 API_VERSION='v3'
58 SCOPES=['https://www.googleapis.com/auth/drive']
59 service = Create_Service(CLIENT_SECRET_FILE, API_NAME, API_VERSION, SCOPES)
60
61
62 towns = ['PearlRiver', 'clay', 'adams', 'hinds', 'jackson', 'jones', 'kemper', 'madison',
63         'tunica']
64 file_names = []
65 today_date = datetime.now(timezone('US/Eastern')).strftime("%m-%d-%Y")
```

```

65 for town in ['_PearlRiver.csv', '_Clay.csv', '_Adams.csv', '_Hinds.csv', "_Jackson.csv"
66             , '_Jones.csv', '_Kemper.csv', '_Madison.csv', '_Tunica.csv']:
67     file_names.append(today_date + town)
68 # search for folder to upload scripts , create folder if not there
69 ids = []
70 page_token = None
71 while True:
72     folder_search_query = "mimeType = 'application/vnd.google-apps.folder' and '1-
73     STIPmQQcaLtBAZENxDLuAUA9FuRmV0y' in parents"
74     response = service.files().list(q=folder_search_query, spaces='drive', fields='
75     nextPageToken, files(id, name)',
76                                     pageToken=page_token).execute()
77     for file in response.get('files', []):
78         if str(file.get('name')) == today_date:
79             ids.append(file.get('id'))
80     page_token = response.get('nextPageToken', None)
81     if page_token is None:
82         break
83 CLEAN_folderID = '1-STIPmQQcaLtBAZENxDLuAUA9FuRmV0y'
84 if len(ids) == 0:
85     file_metadata = {'name': today_date, 'mimeType': 'application/vnd.google-apps.
86     folder', 'parents': [CLEAN_folderID]}
87     file = service.files().create(body=file_metadata, fields='id').execute()
88     folder_id = file.get('id')
89     print("Folder did not exist for current day, created new folder with id: ",
90         folder_id)
91 else:
92     folder_id = ids[0]
93     print("Folder already exists for current day, folder id: ", folder_id)
94 # Upload scraped files to correct folder
95 for file_name in file_names:
96     try:
97         file_metadata = {'name': file_name, 'parents': [folder_id]}
98         media = MediaFileUpload('./scrapedDataSets/{0}'.format(file_name), mimetype='
99         text/csv')
100         service.files().create(body = file_metadata, media_body = media, fields = 'id')
101         .execute()
102         print("Uploaded file ", file_name, "Time: ", str(datetime.now(timezone('US/
103         Eastern'))))
104     except:
105         print("ERROR in uploading", file_name)

```

Listing A.2: driveSaver.py

```

1 def jackson():
2     # regex formatting to get Calculate total Bond
3     regex = re.compile('Bond:\ \ $[0-9]*.[0-9]*')
4     regex_money = re.compile('\ $[0-9]*.[0-9]*')
5     regex_num = re.compile('[0-9]*.[0-9]*')
6
7     # obtain the total count of individuals
8     count_url = "https://services.co.jackson.ms.us/jaildocket/_individualList.php?
Function=count"
9     uClient = uReq(count_url)
10    count_html = uClient.read()
11    uClient.close()
12    total_count = soup(count_html, "html.parser")
13    print("Jackson - Total individual Count:", total_count )
14
15    # to state details of individuals
16    individuals = {}
17    individual_ID_list = []
18    page = 0
19    y = []
20    # Iterate through the pages of individuals and get all the individual IDs
21    while(len(y)>0 or page == 0): # increase the page count
22        page = page + 1
23        individual_ID = "https://services.co.jackson.ms.us/jaildocket/_individualList.
php?Function=list&Page=" + str(page)
24        uClient = uReq(individual_ID)
25        individual_ID = uClient.read()
26        uClient.close()
27        y = json.loads(soup(individual_ID, "html.parser").prettify())
28        for i in y:
29            individual_ID_list.append(i['ID-Number'].strip() )
30            for k in range(10):
31                del i[str(k)]
32                del i['RowNum']
33                del i['Name-Suffix']
34            individuals[i['ID-Number'].strip()] = i
35    print("Jackson - Total Count of ID Numbers Obtained:", len(individual_ID_list))
36    print("Jackson - # of Pages of individuals on website:", page)
37
38
39    bond_count = 0
40    bondable_count = 0
41    # iterate through individual cards with the individual IDs and store in individuals
dict
42    for individual_ID in individual_ID_list:
43        try:
44            my_url = 'https://services.co.jackson.ms.us/jaildocket/individual/
_individualdetails.php?id='+ individual_ID
45            # opening up connection, grabbing the page
46            uClient = uReq(my_url)
47            page_html = uClient.read()
48            uClient.close()
49            page_soup = soup(page_html, "html.parser")
50
51            # Obtain individual details (race, height, ... whether they are bondable )
52            container = page_soup.select("[class~=iltext] p")
53            name = []
54            bondable = "No"
55            for i in container:
56                item = ' '.join(i.string.split())
57                if item == 'Bondable':
58                    bondable_count = bondable_count +1
59                    bondable = "Yes"
60                name.append(item)
61
62            # Obtain their offense charge and bond amount
63            container = page_soup.select("[class~=offenseItem] p")
64            offense = []
65            for i in container:

```

```

66         item = ' '.join(i.string.split())
67         offense.append(item)
68
69     # Calculate the total bond amount for the individual
70     total = 0
71     bonds = regex.money.findall(str(regex.findall(str(offense))))
72     for b in bonds:
73         total = total + Decimal(sub(r'^\d.', '', b))
74
75     # Store all values in dictionary for the individual
76     individuals[individual_ID]["Total Bond($)"] = total
77     individuals[individual_ID]["Bondable?"] = bondable
78     individuals[individual_ID]["individual_info"] = name
79     individuals[individual_ID]["individual_offense"] = offense
80
81     # Calculate the amount of individuals that are Bondable
82     if individuals[individual_ID]["Total Bond($)"]>0: bond_count = bond_count
+ 1
83
84     except:
85         print("Jackson ERROR", individual_ID)
86
87
88     print("Jackson - # of individuals with bond:", bond_count)
89     print("Jackson - # of individuals that are bondable:", bondable_count)
90
91     # Store Values in CSV format in Google Drive
92     csv_columns = list(list(individuals.values())[0].keys())
93     dict_data = list(individuals.values())
94
95     df = pd.DataFrame.from_dict(dict_data)
96     df.to_csv('/content/drive/MyDrive/Nithi-Thesis-Bail-Project/scraped_files/CLEAN/' +
        today_date + "/" + today_date + "_Jackson.csv", index=False)

```

Listing A.3: Web Scraping Script used to collect data on individuals from Jackson County

```

1  #@markdown Townscraper Script
2  str_error = 0
3
4  # used to request URLs for non-captcha Jails
5  def requestURL(request, town):
6      for x in range(0, 4):
7          try:
8              if town == "adams":
9                  user_agent = 'Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.9.0.7)
Gecko/2009021910 Firefox/3.0.7'
10                 headers={'User-Agent':user_agent,}
11                 request=urllib.request.Request(request,None,headers) #The assembled
request
12                 response = urllib.request.urlopen(request, timeout=50)
13                 data = response.read()
14                 response.close()
15                 return data
16             except Exception as str_error:
17                 time.sleep(2)
18                 print("Exception", str_error)
19
20 # used to scrape jails that require captcha Code
21 # ----- Towns -----
22 jail_captcha = {'DeSoto': {'URL': 'https://omsweb.public-safety-cloud
.com/jtclientweb/Offender/DeSoto.County.Ms/'},
23                 'Forrest': {'URL': 'https://omsweb.public-safety-cloud.com/jtclientweb/
Offender/Forrest.County-MS/'},
24                 'Hancock': {'URL': 'https://omsweb.public-safety-cloud.com/jtclientweb/
Offender/HANCOCK.COUNTY.MS/'},
25                 'Harrison': {'URL': 'https://omsweb.public-safety-cloud.com/jtclientweb
/Offender/HARRISON.COUNTY.JAIL.MS/'},
26                 'Lamar': {'URL': 'https://omsweb.public-safety-cloud.com/jtclientweb/
Offender/Lamar.County.MS/'},
27                 'Marion': {'URL': 'https://omsweb.public-safety-cloud.com/jtclientweb/
Offender/Marion.County.MS/'},
28                 'Perry': {'URL': 'https://omsweb.public-safety-cloud.com/jtclientweb/
Offender/Perry.County.MS/'},
29                 'Yazoo': {'URL': 'https://omsweb.public-safety-cloud.com/jtclientweb/
Offender/Yazoo.County.MS/'}}
30
31 def townScraper(town, validate_r):
32     print("County: ", town)
33     captchaKey_aftervalidation = validate_r.json()['captchaKey']
34
35     # Get offender information
36     records_r = requests.post(jail_captcha[town]['URL'],
37                               json={'captchaKey': validate_r.json()['captchaKey']})
38     offenderViewKey = records_r.json()['offenderViewKey']
39     total = len(records_r.json()['offenders'])
40     print(town, "No. of offenders:", total)
41
42     # Loop through information and store in Dataframe
43     individuals = {}
44     RAW_individuals = {}
45
46     for offender in records_r.json()['offenders']:
47         individuals[offender['arrestNo']] = {}
48         individuals[offender['arrestNo']]['Arrest Number'] = offender['arrestNo']
49         for j in ['firstName', 'lastName', 'agencyName', 'originalBookDateTime']:
50             individuals[offender['arrestNo']][j] = offender[j]
51
52         RAW_individuals[offender['arrestNo']] = {}
53         RAW_individuals[offender['arrestNo']]['Arrest Number'] = offender['arrestNo']
54         RAW_individuals[offender['arrestNo']]['offenders'] = offender
55
56
57 df = pd.DataFrame(columns= ["Arrest Number", 'firstName', 'lastName', 'agencyName', '
originalBookDateTime', 'bondAmount', 'bondType', 'chargeDescription', 'chargeStatus',
'crimeType', 'Bond Total Amount', 'charges', 'cases'])

```

```

58 RAW_df = pd.DataFrame(columns= ["Arrest Number", 'charges', 'cases'])
59
60 arrestNos = {}
61 for arrestNo in list(individuals.keys()):
62     arrestNos[str(arrestNo)] = {}
63     arrestNos[str(arrestNo)][ "Number" ] = arrestNo
64     URL = jail_captcha[town][ 'URL' ] + str(arrestNo) + '/offenderbucket/' + str(
65         offenderViewKey)
66     response = requests.post(URL, json={ 'captchaImage': image, 'captchaKey':
67         captchaKey_aftervalidation })
68
69     # Iterate through charges in response
70     bond_total = 0
71     for column in [ 'charges', 'cases', 'bondType', 'bondAmount', 'chargeDescription', '
72         chargeStatus', 'crimeType' ]:
73         individuals[str(arrestNo)][column] = []
74
75     RAW_individuals[str(arrestNo)][ 'charges' ] = []
76     for charge in response.json()[ 'charges' ]:
77         # print(charge)
78         individuals[str(arrestNo)][ 'charges' ].append(charge)
79         RAW_individuals[str(arrestNo)][ 'charges' ].append(charge)
80         bondAmt = charge[ 'bondAmount' ]
81         if bondAmt == None:
82             bondAmt = 0
83         bond_total = bond_total + float(bondAmt)
84         for column in [ 'bondType', 'bondAmount', 'chargeDescription', 'chargeStatus', '
85             crimeType' ]:
86             individuals[str(arrestNo)][column].append(charge[column])
87
88     individuals[str(arrestNo)][ 'Bond Total Amount' ] = bond_total
89
90     individuals[str(arrestNo)][ 'Potentially Bondable?' ] = ""
91     arrestNos[str(arrestNo)][ "Potentially Bondable?" ] = ''
92     if all((x == "WRITTEN BOND" or x == "SURETY BOND" or
93         x == "OWN RECOGNIZANCE BOND" or x == "OFF BOND" or
94         x == "SURETY BOND WITH CONDITIONS" or x == "SURETY"
95         ) for x in individuals[str(arrestNo)][ 'bondType' ]) and len(individuals[str(
96         arrestNo)][ 'bondType' ]) > 0 :
97         individuals[str(arrestNo)][ 'Potentially Bondable?' ] = 'Yes'
98         arrestNos[str(arrestNo)][ "Potentially Bondable?" ] = 'Yes'
99
100     individuals[str(arrestNo)][ 'Sex/DV charge' ] = ""
101     arrestNos[str(arrestNo)][ "Sex/DV charge" ] = ""
102     if any(re.search("sex", str(x), re.IGNORECASE) for x in individuals[str(arrestNo)][
103         'chargeDescription' ]):
104         individuals[str(arrestNo)][ 'Sex/DV charge' ] = 'Yes'
105         arrestNos[str(arrestNo)][ "Sex/DV charge" ] = 'Yes'
106
107     individuals[str(arrestNo)][ 'Over 5k?' ] = ""
108     arrestNos[str(arrestNo)][ "Over 5k?" ] = ""
109     if int(individuals[str(arrestNo)][ 'Bond Total Amount' ]) > 5000:
110         individuals[str(arrestNo)][ 'Over 5k?' ] = 'Yes'
111         arrestNos[str(arrestNo)][ "Over 5k?" ] = 'Yes'
112
113     # iterate through cases in response
114     RAW_individuals[str(arrestNo)][ 'cases' ] = []
115     for case in response.json()[ 'cases' ]:
116         RAW_individuals[str(arrestNo)][ 'cases' ].append(case)
117
118     # iterate through offenderSpecialFields in response
119     total = []
120     for item in response.json()[ 'offenderSpecialFields' ]:
121         temp = { }
122         temp[item[ 'labelText' ]] = item[ 'offenderValue' ]
123         total.append(temp)
124     RAW_individuals[str(arrestNo)][ 'offenderSpecialFields' ] = total
125
126     # -----

```

```

121     # get offenderViewKey for next iteration of for loop
122     offenderViewKey = response.json()[ 'offenderViewKey' ]
123
124     # add individual to dataframe
125     df = df.append(individuals[ str(arrestNo) ] , ignore_index=True)
126     RAW_df = RAW_df.append(RAW_individuals[ str(arrestNo) ] , ignore_index=True)
127
128     # saving individual info for town to Google Drive
129     file_name = str(today_date) + "_" + town + '_individuals_' + '.csv'
130     df.to_csv( '/content/drive/MyDrive/Nithi-Thesis-Bail-Project/scraped_files/CLEAN/' +
131               today_date + "/" + file_name)
132     print(town, "saved CLEAN", file_name)
133
134     # saving RAW individual info for town to Google Drive
135     file_name = str(today_date) + "_" + town + '_individuals_' + '.csv'
136     RAW_df.to_csv( '/content/drive/MyDrive/Nithi-Thesis-Bail-Project/scraped_files/RAW/' +
137                   today_date + "/" + file_name)
138     print(town, "saved RAW", file_name)
139
140     daily_summary = pd.DataFrame(columns= [ "Date", "Arrest Numbers", "Total arrest
141                                           Numbers" ])
142     temp = {}
143     temp[ "Date" ] = today_date
144     temp[ "Arrest Numbers" ] = arrestNos
145     temp[ "Total arrest Numbers" ] = len(arrestNos)
146     daily_summary = daily_summary.append(temp, ignore_index=True)
147
148     try:
149         daily_summary = pd.read_csv( '/content/drive/MyDrive/Nithi-Thesis-Bail-Project/
150                                     scraped_files/DAILY.SUMMARY/' + str(town) + '.csv' ).append(daily_summary)
151     except FileNotFoundError:
152         print("")
153
154     daily_summary = daily_summary[ [ "Date", "Arrest Numbers", "Total arrest Numbers" ] ]
155     daily_summary.to_csv( '/content/drive/MyDrive/Nithi-Thesis-Bail-Project/scraped_files/
156                           DAILY.SUMMARY/' + str(town) + '.csv' )
157     print(town, "saved DAILY SUMMARY for", town)
158
159     # Audio notification so you know when to input the captcha code again
160     # output.eval_js( 'new Audio("https://upload.wikimedia.org/wikipedia/commons/0/05/Beep
161                       -09.ogg").play() ' )

```

Listing A.4: Web Scraping Script used to collect data on individuals from
Captcha Required Jails

A.4 Key Words Categorization

County	Race Categories Used in each County's Jail Roster
Clay	['ASIAN' 'BLACK' 'INDIAN (NA' 'WHITE']
Harrison	['A' 'AMERICAN/ALASKAN NATIVE' 'B' 'H' 'MIDDLE EASTERN' 'W']
Hinds	['A' 'B' 'T' 'U' 'W' 'nan']
Yazoo	['' 'ASIAN' 'BLACK' 'INDIAN' 'UNKNOWN' 'WHITE']
Madison	['AMERICAN' 'BLACK' 'BROWN' 'BUSINESS' 'HISPANIC' 'OTHER' 'WHITE']
Hancock	['B' 'H' 'W']
Jackson	['' 'Black Female' 'Black Male' 'Not Available Female' 'Not Available Male' 'Not Available Not Available' 'White Female' 'White Male']
DeSoto	['Asian' 'B' 'Black' 'H' 'Hispanic' 'Native American' 'U' 'W' 'White']
Forrest	['Black' 'HISPANIC' 'Other' 'UNKNOWN' 'White']
Lamar	['Asian or Pacific Islander' 'Black' 'HISPANIC' 'White']
Marion	['A' 'B' 'HISPANIC' 'U' 'W']
Perry	['BLACK' 'HISPANIC' 'WHITE']
Adams	['B' 'U' 'W' 'nan']
Jones	['B' 'H' 'T' 'M' 'W']
Kemper	['African American' 'Caucasian' 'Hispanic' 'Other']
Tunica	['B' 'W']

Table A.2: Race Categories used in each County's Jail Roster

Average Bond Amounts for Various Charges

Select a County to view Average Bond Amounts for Various Charges

If you receive an error while changing the counties, please try clicking the play button to the left once more OR please refer to the top of this link where the first cell has instructions on how to use the interactive visuals.

CountyJail: Jackson

[Show code](#)

ABUSIVE CALLS/EMERGENCY PHONE 666.67
AGGRAVATED ASSAULT 43857.14
AGGRAVATED ASSAULT - USE OF DEADLY WEAPON OR OTHER MEANS 34500.0
ARSON 5700.0
AUTO BURGLARY 17736.36
BURGLARY - BREAKING & ENTERING, OR HOME INVASION - DAY OR NIGHT 36590.91
BURGLARY - COMMERCIAL BUILDING 34181.82
BURGLARY TOOLS - POSSESSION 2250.0
CARELESS DRIVING 305.5
CARJACKING (UNARMED) 67500.0
CONTEMPT OF COURT 3844.93
DISORDERLY CONDUCT 734.14
DISTURBANCE OF FAMILY 766.67
DISTURBING THE PEACE 505.3
DOMESTIC VIOLENCE AGGRAVATED ASSAULT 85833.33
DOMESTIC VIOLENCE SIMPLE ASSAULT 959.84
DRIVE-BY SHOOTING 100000.0
FAILURE TO APPEAR 685.77
FAILURE TO REGISTER AS A SEX OFFENDER 9583.33
FALSE ID INFORMATION 700.0
FALSE PRETENSE 5000.0
FELONY PURSUIT 26000.0
HINDERING PROSECUTION 8750.0
IMPROPER EQUIPMENT 466.67
INDECENT EXPOSURE 750.0
KIDNAPPING 71666.67
LITTERING 351.42
MANSLAUGHTER 60000.0
MOLESTING - TOUCHING CHILD FOR LUSTFUL PURPOSE 150000.0
MURDER 500000.0
NO DRIVERS LICENSE 805.75
NO INSURANCE 730.67
OBSTRUCTING TRAFFIC 236.67
OPEN CONTAINER VIOLATION 300.0
POSSESSION OF A CONTROLLED SUBSTANCE - ALL OTHERS 7444.51
POSSESSION OF A CONTROLLED SUBSTANCE - COCAINE 3875.0
POSSESSION OF A CONTROLLED SUBSTANCE - MARIJUANA 11142.86
POSSESSION OF A CONTROLLED SUBSTANCE - METHAMPHETAMINE 5850.0
POSSESSION OF FIREARM BY CONVICTED FELON 23458.33
POSSESSION OF PARAPHERNALIA 656.69
POSSESSION OF SCHEDULED SUBSTANCE 8500.0
POSSESSION OF STOLEN PROPERTY 15625.0
POSSESSION, SALE, TRANSFER OF STOLEN FIREARM 13000.0
PUBLIC DRUNK 350.81
RESISTING ARREST 878.42
ROBBERY - ARMED 128529.41
SEXUAL BATTERY 48750.0
SIMPLE ASSAULT 819.12
SIMPLE ASSAULT BY THREAT 502.12
SIMPLE ASSAULT ON A POLICE OFFICER - FELONY 34000.0
SIMPLE POSSESSION OF MARIJUANA 818.28
SIMPLE POSSESSION OF SYNTHETIC CANNABINOIDS - SPICE 500.0
SIMPLE POSSESSION OTHER CONTROLLED SUBSTANCE 799.43
STALKING 1200.0
SUSPENDED DRIVERS LICENSE 645.4
TRAFFICKING IN CONTROLLED SUBSTANCES 30000.0
TRANSFER OF A CONTROLLED SUBSTANCE 9300.0
TRESPASSING 573.68
VIOLATION OF PROTECTION ORDER 666.67
Note - Hinds and Kemper do not have bond information

Figure A.4: Screenshot of the Interactive Tool for the Average Bond Amounts for Various Charges

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