

# A New Challenge for Voting Rights

Exploring the Ways in Which Recent Legislation Threatens to Undermine the Integrity of American Democracy

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## Project Goals

The 2020 election generated the highest voter turnout in the 21st century, with 66.8% of all eligible voters participating (US Census Bureau, 2021). Despite this record turnout, young voters (ages 18-25) still showed up at the polls at rates almost 20% lower than older voters (ages 65-74), and the most common reason given for not voting was a lack of interest in the election (US Census Bureau, 2021). Following the 2020 election, there have been legislative changes throughout the United States that aim to make it more difficult for certain Americans to vote. Given the lower turnout of younger voters, and the general feelings of electoral apathy experienced by many Americans, our team wanted to create an interface that would highlight the problems and dangers facing American Democracy, and keep citizens informed about legislative changes that may directly impact their ability to vote.

Our project addresses three main areas. First, it takes a macro approach, looking at the overall picture of voting rights in America. This section gives users a background in some of the potential causes for the surge in anti-voting legislation, and provides users with an opportunity to see where these bills are being introduced and passed. We wanted users to be able to find their own state and see at a high level what was going on. Finally, we included some figures to enable comparisons between 2021 and previous years throughout the past decade, showing that the past year really was a massive surge in anti-voting legislation.

Second, we wanted to focus on some specific methods that states should align with in order to facilitate electoral fairness, pursuant to the Voting Rights Act of 1965. In this section, we looked closely at the effects of gerrymandering, examining how in some states this process harms both political and demographic groups ability to be represented equitably. Furthermore, in this section we focused more closely on two states: Georgia and Arizona. Historically, Georgia has engaged heavily in

gerrymandering whereas Arizona employs a more bipartisan approach. Our figures here allow readers to compare these two states, and see how a legislative process can directly impact a state's constituents.

Finally, we zoomed in on the state of Georgia, wanting to illustrate some of the on the ground realities experienced by voting citizens. In this section, we hoped to show how Georgia's electoral process disadvantages non-White voters, creating situations where they must wait in longer lines or present forms of identification that they are less likely to have. Furthermore, we wanted to show users how a current piece of legislation in Georgia—the Election Integrity Act—will impact all voters across a number of dimensions. We did this through an interactive dashboard where users can explore the Act's components.

Overall, we have targeted this interface towards Americans who may not know a lot about politics or voting rights, but are interested in learning about some of the legislative changes happening in their country. We want citizens to feel informed about the impact of voting rights legislation, and to understand that these bills have tangible, on the ground impacts. Hopefully, this site will not only inform, but also inspire. To this end, we have included a list of organizations dedicated to promoting democracy at the bottom of the interface.

## Discussion of Related Work

### Austin

In the final project, I worked primarily on developing the macro-level view of voting rights in America. I wanted to show that voting rights were being challenged across nearly every state in America, and that this was not solely a partisan issue. Additionally, I wanted users to be able to easily see that legislation aimed to restrict voting rights has increased dramatically in the past year.

One of my primary sources for creating these visualizations was [The Brennan Center for Justice](#). The Brennan Center is an independent, nonpartisan law and policy organization that focuses on researching and analyzing current legal and political issues. Beginning in 2012, The Brennan Center has conducted a “voting rights roundup” in which they summarize the numbers of bills introduced and passed that contained

restrictive voting policies. However, the format of this report has changed a lot over the years, and the presentation often makes it difficult to see where the restrictive bills are actually being implemented. While I wasn't able to find the raw data for their analysis, they did include a list of the restrictive bill's name in the appendix.

**33** IN S.B. 221, MO H.B. 1650, MO H.B. 2318, MO H.B. 2320, MO H.B. 2044, MO H.B. 2046, MO S.B. 696, MO S.B. 730, MO S.B. 875 RI H.B. 7100, RI S.B. 2007.

**34** FL H.B. 1353, FL S.B. 694.

**35** FL S.B. 1586, FL S.B. 1722.

**36** AZ H.B. 2071.

**37** AZ H.B. 2094.

**38** NJ A.B. 365, NJ A.B. 2009, PA H.B. 2248, VT H.B. 404.

**39** MS H.B. 145, MS H.B. 196, MS H.B. 268, MS H.B. 377, MS H.B. 487, MS H.B. 630, MS H.B. 569.

**40** MO H.B. 1646.

**41** FL H.B. 6117.

**42** AZ H.B. 2402, FL S.B. 368, IN H.B. 1151, MS H.B. 223, MS H.B. 54, MO H.B. 2224, MO H.B. 2278.

**43** FL S.B. 368.

**44** AZ H.B. 2402, FL H.B. 1353, IN H.B. 1364, MS H.B. 308, MO H.B. 2043, MO H.B. 2323, NJ A.B. 1926, NJ S.B. 247.

While this data was useful, it wasn't a very successful at conveying the information in an easily digestible fashion. I took the data in appendix form and made my own data set where I totalled, for each state, the number of bills introduced and passed. I was then later able to apply this data when creating a choropleth showing the spread of these bills.

A second source that I used was an NPR article titled [“The clear and present danger of Trump’s enduring ‘Big Lie’](#). This article details the ways in which the 2020 election, and Trump’s insistence that it was illegitimate, has framed American’s current views of elections and voting. It was important to me that our website had a bit of a “why”. Why was there suddenly this massive surge in anti-voting rights bills? Trump’s rhetoric, now embraced by many of his supporters, helps to explain this change. This article also included useful data about American’s views on the 2020 election, such that 75% of Republicans believe that the fraud changed the results of the 2020 elections, and that

36% of Americans overall believe that President Biden won the election illegitimately. While it was not our goal to create a partisan website, it's difficult to tell the current story of voting rights in America without highlighting a very real partisan divide. These statistics helped highlight the varying attitudes between the two parties, and explain why anti-voting legislation is currently passing in red states at significantly higher rates than blue states.

Finally, I used the [United States Senate page](#) listing all the current sitting senators as a proxy for the political leanings of that state.

Senator's Name	State	Party	Class	Office Room*	Phone
Baldwin, Tammy	Wisconsin	Democratic	I	SH-709	4-5653
Barrasso, John	Wyoming	Republican	I	SD-307	4-6441
Bennet, Michael F.	Colorado	Democratic	III	SR-261	4-5852
Blackburn, Marsha	Tennessee	Republican	I	SD-357	4-3344
Blumenthal, Richard	Connecticut	Democratic	III	SH-706	4-2823
Blunt, Roy	Missouri	Republican	III	SR-260	4-5721
Booker, Cory A.	New Jersey	Democratic	II	SH-717	4-3224
Boozman, John	Arkansas	Republican	III	SH-141	4-4843
Braun, Mike	Indiana	Republican	I	SR-404	4-4814
Brown, Sherrod	Ohio	Democratic	I	SH-503	4-2315

Showing 1 to 10 of 100 Current Senators    Previous    **1**    2    3    4    5    ...    10    Next

If a state had 2 Republican senators, I coded that state as Republican. If the state had 2 Democratic senators, I coded that state as Democratic, and if the state had 1 Republican and 1 Democratic senator I coded the state as mixed. Obviously this was not a perfect measure of a state's political leaning. Not all senators are equally conservative or liberal, and so this measure really creates a false dichotomy. However, I thought that this approach would be consistent with what users were familiar with, and would help them focus on the main message of anti-voting legislation, rather than trying to interpret a more nuanced measure of political affiliation.

Jess

For our final project, I focused on how restrictive voting rights bills impacted voters. I chose to look specifically at Georgia, which was facing both partisan gerrymandering and restrictive voting rights bills, to see how those two factors were impacting actual voters. The first piece of related work that I utilized was a github repository (<https://github.com/publici/us-polling-places>) of polling locations in the US from 2012 through to 2020. I used this repository specifically to do analysis on the number of voters per polling place in metro Atlanta from 2012 through to 2016. I downloaded the Georgia repository and utilized that repository in Tableau to get the number of polling locations per county from 2012 through to 2020. I then procured the number of registered voters in counties in Metro Atlanta (DeKalb, Cherokee, Hall, Fulton) from Georgia State election data (<https://results.enr.clarityelections.com/GA/>), and divided the number of registered voters by the number of polling locations in that county, to determine if the number of registered voters per polling location was increasing over the years, and found that it was, by a significant amount, which was contributing to the long lines that voters were facing. I did input all of the counties in metro Atlanta (as there are 13 of them) into my final visualization (animated bar graph “Voters Per Polling Place in Georgia”), but chose a representative sample for my line graph, that would demonstrate to the viewer how sharply the number of voters per polling location was increasing.

The next piece of related work that I utilized was an NPR article, “Why do nonwhite Georgia voters have to wait in line for hours? Too few polling places” (<https://www.npr.org/2020/10/17/924527679/why-do-nonwhite-georgia-voters-have-to-wait-in-line-for-hours-too-few-polling-pl>). This article was a joint piece by NPR and ProPublica, and contained good analyses of why nonwhite Georgians were waiting in line at the polls longer (they obtained and utilized Georgia state records). This piece was the basis for a large portion of my section, and contained data such as: wait times for white vs. nonwhite Georgians, growth in voter rolls, percentage of polling locations vs. percentage of population in Atlanta, and more. This piece framed nicely the analysis I did of the growth of number of voters per polling location in metro Atlanta.

Finally, the last piece of related work that I used was Georgia Tech’s analysis of the Election Integrity Act of 2021

(<https://vote.cae.gatech.edu/get-informed/sb202-election-integrity-act-2021>) , which was a restrictive voting rights bill introduced in Georgia following the 2020 election. This piece contained key provisions of the 2021 bill, and what it would actually mean in practice for voters. I used this piece to create a tableau treemap to allow the viewer to explore for themselves what changes the Election Integrity Act will make, and how those changes will actually impact voters.

Aiste

For our Final project, my portion focused on how the process of drawing districts impacts various aspects of voting equality. The key source of information for this came from the publication FiveThirtyEight, which shows “What Redistricting Looks Like in Every State”. <https://projects.fivethirtyeight.com/redistricting-2022-maps>.



There are **4 Democratic-leaning seats** , **9 Republican-leaning seats** and **1 highly competitive seat** in Georgia’s new map.

Change from old map: **+1 Republican-leaning seat** , **-1 highly competitive seat** .

Map source: Georgia Republicans

### The competitiveness and fairness of Georgia's maps

#### Median seat

Difference between the partisan lean of the state's median district and the state as a whole.

Old map	R+11.9
New map	R+14.6

#### Efficiency gap

Difference between each party's share of "wasted votes" — those that don't contribute to a candidate winning.

Old map	R+7.2
New map	R+15.9

#### Competitiveness

The number of districts in the state whose partisan leans are between R+5 and D+5.

Old map	2/14
New map	1/14

This source contained both useful visualizations and textual information that allowed me to focus on specific metrics for competitiveness and fairness. I was able to download this data and create my own tables that explored additional metrics such as the

distribution and representation of minorities in each district, obtained from other sources concerning the Voting Rights Act of 1965. The data contained information about each district's demographics, partisan leanings, as well as summaries for the entire state.

The second important source of information used for my portion concerned understanding the goals of the Voting Rights Act, including the reasons it was passed, and its growing scope through the passage of various amendments.

<https://www.archives.gov/milestone-documents/voting-rights-act#:~:text=This%20act%20was%20signed%20into,as%20a%20prerequisite%20to%20voting>). This source outlines

the important reasons for the passage of the Voting Rights Act, it's goals, and what affects these have had on fair voting practices especially in places where discrimination resulted in efforts to prevent minorities from exercising their rights to vote.

Understanding this act is important in order to show and underlying the importance of promoting equitable voting practices, and scrutinize practices that do not.

The final important source of information used in my portion is an article describing the impacts of the Shelby county v Holder case.

<https://www.theguardian.com/us-news/2020/jun/25/shelby-county-anniversary-voting-rights-act-consequences> This article does an incredible job describing how the ruling

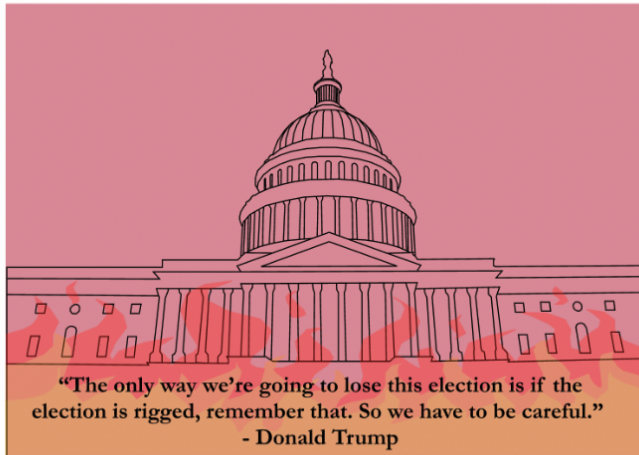
affects the spirit of the Voting Rights Act, and by taking away federal oversight into local and state changes to voting policies places the burden of proof on minorities instead of governing bodies. It shows how states have already been able to pass policies that are detrimental to minorities. This is important to understand for our project, as it allow individuals to critically evaluate the practices of district drawing through more than a political lens.

## Description and Screenshots

Our website covers three main sections: 1.) a macro-view surveying current anti-voting legislation in the US, 2.) an exploration of the effects of gerrymandering that compares Arizona and Georgia, and 3.) a more individual assessment of the effects these bills can have on the voting experience.

We first wanted to set the stage by telling the story of January 6th, 2020 and the development of Trump's "big lie" that the election was stolen.

## January 6th 2022

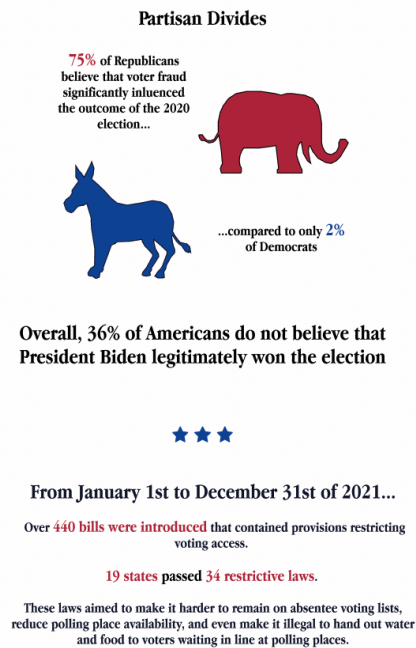


Due to the Covid-19 pandemic, governors and election officials in a variety of states instituted changes to make it safer to vote, including making it easier to vote by mail and extending early-voting periods. Since Democratic voters were more likely than Republican voters to vote by mail, President Donald Trump began a narrative that these voting policies had resulted in a rigged election. This narrative caused many throughout the country to believe that the election was stolen, and that they needed to "stop the steal" through violence if necessary. The narrative of a stolen election has come to be known as "The Big Lie".

This rhetoric came to a head on January 6, 2021 a mob of supporters of President Donald Trump stormed the United States Capitol and disrupted session of Congress that was then convening to certify the results of the 2020 election and confirm the election of Joe Biden. This attack was labeled as both a coup and an act of domestic terrorism.

Following the events of January 6th, **there has been an unprecedented wave of legislation designed to make it more difficult for Americans to vote.**

This intro paragraph helps to set the stage and explain why there has been a large increase in anti-voting legislation. We then continue to expand the picture, showing

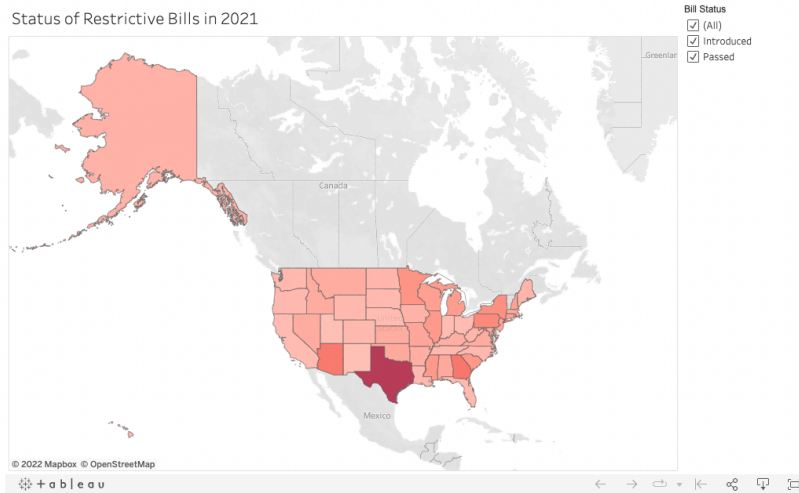




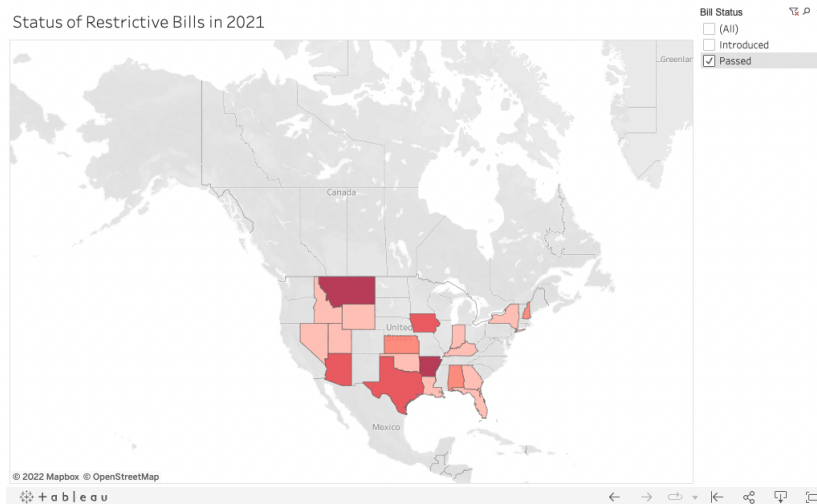
how the big lie has created a partisan gap in terms of how Democrats and Republicans view the efficacy of elections. This helps to set up the massive increase in bills being passed in red states.

### Where Are These Bills?

While many bills are being passed by Republican controlled legislatures, anti-voting legislation is not solely a red state issue. **49 states** introduced anti-voting legislation, and bills passed in both red and blue states.



The above Tableau dashboard enables viewers to see the entire US, and explore where the most anti-voting legislation is being passed. Additionally, there are filters in the upper left that allow the user to compare bills introduced versus bills passed.



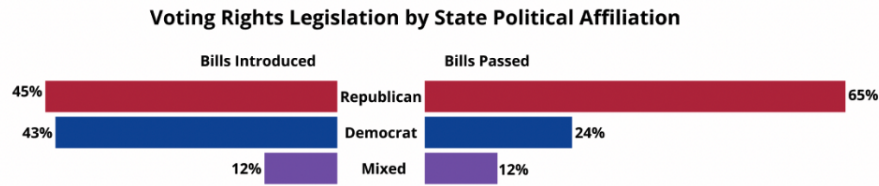
Next, we included tables ranking states in order of bills introduced and passed. While we initially did not intend to use tables as a visualization, in our first round of usability studies multiple participants told us that they would have liked to see the information presented in that fashion.

Number of Anti-Voting Rights Bills **Introduced** in 2021

State	State Political Affiliation	
Texas	Republican	50
Georgia	Democrat	24
Arizona	Democrat	23
Pennsylvania	Mixed	18
New York	Democrat	16
Minnesota	Democrat	15
South Carolina	Republican	13
Mississippi	Republican	13
Illinois	Republican	13
Michigan	Democrat	12
Wisconsin	Mixed	11
New Hampshire	Democrat	10
Connecticut	Democrat	10
New Jersey	Democrat	9
Missouri	Republican	9
Oklahoma	Republican	8
Alabama	Republican	8
Virginia	Democrat	7
Rhode Island	Democrat	7
Nevada	Democrat	7
Montana	Mixed	7
Massachusetts	Democrat	7
Maryland	Democrat	7
Kansas	Republican	7
Idaho	Republican	7
Kentucky	Republican	6
Arkansas	Republican	6
Iowa	Republican	5
Alaska	Republican	5
West Virginia	Mixed	4
North Dakota	Republican	4

While the current voting legislation does reflect clear partisan trends, we wanted to show that anti-voting legislation is not limited to just Republicans. These bills are also introduced, and passed, in blue states.

The differences between the political affiliations of the states that introduced bills versus the states that passed bills suggests that while voting rights are currently being threatened in all states, currently such legislation is being passed more easily in Republican controlled legislatures.



Finally, we closed out this section with some forecasting for 2022. While its hard to know how many bills will pass by the end of the year, we were able to present data comparing the first two weeks of January 2021 versus January 2022. These number paint a picture that 2022 will see just as much, if not more, anti-voting legislation.

### *What about 2022?*

Preliminary data suggests that 2022 may bring another swath of of anti-voting rights legislation. Comparing the first 2 weeks of the year, 2022 opened with nearly **3x** as many voting restrictive bills as 2021.



Our next section focused on the effects of gerrymandering. We first wanted to establish that gerrymandering does not look the same in every state. Thus, we explained two processes by which states map their districts. In Georgia, the redistricting process strongly favors the political group in power, whereas in Arizona they employ a more bipartisan approach designed to more accurately represent census results. These states, Arizona and Georgia, became our comparison groups for the next visuals.

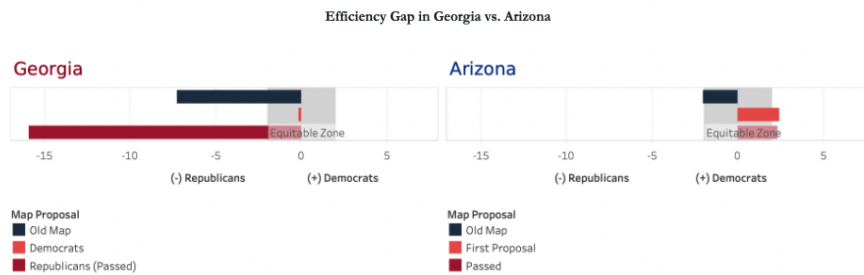
States such as **Georgia** engage in *Partisan District Mapping* allowing both parties to propose new districting maps, with the party that controls the House making the final map selection. This creates a cascading effect wherein the dominant political party is able to continually tip district maps in its favor, thus reinforcing its ability to remain in control

States like **Arizona** use *Independent Redistricting Commissions* allowing bi-partisan groups to draw districts that reflect the most recent census. This process starts from scratch each time, rather than relying on the shape of existing districts.

We first included a visual demonstrating the “efficiency gap” between Georgia and Arizona. The efficiency gap refers to the difference between two party’s wasted votes (votes that were cast for the losing party, or votes in excess of 50% of the total vote that were cast for the winning party). For example, in a state like Massachusetts a lot of democratic votes are “wasted” because the state is so deeply blue. This visual shows that because of gerrymandering, Georgia is biased to favor Republicans as less of their votes are “wasted”. In Arizona, the difference is much closer.

Having already secured a favorable condition for Republicans, Georgia is able to even further disadvantage Democratic voters in its state.

Arizona on the other hand is able to stay consistently close to the Equitable Zone, even allowing the slight favoring to switch between parties.

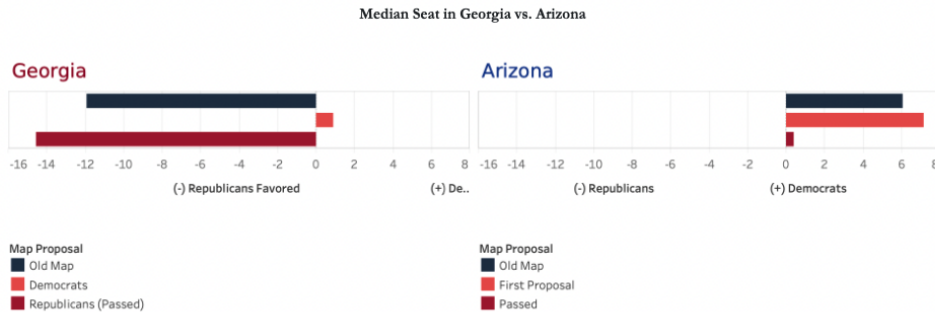


In the final section of our website, we wanted to explore how partisan gerrymandering and restrictive voting rights bills actually impact voters. To do that, we first looked at Georgia during the 2020 election (because Georgia has historically been subject to partisan gerrymandering), to see what the current state of voting in Georgia looked like. This first section sets the stage, and tells the viewer that we will be examining voting in Georgia. It then gives information about how voting access is changing in Georgia, and who is being affected.

Next, we wanted to visualize each state’s “median seat”. This refers to the difference between the partisan leaning for the most median district, compared to the state as a whole. Ideally, the political leaning of a state’s median district should closely represent the political leanings of the state as a whole.

**Georgia's** median partisan district is leaning towards the Republican party by 14 more partisan points than the entire state as a whole. This is even more right leaning than previous maps.

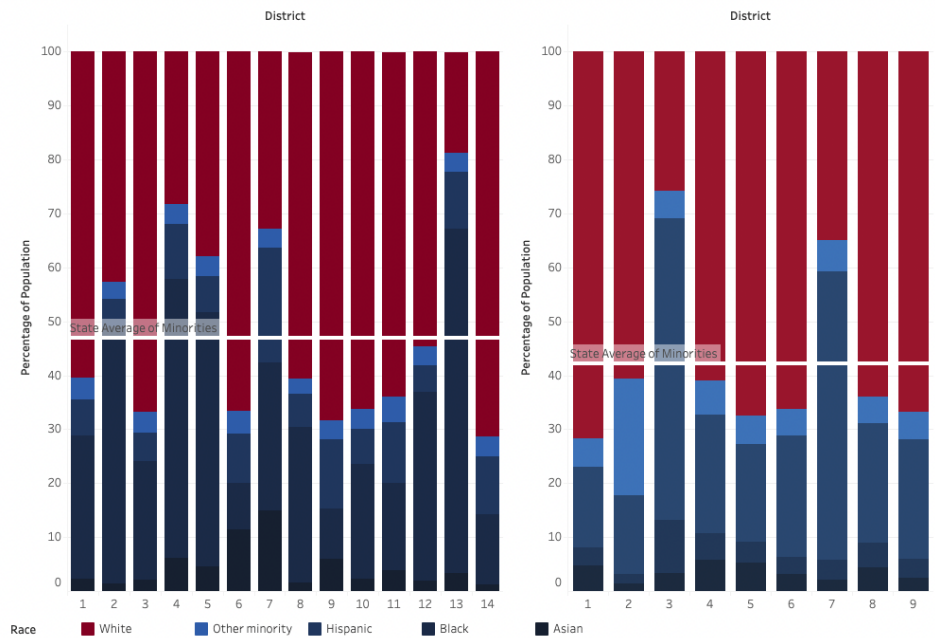
**Arizona** shows that while the median partisan district leaned more towards the Democratic party in old maps and the first proposal, through the process of going through multiple drafts, the final draft has a median partisan district whose leanings closely represented the entire state's partisan leanings.



Finally, we wanted to show how gerrymandering results in underrepresenting minorities in some states.

Georgia: 42% districts close to state average minority representation close if within 5%

Arizona: 55% districts close to state average minority representation close if within 5%



This visual illustrates that in Georgia, 42% of districts adequately represent minorities, whereas in Arizona that number jumps to 55%.

Overall, the comparisons between Georgia and Arizona help to illustrate the benefits of a bi-partisan process for drawing districts. Arizona has more fair, competitive elections, and better represents the voices of all their constituents.

### *The State of Voting in Georgia*

Restrictive voting bills and partisan gerrymandering are clearly bad for the integrity of American democracy. But how do these political acts impact everyday voters? To determine this, we looked specifically to Georgia, which turned into a battleground state during the 2020 election.

During the 2020 election, prior to the introduction of legislation that restrict voting rights, Georgia faced issues with equal access to polling locations. This unequal access often occurred across racial lines, with nonwhite Georgians waiting in longer lines at the polls. There are a few reasons underlying this unequal access:



Voter rolls have *grown* by nearly **2 million** people. Yet: Polling locations state-wide have been *cut* by **10%**



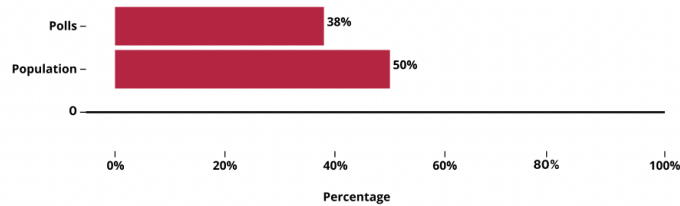
Growth fueled by nonwhite voters in the Atlanta area, where **4 out of 5** new voters are **nonwhite**



We then go on to explain what impact this change has: due to the growth in voter rolls and cut in polls, there is a discrepancy between the population percentage of metro

## Atlanta and the percentage of polling locations they have access to.

The growth in voter rolls, coupled with a reduction in polling locations, has had major impacts in Metro Atlanta, the states most populous region, which is a majority Black metro area. During the 2020 election, Metro Atlanta contained **50%** of the state's voters, but only **38%** of polling locations.



This discrepancy is largely due to increases in population. From 2010-2020, the population in metro Atlanta grew **16%**, outpacing the state's population growth of **11%**. This resulted in a **sharp increase** in the number of voters assigned to each poll.

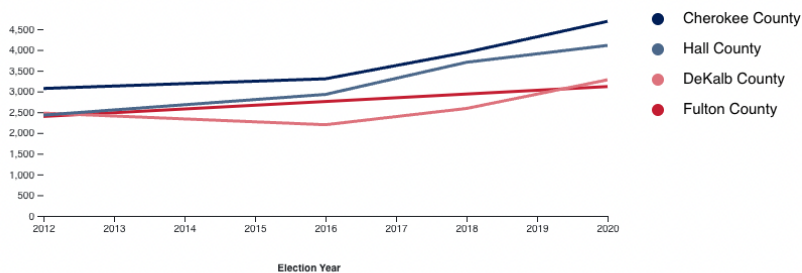
We then wanted to show a visualization of *just how much* the # of voters per polling location has grown in metro Atlanta, because it is staggering.

[Start Animation](#)

### Voters Per Polling Place in Georgia

Voter registrations in Metro Atlanta have **jumped** sharply. The number of polling places **hasn't** kept pace, resulting in **more** voters assigned to each polling place.

# of Voters per Polling Location



Next, we wanted to show *who* this increase was impacting. The people who were largely impacted by the increase in voters per polling location were nonwhite. This was extremely alarming to us, so we wanted to demonstrate the viewers just how large the discrepancy was between white and nonwhite voters. Nonwhite voters had to wait in line almost 8.5x longer than white voters, and we thought a clock was the best way to

symbolize this. This, we thought, was a good way to wrap up the current state of voting in Georgia (during the 2020 election, prior to the restrictive voting rights bill being enacted).

The increase in number of voters per polling location has primarily caused long lines in non-white neighborhoods.



**2/3** of polling locations that had to stay open late to accomodate long lines were in **majority black neighborhoods**

The state of voting in Georgia was already fairly bleak prior to the passing of restrictive voting rights legislation. There has not been another election since the bill's passing, but we wanted to show viewers the likely consequences of the restrictive legislation. First, we introduced the bill, with some choice quotes about how detrimental the bill is to nonwhite people, who are already facing barriers to voting in Georgia.



## *Despite these voting difficulties, Democrats still won the state of Georgia*

In Georgia, 73% of Democrats in the state are Black, and only 25% are white. Disenfranchising Black voters will disproportionately harm the Democratic party. In response to this Presidential loss, Georgia Republicans introduced new legislation, the **Election Integrity Act of 2021** which curbs voting access for many individuals, and disproportionately targets nonwhite voters.

### Election Integrity Act of 2021

“It is very clear what the Republican Party is up to. They are trying to make it **harder for some people to vote.**”  
-Sen. Raphael Warnock

“The 21st century **Jim Crow**”  
- Joe Biden

“Republicans want to make it harder for **people of color** to vote.”  
- Stacey Abrams

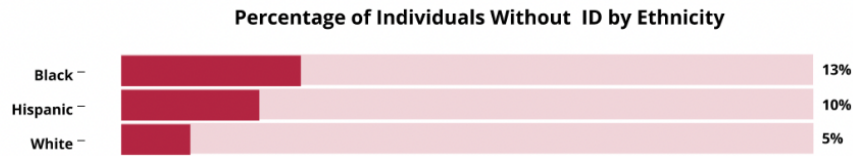
Next, we picked out three of the most alarming impacts that the Election Integrity Act will have on voters. We thought it was important to highlight for viewers what the impacts of this bill will be, and how it could disproportionately impact nonwhite voters.

The first visual shows the new restrictive ID requirements for absentee voters, and how that will disproportionately affect nonwhite voters. The second tells viewers about the long lines that Atlanta voters (who are majority nonwhite) face, and how they will now be denied access to friends/family bringing them food or water while they wait in lines up to 11 hours long.

*What does the Election Integrity Act do?*

1

All voters submitting an absentee ballot must provide one of the following forms of ID: drivers license number, state ID number, or voter ID



This will disproportionately impact Black and Hispanic voters, who are more than 2x as likely to lack the required ID compared to white voters.

2

During voting hours at polling locations, no one other than poll workers are allowed to pass out food or water to voters within 150 feet of the building or within 25 feet of the polling line.

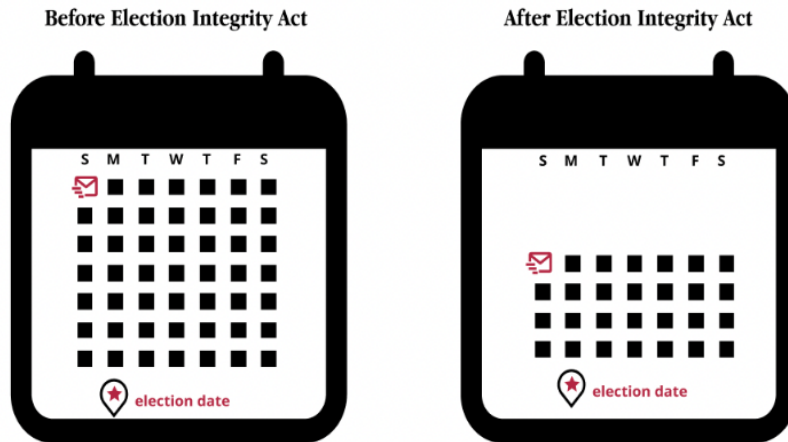


During the 2020 election, voters in Atlanta waited in line to vote for up to 11 hours. This bill would prevent friends and family from bringing them food and water while they wait.

The third visual shows viewers how much the absentee ballot window has shrunken. The calendars show a visual representation of the shrinking amount of time voters have to submit their absentee ballots.

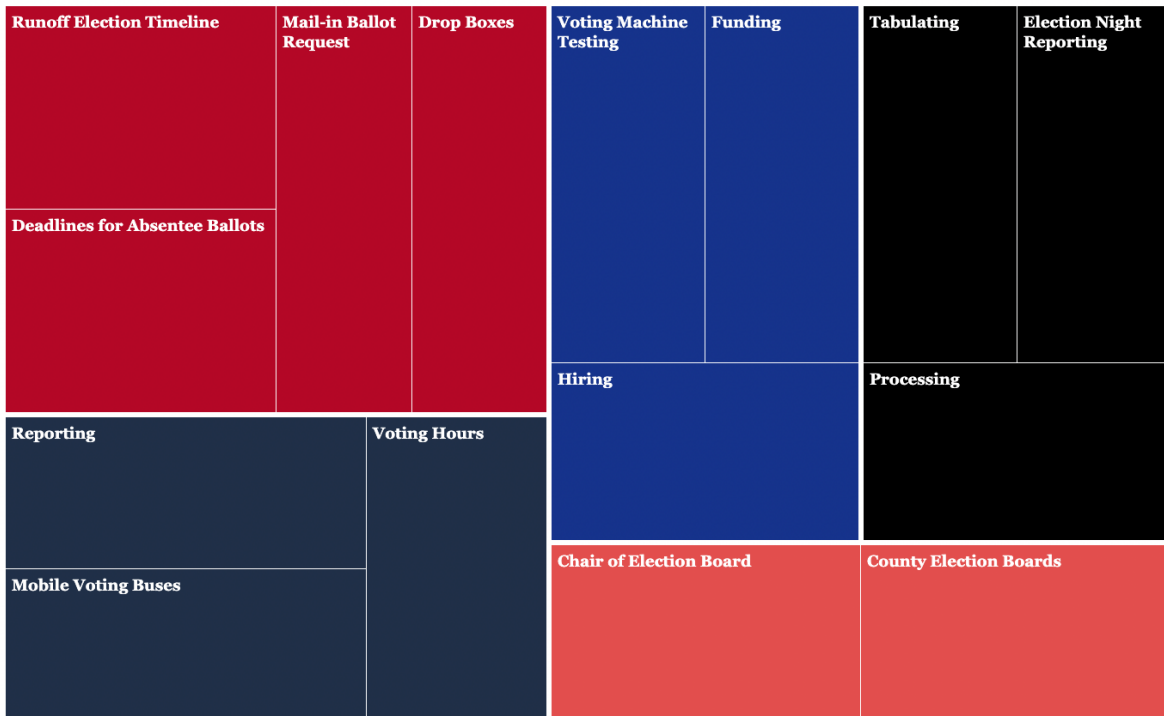
3

Counties will now mail out absentee ballots four weeks before the election, approximately three weeks later than before.



This will cut the amount of time that voters have to complete their absentee ballot **nearly in half**.

Finally, we wanted to give viewers a way to explore the bill more fully, so we created a treemap that contains what areas of voting are impacted (early voting, absentee voting, etc.), what the change is, and how it will impact voters.



In our last section, we wanted to end with a call to action. Ultimately, we were hoping to persuade viewers that partisan gerrymandering and restrictive voting rights bills are bad for the integrity of our democracy, so if they were persuaded, we wanted to provide a way for them to help. We found reputable sites where voters could donate money, volunteer, or even run for office. Ultimately, we hope viewers will be inspired to participate more in the democratic process because of this website!

## *How can you help?*

**Donate**

[The Brennan Center](#)

[CrowdPac](#)

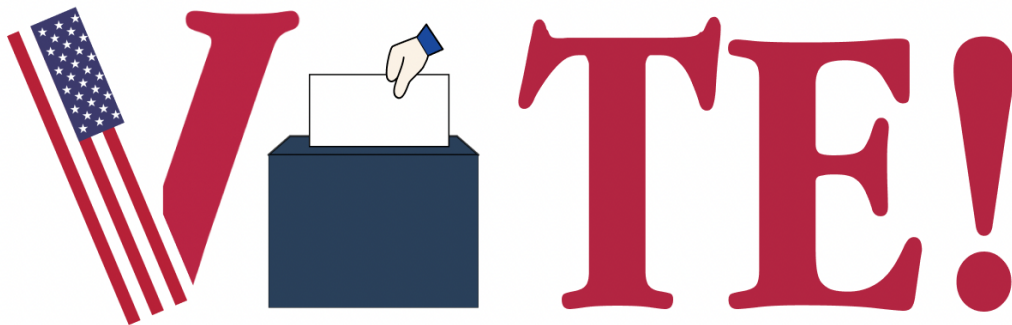
**Volunteer**

[Vote Save America](#)

**Run for Office**

[Run for Something](#)

*...and most importantly...*



## What Data was Used?

- [The Brennan Center for Justice](#). We used data from their appendices that detailed the names of bills that had been introduced and passed.
- An NPR article titled [“The clear and present danger of Trump’s enduring ‘Big Lie’](#). We used data from within the text that described Democrats and Republicans views on election integrity.
- A [United States Senate page](#) listing all the current sitting senators. This was used to develop a proxy for a state’s political leaning.
- [Github repository of polling places in the US](#) We used this repository specifically to do analysis on the number of voters per polling place in metro Atlanta from 2012 through to 2016.
- [Number of registered voters in Georgia](#) We procured the number of registered voters in counties in Metro Atlanta (DeKalb, Cherokee, Hall), and divided the number of registered voters by the number of polling locations in that county, to determine if the number of registered voters per polling location was increasing over the years.
- [NPR article, “Why do nonwhite Georgia voters have to wait in line for hours? Too few polling places”](#)). This piece contained data such as: wait times for white vs. nonwhite Georgians, growth in voter rolls, percentage of polling locations vs. percentage of population in Atlanta, and more.
- [Georgia Tech’s analysis of the Election Integrity Act of 2021](#). We used this data to describe the changes that the Election Integrity Act will have on voting access in Georgia, and how those changes will actually impact voters.
- [FiveThirtyEight collection of what redistricting looks like in every state](#) We used this data to show the demographics and partisan leanings of districts throughout various drafts of the redistricting process to illustrate and judge the fairness of the practice in two historically red-leaning states.

## Which Tools were Used?

The main tools that were used in this study included Tableau, Figma, and Observable - D3. Figma was used to create some of the engaging aesthetics of the website.

Additionally, Figma was used for several visualizations including graphs and pie-charts to enable a more seamless integration into the website. More complex tables and visualizations were created in Tableau and then incorporated into the website.

Visualizations with an element of animation were created in Observable using D3.

## Results

### Study 1

In order to assess the first draft of the website, a task-based usability interview was conducted.

The goals of this study were to understand how participants would interact with various elements on the website, and determine what changes could be made to help them find relevant information in a more organic and effortless way. To reach this understanding, each member conducted a moderated interview, which involved observing participants engage with the website as they attempted to complete a task, or find an answer to specific questions pertaining to the materials in visualizations. Participants were probed during the process to share more information about elements that stood out to them, and whether this information could be presented in a more effective way. Additionally, quantitative data points were collected. We measured whether the correct answer had been given to each question, and we also measured how long it took the participant to find that information. One metric was created, Attempts to Find (ATF) that showed how many elements were interacted with before the participants identified the correct one.

Because all of the interviews had been recorded via Zoom (with consent), we were able to go back and extract quotes and relevant information for each of the visualizations we had chosen to focus on. From these quotes and guided observations, we were able to synthesize the results and created a cohesive miro board to capture our most consistent findings. Please see Appendix B for raw notes from each session.



Q1:

- Some participants stated that they would have preferred to see a table or “Top ten” list.
- Would be interested in seeing whether each state was more typically democratic or republican, for the sake of noticing trends in the introduction of restrictive bills.

Q2:

- Difficult to notice and comprehend that Counties were from metro Atlanta, would be better to clarify in the title instead of (or in addition to) Georgia. Suggestion: “... Polling Places in Atlanta metro, Georgia.
- Visually difficult to distinguish between pink and red lines, which are also placed closely together.

Q3:

- Placement of the graph in the page as a whole could be improved, could be topically better suited closer to beginning materials.
- Bar graph is very visually similar to another visualization below: caused confusion because subject matter is not the same.
- Language is a bit too partisan



Q4:

- Filters were not intuitive to use. Suggested renaming labels to be a bit more clear.
- Title seemed very small compared to the visualization, making it bigger could be helpful.

Q5:

- Text seems particularly partisan
- Title from graph below the paragraph drew attention away from reading because of its' large size.
- Would be helpful to segment the sections a bit more, to facilitate focusing on each section one at a time.

Q6:

- Did not comprehend what was meant by "waiting \_\_\_ min on avg. after polls closed". Some additional information is needed to explain the metric, and what it is indicating.
- Initially interpreted that this showed the average time that people *waited* in line.

Q7:

- Would like more context, and to also see comparison for the number of black republicans to black democrats

Q8:

- Would have preferred to see this information shown as a line graph, especially due to its temporal nature.
- Would be nice to see a reference for what the "Ideal ratio of number of people per polling location should be"

Based on these observations, we were able to identify several ways that we could improve our website. This included the creation of tables, changing labels, and re-ordering the layout of the information.

## Study 2

To evaluate our final website, we administered a User Experience Questionnaire (UEQ) via a Qualtrics survey. We used a version of the UEQ (Laugwitz, Schrepp, & Held, 2008) designed to assess both classic usability aspects as well as user experience aspects to holistically assess the success of our website. The six constructs measured by the survey include:

- *Attractiveness*. Participants' overall impression of the website. Do they like or dislike it?
- *Perspicuity*. Is it easy to use the website and become familiar with how to use it?
- *Efficiency*. Can users quickly find the information they need without unnecessary effort?
- *Dependability*. Do users feel in control of their interactions, or does the website feel unpredictable and chaotic?
- *Stimulation*. Is the website exciting and motivating to use?
- *Novelty*. Is the design of the website eye-catching and creative? Does it generate the user's interest?

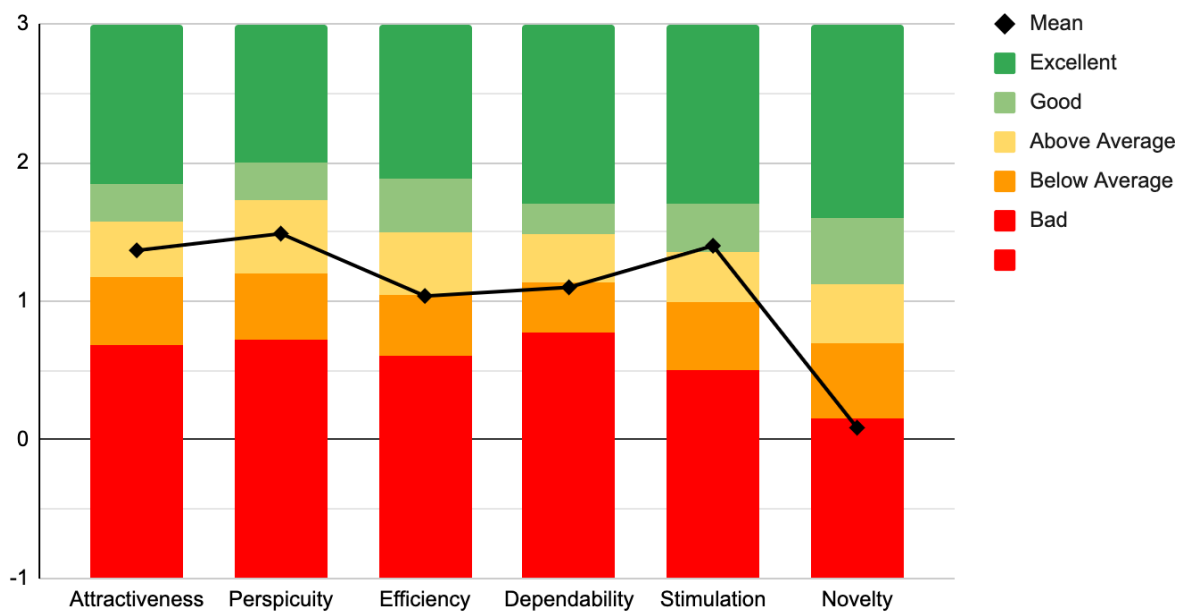
Participants were asked to take roughly 20 minutes to interact with the website in an unstructured fashion. Unlike in study one, we did not provide participants with specific information retrieval tasks to complete. Instead, we wanted to assess how participants felt about the product after interacting in a more organic fashion. Following their interaction with the site, participants completed a 26 item questionnaire based around the above constructs. Each item was presented as a seven point Likert style question. The anchors for each question were adjectives related to the above constructs. For example, with the “attractiveness “ subgroup, one question asked participants, “on a scale from annoying (1) to enjoyable (7), how would you rate the website you interacted with?”. Please see Appendix A for a full list of items employed in the UEQ.

20 participants completed the survey. Ages ranged from age 22 to 74. We had 8 male participants, 9 female participant, 1 transgender man, and 1 gender non-conforming participant. 1 participant chose not to disclose their gender.

Results were evaluated and split out to generate a mean for each of the six subgroups.

UEQ Scale	Mean	Variance
Attractiveness	1.367	1.00
Perspecuity	1.488	0.71
Efficiency	1.038	0.88
Dependability	1.100	0.63
Stimulation	1.400	0.81
Novelty	0.088	1.07

Our website received the highest score for perspicuity (mean = 1.488) and the lowest score for novelty (mean = .088). However, when evaluating the results from a UEQ, raw numbers do not tell the full story. Schrepp, Hinderks, and Thomaschewski (2017), developed benchmarks for each of the six subgroups, creating score bands for each that delineate between bad, below average, good, and excellent performance for a particular product. These benchmarks show us how good our evaluated product is compared to the products used in the authors training dataset. This information has been translated into a chart for easy interpretation.



Based on these results, we can see that our website performed “above average” in most categories, with exceptions including stimulation (good) and novelty (bad). These results suggest that while our website was easy to use, as well as fun and exciting, users did not find the product particularly creative. It is interesting to see such a sharp difference between categories like stimulation and novelty, since these subgroups seem intuitively related. If users find a product exciting and fun, one might presume they would also find it creative or novel. This difference may be explained by separating out design from content. While users may have been stimulated by the visual elements of the interface, they may have found the overall narrative and message rather boring or straightforward.

Overall, these results suggest an interface that satisfies users, but does not contain enough unique information to really engage user’s long term interest. Future development of our interface should focus on incorporating more elements that encourage interactivity, or incorporating analysis that surprises users in some way.

## Links

We created a website that holds all of the visualization and content that we created.

The final site can be found [here](#).

## Student Work Distribution

Student	Contribution
Austin	<ul style="list-style-type: none"> <li>● Created and modified github</li> <li>● Designed visual and wrote text about the events on January 6th</li> <li>● Created animation about legislation restricting voting rights</li> <li>● Designed elements to describe what has been driving change in voting access</li> <li>● Created Tableau map of Bill status</li> <li>● Created tables for states of highest number of anti-voting rights bill introduced and passed</li> <li>● Created visuals for bill passage by political affiliation, and for a comparison of frequency of bill introduction between 2021 and 2022</li> <li>● Created questions and script for Qualitative Usability Study</li> <li>● Conducted Qualitative Interview, analyzed results in live synthesis session</li> <li>● Created survey for User Experience Questionnaire, analyzed results</li> <li>● Wrote portions of the Final Paper</li> </ul>
Jess	<ul style="list-style-type: none"> <li>● Incorporated design elements into website</li> <li>● Inserted all text, Tableau, Observable, Figma, and .png elements into the website</li> <li>● Created section about the state of voting in Georgia</li> </ul>

	<ul style="list-style-type: none"> <li>● Performed analysis of growth of # of voters per polling site in Georgia</li> <li>● Designed visualization showing population growth by demographics</li> <li>● Showed how population growth affected access to polls, both through graph and animated line graph</li> <li>● Designed elements showing how majority black neighborhoods had longer wait times after polls closed</li> <li>● Created section and all visualizations explaining the Election Integrity Act</li> <li>● Created visualization about how Integrity act will impact voters</li> <li>● Created section for how individuals can help</li> <li>● Conducted Qualitative Interview, analyzed results in live synthesis session</li> <li>● Wrote portion of final paper</li> </ul>
Aiste	<ul style="list-style-type: none"> <li>● Created Section about the effects of gerrymandering on voting fairness</li> <li>● Created Tableau visualizations showing the efficiency gap between Georgia and Arizona</li> <li>● Created Tableau visualizations showing the differences in Median Seat between Georgia and Arizona</li> <li>● Created Pie chart showing the number competitive districts in GA and AZ</li> <li>● Created table displaying the minority representations of each districts</li> <li>● Conducted Qualitative interview, and analyzed results in synthesis session. Created Miro board to facilitate synthesis</li> <li>● Wrote portions of the Final Paper</li> <li>● Assisted with the analysis of UEQ survey</li> </ul>

## Appendix A

### UEQ Words and Subgroups

Item Number	Subgroup	Left (1) Word	Right (7) Word
1	Attractiveness	annoying	enjoyable
2	Perspicuity	not understandable	understandable
3	Novelty	creative	dull
4	Perspicuity	easy to learn	difficult to learn
5	Stimulation	valuable	inferior
6	Stimulation	boring	exciting
7	Stimulation	not interesting	interesting
8	Dependability	unpredictable	predictable
9	Efficiency	fast	slow
10	Novelty	inventive	conventional
11	Dependability	obstructive	supportive
12	Attractiveness	good	bad
13	Perspicuity	complicated	easy
14	Attractiveness	unlikable	pleasing
15	Novelty	usual	leading edge
16	Attractiveness	unpleasant	pleasant
17	Dependability	secure	not secure
18	Stimulation	motivating	demotivating
19	Dependability	meets expectations	does not meet expectations
20	Efficiency	inefficient	efficient
21	Perspicuity	clear	confusing
22	Efficiency	impractical	practical
23	Efficiency	organized	cluttered

24	Attractiveness	attractive	unattractive
25	Attractiveness	friendly	unfriendly
26	Novelty	conservative	innovative

## Appendix B

### Usability Interview Script and Notes

#### Session 1

##### *Details:*

<b>Session details:</b>	
<b>Date</b>	4/30/2022
<b>Time</b>	11:50
<b>Location: Zoom</b>	
<b>Facilitator</b>	Austin Biehl
<b>Participant details:</b>	
<b>Academic degree received</b>	Bachelors in Material Science, Masters in Science Teaching, PhD in Physical Chemistry
<b>Age</b>	74
<b>Gender</b>	Male
<b>Been part of usability studies before?</b>	No

##### *High level observations and task completion matrix:*

S.No.	Task	Task completed?	Observations
1	Which state introduced the highest number of anti-voting related bills in 2021?	Yes	1 ATF 1 minute, 11 seconds

2	Which county in Georgia has the lowest number of voters per polling location?	Yes	2 ATF 1 minute, 24 seconds
3	Would you expect more or less anti-voting rights legislation to be passed in 2022 compared to 2021? Why or why not?	Yes	2 ATF 36 seconds
4	How many states passed anti-voting rights legislation in 2021? Can you name them?	No	3 ATF 1 minute, 34 seconds
5	What was a potential cause for the surge of anti-voter legislation in 2021?	Yes	1 ATF 28.35 seconds
6	How long do voters wait in line to vote in majority White neighborhoods?	Yes	1 ATF 39 seconds
7	In Georgia, what percentage of Democratic voters are White? Black?	Yes	1 ATF 33 seconds
8	If you lived in the Atlanta Metro area, what changes over the past decade might make it more difficult to vote?	Yes	2 ATF 1 minute 39 seconds

**Memorable Quotes:**

- 

Script (Can fill this in as you go, but can also get it from the recording)

**Introduction:**

[Moderator]

Hello. Thank you for taking the time for this usability study today. I'm \_\_\_\_\_. I'm a \_\_\_\_\_ at Berkeley. I'll be moderating this session..



[Moderator]

Have you ever been part of a usability session before?

[Moderator]

During this session, we will be having you explore a website related to voting in America. Please keep in mind that throughout this we are only testing the software, not you, so just give your honest opinions and speak from your experience without any inhibitions. We are recording the session but it is solely only for our note-taking purposes. We value your candor. We may use some of what you say and do in our user research, but we will not attribute anything to you. So, most importantly, please speak your thoughts aloud, telling us what is interesting, confusing, frustrating, etc. This will greatly help us in improving the quality of our product.

If at any point you are uncomfortable with the contents of the test, please feel free to stop us and the session. If you get stuck, we will move on to the next task.

We may sometimes look away from you during the interview, but it's only to take notes. I look forward to the interview!

Any questions/comments before we proceed?

[Moderator]

Tell me a little bit about yourself. :

- Academic background/current program (if applicable): Bachelors in Material Science, Masters in Science teaching, PhD in Physical Chemistry
- Age: 74
- Gender? Male

[Moderator]

Let's get started!

**Intro questions:**

Are you someone that likes to follow politics?	Mild involvement in politics. Not involved with political action, but follow the actions, vote always, donate to candidates.
What are some of your favorite news sources to receive information about politics?	NYT, local newspaper (Everett Herald), podcasts (freakonomics, planet money, ezra klein)
In the past year, have you ever read (or otherwise consumed) information about voting rights in America	Nothing lengthy that comes to mind, issues about voting machines themselves. Access to voting in some states is being trimmed back by lowering the number of polls, shortening hours.

I am going to ask you to view a website on your computer. We'll paste the URL into the Zoom chat. Please copy it into your browser, and share your screen.

**URL:**  
<https://abiehl94.github.io/>

*The participant opens the Github website to view the website draft*

**1. Could you please tell me which state introduced the highest number of anti-voting related bills in 2021?**

Do you find what you are looking for? • Yes

*If after some time, the user does not see the answer, direct their attention to the choropleth.*

"Did you notice the map of the United States? Could that help you answer the question?"

Tell me about what you see, and how you understand it. • Visual with the bright red indicated that texas was the darkest color.

What stands out to you on this page? • This information was a long ways down.  
• The chart could be trimmed quite a bit. Trimming the graphic top and bottom would make it easier to get to the US

What would be the best way to inform you about the number of bills introduced in each state? • For me, a table would be the best way.  
• All the states listed in alphabetical order  
• Could put the number of bills in each state.  
• Scrolling out on the left and didn't know that it was possible to interact with the visual

Any general comments?	<ul style="list-style-type: none"> <li>• If I was looking for just that it was a long way down the page.</li> <li>• The line graph didn't add much to his knowledge.</li> </ul>
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**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**2. Which county in metro Atlanta has the lowest number of voters per polling location?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• Yes.</li> </ul>
---------------------------------------	--

*If after some time, the user does not see the answer, direct their attention to Jess's D3 animation*

"Did you notice the animated graph? Could that help you answer the question?"

Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• In each of the four counties, the number of voters per county are increasing, but for two of the counties it's increasing much faster</li> <li>• Would tell me that fewer services are being offered to the counties that are increasing</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>• The colors could be more distinctive. The two reds look really similar so it's hard to distinguish. More of a random.</li> </ul>
What would be the best way to inform you about polling availability in metro Atlanta?	<ul style="list-style-type: none"> <li>• The line graph could be compressed left to right so that the scroll bar wouldn't be necessary</li> <li>• There could be other factors. Just the number of people might not be telling the whole story. How does the WAY the polling is provided impact the number of voters</li> <li>• In Washington, if someone told me that they were cutting the number of polling locations in half I wouldn't care because everyone votes by mail</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• Compressing left to right could make the slopes more</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**3. Using the webpage, would you expect more or less anti-voting rights legislation to be passed in 2022 compared to 2021? Why or why not?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• Yes</li> </ul>
<p><i>If after some time, the user does not see the answer, direct their attention to the horizontal bar chart title "Bills introduced during..."</i></p> <p>"Did you notice the bar chart? Could that help you answer the question?"</p>	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• In January 2021, there were 75 bills and a year later there were 250 bills</li> <li>• This has become a campaign issue that Republicans feel they can distinguish themselves and keep the hype going that there's a big voting issue</li> <li>• Could compress the char again</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>•</li> </ul>
What would be the best way to inform you about the number of bills introduced in early 2021 vs early 2022?	<ul style="list-style-type: none"> <li>•</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>•</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**4. How many states passed anti-voting rights legislation in 2021? Can you name them?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• Not sure I did. Not confident it's the right answer</li> </ul>
<p><i>If after some time, the user does not see the answer, direct their attention to the chloropleth and associated filters</i></p> <p>"Did you notice the filters? Could that help you answer the question?"</p>	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• Up at the top it says passed, but the boxes just say #of bills introduced so it's not clear to me which is passed.</li> <li>• The chart alternates between Introduced and passed.</li> <li>• "Status of restrictive bills state by state" could be a better title</li> <li>• The labels for the boxes could be "Introduced" and "Passed"</li> </ul>

What stands out to you on this page?	•
What would be the best way to inform you which states passed anti-voting bills?	<ul style="list-style-type: none"> <li>• “I like this chart, I just don’t think the chart answers what the title”</li> <li>•</li> </ul>
Any general comments?	•

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**5. What was a potential cause for the surge of anti-voter legislation in 2021?**

Do you find what you are looking for?	• Yes
<i>If after some time, the user does not see the answer, direct their attention to the first paragraph under January 6th.</i>	
<i>"Do you think this might be something that could found in the text?"</i>	
Tell me about what you see, and how you understand it.	•
What stands out to you on this page?	<ul style="list-style-type: none"> <li>• The line chart doesn’t really add much for me.</li> <li>• “I don’t think anybody would have trouble believe that there’s a lot more voting issues going on</li> </ul>
What would be the best way to inform you about this potential cause?	<ul style="list-style-type: none"> <li>• “There’s no ‘why’ in terms of why they are using voting rights as a strategy”</li> <li>•</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• Do Trump and his allies believe that there’s a real problem, or have they decided just to make it an issue to draw people in.</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**6. How long do voters wait to vote after polls close in majority White neighborhoods?**

Do you find what you are looking for?	• Yes
---------------------------------------	-------

*If after some time, the user does not see the answer, direct their attention to the clocks.*

"What about looking at the clocks?"

Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"><li>•</li></ul>
What stands out to you on this page?	<ul style="list-style-type: none"><li>• Context on whether its normal to stay open</li><li>• This doesn't necessarily indicate overcrowding, it could just indicate that stuff closes at different times. Could just be timing?</li></ul>
What would be the best way to inform you about voting time in White vs Black neighborhoods?	<ul style="list-style-type: none"><li>•</li></ul>
Any general comments?	<ul style="list-style-type: none"><li>• I didn't know that polls remained open after they closed. That was unclear.</li><li>• Polls NEED to remain open 51 more minutes in black neighborhoods, but only needed to remain open 6 minutes extra in white neighborhoods.</li></ul>

### **Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

### **7. In Georgia, what percentage of Democratic voters are White? Black?**

Do you find what you are looking for?	<ul style="list-style-type: none"><li>• Yes</li></ul>
<i>If after some time, the user does not see the answer, direct their attention to the paragraph under "despite these voting difficulties"</i>	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"><li>• It was easy to find because the word "Democrat" was displayed prominently right next to Georgia</li></ul>
What stands out to you on this page?	<ul style="list-style-type: none"><li>•</li></ul>
What would be the best way to inform you about voter demographics in Georgia?	<ul style="list-style-type: none"><li>• Pie chart would do the same thing and maybe be a bit more eye catching. A pie-chart for Republicans right next to a pie chart for republicans.</li></ul>

Any general comments?	<ul style="list-style-type: none"> <li>• This doesn't tell me anything about the demographics of the state or the demographics of the republican party.</li> <li>• Having two pie charts next to each other would help make this contrast</li> <li>• What if Georgia was 75% black?</li> </ul>
-----------------------	--

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**8. If you lived in the Atlanta Metro area, what changes over the past decade might make it more difficult to vote?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>•</li> </ul>
<p><i>If after some time, the user does not see the answer, direct their attention the beginning of Jess's section</i></p> <p>"Did you notice the 16% vs 11% growth rates?"</p>	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• "They map shows me that one party is pushing really hard to pass legislation, but since only one passed it makes me think that the majority party isn't letting it happen"</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>• The paragraph about Atlanta's growth is clear. I'd be worried about Atlanta not being representative.</li> </ul>
What would be the best way to inform you about the population growth in various areas of the Atlanta metro?	<ul style="list-style-type: none"> <li>•</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• With the 16%, the actual number of people might be important</li> <li>• The counties in the d3 graph should be clearer that they are part of metro atlanta</li> <li>• What kind of polling would HELP non-white voters?</li> <li>• Contextualizing the "had to stay open"</li> <li>• Telling a more individual story about having to wait in line.</li> </ul>

### Questions and comments

Do you have any other questions, comments or feedback?

Thank you for your time today. This was extremely helpful. If you have further thoughts or ideas, please contact me via email!

Thanks again! Have a nice day!

## Session 2

### *Details:*

<b>Session details:</b>	
<b>Date</b>	4/30
<b>Time</b>	5:00pm
<b>Location:</b>	<b>Zoom</b>
<b>Facilitator</b>	Jessica Ingle
<b>Participant details:</b>	
<b>Academic degree received</b>	<b>Bachelors Degree</b>
<b>Age</b>	27
<b>Gender</b>	<b>Male</b>
<b>Been part of usability studies before?</b>	<b>Yes</b>

### *High level observations and task completion matrix:*

S.No.	Task	Task	Observations
-------	------	------	--------------



		<b>completed?</b>	
1	Which state introduced the highest number of anti-voting related bills in 2021?	<b>yes</b>	All observations below
2	Which county in Georgia has the lowest number of voters per polling location?	<b>yes</b>	
3	Would you expect more or less anti-voting rights legislation to be passed in 2022 compared to 2021? Why or why not?	<b>no</b>	
4	How many states passed anti-voting rights legislation in 2021? Can you name them?	<b>no</b>	
5	What was a potential cause for the surge of anti-voter legislation in 2021?	<b>yes</b>	
6	How long do voters wait in line to vote in majority White neighborhoods?	<b>yes</b>	
7	In Georgia, what percentage of Democratic voters are White? Black?	<b>yes</b>	
8	If you lived in the Atlanta Metro area, what changes over the past decade might make it more difficult to vote?	<b>no</b>	

*Memorable Quotes:*

- 

Script (Can fill this in as you go, but can also get it from the recording)

**Introduction:**

[Moderator]

Hello. Thank you for taking the time for this usability study today. I'm \_\_\_\_\_. I'm a \_\_\_\_\_ at Berkeley. I'll be moderating this session..

[Moderator]

Have you ever been part of a usability session before?

[Moderator]

During this session, we will be having you explore a website related to voting in America. Please keep in mind that throughout this we are only testing the software, not you, so just give your honest opinions and speak from your experience without any inhibitions. We are recording the session but it is solely only for our note-taking purposes. We value your candor. We may use some of what you say and do in our user research, but we will not attribute anything to you. So, most importantly, please speak your thoughts aloud, telling us what is interesting, confusing, frustrating, etc. This will greatly help us in improving the quality of our product.

If at any point you are uncomfortable with the contents of the test, please feel free to stop us and the session. If you get stuck, we will move on to the next task.

We may sometimes look away from you during the interview, but it's only to take notes. I look forward to the interview!

Any questions/comments before we proceed?

[Moderator]

Tell me a little bit about yourself. :

- Academic background/current program (if applicable):
- Age:
- Gender?

[Moderator]

Let's get started!

Intro questions:

Are you someone that likes to follow politics?	yes
What are some of your favorite news sources to receive information about politics?	Axios, reuters
In the past year, have you ever read (or otherwise consumed) information about voting rights in America	yes

I am going to ask you to view a website on your computer. We'll paste the URL into the Zoom chat. Please copy it into your browser, and share your screen.

**URL:**  
<https://abiehl94.github.io/>

*The participant opens the Github website to view the website draft*

**1. Could you please tell me which state introduced the highest number of anti-voting related bills in 2021?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• 1 ATF, 1 minute</li> </ul>
<i>If after some time, the user does not see the answer, direct their attention to the chloropleth.</i>	
"Did you notice the map of the United States? Could that help you answer the question?"	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• Every state except for vermont introduced legislation for whatever reason</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>• "</li> </ul>
What would be the best way to inform you about the the number of bills introduced in each state?	<ul style="list-style-type: none"> <li>• A lot of reading about each states voting records</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• Its a well designed map that makes it interesting to observe what states introduce the most amount of legislation, clear and easy to get that info</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**2. Which county in metro Atlanta has the lowest number of voters per polling location?**

Do you find what you are looking for?

- 2 ATF, 35 seconds, correct

*If after some time, the user does not see the answer, direct their attention to Jess's D3 animation*

"Did you notice the animated graph? Could that help you answer the question?"

Tell me about what you see, and how you understand it.

- Above there was text that explained the situation in georgia, less resources to do the same task and now in fulton county has least amount of polls available

What stands out to you on this page?

- Nothing in particular that isnt related to the question

What would be the best way to inform you about polling availability in metro Atlanta?

- Google searches to find websites like this

Any general comments?

- Would be helpful to explain that metro atlanta comprises these counties

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**3. Would you expect more or less anti-voting rights legislation to be passed in 2022 compared to 2021? Why or why not?**

Do you find what you are looking for?

- Hard to say until results of midterm election, based on current trends you could argue more (did not complete task)- found answer after prompting 3 ATF, 2 minutes

*If after some time, the user does not see the answer, direct their attention to the horizontal bar chart title "Bills introduced during..."*

"Did you notice the bar chart? Could that help you answer the question?"

Tell me about what you see, and how you understand it.

- Clear and concise breakdown about how state legislators have introduced all over the country that have eroded the availability of voting by introducing more ID

	requirements, how this will affect future voting rights
What stands out to you on this page?	<ul style="list-style-type: none"> <li>Nothing in particular, clear and concise info broken down paragraph by paragraph, not eye catching, standard for what it is and should be</li> </ul>
What would be the best way to inform you about the number of bills introduced in early 2021 vs early 2022?	<ul style="list-style-type: none"> <li>Consumption of online media– long form piece rather than an infographic</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>Nom paper6 seems relatively partisan skewed towards democratic explanation of jan 6</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**4. How many states passed anti-voting rights legislation in 2021? Can you name them?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>All but vermont (did not notice filters or complete task)-- did not really get the question (10 seconds), 1 ATF</li> </ul>
<i>If after some time, the user does not see the answer, direct their attention to the chloropleth and associated filters</i>	
"Did you notice the filters? Could that help you answer the question?"	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>Using filter see which have passed voting restriction bills vs. which havent</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>Nothing but info stated info</li> </ul>
What would be the best way to inform you which states passed anti-voting bills?	<ul style="list-style-type: none"> <li>Long form text that informs me of what states did what when and how they did it, and he supposes infographics like this</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>no</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**5. What was a potential cause for the surge of anti-voter legislation in 2021?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• Mentioned the pandemic in the first paragraph– so got it, did not scroll just remembered, 10 seconds, 2 ATF</li> </ul>
<p><i>If after some time, the user does not see the answer, direct their attention to the first paragraph under January 6th.</i></p> <p>"Do you think this might be something that could found in the text?"</p>	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• See your paragraph that states your understanding of how jan 6th insurrection led to a purported attack on voting rights</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>• A very funny photo of the white house on fire</li> </ul>
What would be the best way to inform you about this potential cause?	<ul style="list-style-type: none"> <li>• Long form articles not written by th eNY times</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• Text will come across as excessively anti-republican and needs more citations to make it appear less biased</li> </ul>

### **Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

### **6. How long do voters wait in line to vote in majority White neighborhoods?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• 1 ATF,, 13 seconds, completed task</li> </ul>
<p><i>If after some time, the user does not see the answer, direct their attention to the clocks.</i></p> <p>"What about looking at the clocks?"</p>	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• See the same thing, being explained points very clearly, not messy in terms of info</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>• The cute infographics that tell me how many minutes people waited</li> </ul>
What would be the best way to inform you about voting time in White vs Black neighborhoods?	<ul style="list-style-type: none"> <li>• Long form articles vs. infographics</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• no</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**7. In Georgia, what percentage of Democratic voters are White? Black?**

Do you find what you are looking for?

- 30 seconds, 2 ATF, accomplished task

*If after some time, the user does not see the answer, direct their attention to the paragraph under “despite these voting difficulties”*

Tell me about what you see, and how you understand it.

- Information states the percentage of democratic voters and race

What stands out to you on this page?

- Very little except for text

What would be the best way to inform you about voter demographics in Georgia?

- Statistics that are compiled more like a line or bar graph

Any general comments?

- no

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**8. If you lived in the Atlanta Metro area, what changes over the past decade might make it more difficult to vote?**

Do you find what you are looking for?

- Population g 36 seconds, 1 ATF

*If after some time, the user does not see the answer, direct their attention the beginning of Jess’s section “Did you notice the 16% vs 11% growth rates?”*

Tell me about what you see, and how you understand it.

- Didnt really get it but remembered it from before

What stands out to you on this page?

- nothing

What would be the best way to inform you about the population growth in various areas of the Atlanta metro?	<ul style="list-style-type: none"> <li>• Breaking down each metro district by county probably also by median income and annual increase in population per year</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• no</li> </ul>

Questions and comments	
Do you have any other questions, comments or feedback?	no
<p>Thank you for your time today. This was extremely helpful. If you have further thoughts or ideas, please contact me via email!</p> <p>Thanks again! Have a nice day!</p>	

### Session 3

#### *Details:*

<b>Session details:</b>	
<b>Date:</b>	4/30/22
<b>Time:</b>	12:15 Pm
<b>Location: Zoom</b>	
<b>Facilitator</b>	Aiste
<b>Participant details:</b> Currently attending graduate school for Physical Therapy, while also working part time as a personal trainer.	



<b>Academic degree received</b>	Bachelor's Degree (of Science)
<b>Age</b>	27
<b>Gender</b>	Female
<b>Been part of usability studies before?</b>	No

*High level observations and task completion matrix:*

<b>S.No.</b>	<b>Task</b>	<b>Task completed?</b>	<b>Observations</b>
1	Which state introduced the highest number of anti-voting related bills in 2021?	Yes	1 attempts to find (atf) 30 seconds,
2	Which county in Georgia has the lowest number of voters per polling location?	Yes	3 click 2 minute, 14 seconds
3	Would you expect more or less anti-voting rights legislation to be passed in 2022 compared to 2021? Why or why not?	No	4 (atf) 56 seconds
4	How many states passed anti-voting rights legislation in 2021? Can you name them?	Yes	4 (atf) 2 minute, 18 seconds
5	What was a potential cause for the surge of anti-voter legislation in 2021?	Yes	1 (atf) 46 seconds
6	How long do voters wait in line to vote in majority White neighborhoods?	Yes	2 (atf) 1 min, 6 seconds
7	In Georgia, what percentage of Democratic voters are White? Black?	Yes	1 (atf) 22 seconds
8	If you lived in the Atlanta Metro area, what changes over the past decade might make it more difficult to vote?	No	3 (atf) 2 minute 4 seconds

*Memorable Quotes:*

- 

Script (Can fill this in as you go, but can also get it from the recording)

**Introduction:**

[Moderator]

Hello. Thank you for taking the time for this usability study today. I'm \_\_\_\_\_. I'm a \_\_\_\_\_ at Berkeley. I'll be moderating this session..

[Moderator]

Have you ever been part of a usability session before?

[Moderator]

During this session, we will be having you explore a website related to voting in America. Please keep in mind that throughout this we are only testing the software, not you, so just give your honest opinions and speak from your experience without any inhibitions. We are recording the session but it is solely only for our note-taking purposes. We value your candor. We may use some of what you say and do in our user research, but we will not attribute anything to you. So, most importantly, please speak your thoughts aloud, telling us what is interesting, confusing, frustrating, etc. This will greatly help us in improving the quality of our product.

If at any point you are uncomfortable with the contents of the test, please feel free to stop us and the session. If you get stuck, we will move on to the next task.

We may sometimes look away from you during the interview, but it's only to take notes. I look forward to the interview!

Any questions/comments before we proceed?

[Moderator]

Tell me a little bit about yourself. : **French citizen, schooled in the US. Active hobbies**

- Academic background/current program (if applicable): Kinesiology Undergraduate, currently at Drexel pursuing PhD in Physical Therapy.
- Age: 27
- Gender: Female

[Moderator]

Let's get started!

Intro questions:

Are you someone that likes to follow politics?	Yes. Identify as a Democrat, vote Independent. Historically vote democrat. Keep up with the news, kind of familiar with party policies. Vote internationally.
What are some of your favorite news sources to receive information about politics?	Get news from independent news sources. Washington Post, NYT, Fox news (just to see what they're saying). Gather from multiple sources.
In the past year, have you ever read (or otherwise consumed) information about voting rights in America	Think so, who's allowed to vote. Generally, but haven't kept up with most recent policy changes. Voting rights for incarcerated individuals (should they be allowed to vote).

I am going to ask you to view a website on your computer. We'll paste the URL into the Zoom chat. Please copy it into your browser, and share your screen.

**URL:**  
<https://abiehl94.github.io/>

*The participant opens the Github website to view the website draft*

**1. Could you please tell me which state introduced the highest number of anti-voting related bills in 2021?**

Do you find what you are looking for?

- Yes

*If after some time, the user does not see the answer, direct their attention to the chloropleth.*

"Did you notice the map of the United States? Could that help you answer the question?"

Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"><li>● On this map. Hovering over states gives info, there is</li></ul>
What stands out to you on this page?	<ul style="list-style-type: none"><li>● It's simplicity, it's color, easily attracted my attention. The colors. Looked at the the key and Title first, darker color was most, then picked Texas because darkest.</li></ul>
What would be the best way to inform you about the the number of bills introduced in each state?	<ul style="list-style-type: none"><li>● I'd like a list of top-ten states (number 1 - texas, etc).</li><li>● Probably a list of all states available if I wanted it.</li></ul>
Any general comments?	<ul style="list-style-type: none"><li>● Like that it's easy to use. Fool proof in a way, i can get more info by hoovering over a state. Could see trends (party lines).</li><li>● Might be interesting to see if there are any states that are typically blue but introduce a lot of bills. Good additional information.</li></ul>

### **Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

## **2. Which county in metro Atlanta has the lowest number of voters per polling location?**

Do you find what you are looking for?	<ul style="list-style-type: none"><li>● <b>**NOT</b> initially, did <b>NOT</b> show up in Safari.</li><li>● Fulton County</li></ul>
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*If after some time, the user does not see the answer, direct their attention to Jess's D3 animation*

"Did you notice the animated graph? Could that help you answer the question?"

Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"><li>● Tally of voters over the years. Fulton has the lowest number of voters throughout all of the years.</li><li>● Colors coordinate with the keys</li><li>● Y-axis is number of</li><li>● Animation- nice to see, but can understand without, more interactive.</li></ul>
What stands out to you on this page?	<ul style="list-style-type: none"><li>● The graph itself, nice to have something to look at rather than reading it.</li></ul>

	<ul style="list-style-type: none"> <li>• Nice big title that tells me what I am looking for.</li> <li>• Blurb about what it means, actual number.</li> </ul>
What would be the best way to inform you about polling availability in metro Atlanta?	<ul style="list-style-type: none"> <li>• This graph is helpful, I like tables where columns are used.</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>•</li> </ul>

### Have them scroll back to the top of the page

*The participant opens the Github website to view the website draft*

### 3. Would you expect more or less anti-voting rights legislation to be passed in 2022 compared to 2021? Why or why not?

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• Gussed yes, but based it on the paragraph text.</li> <li>• Cited graph "The big lie". Gussed continuity of trajectory.</li> </ul>
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*If after some time, the user does not see the answer, direct their attention to the horizontal bar chart title "Bills introduced during..."*

"Did you notice the bar chart? Could that help you answer the question?"

Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• See three times more in 2022.</li> <li>• Big graph prohibit further scrolling down, deviating from the content above.</li> <li>• Better to have graphs that are broken down by year together. Then all states, then atlanta</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>•</li> </ul>
What would be the best way to inform you about the number of bills introduced in early 2021 vs early 2022?	<ul style="list-style-type: none"> <li>• I like the bar graph, attracts my eye. Short blurb pulls me in after seeing the bar graph.</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• Graph below looks very similar, confusing because they are not related or talking about the same information. Would be better to separate.</li> <li>• Blurb on the side should be more similar in style.</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**4. How many states passed anti-voting rights legislation in 2021? Can you name them?**

Do you find what you are looking for?

- Yes

*If after some time, the user does not see the answer, direct their attention to the chloropleth and associated filters*  
"Did you notice the filters? Could that help you answer the question?"

Tell me about what you see, and how you understand it.

- First read paragraph above. Skimmed info
- Say map with all filters, seemed like every states passed a bill. Title clued into that this wasn't passed, then found filters.

What stands out to you on this page?

- Filters worked, grayed out states that did not pass.
- Adjustment of color key "throws me off" a bit, did not notice till pointed out. A bit confusing.

What would be the best way to inform you which states passed anti-voting bills?

- Table
- "Like that this is interactive, but I messed it up. In a Table I would find what i'm looking for easier. "

Any general comments?

- Had I read more closely I would've found it sooner.

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**5. What was a potential cause for the surge of anti-voter legislation in 2021?**

Do you find what you are looking for?

- Yes.

*If after some time, the user does not see the answer, direct their attention to the first paragraph under January 6th.*  
"Do you think this might be something that could found in the text?"

Tell me about what you see, and how you understand it.

- Covid-19, Big lie, trumpists had huge issues with voting changes.

What stands out to you on this page?

- Big underlined Title. What threw me off whas the title being below the paragraph.

What would be the best way to inform you about this potential cause?	<ul style="list-style-type: none"> <li>• The way it is good. Immediately define what the big lie is</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>•</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**6. How long do voters wait in line to vote in majority White neighborhoods?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• Yes</li> </ul>
<i>If after some time, the user does not see the answer, direct their attention to the clocks.</i>	
<i>"What about looking at the clocks?"</i>	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>• I like that it splits it up between white/non-white neighborhoods.</li> <li>• Clock corresponds with amount of time.</li> <li>• Also in big red letters underneath.</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>• Banner underneath, related. Majority black neighborhoods.</li> </ul>
What would be the best way to inform you about voting time in White vs Black neighborhoods?	<ul style="list-style-type: none"> <li>• This is nice</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>• no</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**7. In Georgia, what percentage of Democratic voters are White? Black?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>• Yes</li> </ul>
<i>If after some time, the user does not see the answer, direct their attention to the paragraph under "despite these voting difficulties"</i>	

Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>Title caught my eye, then text informed further.</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>Title. Nothing else. Election integrity act, elaborated on further.</li> </ul>
What would be the best way to inform you about voter demographics in Georgia?	<ul style="list-style-type: none"> <li>A map, with hovering over democrat vs republican demographics.</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>no</li> </ul>

**Have them scroll back to the top of the page**

*The participant opens the Github website to view the website draft*

**8. If you lived in the Atlanta Metro area, what changes over the past decade might make it more difficult to vote?**

Do you find what you are looking for?	<ul style="list-style-type: none"> <li>Kinda, Looked at graphs</li> </ul>
<i>If after some time, the user does not see the answer, direct their attention the beginning of Jess's section "Did you notice the 16% vs 11% growth rates?"</i>	
Tell me about what you see, and how you understand it.	<ul style="list-style-type: none"> <li>With both, we can see that area grew sharply. Only so many polling stations available.</li> </ul>
What stands out to you on this page?	<ul style="list-style-type: none"> <li>Percentages in red, italicized sharp increases.</li> <li>Graph easy to interpret</li> </ul>
What would be the best way to inform you about the population growth in various areas of the Atlanta metro?	<ul style="list-style-type: none"> <li>Line graph for population growth, because it is a time graph. Would like to see how much it incrementally increased.</li> <li>Separate line for how many polls are available</li> <li>Blurb saying how many polls should be available for given population.</li> </ul>
Any general comments?	<ul style="list-style-type: none"> <li>no</li> </ul>



### Questions and comments

Do you have any other questions, comments or feedback?

Thank you for your time today. This was extremely helpful. If you have further thoughts or ideas, please contact me via email!

Thanks again! Have a nice day!