Introduction

The Great Recession caused a downturn in America's economy and the lives of the American people, in return costing the Republican Party the 2008 Presidential election.We have created several visualizations to portray the votes from 2004 and 2008 and some factors from the Great Recession that affected the election such as unemployment and voting rates of different demographics over time.

Design Description

The variables chosen for the 2004 and 2008 choropleth maps were democratic and republican electoral and popular votes from both years respectively to the candidates of the two presidential elections and the percentage of votes for each candidate in each state. Using these variables allowed us to create an election map that distinguishes the states into Democratic and Republican parties, and having the two election maps one after another, we are able to analyze the two elections and see how opinions of American voters changed over the course of four years. These maps contribute to the overall storytelling and support the discussion of the Great Recession hurting the Republican party and affecting the outcome of the 2008 presidential election. We chose a choropleth map to represent the election outcomes because we are able to identify each state with colors. Having two specific colors not only allows users to clearly see the differences in what candidate states favor, but they are also able to match the color to the variable type, in this case the Democratic and Republican party, by identifying the blue states as Democratic and red as Republican, as these colors are widely known to represent the respective parties. However, users may have questions about how many votes there were specifically for each state, so we included the specific data from the variables we used, the popular vote count for each state, which is shown as summary statistics when the mouse is hovered over each state. This way, users are able to understand how the votes were distributed among the states and analyze the election results using this data. We included the percentage of votes for each candidate in order to make it easier for users to understand the difference in votes clearer. If we only had the raw popular vote data, then it may be hard for users to distinguish the ratio of how many people voted for which candidate and may come to inaccurate conclusions. For example, it is easier to understand that 54.4% of California voters voted for John Kerry in the 2004 election rather than 6,737,355 votes versus the 5,501,496 that voted for George W. Bush. In addition to the choropleth map, we included a single data bar to display the electoral votes. This is important to show the users because popular vote does not simply determine the election, but the electoral votes do, so providing accurate and detailed data of the election is crucial especially when users may make certain observations and conclusions based off of our visualizations. Similarly to the choropleth election map, we divided the data bar with the Democratic and Republican colors so that users will be able to correlate the blue states to the Democratic electoral votes and red states to the Republican electoral votes and be able observe and analyze the maps and data bar between the two elections and understand why there was a big difference through our story.

The variables chosen for the line graph were reported voting and registration by race obtained from the United States Census Bureau. We have cleaned up the original data file from the census because it was in unsuitable format with unnecessary data. Selecting these variables allowed us to create a line graph of the voting rate among White, Non-Hispanic White, Asian,

Black, and Hispanic. The line graph was chosen because it not only shows voting rate trends over time but also makes it easier to see the difference in the voting rate of each race group. In addition, the filtering option to select/deselect specific race groups to make a corresponding line appear/disappear allows users to narrow down to a smaller set of data as needed. We have chosen to use a qualitative palette for the color scheme to assign a distinct color to each race group. While too much difference might give a misleading idea that some colors are more important than others, using schemeCategory10 helps us to avoid having two colors with the same hue but different lightness and saturation to make each group distinguishable. Below is the portion of original census and cleaned-up version of the data.

demography

Year	Total_population	Race	Citizen_population
1996	193651	White	59.6
1996	193651	White non-Hispanic	60.7
1996	193651	Black	53
1996	193651	Asian	45
1996	193651	Hispanic	44

Year	Total voting-age population	Total percent		White		White non-Hispanic		Black		Asian[1]		Hispanic (of any race)		Total Population	
		Total population	Citizen population	Total population	Citizen population	Total population	Citizen population	Total population	Citizen population	Total population	Citizen population	Total population	Citizen population	Male	Female
Voted															
2018	249,748	49.0	53.4	51.1	55.0	56.5	57.5	48.0	51.1	28.9	40.6	28.5	40.4	47.2	50.6
2016	245,502	56.0	61.4	58.2	62.9	64.1	65.3	55.9	59.4	33.9	49.0	32.5	47.6	53.8	58.1
2014	239,874	38.5	41.9	40.3	43.4	45.0	45.8	37.3	39.7	19.1	27.1	18.4	27.0	37.2	39.6
2012	235,248	56.5	61.8	57.6	62.2	63	64.1	62.0	66.2	31.3	47.3	31.8	48.0	54.4	58.5
2010	229,690	41.8	45.5	43.4	46.7	47.8	48.6	40.7	43.5	21.3	30.8	20.5	31.2	40.9	42.7
2008	225,499	58.2	63.6	59.6	64.4	64.8	66.1	60.8	64.7	32.1	47.6	31.6	49.9	55.7	60.4
2006	220,603	43.6	47.8	45.8	49.7	50.5	51.6	38.6	41.0	21.8	32.4	19.3	32.3	42.4	44.7

The variables chosen for the bivariate choropleth map were democratic and republican votes from 2004 and 2008. By choosing these particular variables, we could create a color-coded map to help users with the task of finding extremum in percent difference of votes per state and county between 2004 and 2008. We believe that using a sequential monochromatic color ramp for both party categories would help users in the process of identifying the change in voter turnout for each party. We found a bivariate choropleth map works well with the color ramp chosen since the map makes the task of browsing fairly easy. One would need to simply glance at each state or county to see the change in voter turnout instead of committing to a search which would require knowing a particular state or county name. In addition, the red and blue hues provided an effective congruence as the color scheme matched with the standard blue and red party affiliation for democrats and republicans, respectively, and the data used also matches the topic of discussion.

The variables chosen for the unemployment choropleth map were the county and unemployment rate. The choropleth map was chosen because it helps our audience view the map at the macro level and understand how hard some of the states overall were hit by the recession. The audience can also view the map at the micro-level to see how this affected the voter turnout in each county. This is shown effectively using a decrease in chroma with a blue hue from the high 10% unemployment rates down to 0%. In addition, hovering over a specific county will show the summary statistics of the percentage of votes for McCain and the percentage of votes for Obama, and this allows the audience to see the relationship between unemployment rate and the percentage of votes for each candidate and correlate how overall counties that were hit hard by unemployment tended to vote for Obama than McCain. Below is a small portion of the table containing the unemployment data.

CountyFIPS	StateFIPS	County Name/State Abbreviation	Year	Labor Force	Employed	Unemployed	UnemploymentRate
1001	1	Autauga County, AL	2008	24,687	23,420	1,267	5.1
1003	1	Baldwin County, AL	2008	83,223	79,372	3,851	4.6
1005	1	Barbour County, AL	2008	10,161	9,267	894	8.8
1007	1	Bibb County, AL	2008	8,749	8,241	508	5.8
1009	1	Blount County, AL	2008	26,698	25,453	1,245	4.7
1011	1	Bullock County, AL	2008	3,634	3,251	383	10.5
1013	1	Butler County, AL	2008	9,051	8,278	773	8.5
1015	1	Calhoun County, AL	2008	54,564	51,468	3,096	5.7
1017	1	Chambers County, AL	2008	15,012	12,848	2,164	14.4

Samuel Gamage

- Implement scroller.js, section.js, and util.js
- Contribute to implementing votingRate.js, election.js, and difference.js
- Record video

Yeajin Shin:

- Find data file for voting rate
- Implement choropleth.js
- Contribute to implementing votingRate.js and election.js
- Write-up

Hannah Kim

- Contribute to implementing difference.js
- Write video script & story for each map
- Write-up

Isaac King

- Find data file for unemployment rate
- Write-up

Link to video: https://youtu.be/2kJVKgJ3fkE