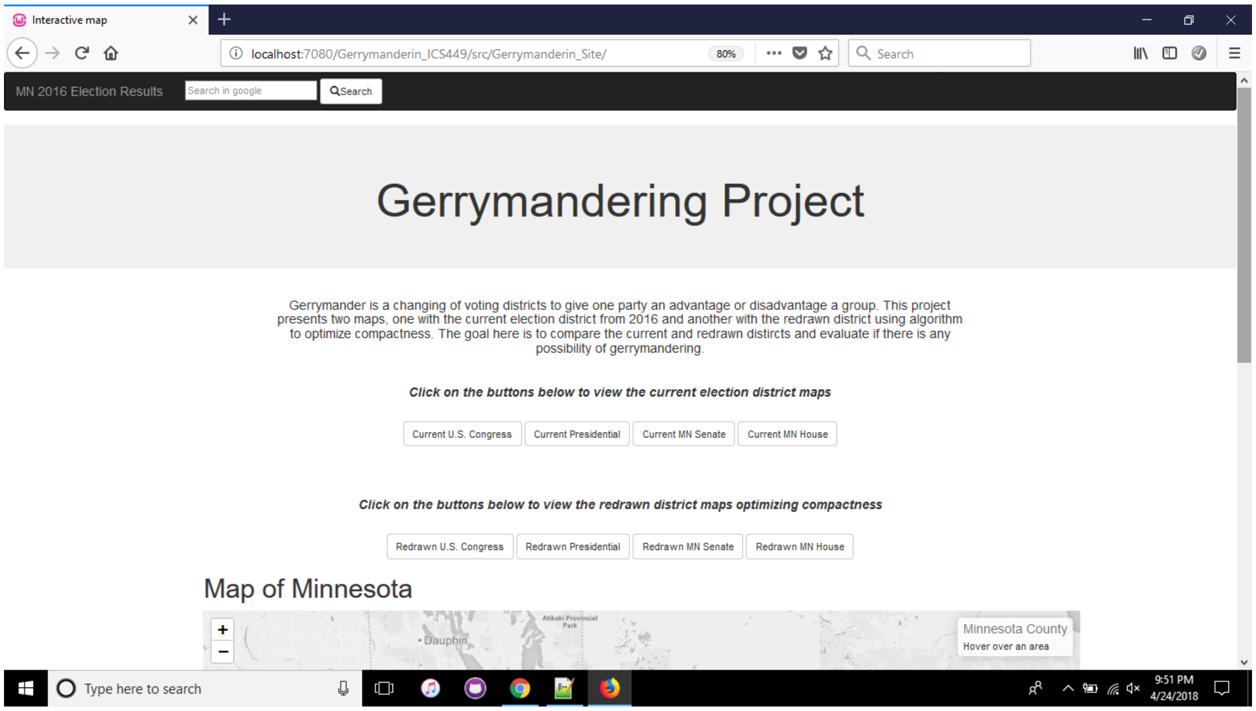
Design Document

- http://leafletjs.com/examples/choropleth/
- https://www.gis.leg.mn/iMaps/elections/2016/all/index.html



localhost:7080/Gerrymanderin_ICS449/src/Gerrymanderin_Site/

MN 2016 Election Results

Gerrymandering Project

Gerrymander is a changing of voting districts to give one party an advantage or disadvantage a group. This project presents two maps, one with the current election district from 2016 and another with the redrawn district using algorithm to optimize compactness. The goal here is to compare the current and redrawn distircts and evaluate if there is any possibility of gerrymandering.

Click on the buttons below to view the current election district maps

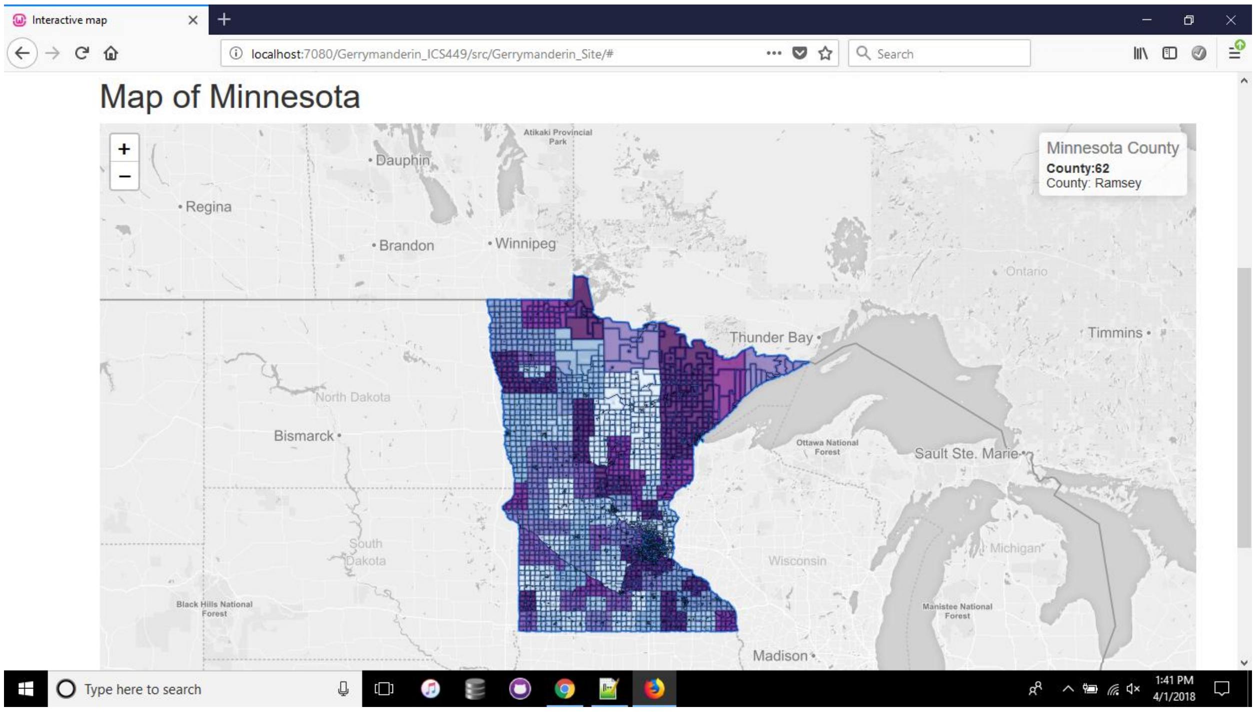
Current U.S. Congress | Current Presidential | Current MN Senate | Current MN House

Click on the buttons below to view the redrawn district maps optimizing compactness

Redrawn U.S. Congress | Redrawn Presidential | Redrawn MN Senate | Redrawn MN House

Map of Minnesota

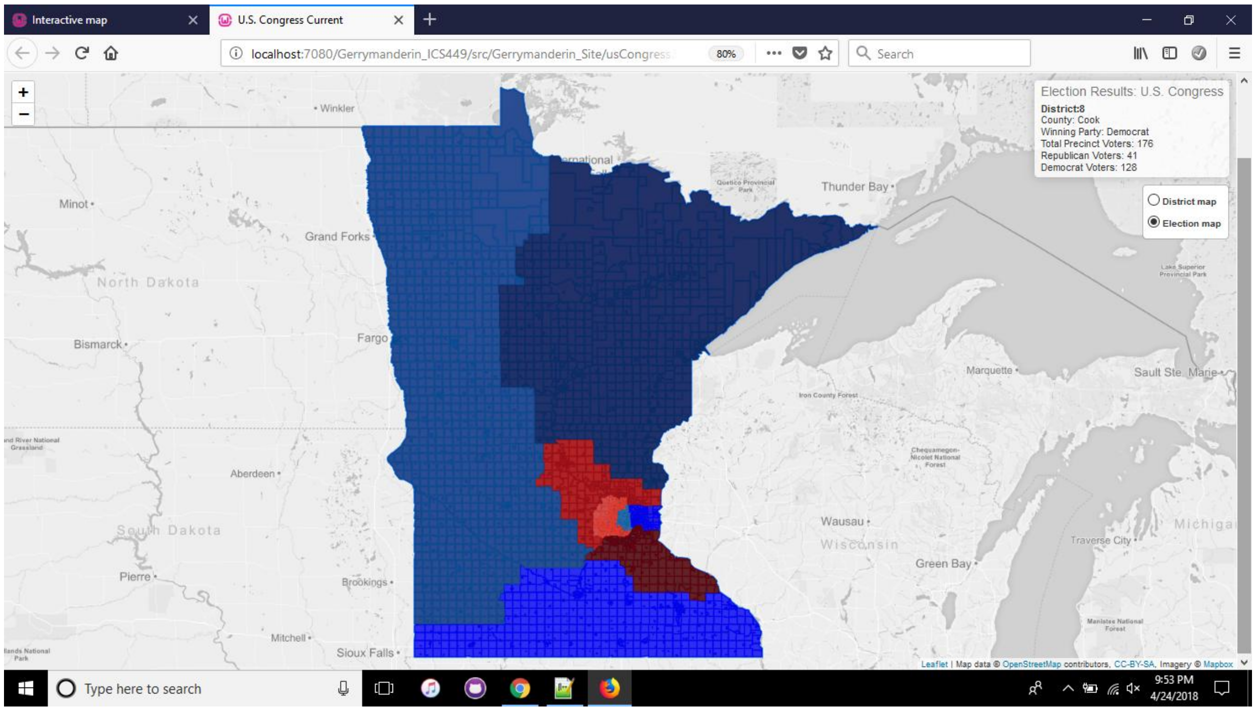
Minnesota County
Hover over an area



localhost:7080/Gerrymanderin_ICS449/src/Gerrymanderin_Site/#

Map of Minnesota

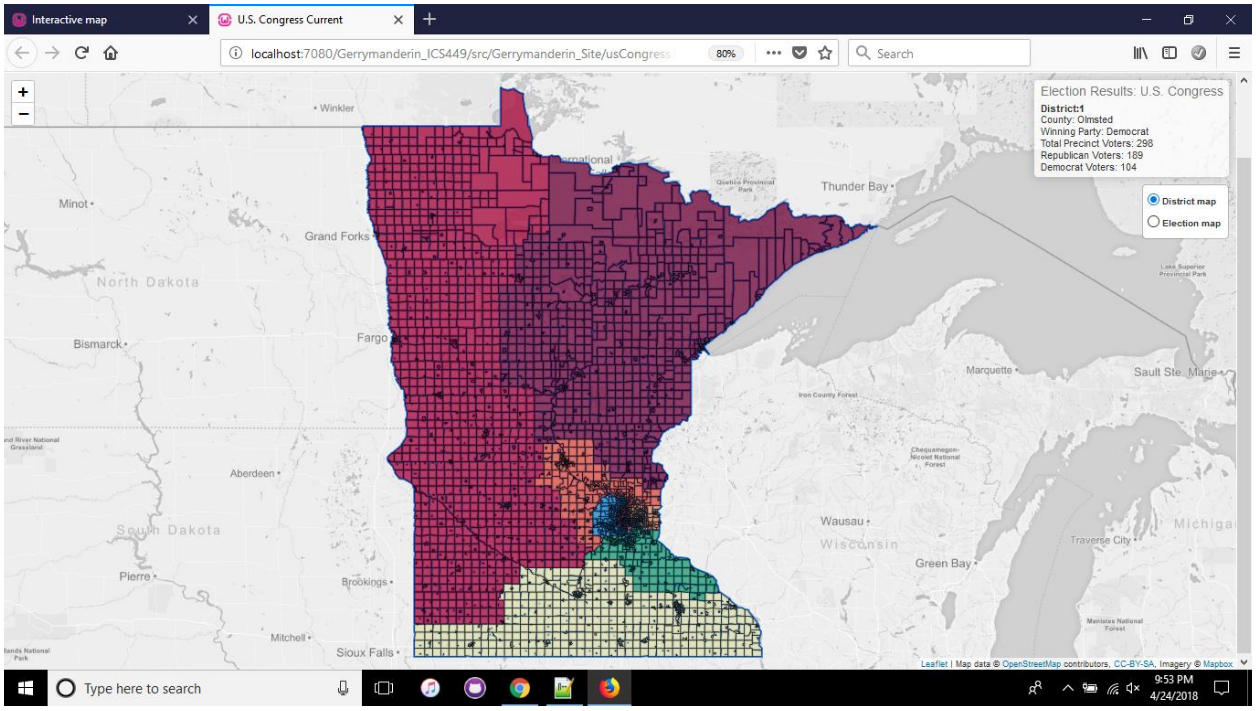
Minnesota County
County:62
County: Ramsey



Election Results: U.S. Congress

District:8
County: Cook
Winning Party: Democrat
Total Precinct Voters: 176
Republican Voters: 41
Democrat Voters: 128

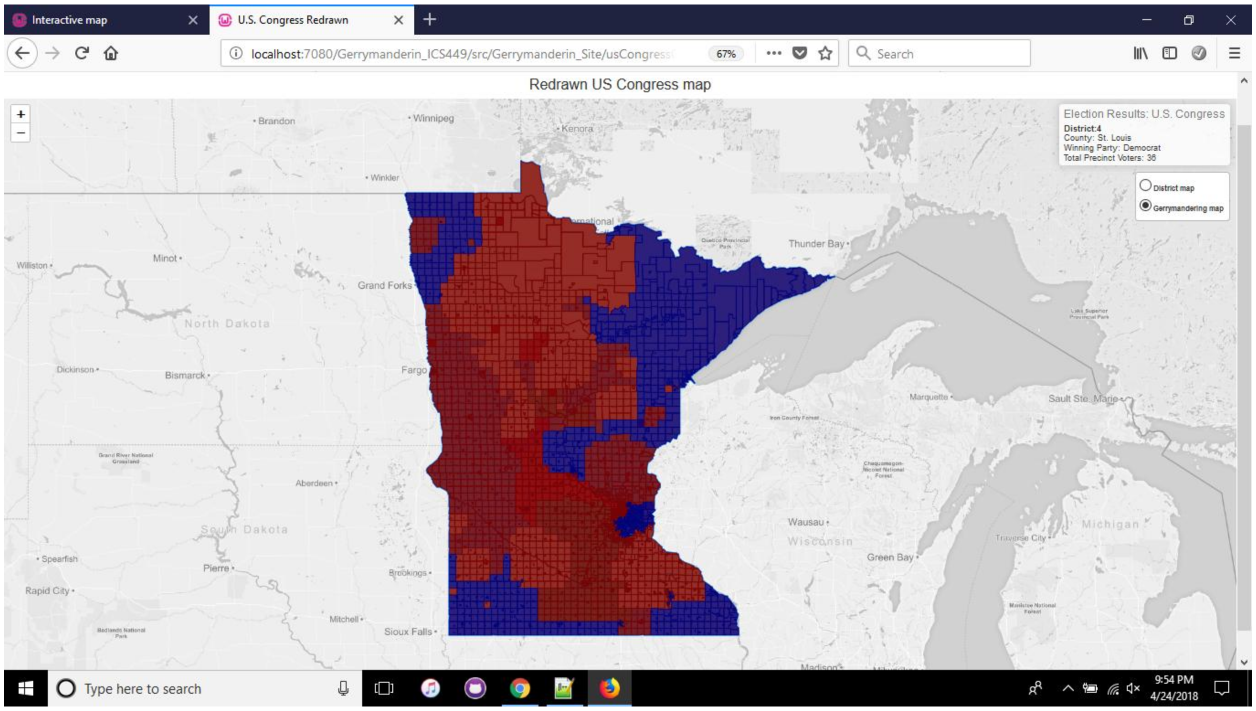
District map [✓ Election map]



Election Results: U.S. Congress

District:1
County: Olmsted
Winning Party: Democrat
Total Precinct Voters: 298
Republican Voters: 189
Democrat Voters: 104

[✓ District map] Election map

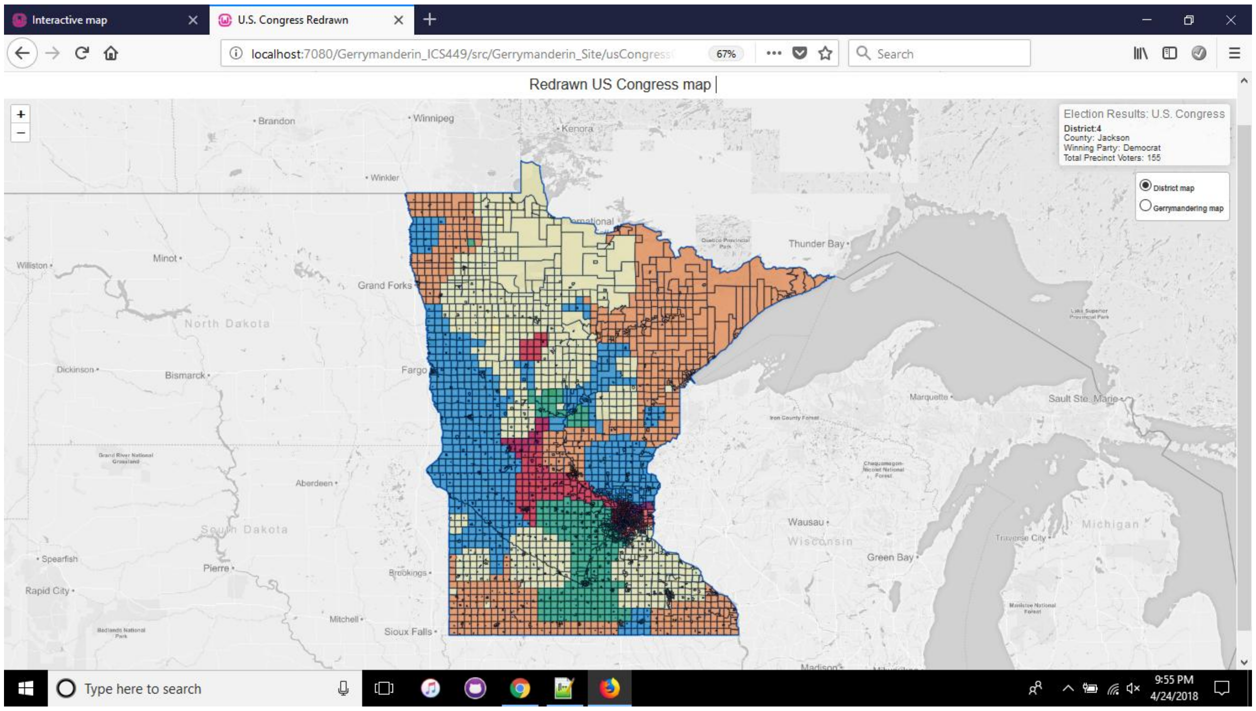


Redrawn US Congress map

Election Results: U.S. Congress

District:4
County: St. Louis
Winning Party: Democrat
Total Precinct Voters: 36

District map [✓ Gerrymandering map]

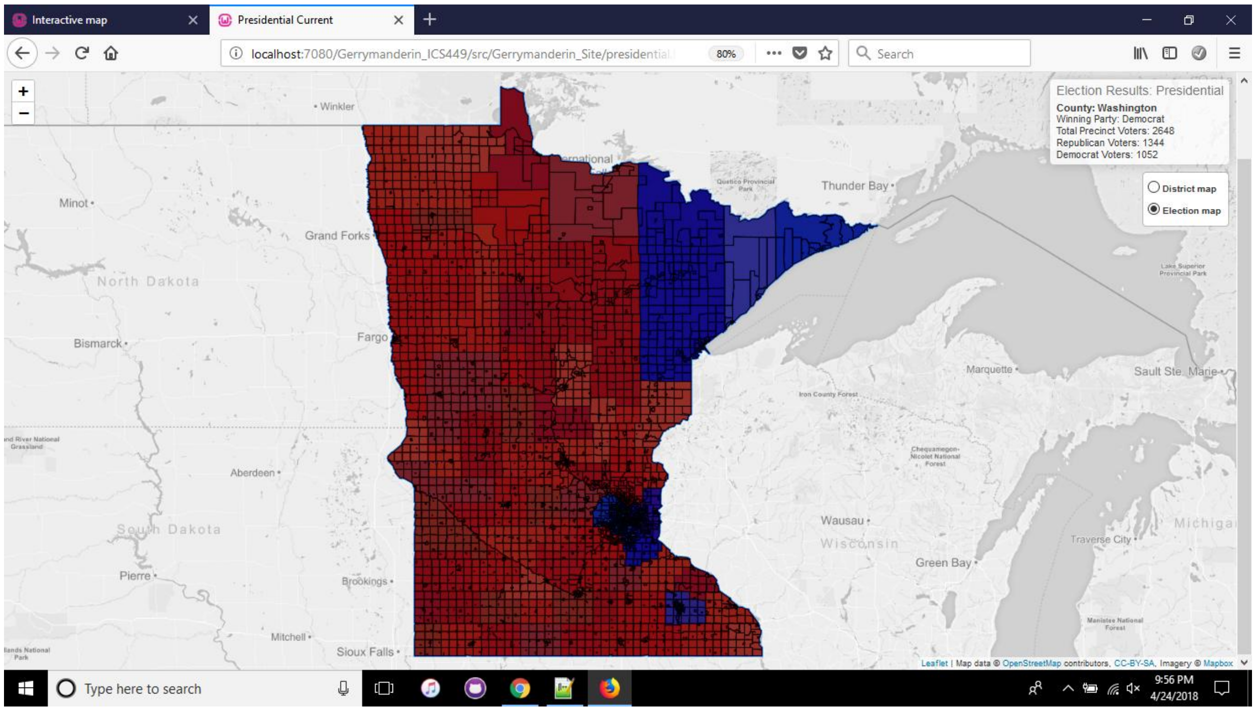


Redrawn US Congress map

Election Results: U.S. Congress

District:4
County: Jackson
Winning Party: Democrat
Total Precinct Voters: 155

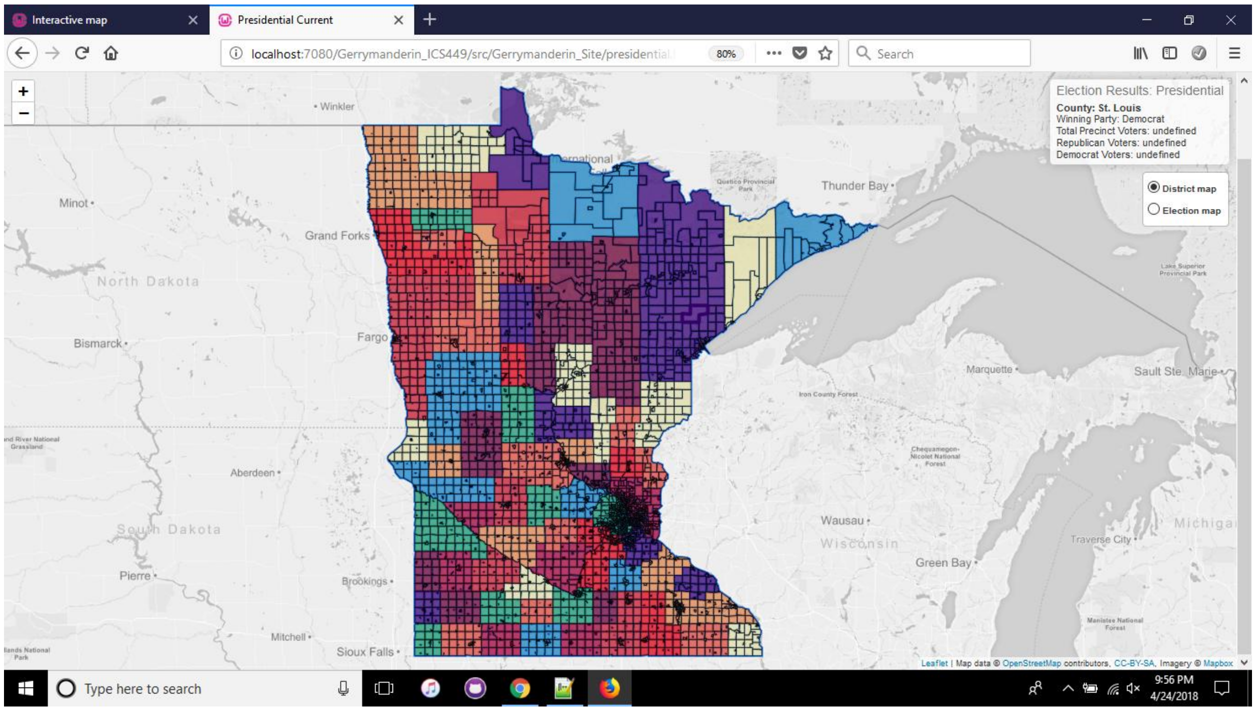
[✓ District map] Gerrymandering map



Election Results: Presidential

County: Washington
Winning Party: Democrat
Total Precinct Voters: 2648
Republican Voters: 1344
Democrat Voters: 1052

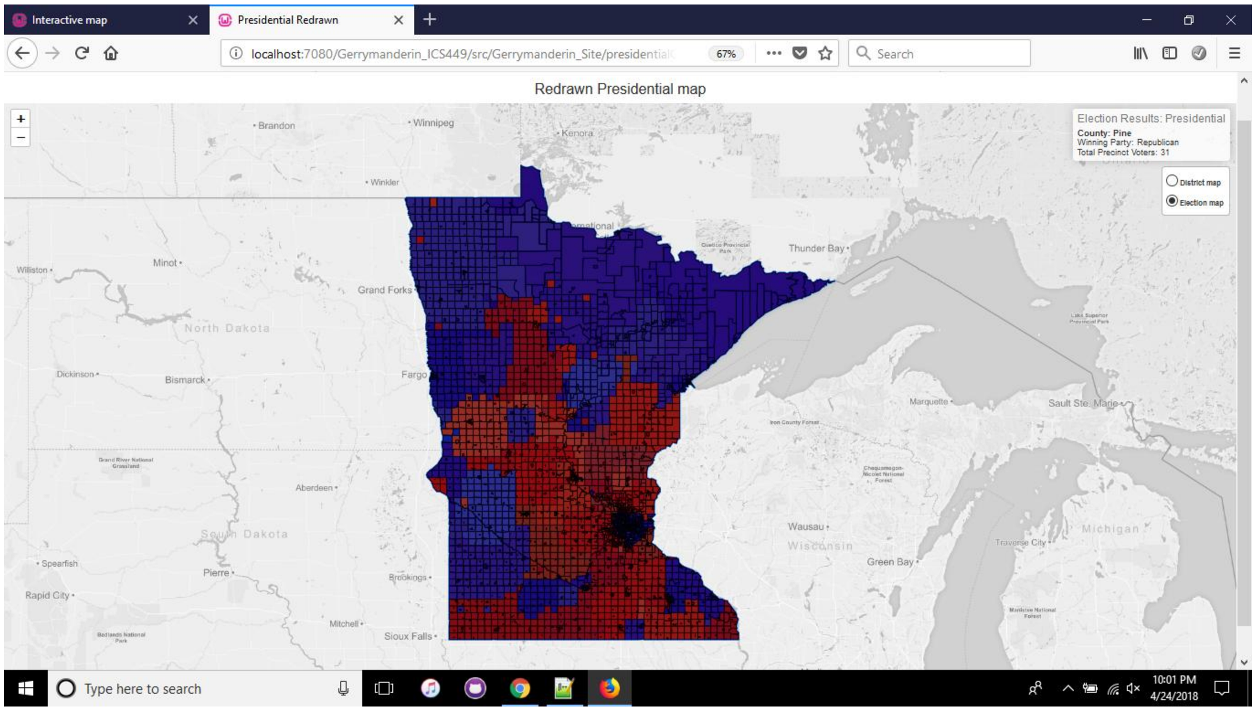
District map [✓ Election map]



Election Results: Presidential

County: St. Louis
Winning Party: Democrat
Total Precinct Voters: undefined
Republican Voters: undefined
Democrat Voters: undefined

[✓ District map] Election map

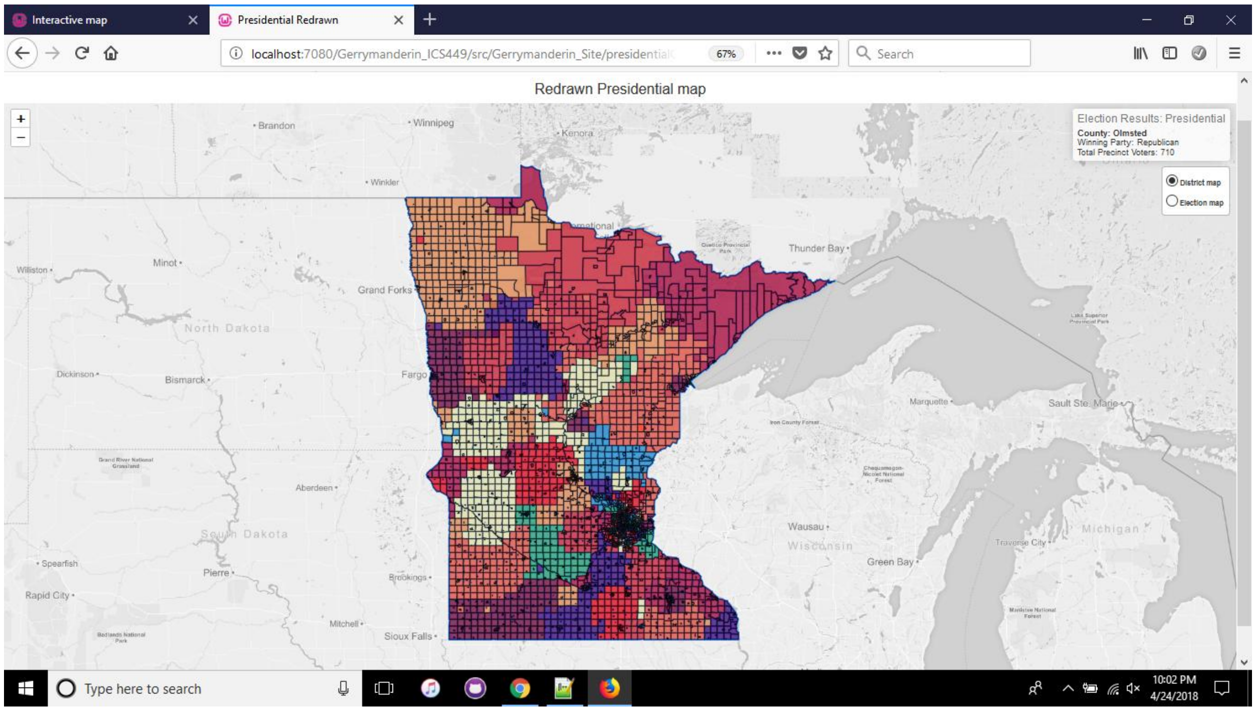


Redrawn Presidential map

Election Results: Presidential

County: Pine
Winning Party: Republican
Total Precinct Voters: 31

District map [✓ Election map]

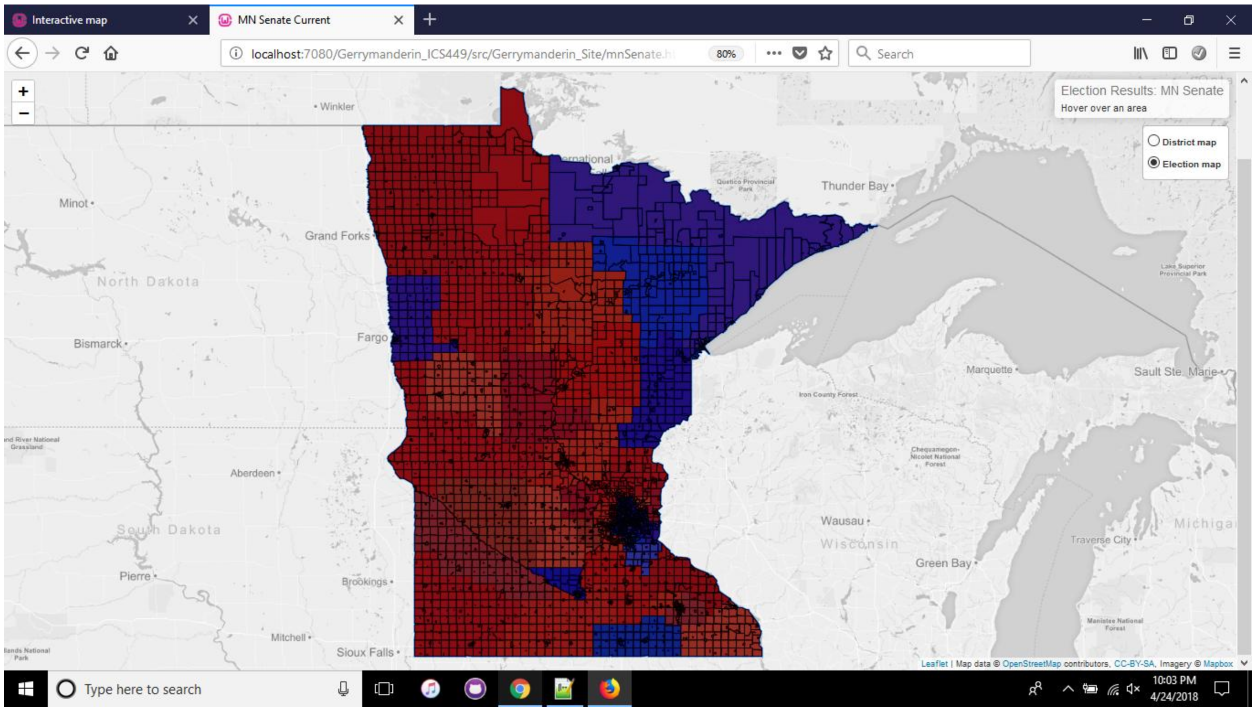


Redrawn Presidential map

Election Results: Presidential

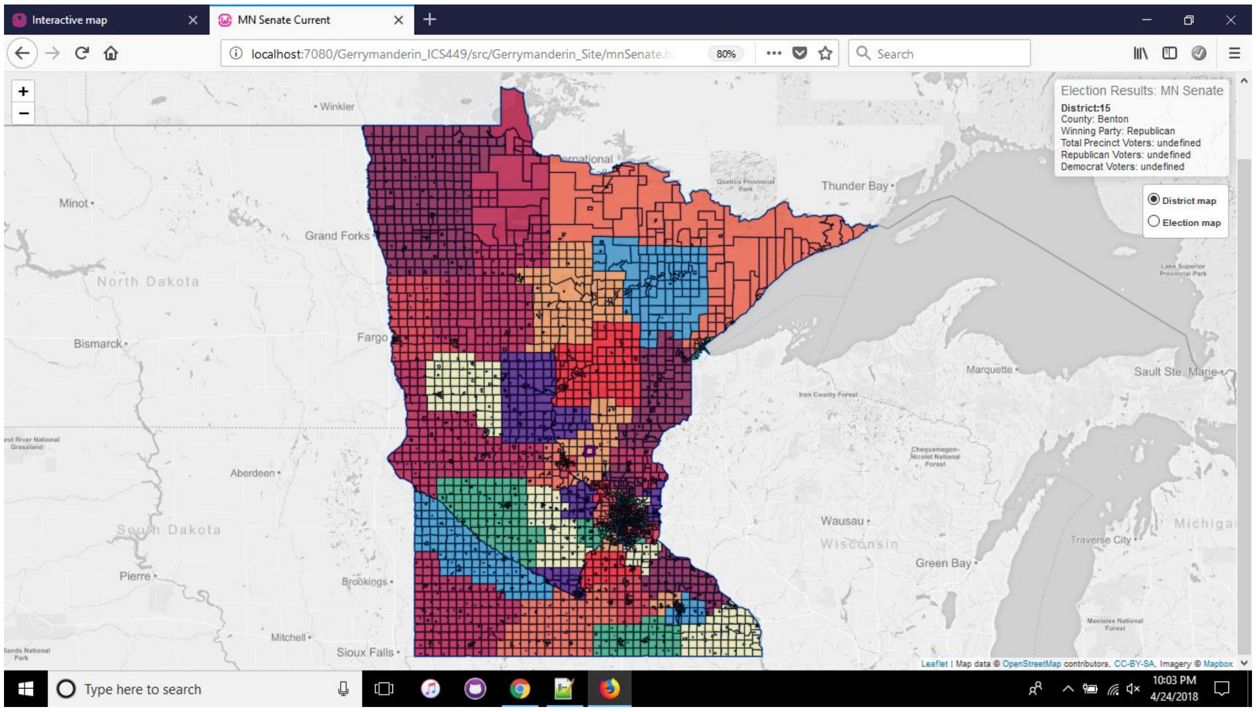
County: Olmsted
Winning Party: Republican
Total Precinct Voters: 710

[✓ District map] Election map



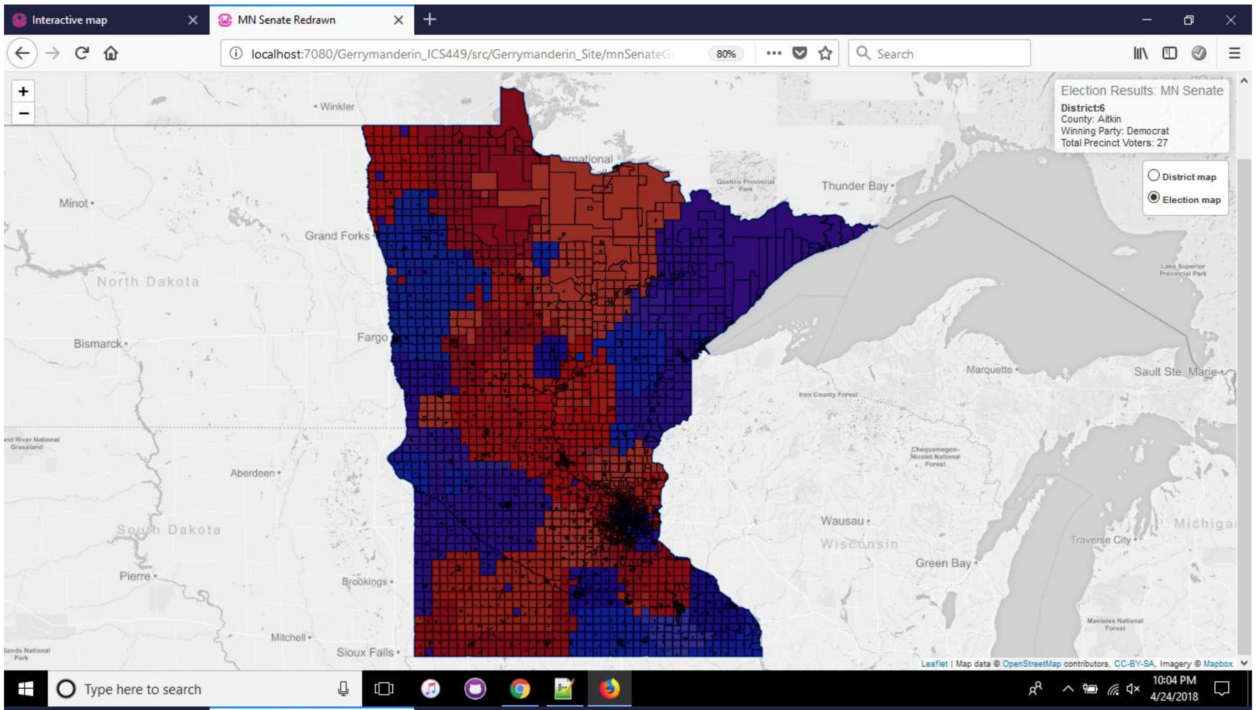
Election Results: MN Senate
Hover over an area

[ ] District map
[✓] Election map



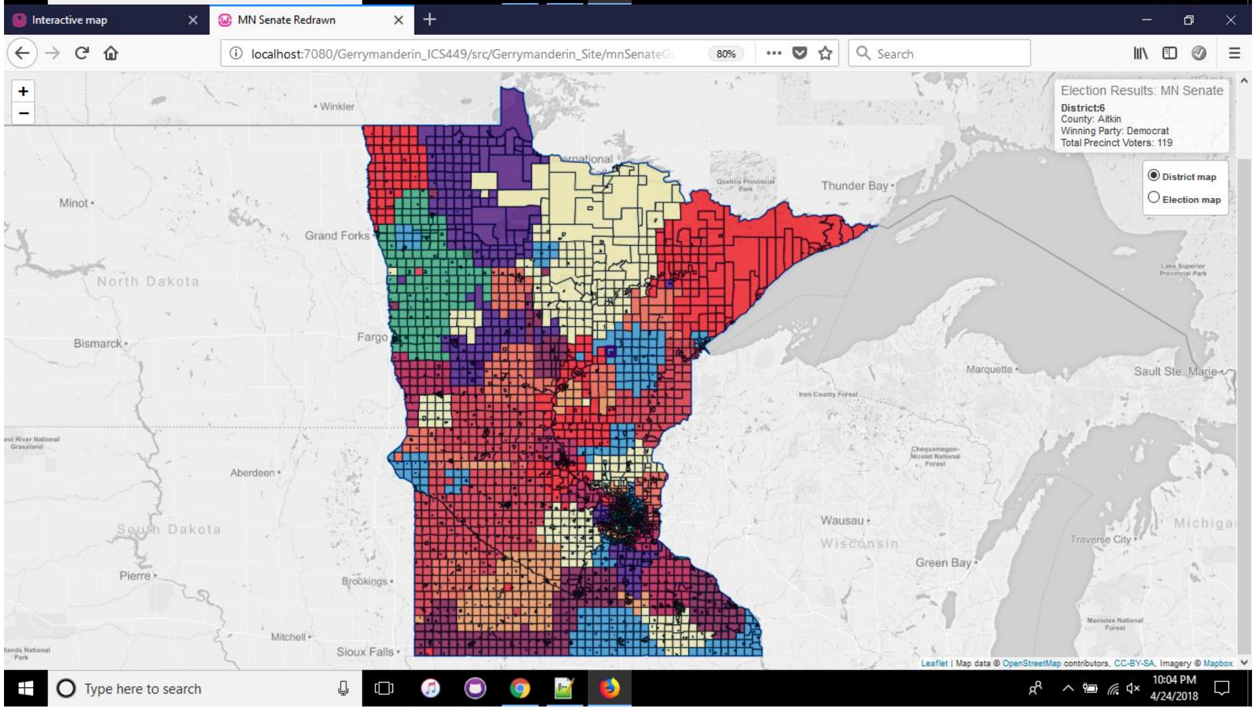
Election Results: MN Senate
District:15
County: Benton
Winning Party: Republican
Total Precinct Voters: undefined
Republican Voters: undefined
Democrat Voters: undefined

[✓] District map
[ ] Election map



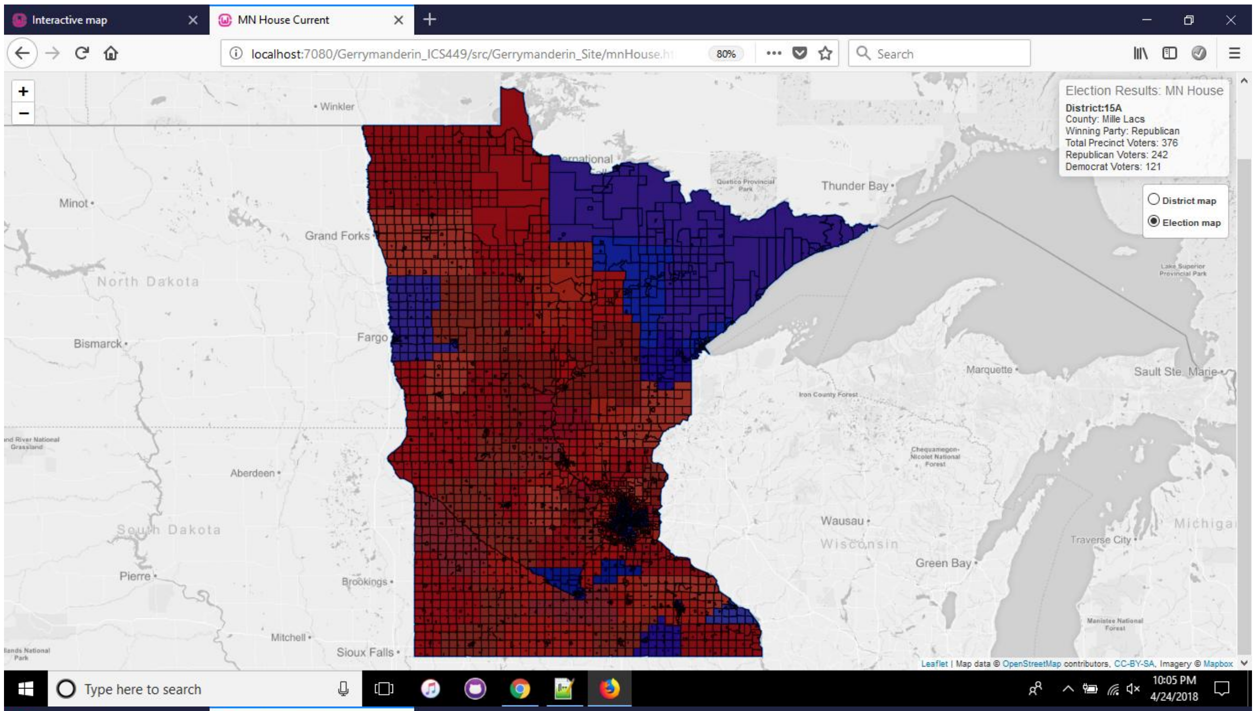
Election Results: MN Senate
District:6
County: Aitkin
Winning Party: Democrat
Total Precinct Voters: 27

District map [✓ Election map]



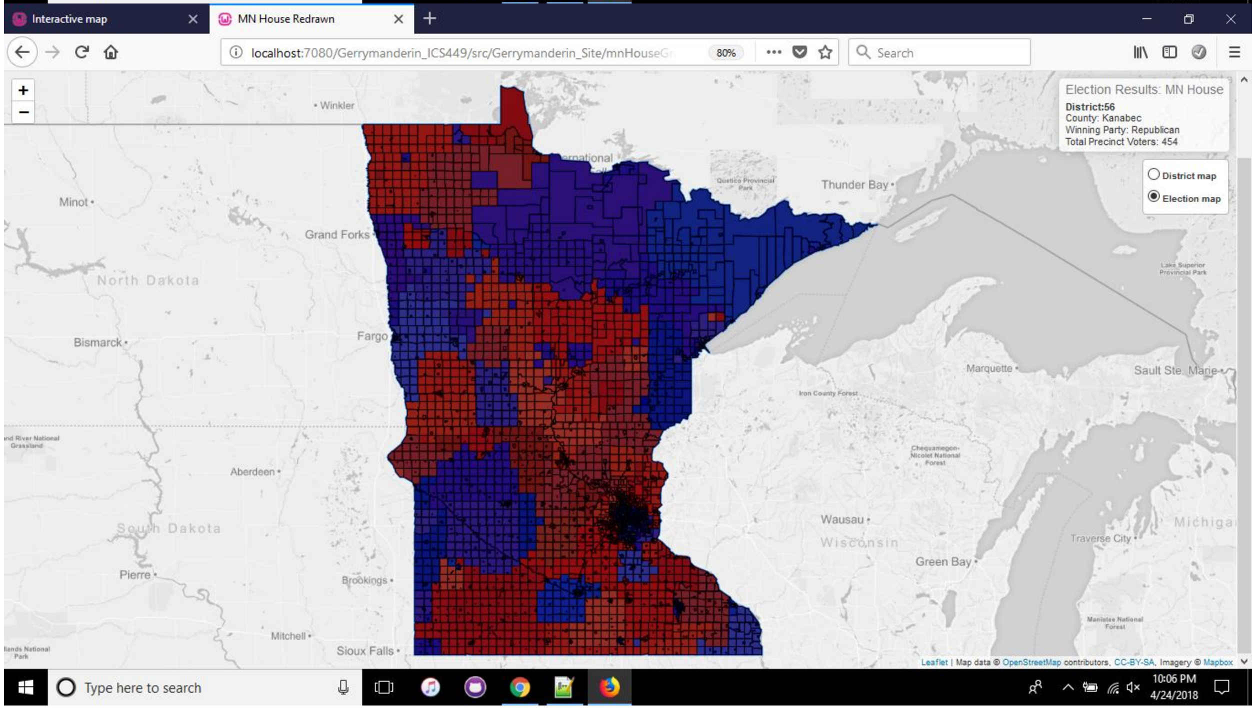
Election Results: MN Senate
District:6
County: Aitkin
Winning Party: Democrat
Total Precinct Voters: 119

[✓ District map] Election map



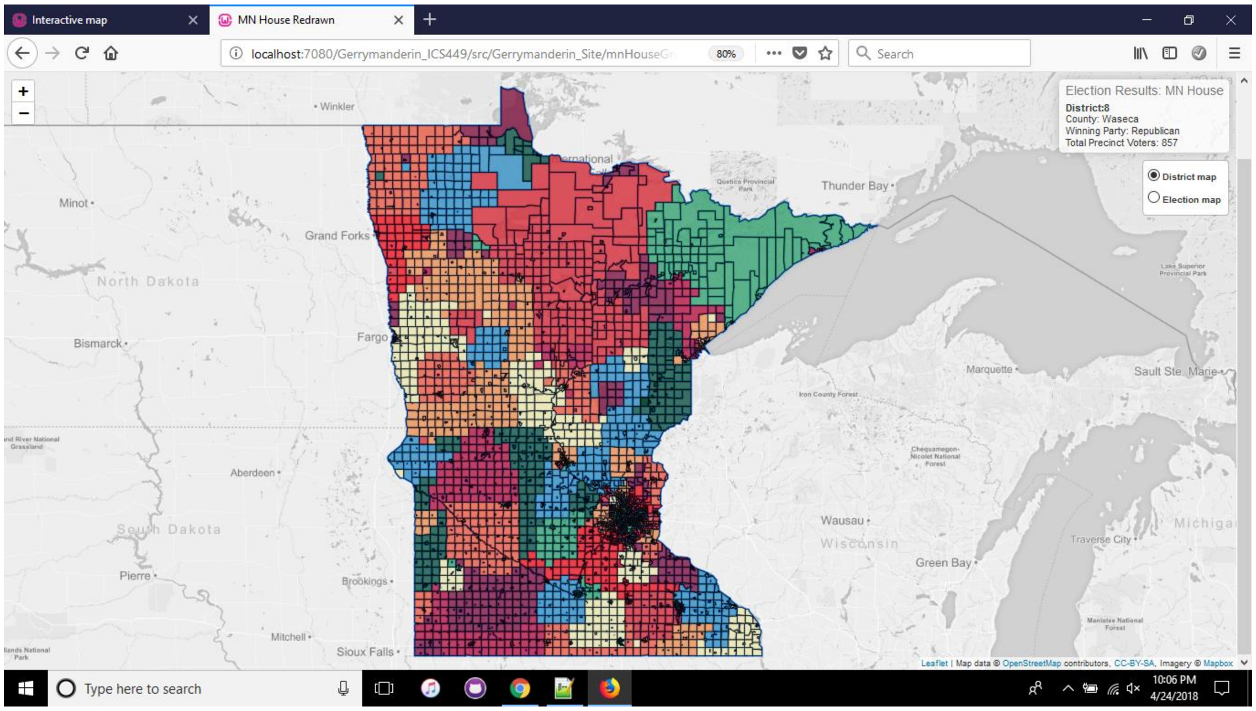
Election Results: MN House
District:15A
County: Mille Lacs
Winning Party: Republican
Total Precinct Voters: 376
Republican Voters: 242
Democrat Voters: 121

( ) District map
[✓ Election map]



Election Results: MN House
District:56
County: Kanabec
Winning Party: Republican
Total Precinct Voters: 454

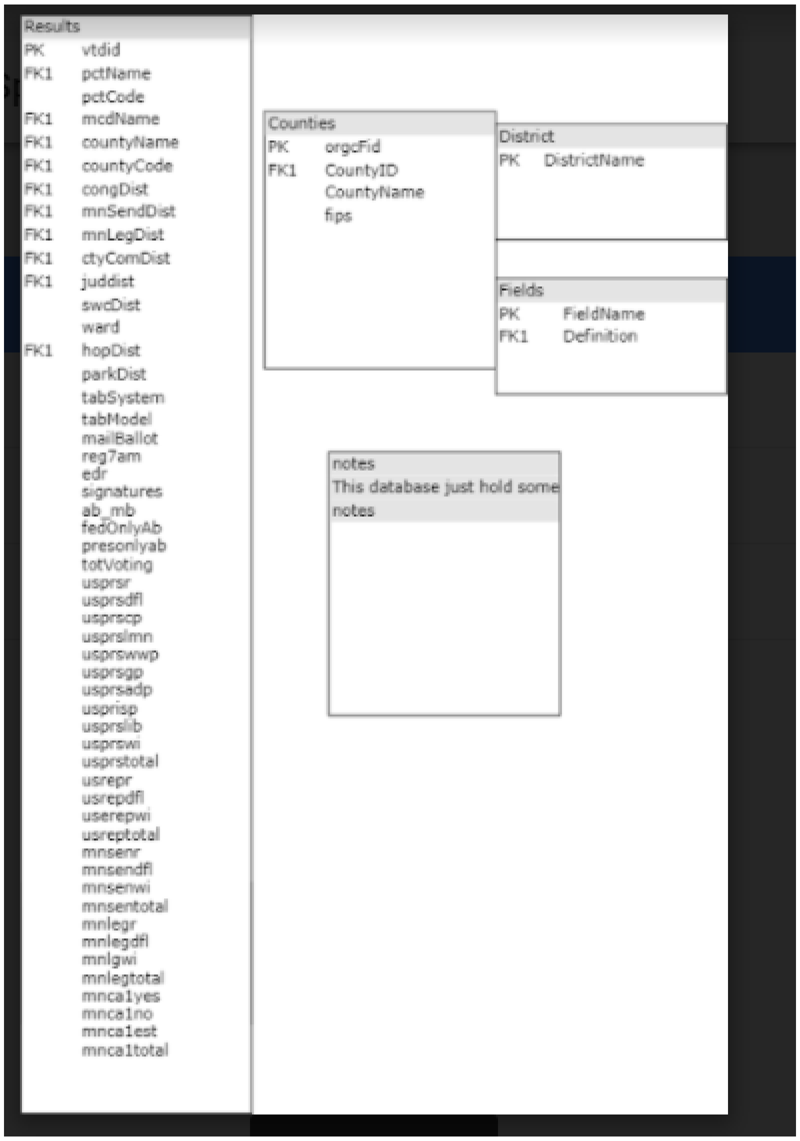
( ) District map
[✓ Election map]



Election Results: MN House
District:8
County: Waseca
Winning Party: Republican
Total Precinct Voters: 857

- AddDataBaseDataToDistricts Project
    - Summary:
        - This writes the number of voters to the geojson file from the database
    - Classes
        - DataBaseConnection
            - This object connects to the database
        - Main
            - Runs the program
        - Parser
            - Reads the GeoJson File into Strings held in a ArrayList
        - WriteNewFile
            - This Writes out the new GeoJson file
        - WriteToGeoJson
            - This class connects everything together and writes the data into the geoJson code before writing it into a new file
- Redistricting
    - Summary:
        - this class was meant to group the precinct but had to be modified because it finds the adjacent precincts and writes it into the geojson.
    - Classes
        - GreedyAlgorithim
            - This class looks at a precinct and runs it through a list of precincts to find all precints that have the same latitude and longitudes.

        - Group
            - This creates a group class
        - Main
            - This runs the program
        - Parser
            - This class reads the geoJson file and puts it in a arraylist
        - PrecintCreator
            - This creates precincts from the geoJson file
        - Precints
            - This is a precinct class meant to hold data on the precinct from the geoJson
        - WriteToGeoJson
            - This writes out the new file with the adjacent precincts written in the geoJson
- Greedy Project
    - Summary:
        - This project groups the precincts.
    - Class:
        - AdjacentPrecint
            - Holds the adjacent precinct and tells what place they're in
        - GreedyGrouping
            - This class holds the algorithm for the grouping.
        - Group
            - Gourp class that holds all the precincts in the group
        - Main123
            - Runs the project
        - Parser
            - Reads the geoJson
        - PrecintCreator
            - Creates the precinct and puts it into an arraylist
        - Precints
            - Precincts class that holds all the data of the precincts
        - WriteToNewFile
            - Writes the new GeoJson to a new file
- DataBase

- 

Results

PK	vtdid
FK1	pctName
	pctCode
FK1	mcdName
FK1	countyName
FK1	countyCode
FK1	congDist
FK1	mnSendDist
FK1	mnLegDist
FK1	ctyComDist
FK1	juddist
	swcDist
	ward
FK1	hopDist
	parkDist
	tabSystem
	tabModel
	mailBallot
	reg7am
	edr
	signatures
	ab_mb
	fedOnlyAb
	presonlyab
	totVoting
	usprsr
	usprsdfl
	usprscp
	usprslmn
	usprswwp
	usprsgp
	usprsadp
	usprisp
	usprslib
	usprswi
	usprstotal
	usrepr
	usrepdfl
	userepwi
	usreptotal
	mnsenr
	mnsendfl
	mnsenwi
	mnsentotal
	mnlegr
	mnlegdfl
	mnlgwi
	mnlegtotal
	mnca1yes
	mnca1no
	mnca1est
	mnca1total

Counties

PK	orgcFid
FK1	CountyID
	CountyName
	fips

District

PK	DistrictName

Fields

PK	FieldName
FK1	Definition

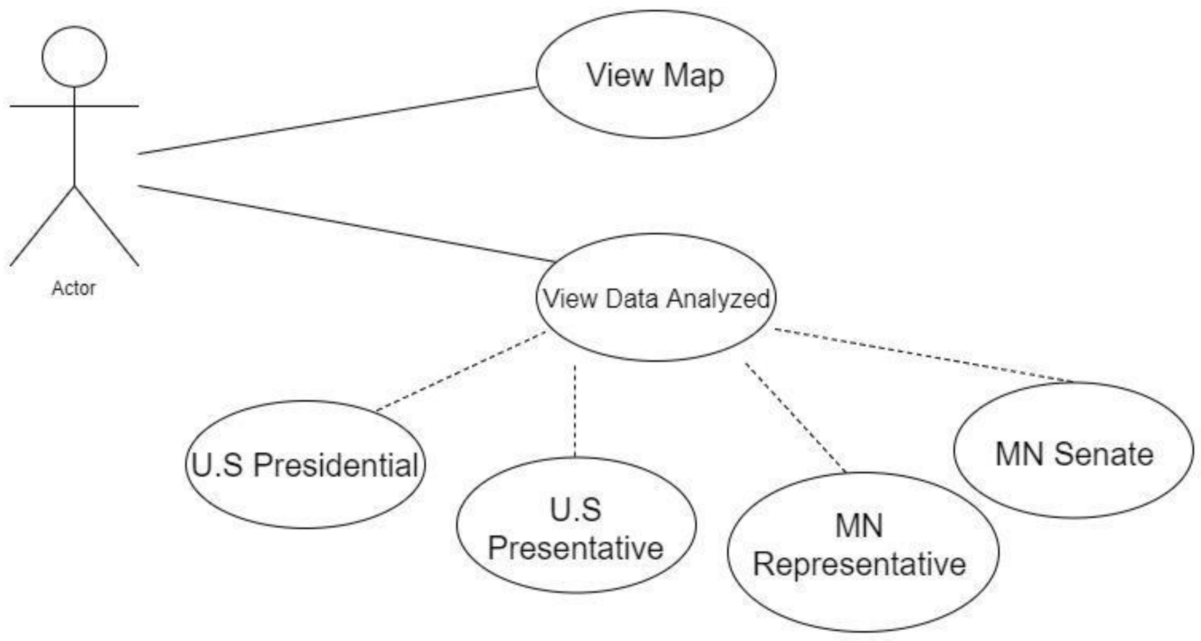
notes

This database just hold some notes

- Javascript Functions (Same functionality in five different files):
    - Function: Map
    - mapLayerInformation: Displays the information about the given area in the map
    - Function: prop
        - Updates the map information from the geoJson file
    - getColor
        - Colors the map according to the presidential district
        - Colors the map according to the Minnesota County
        - Colors the map according to the US Congress
        - Colors the map according to the MN Senate
        - Colors the map according to the MN House
    - Style
        - Styles the map divisions
    - HighlightFeature

        - Highlights a map area when cursor is pointed
    - resetHighLight
        - Resets style updates the layer information
    - zoomToFeature
        - Zooms into the area when clicked in that area
    - onEachFeature
        - Controls the mouserhover, house click and zoom functions
    - secondLayerFeature: adds second layer with the winner party to the map
    - thirdLayerFeature: adds another layer with the winnier party generated from algorithm to the map
    - mouseoverSecondLayer
        - Works as same function but for the second layer
- Index.php
    - Holds the home area of gerrymandering project which have links to 4 different election maps mentioned below
- mnHouse
    - Contains maps of mn house election data
- mnSenate
    - Contains maps of mn senate election data
- Presidential
    - Contains presidential map of election data
- usCongress
    - Contains us congress map of election data

Use Case Diagram



Use Case

Actor	Action
1. 1. User visits the gerrymandering site and scrolls to the map section	
2. User has the option to choose different district such as Presidential, US congress, MN senate and MN House to view the election information.	
3. User clicks on one of the district to view the information	
	4. The program senses the district link clicked and displays the map with respect to that district.
5. User has the option choose the layer	

between the districts separated by color or the election results on which party won in that district. This switch option is located in the top right part of the map.	
	6. After user selects the layer button, the program overlays the selected layer onto the map.
7. User hovers around certain area in the map.	
	8. Which hovering around an area, the program senses the cursor and displays the information about the district and which party won on the top right part of the map.
9. User click on a certain area in the map.	
	10. The map zooms in to that area clicked.
	11. User is presented with information about the election.