Maryland:

1. State Shapefiles: <https://www2.census.gov/geo/tiger/TIGER2010/STATE/2010/>
2. District Shapefiles: <https://www2.census.gov/geo/tiger/TIGER2010/STATE/2010/>
3. Precinct Shapefiles: <https://planning.maryland.gov/Redistricting/Pages/2010/precinct.aspx>
4. Election Data: https://elections.maryland.gov/elections/2018/election\_data/index.html

- https://elections.maryland.gov/elections/2016/election\_data/index.html

5) Demographic Data: <https://planning.maryland.gov/Redistricting/Pages/2010/precinct.aspx>

Rhode Island:

1. State Shapefiles: <http://www.rigis.org/datasets/state-boundary-1997>
2. District Shapefiles: <http://www.rigis.org/search?tags=BND>
3. Precinct Shapefiles: <http://www.rigis.org/search?tags=BND>
4. Election Data: <https://elections.ri.gov/elections/preresults/index.php>
5. Demographic Data: census.gov

North Carolina:

1. State Shapefiles: <https://www2.census.gov/geo/tiger/TIGER2010/STATE/2010/>
2. District Shapefiles: <https://www.ncleg.gov/Redistricting>
3. Precinct Shapefiles: <https://www2.census.gov/geo/>
4. Election Data: https <https://dl.ncsbe.gov/?prefix=ENRS/>
5. Demographic Data: census.gov

The first thing I would like to address is that the demographic data for all 3 states was acquired from the United States Census Bureau API. We downloaded all the demographic databases for each state. The only data we retrieved was that of the demographic population over 18. The census allocates this information by census blocks. We downloaded census block shapefiles for all 3 states. Using a python script, we removed the over 18 demographic population from the census access files and added the data to each census block. Each census block in the shapefile contains a unique identifier which was used to allocate the data correctly. After this script ran, we had complete census block shapefiles for all 3 states.

The next step was to find election data for each state at a precinct level. The first state we worked on was Rhode Island. This state proved to be the most difficult of all the states. First, Rhode Island is one of the few states who did not participate in the TIGER2010 shapefile program. This means that Rhode Island precinct shape files were difficult to find. Once we discovered Rhode Island Geographic Information System we found all 3 (State, District, and Precinct) shapefiles necessary. The precinct shapefiles had unique precinct identifiers which we used to add election data acquired from State of Rhode Island Board of Elections site using a python script. The data was organized by precinct, so it was easy to add the election data to each precinct. The problem came when we had to add demographic data. The census block shapefiles and the precinct shapefiles were not aligned as well as we would like to. This probably stems from the fact that again, Rhode Island is one of the few states that did not participate in the TIGER2010 shapefile program. This led to the Census and the Rhode Island Government to disagree what Rhode Island looked like. In addition to these issues, we added a ghost precinct to Rhode Island. The point of this ghost precinct would be to connect the island off the south coast of the state to the mainland. This proved again difficult because the south coast of the state was not as even as we would have liked it to be. Using mapshaper.org we managed to shape a ghost precinct into the south coast of Rhode Island.

The next state we worked on was Maryland. The data for Maryland was very clean. Maryland, unlike Rhode Island, worked in conjunction with the United States Census Bureau. With this partnership, as mentioned in the Maryland Redistricting Government website, the US Census and Maryland created a precinct shapefile with the demographic data from the US Census block shapefiles. This precinct shapefile came preloaded with the demographic data of the voting age population. We had to readjust the naming conventions and add the election data. The election data was gathered from the State of Maryland Board of Elections site. The election data was added in a similar way to how it was added for Rhode Island. We created a python script that retrieved the unique precinct identifier from the election data and cross referenced it with the precinct identifier from the precinct shapefiles. It then proceeded to add the election data using this reference.

The last state we worked on was North Carolina. This state was not as difficult as Rhode Island, but it still had some problems. The state cooperated with the United States Census Bureau, but it did not go as far as the partnership Maryland had. The precinct shapefiles and the census block shapefiles were both acquired from the Census API. Because they were acquired from the same location, the precinct and census block shapefiles did not present issues when put into mapshaper.org site. All the election data was acquired from the North Carolina State Board of Elections site and using the python script from before, we added election data corresponding to each precinct.