The goal of my individual project was first to explore voting patterns in the Town of Acton, Massachusetts. As I made progress on the project, I developed a more specific question of whether my friend, Leela Gangolli Ramachandran, who was running for School Committee would win and which areas of the town would most support her candidacy. To better describe Acton, I joined 2019 Census Tract data from the American Community Survey provided in Case Study 3 with 2010 Census tracts. To define the voting regions in Acton, I used the Commonwealth of Massachusetts' website to download the geographic precinct files from 2012 (as a result of the 2010 Census) and 2022 (reflecting the 2020 Census) (precincts are defined blocks of voters that are roughly the same size- typically about 2,500 registered voters in Acton). I first used Acton's online election archive to download the election data in pdf format files (the only provided format) for local, state, and federal elections. I then used a two-step process in R to process these files, first converting the pdf documents (consisting of a mix of numbers, text, and new lines) into a tibble that resembled the pdf file, and then performed calculations to determine the turnout of the election as well as the percentage of votes won per candidate relative to the number of votes cast and the number of registered voters per precinct. Once I had processed the data, I was ready for my Tableau Storyboard and Dashboard. I presented my Tableau Storyboard in class to answer my questions about voting patterns and if my friend would win office. I created an additional Dashboard to summarize the April 25th election results for all election races in Acton.

Parsing a pdf and converting it into a tibble was difficult but a necessary step before visualizing the information in Tableau. I had first successfully completed the process in R, but after a consultation with Rosie, I was given permission to stick with R after unsuccessfully attempting to replicate the cleaning process in Tableau Prep. While many of the election files contained similar information, there was an election that used "\n\n\n\n" to separate the different races, another used "\n\n", and most used "\n\n\n". While these parts were different, each candidate within an election race was separated with "\n"; however, the file behaved as if it were a fixed width file and had a variable number of spaces that were challenging to parse when considering that candidates sometimes had a middle initial and a second name. Therefore, once these data were loaded in Tableau, I changed the aliases there to have a more recognizable name. When my pdf file was parsed, I had a standard format for all elections. This process would have been avoided if the Town of Acton posted this information in a csv format. Once the data were imported and cleaned, I could apply a uniform process to pivot the number of votes per precinct as columns to a longer row form. I had a column for the candidate's name, the name of the election, the precinct, the number of votes, the percentage of those votes as a part of the number of registered voters, and the percentage of votes cast. I chose to analyze two local elections, each having less than 300 rows and 9 columns. For the presidential elections, I added a column for political party (unlike local elections, federal elections feature national parties), which I derived by matching the candidate's name to a list of candidates belonging to each political party (Democrats, Republicans; others being called Other). This dataset had 163 rows and 10 columns and spans from 2008 until 2020.

When a candidate is running for office, the candidate should be familiar with the demographics of the residents before they ask residents for their votes. Not every town or city in Massachusetts is the same, and there could potentially be trends within the town in the different voting precincts. In Acton, overall there are low numbers of Black and/or Hispanic residents. However, North Acton has a much larger share of renters who tend to have a lower income than in other Census Tracts in Acton. Perhaps these voters are more likely to have similar views on issues than voters in other Census Tracts (e.g., a program assisting renters would likely be popular in that part of town). This dashboard used a blend of American Community Survey Demographic data from 2019 and Census Tract geographic data to compare the different parts of Acton, and there are no filters to select from. Hovering over the different Census Tracts allows for users to see the numbers behind the color scale.

I was already interested in studying the voting patterns in Acton's elections, but my interest grew when I learned that Leela had announced she was running for a seat on the School Committee. Clicking on both images on the candidate introduction page of the storyboard directs the user to her website. I appreciated how she put the important information in color and in bold and provided explanations for those claims as well. Without reading all the words on her website, I can clearly see four characterizations she makes of herself.

Local elections are non-partisan, but Leela shares many Progressive views, so I wanted to see how receptive Acton would be towards progressive candidates. The U.S. Presidential Elections do not feature Progressive Candidates, but measuring how well Democrats performed is a good proxy measurement. From 2008 until 2020, the number of registered voters in Acton has increased, and Acton voters have started to trend more Democrat (67.84% voted for Democrats in 2008 versus 79.19% in 2020). Voting turnout has remained consistently high. This is a good sign for candidates with progressive goals- the Town of Acton is certainly receptive to those. On the bullet graph in this dashboard, by clicking on the Year in the Presidential Election Turnout in Acton, it highlights the values for that year in the other figures on the dashboard.

Another race that I wanted to compare was a recent Special Election in 2021 to fill a vacancy on the Acton Select Board (formerly called the Board of Selectmen). Himaja Nagireddy and Leela have several things in common - they were both involved in town meetings/politics before running, they are both Gen-Z, they are both public health professionals, and they both grew up in Acton before going to college. This visualization blended 2012 precinct boundaries with my processed local election results for the Special Town Election in 2021. In her race, Himaja did very well, winning a solid majority of the vote. The user can choose between the different candidates for the Select Board (this board is analogous to a city council, but the Town of Acton does not have a mayor and is too small to be considered a city). Changing the visualized results for each candidate rescales the percentage of votes they won in the election to show where they under or over-performed amongst the support they received. I included the election results in a table next to the scale to emphasize the overall percentage that each candidate received. Clicking on each precinct in the map shows in a pie chart how each candidate did. Although Precinct 2 and 6 are located next to each other, they voted very differently.

It was exciting to see that Leela won a seat on the School Committee in Acton. In this election, each voter could vote for up to 3 candidates (1 vote per seat). As I had expected, Leela had gotten most of her support from Precinct 6 and had success in Southern Acton. There are now 7 precincts in Acton- the northernmost one is now split in half. Six people running for three seats is tricky to predict, but the person with the most votes was Victoria. Not every precinct turned out- Precinct 1 tends to have low turnout- this should be investigated to see if voting is more of a burden for these residents. This dashboard utilized a blend of 2022 precinct boundaries with my local election preliminary data from 2023 and allows users to compare the performance between two candidates. I chose to standardize the color scale to show a percentage of cast votes under 10 to appear as 10 percent and anything over 20 to appear as 20 percent to better show how candidates did relative to each other.

The Town of Acton does not have an interactive dashboard that displays the results from each election. Considering that this project required knowledge in how to clean data in R and how to navigate Tableau, it is understandable why local governments do not typically have this level of detail when posting election results. However, there is a clear added benefit to having this kind of information for the candidates running (they can use past records to better plan where to canvas) as well as residents of the town. As a resident, this dashboard provides transparency in our local democracy that helps me learn more about the town that I call home.

My Work Product:

Presented Tableau Storyboard: Acton Election Analysis

Additional Dashboard: Acton, MA 2023 Annual Town Election

GitHub Repository for R Cleaning: acton_elections

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