CPSC 471
T01-G05 Milestone Demo

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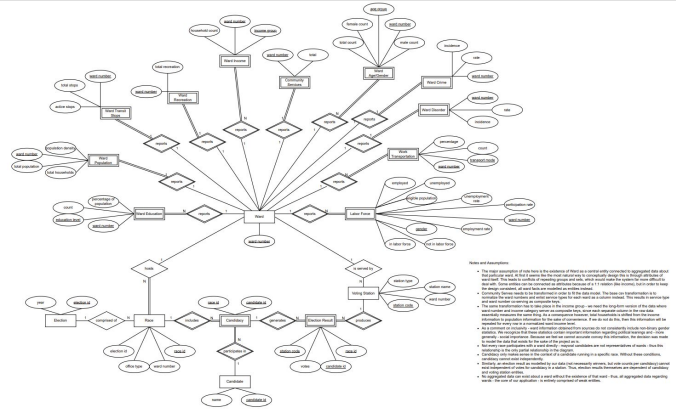
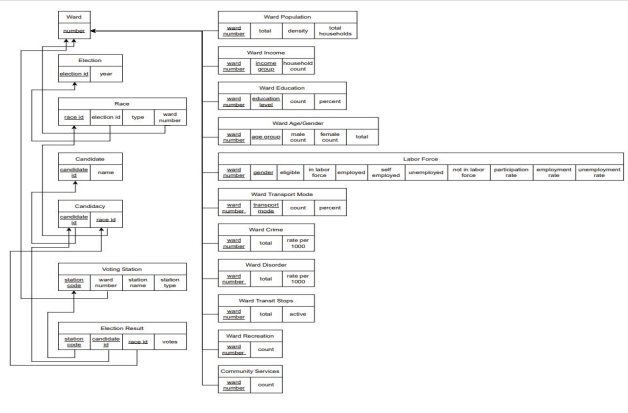
Summary of Project

- Primary question: Trends in voting turnout and preferences based on ward-level characteristics in the city of Calgary.
- Data driven application
- Obtain official census data
- Format and clean data to obtain usable information
- Take aggregated ward-level data and associate with ward voting results
- Display information meaningfully for users
  - Side-by-side comparisons for wards
  - Ward categorical break-downs
  - Filtering for questions like “Do wards with higher income levels tend to vote more often?”
  - Potential geographic visualization using choropleths and **geoJSON** and vector data

Key elements:

- ❏ Ward, population, and key metrics
- ❏ Aggregated information about wards
- ❏ Vote results





Feedback

- Be wary of scope
- Careful with “correlation”
- Look to news to find analyses that make sense
- Lots of effort and research required for mapping
- Addition of citation section
- Focus on data-driven

Opportunities for growth - using all feedback

Focus the project

Don't promise too much, no log in, no Flask, go above and beyond if we have the time

What we've done:

- Narrow focus and temporarily remove mapping features
- Increase range of data used for patterns
- Reinforce accuracy of ERD and RM
- Attempt to go beyond the course's teachings by using other libraries

References

Keep track of references in a dedicated section in the future

What we've done:

- First submission did not have a dedicated reference section
- Add references to all work completed
- Include references in a section for all submissions

Progress

Conceptually

- Completed and revised **ERD**
- Completed and revised **RM**
- Difficulty in bi-directional data cleaning
- Difficulty in conceptualizing a proper **ERD**

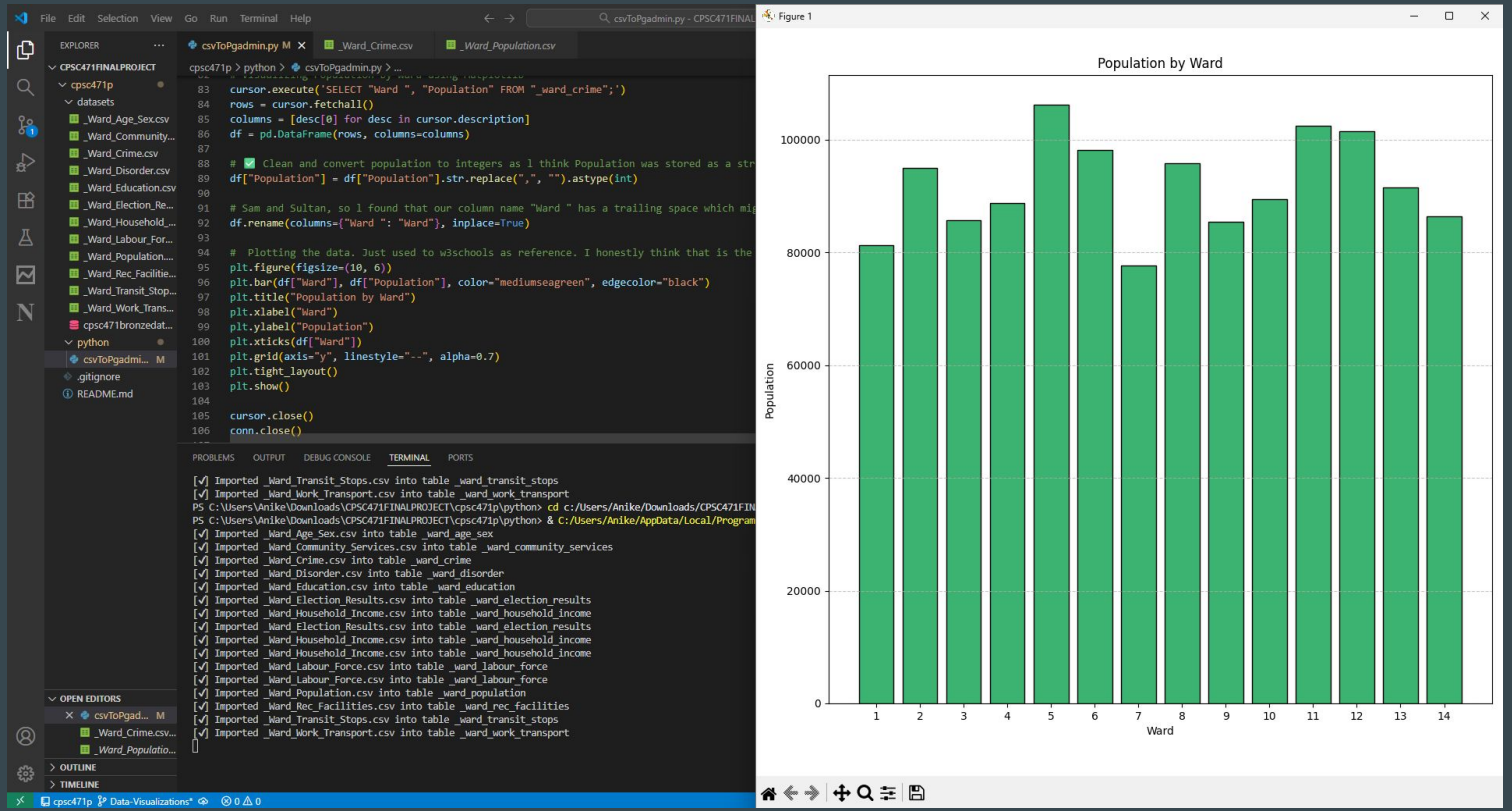
Database

- Connected to a **PostgreSQL** DataBase + **pgAdmin**
- 2/12 tables need to be filled in with the actual data as it may have gotten lost when transferring it to the PostgreSQL database

The app

- We have some sample visualizations of what we could do with the Data
- Need to still conceptualize how we are going to present it. **Streamlit** could be an option!

A Sample Visualization as to how the data can present itself!



Supplemental learning

- Definitely something that wasn’t covered in the course was when choosing our data or in other words picking which data we want to represent, what datasets should we look into to capture the whole picture and answer a research question. Although many datasets were presented to us in lecture, they were preset for our learning but in terms of why we want to use these particular datasets; it definitely hasn't been mentioned. However this was a good way for our group to really solve this problem as team as taking the feedback in, we realized we didn’t have much data regarding the context of the ward which really wouldn’t answer our research question. Therefore, we constructively took that feedback and found various datasets that were meaningful, impactful, and fit our model correctly!
- Using data visualization libraries like numpy, pandas, matplotlib, seaborn to visualization our data. However, using **w3school** has been helping us a lot as that will be our best friend when creating different types of visualizations in terms of bar,line, and pie charts as well as more in depth showcasing such as heatmaps. geoJSON, deployment in Vercel

Supplemental learning

- Data Analytics
- Libraries and resources like numpy, pandas, matplotlib, seaborn , w3school
- geoJSON
- Future: deployment in Vercel

Team dynamics

Roles	• Aniket - Visualization • Sultan - Database • Sam - Diagrams
Timelines	• We agree on dates ahead of time • Timelines are reasonable
Issues	• Added more comprehensive data • Planning around everyone's schedules
Cohesion	• We get and things are progressing well

References

WARD_BY_AGE_GENDER

1. The (2019) *Civic Census by Ward, Age and Gender*, *Calgary.ca*. Available at: https://data.calgary.ca/Demographics/Civic-Census-by-Ward-Age-and-Gender/ga6m-7k2i/about_data (Accessed: 30 October 2025). WARD_AGE_SEX

WARD_DISORDER & WARD_CRIME

2. *Data* (2024) *Calgarypolice.ca*(Accessed: 30 October 2025)

WARD_ELECTION RESULTS

3. *General Election 2021 Results by Voting Stations | Open Calgary* (2018) *Calgary.ca*. Available at: https://data.calgary.ca/Government/General-Election-2021-Results-by-Voting-Stations/5ajn-7mmh (Accessed: 30 October 2025).

References

WARD_BY_INCOME

1. Canada, S. (2020) *2016 Census of Canada - Household Income*, *Calgary.ca*. Available at: https://data.calgary.ca/Demographics/2016-Census-of-Canada-Household-Income/wj3a-wgmh/data_preview (Accessed: 30 October 2025). WARD_HOUSEHOLD_INCOME

CALGARY_TRANSIT_STOPS

2. *Calgary Transit Stops | Open Calgary* (no date) *data.calgary.ca*. Available at: https://data.calgary.ca/Transportation-Transit/Calgary-Transit-Stops/muzh-c9qc/data_preview.

WARD_PROFILES

3. Neighbourhoods, C. (no date) *Ward Profiles, https://www.calgary.ca*. Available at: https://www.calgary.ca/communities/profiles/wards.html

Proposed Visualizations:

- Is voter turnout impacted by how many recreational/community services ward has?
- How do variations in the labor force across wards correspond to differences in crime rates?
- Do differences in household income across wards relate to variations in voter turnout?
- Do public transit users experience convenient and reliable access to transit options?
- For working class residents(15-65), what are the employment and unemployment rates across various wards. What's the proportion of working class residents to overall population of each ward?
- To what extent do residents have equitable access to healthcare services?
- How does access to healthcare services influence community well-being across