CSDA 1050 Project Proposal

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Introduction: The Canadian housing market has always been an interesting topic of discussion, especially the market in Toronto. It is one of Canada's most popular and most diverse cities and it attracts people from all over the world however many people find affordability an issue, both in terms of buying and renting in Toronto. The focus of this assignment will be on the residential rental side, specifically apartments.

In Toronto there are many regulations and guidelines in place when it comes to increasing and reducing rent, but are these policies working, and are they having the desired effect? There are many questions that can be attempted to be answered but the scope of this project is to look at the marginal difference in rent price between tenured and new renters. Although many other questions may be raised along the process, and they will attempt to be answered, the focus will be to try to identify this difference and provide some explanation as to what is causing it.

Research Question: What is the marginal difference in rent price between tenured renters and new renters in Toronto?

Data: In order to attempt to answer the research question above a variety of data from different sources will be needed. The below data will need to be collected.

- Rental data (prices, location, properties of dwelling, duration of stay, etc)
- Rent reduction/increasing laws and regulations
- Income data
- Inflation data

Data Sources: Not all the above data has been located and extracted. The below data sources will be used to try to locate and collect the data needed.

- Canada Housing and Mortgage Corporation
- City of Toronto rental law data
- Census data/Statistics Canada
- SimplyAnalytics

Methods: Generally, the below will be completed to try to solve the research problem and provide insight. Ideally all the below is completed and the marginal difference in rent price between tenured renters and new renters in Toronto becomes apparent.

- Extract, transform, load data
- Data cleaning/preparation for analysis
- Look at and visualize rental data (actual prices, averages, location, properties of dwelling, duration of stay, etc along with changes seen in the above characteristics)
- Look at income, inflation, rent reduction/increase law data, and align with the above to compare and analyze to provide insight into the research question.

Limitations/Constraints: In theory this project could be extended to all of Ontario and Canada beyond that but due to the time constraint the project will focus on Toronto. Furthermore, it could be extended to various other types of dwellings. Not all limitations and constraints will be evident right away. Ideally all analysis is completed without issue and the marginal difference in rent price between tenured renters and new renters in Toronto is crystal clear but that does not always happen. Below are some of the potential problems that may arise during the completion of the project.

- Finding all the data needed to address the research question
- Cleaning and analysis of data
- Finding a useable model
- Discovering meaningful findings and implications

Timeline:

Week 1:

- Signup for GitHub, research python libraries and data APIs. Start developing a topic area/dataset for inquiry.

Week 2:

- Begin data collection, assembling methodology for Exploratory Data Analysis
- ETL work into data warehousing
- Begin exploring data and documenting issues/limitations/needs understanding needs/limitations regarding research question (might need to adjust question, scope, data, etc.).

Week 3:

- Submission of EDA sprint (via GitHub/Moodle)
- Collect/Augment/Refine project according to Sprint 1 findings
- Develop several analytical methodologies (these should be methods you are interested in learning – like Topic modelling or sentiment analysis, or social network analysis, etc.)

Week 4:

- The halfway point.
    - All data collection should be completed
    - The methodology should be finalized

Week 5

- Submission of Sprint 2 to GitHub/.
    - Includes codebase, report (brief), and plan for analysis

Week 6

- Start final sprint prepare for final submission.

Week 7

- Work on final project.

Week 8

- Final Submission.
    - Final report – pdf/word doc

        3-5 pages of background, research question, methodology, results, conclusion

    - GitHub Repo

        Well documented – meaning someone who comes across it randomly should know exactly what it is, how to re-create it, and what your repo contains

    - Final notebooks/analysis/results

        Each sprint notebook documented, detailed, and refined.