GENG-4500 – 60 Project Proposal: Housing prices prediction model

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*Abstract*—The housing market is one filled with variables, uncertainty, and unpredictability. There are many factors at play, but there is a general pattern to be deciphered. Random forest regression has been the top choice of AI model to attempt to predict housing prices. For this project, we will attempt to adapt a random forest regression model using collected data from reputable resources in order to predict housing prices here in Canada.

Keywords—machine learning, the housing market, random forest regression

# Introduction

The housing market in Canada is something that carries a lot of weight in the decision-making process of many, if not all Canadians looking to buy property. It has many variables to consider including such things as affordability, supply, investments, interest rates and/or mortgaging, various housing quality issues, and inequality issues. It can be quite an undertaking for first-time homeowners, or anyone who is looking to buy or sell. This project attempts to take a deeper look at the Canadian housing market in order to formulate a strategic approach to buying or selling properties using machine learning and an artificial intelligence model. A timeline between 2008 and 2023 will be used as the source of data to try and identify key points throughout the year. Variables such as the CPI (Consumer Price Index), the HPI (House Price Index), and socio-political events such as the 2008 collapse, various recessions, and even Covid-19 are taken into consideration. Though not quite as in-depth as other studies like it across the world, this project attempts to look for patterns and possibly clear up some of the guesswork when it comes to property pricing.

# Literature Review

# Methodology

The methodology for this project follows the standard seven principles for machine learning.

1. New Input data
2. Preparing the data
3. Training the model
4. Evaluation
5. Hyperparameter tuning
6. Prediction
7. Output of model

# Conclusion

# References

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##### Appendices

Appendix A: