STAT 1361 Final Report

The housing market plays a critical role in our economy, affecting individuals and institutions alike. Pittsburgh, as a large city with a thriving economy, offers promising investment opportunities in the housing market. By analyzing various features of a property, such as its location, size, and amenities, institutions and realtors can better identify properties with price discrepancies against the fair market value to make informed decisions on which properties to add to their portfolios.

In my project, I utilized data from previous home sales in Pennsylvania (Pittsburgh) to develop a system capable of predicting house prices given certain features of the house. Through the analysis of how each feature relates to the house price as well as each other, some interesting results emerged. First, there are a select few features that can significantly impact the resulting price of the house. For example, whether a house has a basement will impact the price more drastically than whether the house has a fireplace (at least in Pittsburgh). Some other significant features include the year the house was built, the square footage, and the average household income in a given zip code. Another result from my analysis is that the distribution of house prices in Pittsburgh is heavily concentrated in the lower price range (< $250000; around average). This suggests that the Pittsburgh market has lots of opportunity to identify cheap underpriced houses that can be expected to appreciate as the city and demand grows.

Overall, the housing price prediction system developed in this project provides valuable insights for institutions, realtors, and individual home buyers. With its ability to predict prices based on historical data and relevant features, this system can serve as a powerful tool to inform decision making and guide investment strategies for those looking to enter the Pittsburgh housing market.