IBM - Coursera
Data Science Professional Certificate

Final Capstone Project Report

"The best home in Minneapolis for me"

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Introduction

This report is a part of Coursera's Data Science Professional Certificate provided by IBM. The certificate includes 9 courses such as Data Science Methodology, Databases and SQL, Data Analysis, Data Visualization, and Machine Learning. The requirement for the final report is to use FourSquare API to explore or compare neighborhoods or cities of our choice. The learner is given full creative freedom to decide what problem they will focus on and what methodologies will be used to solve that problem.

Having just graduated from Carleton College, which is about 40 minutes away from the city of Minneapolis in the United States, I have considered living in the city. For this project, I was inspired to delve into home values to look for a place in Minneapolis. Therefore, I will be using methods such as K-means and linear regression to create predictive analytics of home values in Minneapolis. Real estate values are determined by many factors and different buyers have different priorities. Some factors that many people consider when buying homes are location, home size and usable space, upgrades and updates, the local market, and neighborhood comps.[1]

This report will present three main factors:

1. Neighborhood Comps
2. Home size and usable space
3. Location

I will cluster neighborhoods based on location and find the best model by regressing home size, usable space, and neighborhood comps to get a sense of what home value the buyer might be landing on to get a home of their choice or vice versa.

The target audiences for this report are

- Buyers looking for a new house in Minneapolis
- Realtors and agents
- The curious ones

[1] https://www.opendoor.com/w/blog/factors-that-influence-home-value

Data Description

Before I extract any data, I wanted to get the best and most updated list of neighborhoods in Minneapolis. Therefore, I scraped the list from wikipedia page: https://en.wikipedia.org/wiki/Category:Neighborhoods_in_Minneapolis

Current average home values in each neighborhood is important to consider when looking at homes. For the home values index in Minneapolis, the scraped dataset from Zillow didn't contain enough information. Therefore I manually downloaded it from this page: https://www.zillow.com/minneapolis-mn/home-values/

Sales prices of similar homes in neighborhoods that have been sold recently gives a good estimation of what price range the home of your choice might land in. I scraped neighborhood comps information from Zillow as well.
https://www.zillow.com/minneapolis-mn/

Many families consider the quality of local schools, employment opportunities, proximity to shopping etc. before buying a home. I used Foursquare API to get a sense of the neighborhood locations by looking at venues closeby.