

Coursera Capstone Project

The Battle of Neighborhoods

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Objective

Investigate the most recent market prices of Property in the city of London and recommend various locations where the prospective client can buy a property based upon his/ her budget using Machine Learning.

Problem Statement

People of all kinds from around the world flock to London, UK with some of these them aspiring to make this remarkable place a home of their own. With varying budgets and needs, people find it very hard to find a suitable place and neighborhood to accommodate them and their families. Due to high cost of living and other multiple issues, London housing has been struggling. With the inevitable Brexit, the problem has further compounded.

A potential client aspiring to buy a suitable property would like to become knowledgeable about the ongoing pricing to make a conscious decision. Further, he/ she would like to consider several factors like proximity to schools, medical care, restaurants to accommodate his/ her familial needs.

Resolution:

With government provided authentic data on London properties coupled with data science techniques, one can make derive the useful information about current pricing in different localities of London while considering other factors of his choice. This would help the potential client to make an informed decision about buying a suitable property.

The automated solution using Machine Learning techniques parses the necessary data from the price paid dataset which includes the transactions received at HM Land Registry. After cleansing, data is further condensed by selecting it only for the city of London which is area of choice in this project. The average price of property on each of these streets is determined by taking a mean on recent transactions of sale of property on respective streets.

Further, location coordinates (latitude, longitude) of these street names are fetched by making API calls to Google Maps.

Based upon the budget of the client, the current average prices are compared and all recommendations for the locations are made by plotting them on map of London. The recommended locations are further fed into Foursquare API calls to determine various venues in proximity to them. All reported venues are then tabulated and presented to the user.

Important facilities like Hospitals, Grocery stores, Elementary schools, High Schools are searched in vicinity of each location and then reported in a tabular form to the user.

Automation Script:

Scripting language	Python (Python 3x)
IDE	https://labs.cognitiveclass.ai/tools/jupyterlab/
Input	Open Data published by Government of UK under the section HM Land Registry: Price Paid Data Google Maps Geocoding API Foursquare location data
Output	<ol style="list-style-type: none">1. List of recommended locations2. Recommended locations in London plotted on map.3. Venues/ facilities list close to the property

Benefits:

- ✓ **Dynamic recommendations**
- ✓ **Flexibility in choosing the budget**
- ✓ **Flexibility in choosing the City/ Town with UK and Wales**
- ✓ **Recommendations plotted on map for clarity**

Limitations/ Scope of Improvement:

- ✓ **Enable additional condition checking for different PROPERTY types.**
- ✓ **Utilization of historical data which dates back to 1995.**
- ✓ **Interactive UI**