
THE CAPSTONE PROJECT



BATTLE OF NEIGHBORHOODS

Background

Actually, how do we go about deciding which Lagos neighbourhood is the least or most profitable? Home to over 17 million people, Lagos is on its way to becoming the seventh largest urban area in the world by 2020. This is right after recently obtaining the mega city status. In a society where owning property is regarded as a massive achievement, until you own a property you're not viewed as one who has accomplished much. Real estate is quite the big deal around these parts.

Property prices in the nation's former capital are constantly on the rise along with property owners incessantly increasing rent prices. With the massive expansion ongoing in Lagos, property in the suburbs could soon be at home in commercial neighbourhoods instead.

There's an outcry over a housing problem in Lagos but the bane of this problem isn't that there are no houses. Actually there are empty houses all over the city; with some staying vacant over a year without being rented out. This is quite the headache for someone looking to invest in Lagos real estate. Some housing projects remain unoccupied because they are pricey in some neighbourhoods notably Lekki, VI, Ikoyi and Yaba. Nonetheless, developers/investors continue to put up more housing projects. To help navigate through the property market in Lagos, let's identify which neighbourhoods offer more property investment value. The ideal neighbourhood for investing in properties would have: Affordable rental price.

To solve this business problem, we are going to cluster lagos neighborhoods in order to recommend venues and the current average price of real estate where homebuyers can make a real estate investment. We will recommend profitable venues according to amenities and essential facilities surrounding such venues i.e. elementary schools, high schools, hospitals & stores.

Data Collection

Data on Lagos properties and the relative price paid data were extracted from github (https://raw.githubusercontent.com/osinimu/tolet-housing-price-analysis/master/rent_2.csv). To explore and target recommended locations across different venues according to the presence of amenities and essential facilities, we will access data through FourSquare API interface and arrange them as a dataframe for visualization. By merging data on Lagos properties and the relative price paid data from the HM Land Registry and data on amenities and essential facilities surrounding such properties from FourSquare API interface, we will be able to recommend profitable real estate investments.

Methodology

The Methodology section will describe the main components of our analysis and predication system. The Methodology section comprises four stages:

1. Data Collection
2. Data Exploration
3. Data preparation and preprocessing
4. Modeling

Results and Discussion

First, we may examine them according to neighborhoods/Lagos areas. It is interesting to note that, some parts of Lagos (Agege, Ajah, Alapere) and (Badagry, Gbagada, Idimu) might be considered highly profitable venues to purchase a real estate according to amenities and essential facilities surrounding such venues i.e. Business service, Bus station, wine bar, and boutiques. Accordingly, one might target under-priced real estates in these areas of Lagos in order to make a business affair.

Second, we may analyze our results according to the three clusters we have produced. Even though, all clusters could praise an optimal range of facilities and amenities, we have found two main patterns. The first pattern we are referring to, i.e. Clusters 0, may target home renters prone to live in 'green' areas with farmers market, business service. Instead, the second pattern we are referring to, i.e. Clusters 1 and 2, may target individuals who love country dance club, coffee shop and athletics & sports.

Conclusion

The Methodology section comprised four stages: 1. Data collection 2.Data Exploration 3. Data preparation and preprocessing; 4. Modeling. In particular, in the modeling section, we used the k-means clustering technique as it is fast and efficient in terms of computational cost, is highly flexible to account for mutations in real estate market in Lagos and is accurate. Finally, we drew the conclusion that even though the Lagos Housing Market may be in a rut, it is still an "evergreen" for business affairs.