

An aerial photograph of a city skyline, likely Chicago, featuring a large body of water (Lake Michigan) on the left and a dense cluster of skyscrapers on the right. The Willis Tower is the most prominent building. The sky is blue with some light clouds. The text "Segmenting apartment complexes in Bangalore" is overlaid in white, sans-serif font, centered horizontally. A thin white horizontal line is positioned below the main title.

Segmenting apartment complexes in Bangalore

Identifying how apartment offerings are packaged in an Indian Metro

Background and Problem Statement

Background

- Bangalore is a city in the southern part of India and is commonly known as Silicon Valley of India, because of being a technology and start-up capital of India.
- There is a value in understanding the real estate packages on offer based on the size and nearby venues. This will allow us to understand what are the various price segments in which apartments are offered and is it actually providing enough value for the price.

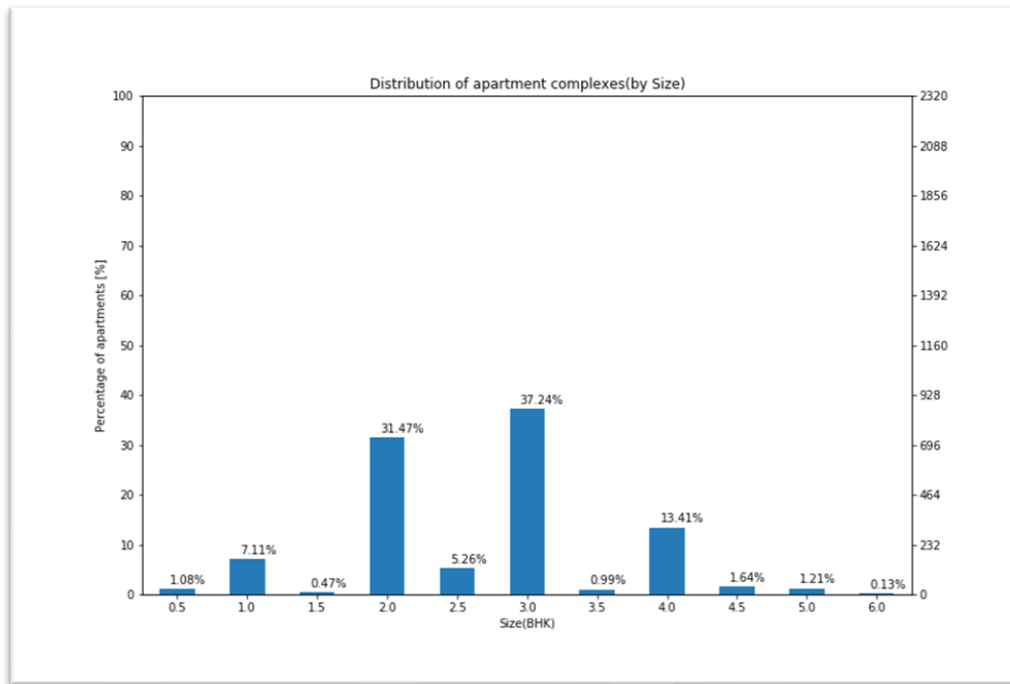
Problem Statement

- This analysis will be focusing on a hypothetical prospective customer named Mr. Omar Little who is moving to Bangalore with family for a long time and is looking for an apartment.
- He has the following requirements:
- He is looking for a moderately sized 3 Bedroom apartment which is moderately (not premium) prized
- He is looking for the apartments which have high schools and hospitals in the vicinity (within 2 Kms of the apartment)

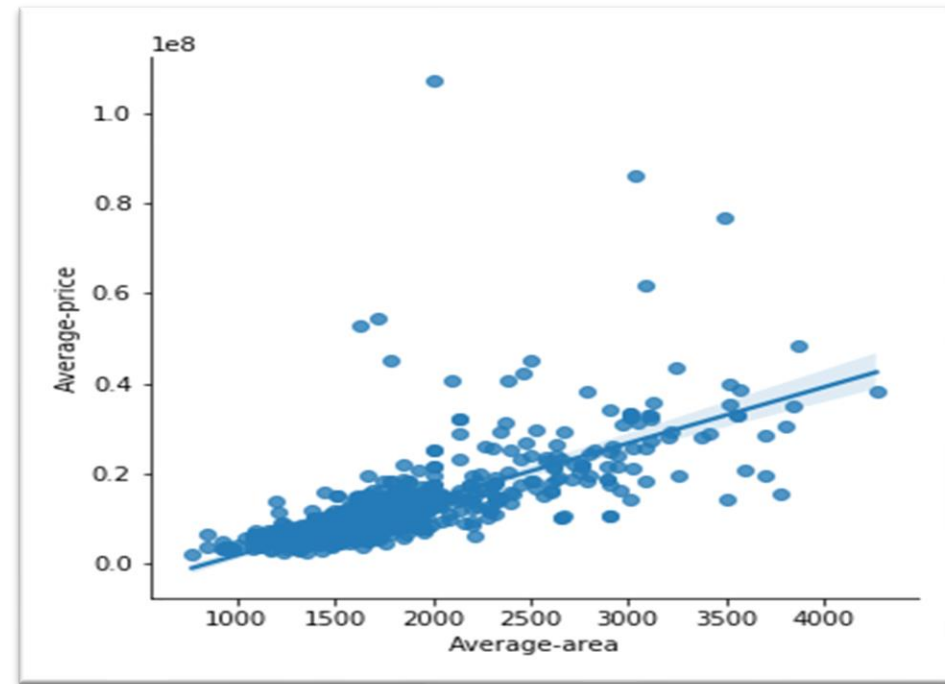
Data and Processing

- The data was sourced from Kaggle ([here](#)) where a user has collected the real estate data from a website
- The data had apartments(name, latitude and longitude) and apartment details(name, Unit size(no. of rooms),Area and Price) which were cleansed and merged. The 3 BHK apartments were extracted from this dataset.
- The venues near the apartments were obtained by Foursquare API explore feature using the latitude and longitude of the apartments.
- This data was then clustered on Price and the mean of nearby venues and the cluster with moderate pricing was taken up for next level of processing
- The nearby high schools and hospitals near an apartment were obtained by using querying the foursquare API on high schools and Hospitals. This data was then grouped based on number of hospitals and schools with their average distance from a particular apartment.
- The data was clustered on Price and the number of hospitals and schools and the average distance from the hospitals and schools to identify the packages on offer.
- The four packages were then defined in the conclusion

Exploratory Analysis



The data has more of 2 BHKs and 3 BHKs and our analysis is focusing on 3 BHKs.

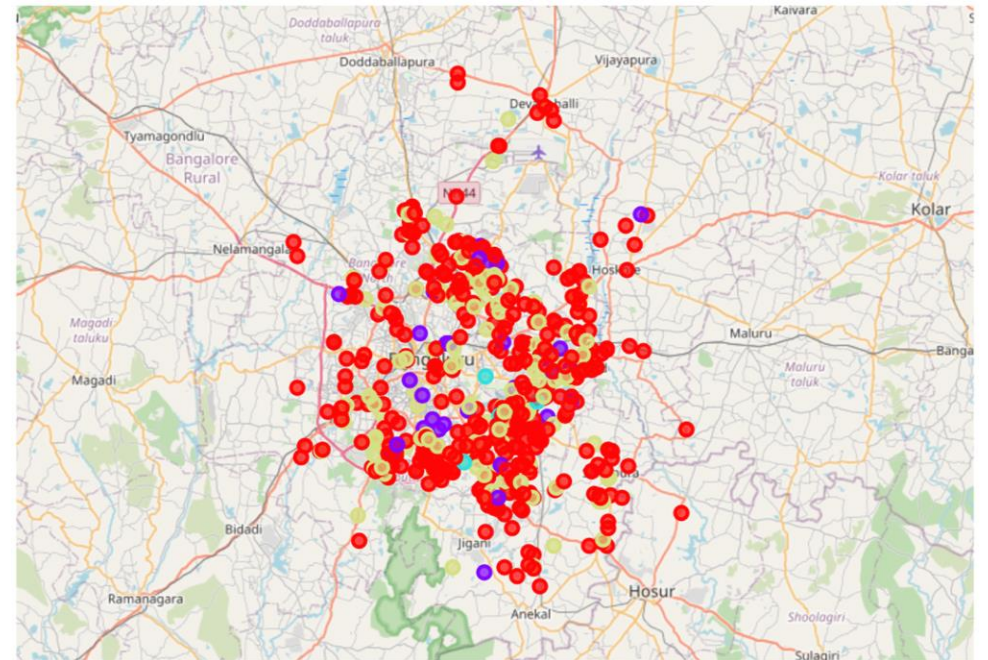


There price and area of the 3BHK apartments have an almost linear relationship indicating the area is one determinant in the price.

First Level Clustering

The data was clustered on Price, Area and number of venues of each type near the apartment which provided the following clusters

- **Cluster 0** - Medium size 3 BHKs with Moderate to premium pricing in proximity to Restaurants, Supermarkets, Yoga Studio and Gyms
- **Cluster 1** - Large size 3 BHKs with Premium to ultra-premium pricing
- **Cluster 2** - Large size 3 BHKs with Moderate to premium pricing in proximity to Restaurants, Coffee shops
- **Cluster 3** - Medium size 3 BHKs with premium to ultra-premium pricing in proximity to Shopping Malls, Hotels, pubs



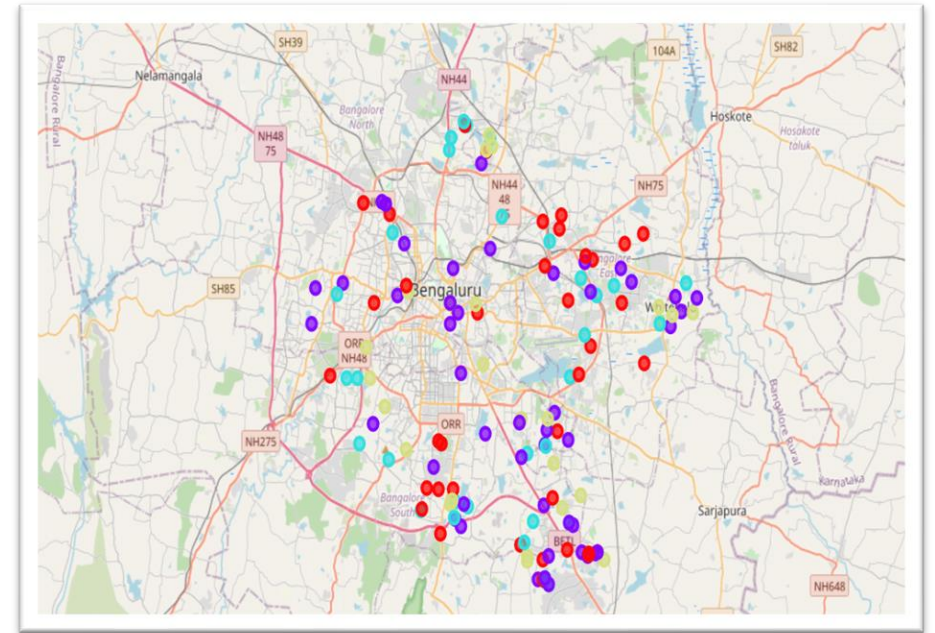
CLUSTER 0 seems to suite the pricing needs of the Customer

Second Level Clustering

The Foursquare API was then used to obtain the Hospitals and High Schools in the 2 Km radius of the apartments in Cluster 0. These hospitals and High schools were then grouped by the apartment based on the number of hospitals and High schools and their average distance from the apartment.

This data was then sub-clustered again to obtain the following sub-clusters.

- Sub Premium Priced 3BHKs (INR 7 Million to 8.5 Million)
- Moderately Priced 3BHKs (INR 5.6 Million to 7 Million)
- Premium Priced 3BHKs (INR 8.6 Million to 10.3 Million)
- Value priced 3 BHKs (INR 2.5 Million to 5.5 Million)



All these packages can now be used for purchase decisions

Results

- It was noted that based on the three criteria provided in the problem statement, a variety of offerings could be provided to the customer with each offering having its clear demarcation on price and having venues such as Restaurants, Supermarkets, Yoga Studio and Gyms.
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 - Premium Priced 3BHKs (INR 8.6 Million to 10.3 Million)
 - Value priced 3 BHKs (INR 2.5 Million to 5.5 Million)
- The offerings also consider the requirement for the proximity to High Schools and Hospitals and provide the other venues which are in the proximity to the apartments.
- The customer can thus choose the candidate apartments from these packages and evaluate them for purchase based on his affordability.



Discussion

- Based on his budget, Omar Little can make a purchase decision on any of these sub-segments as they are clearly segregated by Price.
- The nearby venues do not seem to have a major impact on the price of the apartments as all of them seem to have a restaurant and cafes. This may lead us to believe that the venues might be coming up because these apartments are there and not vice versa.
- The builders in each of the price subsegments are different. This leads us to believe that the brand plays a large role in the pricing that they command regardless of the area of the apartments.
- There are other factors such as amenities, location in the city which could be contributing to the pricing of the apartment which can be the subject of a future analysis