# **Recommendation of Location for establishing New Jewelry Shop in Bangalore**

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1. Introduction

1.1 Background

India has an insatiable appetite to buy gold/new jewelry. Every year tonnes of gold is imported by India to meet the demand of consumers. The bulk of these transactions happen in capital cities like Bangalore. For buying gold, the customers still prefer the brick and mortar shops and do not prefer the ‘online mode’ The reason being the ‘feel and touch’ offered by a physical presence. More often, the customers tend to check in couple of adjacent shops before deciding on such a major expense. So, if a new jewelry shop is to be opened in a vast city like Bangalore where should that be?

1.2 Problem

Inspite of the demand available for jewelry, a bad choice of location for establishing a new shop will dent the profits of the franchises selling gold due to lack of customer footfall, high rents etc. Any franchise desires to do the due diligence before investing in a new location. If we put a new jewelry shop in an already ‘happening’ place, then the franchise is risking ‘extreme competion’ for the same pie of customers. And similarly if the location choses is too far, then customers who desire to check on a couple of shops before deciding to buy may actually never turn-up at such location! The solution lies in striking an optimum balance.

1.3 Interest

Multiple ‘jewelry selling franchises’ like Tanishq, Bhima, Geetanjali would be scouting for new locations to capture the market. To gain the first mover advantage, sophistical tools need to be used to gather accurate information to take informed decision. The current capstone project offers an insight on location choice. The marketing or consulting agencies tasked with such goal would surely be interested in a tool that can analyze neighborhoods quickly and in a visual way. Significant time and resources can be saved by following the techniques learnt in this capstone project (viz. FOURSQUARE API, geopy module application) to map an entire area as large as Bangalore in a matter of hours. So, essentially whoever is trying to putting up a new brick and mortar shop in Bangalore at posh areas will be interested. And they are jewelry selling merchants in India. They will be interested. They can already be having a presence within Bangalore (as with Bhima, Kalyan Jewelers etc) or they are present in rest of India and are attempting to establish a foothold in Bangalore. Example would be Mehrasons Jeweler’s, Khanna Jeweler’s etc.

2. Data acquisition and cleaning

2.1 Data sources

The information required is not directly available and one needs to do web scraping and connect the dots to arrive at the consolidated information.

As our area of interest is the city of Bangalore in India, the first data source needed is the area pin codes within Bangalore. This can be easily obtained from below link:

<https://indiamapia.com/Bangalore.html>

The data will contain the area names and pincodes of Bangalore in a tabular format. We will need geopy package to gather the latitude and longitude of the various pin codes of Bangalore, India. We then further use foursquare API to explore a given pin code (by passing on latitude and longitude information) and gather information on existing venues like jewelry shop, showrooms, banks, malls nearby. We can even search for the presence of a specific brand of jewelers in a particular neighborhood.

2.2 Data Cleaning

While scaping through the above mention weblink, several duplicate entries were noted. This is due to some adjacent areas sharing the same pincode. Using the data cleaning techniques like dataframe.drop\_duplicates command options, the same was fixed.

Missing data entries were also noted and evident through presence of NaN in the data set. By using dataframe.dropna command this can be easily taken care of. The data was also checked for outliers by doing sanity checks on max, min values in a column and whether the areas identified indeed belong to the region in focus. By using foliomaps, the reported latitude and longitude of pincodes is visually verified to be indeed present within the boundary map of Bangalore.

2.3 Feature Selection

Obviously, foursquare API search query for ‘Jewelry Shop’ in a neighborhood is an obvious choice. Considering the fact that most jewelry selling shops tend to be in upscale localities, other thoughtful features could be presence of number of car/bike showrooms in that locality, presence of banks, ice cream shops etc all indicative features of upscale localities.

Using foursquare API calls, all the above information collated against each PIN code and we now have the data set required for further analysis. For a total of ~100 pincodes, with 11 features extraction searches, a total of 1100 API calls were made through a for loop. The information thus obtained is organized in a dataframe for further analysis.

Rest will be presented as part of capstone week2 assignment.