

Feasibility Study and for Opening a Restaurant in Pune, India

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1. Introduction

1.1 Background

Restaurants, cafes, bars and eateries have always been a lucrative business worldwide. There has always been a demand for new and trendy places. Increase in migrants, cosmopolitan culture and increase in globe-trotting, has increased need to cater to a variety of cuisines. Many factors like location, type, cuisine, menu, ambience, pricing and services provided play an important part in determining the success of the business. The city of Pune, India has been rapidly expanding over the last few years and with the ever-increasing population the demand for restaurants is high.

1.2 Problem

Many factors like location, type, cuisine, menu, ambience, pricing and services provided play an important part in determining the success of restaurant business. This project aims at analyzing the current landscape of various restaurants in the city of Pune and attempts to determine various factors to maximize the returns. In particular it attempts to answer the following questions:

- Location: Find an optimum location for opening a restaurant
- Pricing: Find an optimal price point in terms of cost for persons per meal
- Cuisine/Type: What type of cuisine to cater to?
- Predict the popularity: Based on existing restaurants and ratings, try to predict the rating of new restaurant based on price, cuisine and services provided

1.3 Interest

New restaurant owners will benefit from this study as it will give them guidelines in starting their business. Restaurants also face the challenge of changing social trends, which are cyclic in

nature . Apart from a few restaurants who have created a legacy in terms of cult following, the majority of the restaurants need to revamp themselves over a period of time. This study will also assist existing restaurant owners by giving them insights to extend, modify and revamp their current offerings. Thirdly, this will also help allied businesses like food delivery services to determine popular areas and interesting restaurants to deploy optimal resources.

2. Data Acquisition and cleaning

2.1 Data sources

The geospatial coordinates of Pune city and various pincodes within the city are obtained using geopy. Using the geospatial coordinates, venues within 2 kms are fetched using Foursquare API (<https://foursquare.com/>). The following features were retrieved for each venue:

- Name: The name of the venue
- Type: Category of the venue (like restaurant, eatery, Cafe, Pub, Brewery etc)
- Location: The location of the venue including latitude, longitude and pincode

For the restaurants fetched from Foursquare API, details and reviews for restaurants in Pune using Zomato API (<https://developers.zomato.com/api>). The following features were retrieved for each restaurant:

- Name: The name of the restaurant
- Type: Category of the restaurant (like restaurant, eatery, Cafe, Pub, Brewery etc)
- Location: The location of the venue including latitude, longitude and pincode
- Cuisine: The type of cuisine the hotel serves
- User provided data: Votes, rating, photos, reviews
- Pricing: Average price for two people
- Features: Various features like table reservations, delivery, takeaway etc

2.2 Data cleaning

- Data obtained from Foursquare API was not comprehensive and did not include the local sentiments and ratings from local users. Zomato being quite actively used in Pune region has more users and ratings for each venue. Hence, data obtained from both sources viz. Foursquare and Zomato was combined into a single table using the hotel name.
- Duplicate records or overlapping records fetched were pruned first.
- All the data points with either the location of user ratings missing were pruned, to produce a usable data set of 950 unique restaurants.
- Furthermore the text data in highlights was processed to add column for different features and services provided by each individual entity

2.3 Feature selection

- Features were carefully selected taking any redundancy into consideration
- Additional features were created based on textual information from some of the fields. Namely: highlight which indicates the services provided by the restaurant and cuisine which lists the cuisines served by the restaurant

2.4 Links to fetched data

The collected data is available at:

Data fetched using Foursquare API:

https://github.com/atakale7/Coursera_Capstone/blob/master/Capstone/foursquare.csv

Data fetched using Zomato API:

https://github.com/atakale7/Coursera_Capstone/blob/master/Capstone/zomato.csv