

Identifying Potential Development Sites for a Sushi Restaurant

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INTRODUCTION:

Background:

Houston is known for its thriving restaurant industry. Restaurant ownership can be a very lucrative industry, but it is also very competitive, with substantial failure rates for less fortunate restaurants.

Houston is also known as a uniquely multicultural city in the United States South, with cuisines from many different cultures. Sushi restaurants in particular are quite popular.

Problem:

One of my clients plans to develop and operate a sushi restaurant in Houston, Texas, but they haven't been able to choose a location. The client thinks that the best location will be a site where there is a high density of residents and a low density of existing sushi restaurants, i.e. more customers and fewer competitors.

The client also does not want to commute very far, and they know that the neighborhood near their home within city limits is very densely populated, so they have insisted that the site of their new restaurant must be near their home.

My plan is to utilize Python programming to reveal some possible locations for the restaurant. By using a Foursquare API query, I can find the locations of nearby competitors, and map the areas serviced by those restaurants so those areas can be avoided when choosing the site for development.

Interest:

If my client is able to choose a site for development where there are fewer competitors, they may have a better chance of prospering, as more of the residents in the area may opt for the nearer location.

If this method of analysis proves to be effective in determining sites of development that are more likely to be successful, the method could potentially be generalized and applied to other projects.

Data:

Data regarding existing, competitor restaurants within a 5 kilometer radius of the client's home were obtained through a Foursquare API query, and entered into a pandas database. This data was then refined to narrow the database to feature only sushi restaurants, leaving a database of 19 competitors in the client's target area.

In addition to the type of restaurant, the API call also provided each competitor's latitude and longitude coordinates, which could then be used to plot their location on a map.

Methodology:

After plotting the locations of the competitor sushi restaurants, as well as the client's home, a visualization was created to approximate the service areas of the client's competitors. Circles with two-kilometer radii were laid over the competitor locations, representing the area where competition was likely to be more intense given the proximity to a competitor sushi restaurant.

Discussion:

Provided with this map, the client was able to visualize areas where competition would be less intense, and thereby was able to consider other factors, including the desirability of the potential neighborhoods.

Although I was able to provide the client with the information they had requested, I did note some possible areas of improvement during this project. Although keeping target development sites at least two kilometers away from competitors will likely lower competition, the selection of two kilometers as the target distance was an arbitrary choice made by the client, based on their industry expertise. Additionally, the model makes no consideration of other variables that likely influence the success rate of a restaurant, such as population density, neighborhood building standards/zoning laws, or even the demographic composition of neighborhoods.

Conclusion:

Ultimately, this project was a success because the client was pleased with the visualization that was provided, and was able to easily map potential sites that satisfied their criteria for distance from competitors.

However, in future iterations of this model, I intend to make the following improvements:

- Provide analysis of population density in regions that are not serviced by a nearby competitor
- Provide analysis of consumer habits based on population demographics in target neighborhoods
- Ensure that potential sites will satisfy government zoning ordinances

Thank you for considering my report.