

Austin Texas: Determining the Best Neighborhoods to Locate a Restaurant Business

Problem Description and Background

There are several important factors to consider in making the decision on where to locate a restaurant business, having in mind that location can affect cost and profit, and also taking note of the fact that profit maximization is the primary goal of most businesses.

It is important to undertake a surrounding business and competitor analysis in determining the location of the business. Are businesses in the area doing well? Are people and businesses in the area affluent? What is the average income of people in the area? What types of restaurants are in the area? If, for example, there are already six barbeque restaurants in the neighborhood, it may not make business sense to establish another in the neighborhood.

If there is a night club in the neighborhood it might be expedient to situate a restaurant that caters for after hour crowd, after they are done with night drinking and clubbing.

Visibility and accessibility are also vital considerations; one would want not a location in a side street with very little foot traffic and one would prefer a location accessible to car traffic, parking space should, for instance be available.

What about the cost of the space? Is it affordable? Will it sustain or consume profit? Is there enough space to accommodate your vision?

What is the crime rate in the neighborhood? You would not want crime to chase away your customers. What is the population density of the neighborhood?. What are the demographics in terms of age, gender, employment, unemployment, underemployment, income bracket? How accessible are the sources of food supply?

These questions and considerations are within the purview of location data and other data sources to answer. This is precisely what this project is about, using data to analyze, provide insight and provide solution.

I chose Austin, Texas, USA as the location to base the analysis of this project. The choice is informed by the fact that Austin, Texas was ranked as the 2019 best city in the USA to live in, according to U.S. News & World Report's 125 Best Places to Live in the USA.

Target Audience

This project is for investors who are looking for prospects to invest in, particularly for entrepreneurs who want to invest in restaurant business in the United States of America but are curious of where best to locate it. The information here, though targeted at restaurant business are also useful for other businesses.

Startups would find this information also invaluable.

Data scientist, particularly beginners will gain insights into real world application of data science.

Data Description and Methodology

1. The major dataset used for this project is sourced from ['https://data.austintexas.gov/Building-and-Development/Neighborhood-Reporting-Areas-Zoning-Acres/npuf-crwm'](https://data.austintexas.gov/Building-and-Development/Neighborhood-Reporting-Areas-Zoning-Acres/npuf-crwm)
2. Google maps is used to derive the latitude and longitude coordinates of the Neighborhoods in Austin, Texas.
3. The Foursquare API was used to provide location data of venues and allied information in the neighborhoods.

This project uses an unsupervised learning approach, which uses data to identify patterns and information about major trends in the very dynamic restaurant

industry in Austin neighborhoods, this is with a view to also provide insight into some atypical behaviors that are unique to Austin restaurant business; which are more evident in view of the new realities introduced by the Covid-19 pandemic.

The K-means analytic clustering algorithm will be used to segment restaurants into clusters with a view to identifying the best clusters to locate what type of restaurant as prescribed by the analysis.