Opening a new café/bar/coffee shop

Introduction

In this project I will be describing how a hypothetical investor who is looking to enter restaurant industry in Austin can se Machine Learning and Foursquare API to find a desirable location for his new business. I picked Austin because it is one of the fastest growing city (+22% of population within the last decade) in the United States and I am familiar with its neighborhoods.

Assume the investor wants to open one of the following businesses: café, coffee shop or a bar. I am going to omit most intricacies of the business plan except for location. The main location properties are:

- Human traffic density (how many people visit per day and how long they stay)
- Demographics (age bracket, local culture, income)
- Rent
- Local laws (Liquor laws, noise laws)
- Competition(how many similar businesses are in the area)

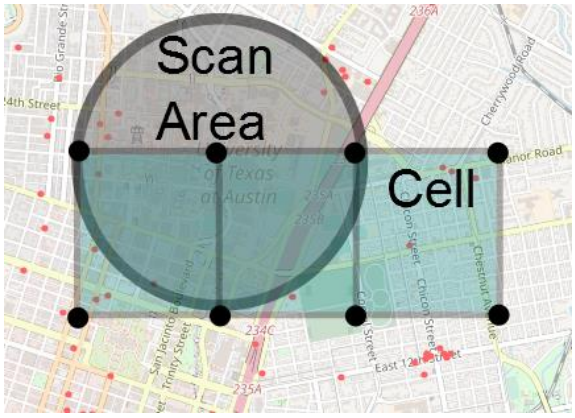
For the project I am will vastly reduce the number of variables because most of this data is not readily available and the final model will be needlessly complicated. I will focus on competition and population growth in certain neighborhoods. The data on population growth by neighborhood is available at:

https://www.bizjournals.com/austin/news/2016/12/08/austin-remains-population-magnet-but-growth-in-the.html

I will use FourSquare API to locate all the venues that match a certain criteria in a large area encompassing all of Austin and its suburbs. Later I will superimpose these two maps to find a location with the least number of competing venues and most population growth index.

Data Acquisition

The FourSquare API does not return more than 50 venues per query. In order to fetch all venue locations I divided the search area into cells. Each cell has a size of roughly 1x1 km. Each node is scanned with the radius of sqrt(2), that way all the cells are covered more than once. There was 625 cells.



Each query is processed and the following parameters are saved to a dataframe: id, name, latitude, longitude. Python script for data acquisition(with properly rendered map) is available at:

http://nbviewer.jupyter.org/github/drpurtseladze/capstone/blob/master/cap2a.ipynb

The map shows all the scan nodes (black) and coffee shops(red).