Battle of the Neighborhoods: Seattle Project Proposal

1. A description of the problem and a discussion of the background.

I am a management consultant expanding into the data science realm. I friend of mine is a product manager at one of the FANG companies. He has built a great deal of wealth, and is ready to start investing aggressively on real assets located in the major technology hubs of the U.S. He's interested in buying in buying property, opening restaurants, and potentially other retail establishments.

He has asked me to conduct exploratory analysis in the city of Seattle as a test run. If I do a good job, he is willing to hiring me on as a partner in his future investment firm. He wants me to see if I can find any arbitrage in the already overpriced market. Some questions that need to be answered are:

- Can the type of restaurant serve as an indicator of average real estate price in the area? *(ie. Can a high concentration of "Poke" restaurants indicate the average home price in a given neighborhood?)*
  Algorithm: Linear Regression

- Does the density of bars predict real estate price? If so, are any neighborhoods "under-saturated"? *(ie. Based on population density and median home price, should Ballard have more bars?)*
  Algorithm: Multiple Linear Regression

- Have bad reviews plagued a particular type of restaurant in a given neighborhood? (*ie. Can we open a pizza shop in Ballard because of poor competition?)*

2. A description of the data and how it will be used to solve the problem. (15 marks)

In order to complete the initial analysis we will need several data sets.

1. Foursquare Location Data
    - To query and correlate restaurant types, density, etc.
2. Zillow Real Estate Price Data
    I. Neighborhood Zillow Value-Filter for Seattle
    - To correlate Zillow Value estimate data
    II. Sale Prices by Neighborhood-Filter for Seattle
    - To correlate Sale Price data