Full Report of Capstone Project

Business Problem: A friend of mine is interested in opening a new restaurant within a 2-mile radius of Charlotte, NC. He tasked me with finding the best location to open the restaurant. This program will be broad enough to assist others in answering the question, "if I wanted to open a restaurant within a X mile radius of city-Y, and state-Z, where would be the best location(s)?" Companies such as Waffle House, Golden Corral, McDonalds would find this program beneficial.

Data: Data will be collected from the FourSquare location API. The data will contain information related to all venues and restaurants located within the city/state of the user's choosing.

Methodology: After further investigation of the data, it was determined we needed to standardize the 'venue categories' to further classify restaurants. To identify liked-venues, we used the K-means machine learning algorithm. We used this algorithm because we were working with unsupervised data and were attempting to identify any trends/similarities of the venues. For visualization, the folium package was used to map each venue's location and allow users the ability to select the specific venue to view the name of the venue, and which cluster it belongs to. Given the business problem, descriptive statistics were non-applicable.

Results: After viewing the map, I would be most interested in placing my restaurant along South/North College Street. This street appears to have the highest number of non-restaurant venues, including hotels, theaters, financial centers, churches, and professional sporting arenas, while also minimizing the number of restaurants along the same street.

Discussion: If we view the corner of South College Street and East 4th street, we will notice one of the major venues is a shopping mall. This results in multiple food venues to be built around/in the mall location/mall itself. This may be an issue depending on the type of Restaurant you are planning to build. I would further investigate the menus of each restaurant to identify any restaurants that would be of "true" competition. In addition, I would pay close attention to the corner of West 5th street and North Tryon Street, there appears to be a high volume of restaurants along this street, so I would want to investigate more on this location as it could lead to a better understanding of the area such as foot traffic and possibly cheaper rent.

Conclusion: Building a restaurant within a 2-mile radius of Downtown Charlotte would be a good selection, especially where South College street merges into North College Street. This

location is surrounded by a diverse set of venues, including churches, financial centers and theaters, which could capture interested parties throughout all phases of the day/time.