1. Introduction

1.1 Background
The COVID19 crisis has forced many restaurants to temporarily close their doors, limit their staff, and/or have reduced hours and seating. These factors have contributed to significant loss of revenue for restaurants, who rely on a steady stream of sales for day to day operations. Some restaurants have had to permanently close due to pandemic conditions. Other restaurants, however, have been able to stay a float and even thrive throughout the pandemic.

Restaurant X is a fine dining restaurant located in downtown Chicago, IL. Management of Restaurant X has noticed that they have been struggling since May 2020. The restaurant has seen decreased revenues, fewer customers, and even worse reviews. Management is confused as to why they have been hit so hard, though, when surrounding restaurants are able to keep afloat and bring in customers week after week. Specifically, Restaurant X has not been able to bring in the same level of customers during weekend evenings as before, which were their most lucrative hours of operation.

1.2 Problem
Stakeholders at Restaurant X wonder why they are struggling while surrounding restaurants are doing well. They have all been subject to the same pandemic conditions and restrictions, so why is it that Restaurant X is nose diving while others are maintaining? Restaurant X has retained Claire-Firm to understand why they are performing poorly and, furthermore, if one can predict which restaurants will thrive and who will not as the COVID19 pandemic continues in to 2021.

1.3 Interest
Determining what factors contribute to a successful restaurant during COVID19 will be helpful for stakeholders because it may allow them to change aspects of their business to align with those factors that make a restaurant successful in these unprecedented times. The restaurant could then potentially reap benefits from making these changes. This could allow restaurants to avoid shutdown, reduce the number of unemployed service industry workers, and avoid depriving Chicago residents of the staple foods.

2. Data

2.1 Data Sources
In order to answer these questions, we need to understand:

1. Which downtown Chicago restaurants have been successful and which have been unsuccessful during COVID19.
2. What are the characteristics of the two different sets of restaurants.

FourSquare's Place API data can help understand these.

We can use FourSquare's Search Venues API endpoint to find restaurant venues within 1,000 meters of Chicago's downtown.

Next, we need to figure out which of these restaurants are thriving and which are not. To do this, we can consult FourSquare's Trending Venues API endpoint, which returns a list of venues near the current location with the most people currently checked in. Restaurant X is most concerned about weekend evenings. Therefore, we can pull trending locations from 5pm-11pm CT in hour intervals on Friday, Saturday, and Sunday evenings over a three week period. These venues would be identified as "thriving" and all others found from the FourSquare's Search Venues API endpoint would be classified as "not thriving". The "not thriving" classification does not necessarily mean the business is failing, but just that it is not doing as well as it could.

Finally, we use FourSquare's Venue Details API endpoint to find characteristics of all of the venues including but not limited to distance from downtown and other Chicago attractions, hours, price tier, rating, whether the venue takes reservations, parking availability, whether a menu is available online, and restaurant type (i.e., Sushi, Chinese, American, Pizza, etc.), among other attributes.