Coursera Capstone

Applied Data Science Capstone

Finding the Best Location for a eSports Lounge in Chicago, Illinois Neighborhoods

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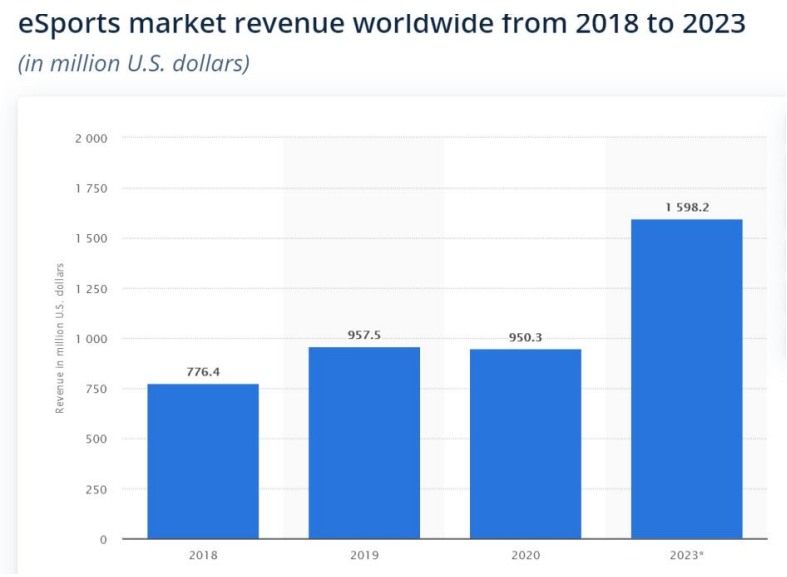
Introduction

There is a new phenomenon sweeping the world and it is eSports, electronic sports. In many different parts of the world the advent of Gaming Lounges has been a long time standing. In my travels to China over a decade ago, I came across my first gaming lounge in Chongqing, China. Since that time, there has been a boom in the eSports industry here in America. However, there are not many central hubs for athletes to compete in. Many are forced to play at computers in their own homes and are then at the mercy of the internet connections and equipment that they own. The constant lag spikes and interruption in data downloads means a poor playing experience. The gaming lounge solves many of these problems because of the high fiberoptic connection and top of the line gaming equipment. The lounge also provides a social experience, where teams can meet and play and interact with one another in a personal setting. The creation of a gaming lounge in Chicago, Illinois is imperative because it will allow for many people to take advantage and continue the expansion of eSports in the United States. According to a report from Newzoo.com, the global revenue in 2018 for eSports was just under $800 million and has grown to $950 million in the year 2020. They also estimate that the revenues will go to over $1 billion by the year 2023.



It would be very lucrative to open an eSports lounge in the city of Chicago, where there are currently less than 2 according to Yelp.com. The city would also benefit from the increase in taxes that could be made off the popularity of an eSports lounge in the right location.

Business Problem

The objective of this capstone project is to analyze and select the best neighborhood in the city of Chicago, Illinois to open a new eSports Gaming Lounge. Using data science methodology and machine learning techniques like clustering, this project will aim to provide a solution to the question: Which neighborhood in the city of Chicago, Illinois would a owner of an eSports gaming lounge look to open a business in order to maximize foot traffic and potential revenue.

Target Audience of the Project

This project will be useful to eSport developers and investors looking to get ahead of the growing popularity of eSports in the world and more importantly the United States. This project is important because as we start to come out of the COVID pandemic, there will be a lot of retail spaces available at cheaper prices due to the inability of people to use commercial space for the last ten months. Many people will also be looking for ways to congregate in a safe way and the eSports lounge is a great way to do so. The computers and gaming equipment will be safely spaced and cleaned regularly. The players will also be able to meet with only their teammates and avoid high levels of contact like in many other traditional sports. An investor would also be able to use this space for other opportunities, like training sessions for local colleges or industry and meeting spaces for local businesses.

Data

To solve the problem, we will need the following data:

- List of neighborhoods in Chicago, Illinois. This defines the scope of the project which is confined to the city of Chicago, the 3rd largest city in the United States.
- Latitude and longitude coordinates of those neighborhoods. This is required to plot the map and also to get venue data.
- Venue data, particularly related to entertainment venues. I will use this data to perform clustering on various neighborhoods.

Sources of data and methods to extract them

The Wikipedia page, List of Chicago Neighborhoods, contains a list of all 170 neighborhoods. I will be using web scraping techniques to extract data from the Wikipedia page, with the help of Python requests and beautifulsoup packages. Then I will get the geographical coordinates of said neighborhoods using the Python Geocoder package which will give me the longitude and latitude coordinates of those neighborhoods.

After that, I will use the Foursquare API to get the venue data for those neighborhoods. Foursquare has one of the largest databases of 105+ million places and is used by over 125,000 developers. Foursquare API will provide many categories of the venue data, I am particularly interested in the entertainment category to help solve the business problem I have addressed.

This is a project that will make use of many of the data science skills, from web scraping (Wikipedia), working with API (Foursquare), data cleaning, data wrangling, to machine learning (k-means clustering) and map visualization (Folium). In the next section I will present my methodology and the actual data analysis for this project.