IBM Applied Data Science Capstone

Opening a Movie Theater in Denver, Colorado in 2021

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Introduction

Economists reporting in the Wall Street Journal project that the US economy will grow by 4.3% in 2021 following the 2.5% contraction of growth in 2020. This presents an opportunity for capitalizing on the resurgence of people going back out into the market.

Revenue for Movie theaters declined by 62.6% in 2020 due to the COVID-19 pandemic and the social distancing measures that were put in place. Most movie theaters generate the majority of their income in the summer months. However, due to social distancing, movie theaters were forced to close and thus unable to generate revenue.

Consulting the IBIS World market Research Report, movie theater revenue in 2021 is projected to show a growth of 147.1%. This growth is attributed to “restless consumers and a gradual estimated increase in per capita disposable income” that will drive theater admissions. People are expected to return to theaters to make up for the past year of which they have been unable.

Business Problem

Our client would like to explore opening a movie theater in Denver, Colorado to capitalize on the projected increase of growth in 2021. Our objective with this project is to analyze the best locations in Denver, Colorado for opening either a brick and mortar movie theater and/ or a drive-in movie theater. Applying the data science methodology and machine learning techniques, this project aims to provide a response to the following question: Where is the best location to open a new movie theater in Denver, Colorado?

Target Audience

This problem would be useful for real estate investors, entrepreneurs and business investors that are evaluating where to open a movie theater in Denver, Colorado. As the social distancing measures are relaxed and more people are spending disposable income, this project presents a great opportunity to capitalize on the projected increase in movie theater growth over 2021 and beyond.

Data Requirements:

The following data is needed to complete this project:

1. List of neighborhoods in Denver, CO. Only the neighborhoods in Denver will be used in this study.
2. Neighborhood Latitude and Longitude coordinates of Denver neighborhoods. These are required to gather data on the different venues in Denver and to plot the neighborhoods on a map for analysis.
3. Data on the venues in Denver pertaining to movie theaters. This data will be used to perform clustering analysis.

Data Sources and Methodology

The data source for the list of neighborhoods is at the following wikipedia page: https://en.wikipedia.org/wiki/Category:Neighborhoods_in_Denver. Denver contains approximately 51 neighborhoods. This data will be web scraped from this wikipedia page by utilizing Python requests and beautifulsoup libraries. After gathering and cleaning the neighborhood data, the coordinates of the

neighborhoods will be imported using the Python Geocoder library. This will allow the latitude and longitude coordinates of each neighborhood to be created. After cleaning the data, the next step is to utilize the Foursquare API to gather the venue data for all of Denver's neighborhoods. Foursquare is an accurate location platform that provides global point-of-interest (POI) data from over 46K sources. These sources are then validated by the millions of consumers. Foursquare has location information in over 190 countries and 50 territories, over 900 venue categories and 2.4 million POI updates monthly. For this project we will be using the movie theater venue category.

References:

1. "Industry Market Research, Reports, and Statistics." *IBISWorld*, www.ibisworld.com/united-states/market-research-reports/movie-theaters-industry/.
2. Torry, Harriet. "U.S. Economy Shrank in 2020 Despite Fourth-Quarter Growth." *The Wall Street Journal*, Dow Jones & Company, 28 Jan. 2021, www.wsj.com/articles/us-gdp-economic-growth-fourth-quarter-2020-11611802382#:~:text=The%20International%20Monetary%20Fund%20expects,employers%20shed%20jobs%20in%20December.