

Locating a new art gallery in Los Angeles

By Stuart Shim for the Capstone Project in Applied Data Science by IBM



Downtown Los Angeles with freeway traffic in the foreground

Los Angeles Introduction and Overview

Los Angeles, California is known as the entertainment capital of the world. Movie and television studios including Paramount Pictures, Universal Studios, Warner Brothers, and Sony Pictures Entertainment are located in the Los Angeles basin. In the last decade, Los Angeles, has emerged as a major center for artists, collectors, art institutions, auction houses and galleries. Unlike most heavily-populated metropolitan areas in the world, Los Angeles, with a current population of 4 million residents, and the second largest city in the United States, does not have a true center or downtown. Although recent major real estate developments may challenge this notion, Los Angeles has various centers of activity and business. In order to create a sense of community, various neighborhoods have been labeled with physical street signs informing those interested, that they are in a new or specific neighborhood. This idea is fairly common throughout the United States, and can be often seen in historic or architecturally significant neighborhoods. In Los Angeles, it's more a marketing and promotion effort for residents and real estate development. It has also resulted in greater fragmentation of existing or older neighborhoods.

The Unique Geographic and Transportation Challenges of Los Angeles

There have been many theories and urban studies proffered to explain this phenomenon of no centralized business district in Los Angeles. But, the most likely explanation is the development of freeways in the Southern California region in the 1940s-70s. This freeway system encouraged decentralized home and commercial development. The good citizens of Southern California have paid the price for this development by having some of the worst traffic and air quality issues in North America. Travel times are much greater during peak traffic periods, so locating any business takes on greater importance in Los Angeles. Ask anyone who has flown into Los Angeles International Airport, how long it takes to travel the 19 miles to downtown Los Angeles. You may be surprised that the range can be from 24 minutes to 2+ hours, by car, depending on arrival time and traffic conditions.

Business Problem

Because of the issues outlined previously, a burgeoning art market, a non-central business district or city core, and traffic, locating a new art gallery in Los Angeles takes on greater importance than other metropolitan areas in the United States. This project will examine and address this challenge.

Target Audience

The target audience for this project includes: Entrepreneurs who have yet to launch an art gallery in Los Angeles, existing gallery owners who are considering expanding or relocating their operations, collectors interested in new venues to explore, art gallery suppliers, artists seeking new or additional representation, and art-loving visitors and tourists to Los Angeles.

Project Methodology and Data Sources

The general methodology for this project will consist of transforming available neighborhood data from Wikipedia into various data frames, visualizing the locations of these neighborhoods, merging the neighborhood data with existing art gallery geolocation data provided by Foursquare, and then utilizing k-means clustering of neighborhoods to identify potential new locations for an art gallery.

Web scraping the Wikipedia website and using Foursquare geolocation data will be employed extensively for this project.

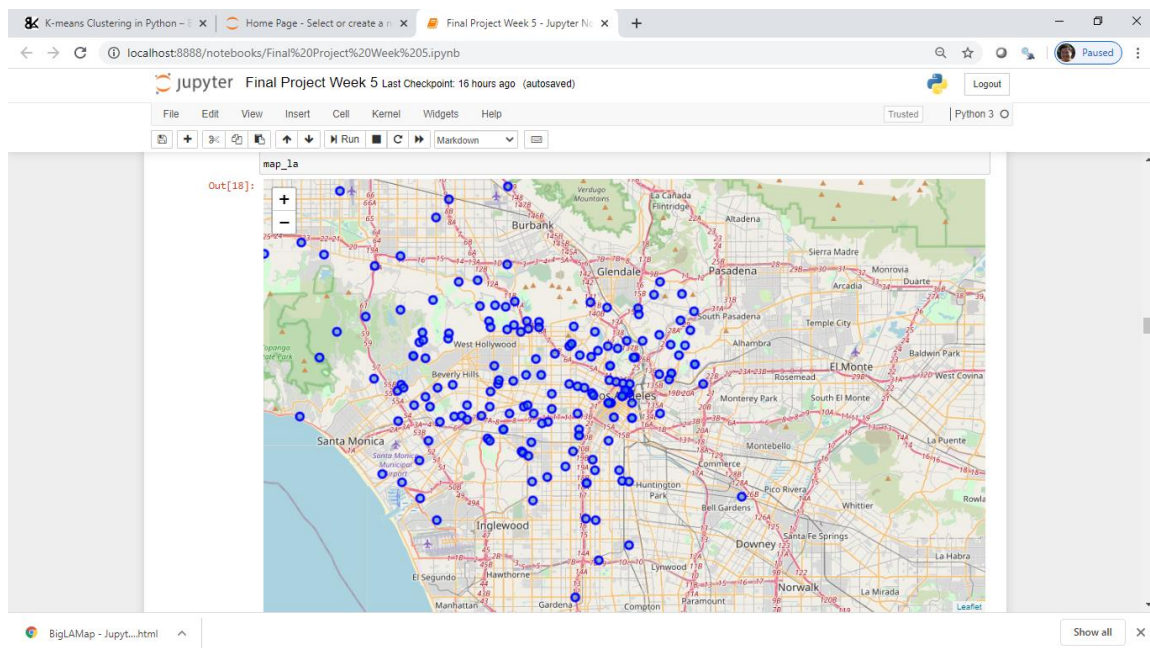
Methodology Summary

Since this project's target audience consists of art gallery entrepreneurs, artists, collectors, suppliers, and traveling art connoisseurs, here is a brief summary of the

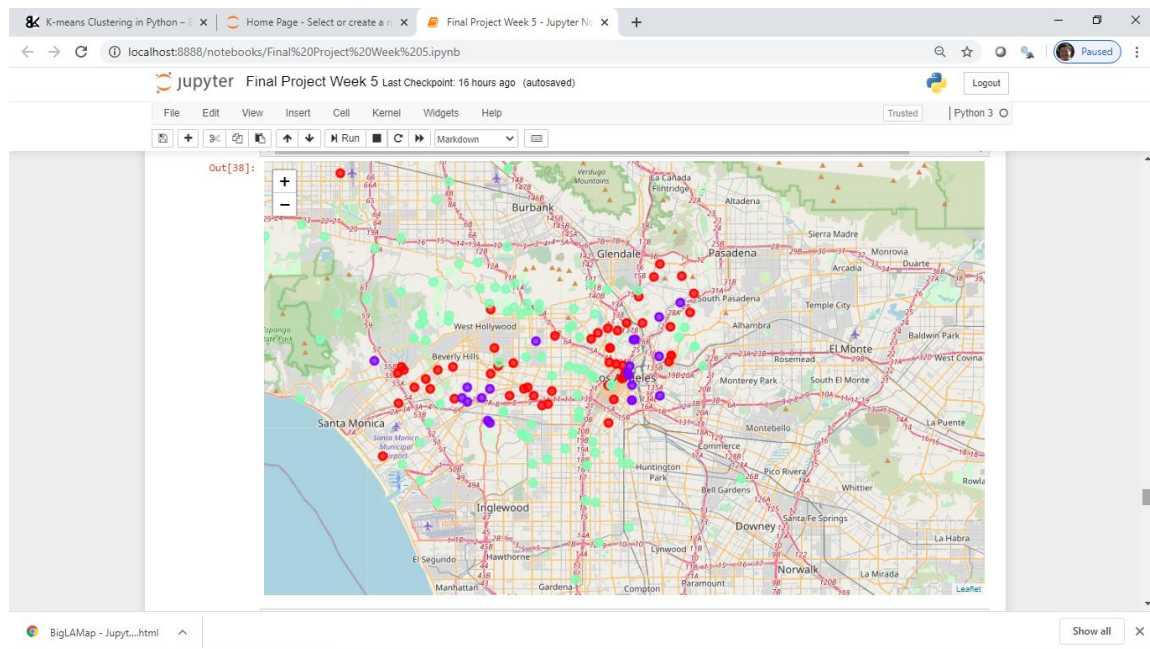
technical steps used during this project. A more extensive technical treatment, including specific code, comments, and other documentation is available here:

The methodology, in order, for the intended target audience, follows:

1. Importing Python software libraries and dependencies.
2. Obtaining Los Angeles neighborhood data from Wikipedia.
3. Adding geolocation data to the neighborhood data to create a data frame consisting of the neighborhood, and its respective latitude and longitude information.
4. Examining the 200 neighborhoods currently found from the Wikipedia web page, and then visualising the data to create a map of Los Angeles neighborhoods.
5. Foursquare geolocation data including unique venues, including art galleries, within a 2,000 meter radius of the neighborhoods were obtained and added to the neighborhood and geolocation data in a new data frame.
6. Utilizing Foursquare geolocation data, the number of art galleries were extracted and added to the ever-evolving data frame.
7. Using k-means clustering an algorithm that partitions observations, in this case art galleries and their locations, into 3 clusters was employed to identify potential neighborhoods for locating a new art gallery.
8. A map identifying the clusters and their locations was then generated using the cluster data.



Los Angeles neighborhoods map using Wikipedia website data



A map of the potential neighborhoods to locate a new art gallery.

Results

The results of this project further reveal the complexity and challenge of locating a new art gallery in Los Angeles. That is, there are 200 neighborhoods in Los Angeles, with 415 unique venues within a 2,000 meter radius of their locations, including a total of 79 existing art galleries. From these neighborhoods, this project has identified a number of potential neighborhoods to locate a new art gallery using k-means clustering.

Discussion and Observations

Los Angeles has a population of 4 million people, living in 200 different neighborhoods, exacerbated by its transportation system, and far-flung development. The long-time trend of building out, versus up, and using freeways as opposed to a robust public transportation system, has created world-class urban sprawl for Los Angeles residents. Selecting a specific location for an art gallery is extremely challenging under these conditions. This study has helped identify potential locations in Cluster 1 neighborhoods, based on the current locations of existing galleries.

Conclusion

Further analysis is encouraged to narrow down specific locations in Cluster 1 neighborhoods. Neighborhoods that show particular promise include: Chinatown, Los Angeles Flower District, and the Little Tokyo/ Arts District. These are all located in the

Downtown Los Angeles area, but slightly to the southeast of the Los Angeles Civic Center.



Downtown Los Angeles at night

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