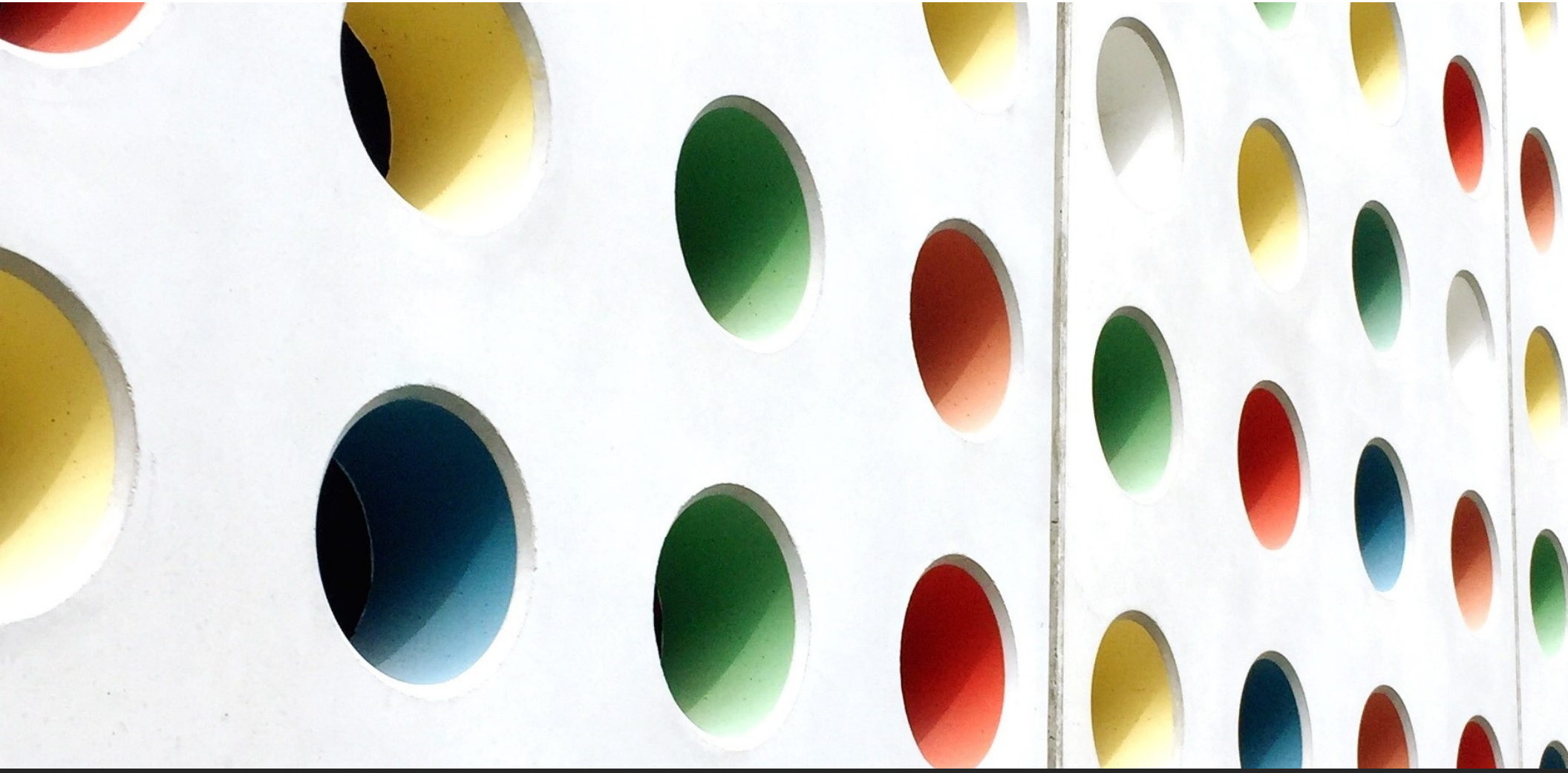
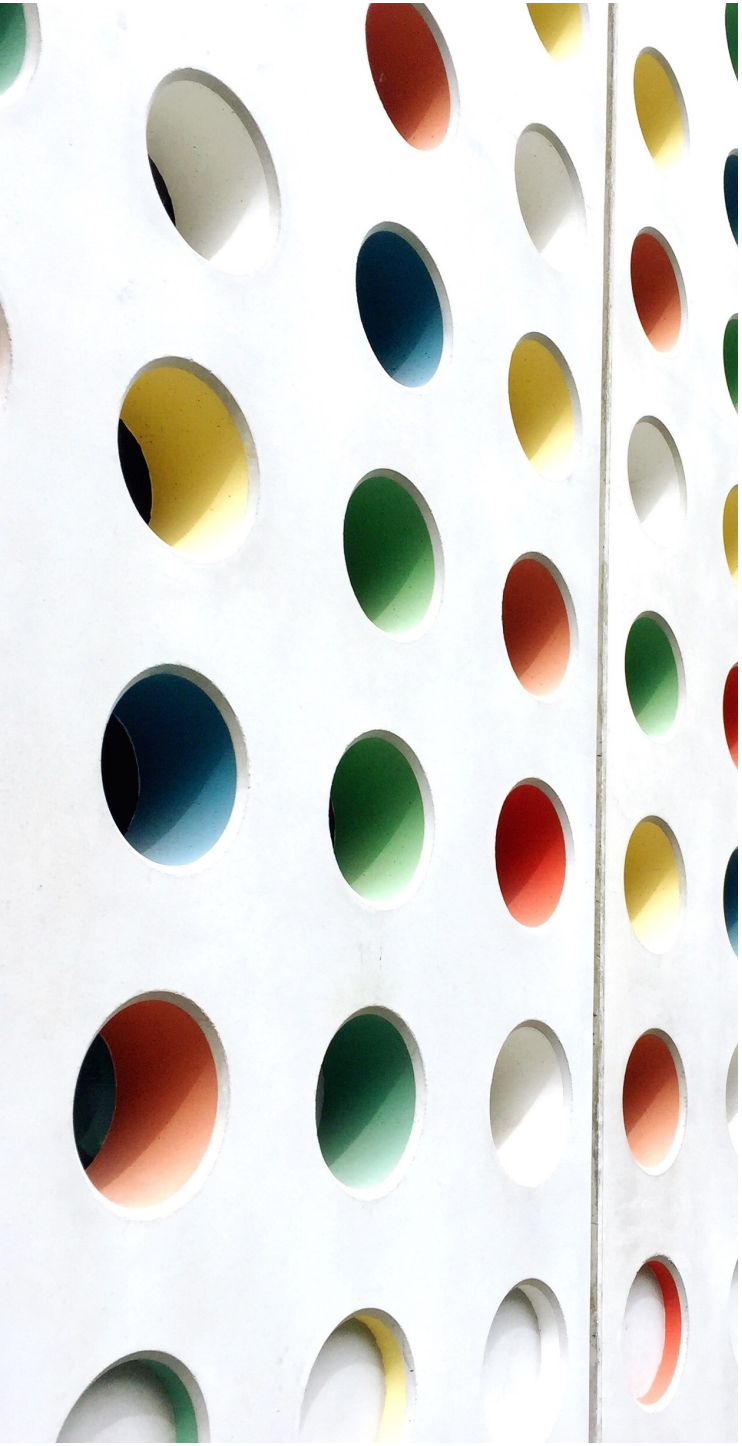


Los Angeles a City of Opportunity

ADNAN MOHSEN

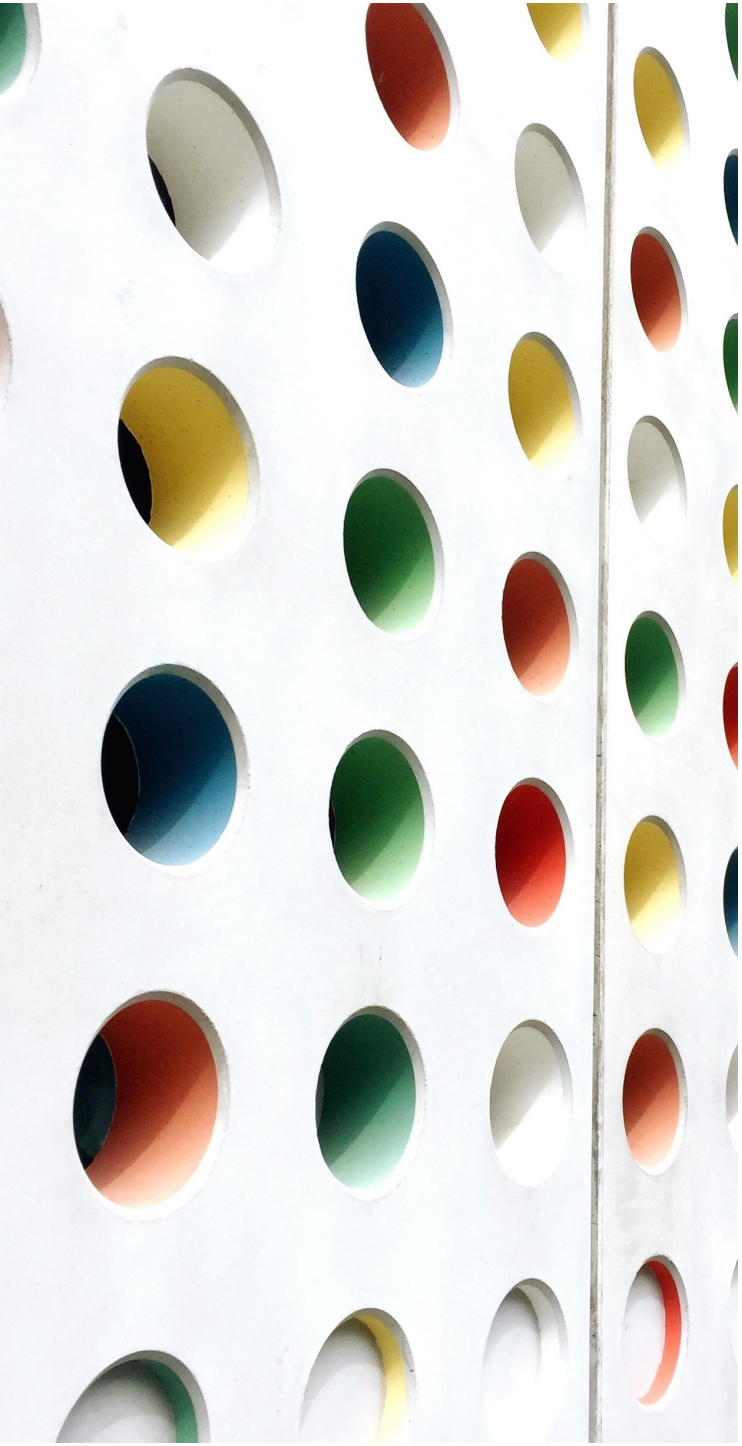


Los Angeles County Introduction

FIND OUT WHAT TYPES OF SMALL BUSINESSES EXISTS WITHIN THIS COUNTY .

TARGET WHAT SPECIFIC CLUSTERS ARE THE MOST COMMON AMONG THE 88 MAJOR CITIES THAT MAKE UP LA COUNTY

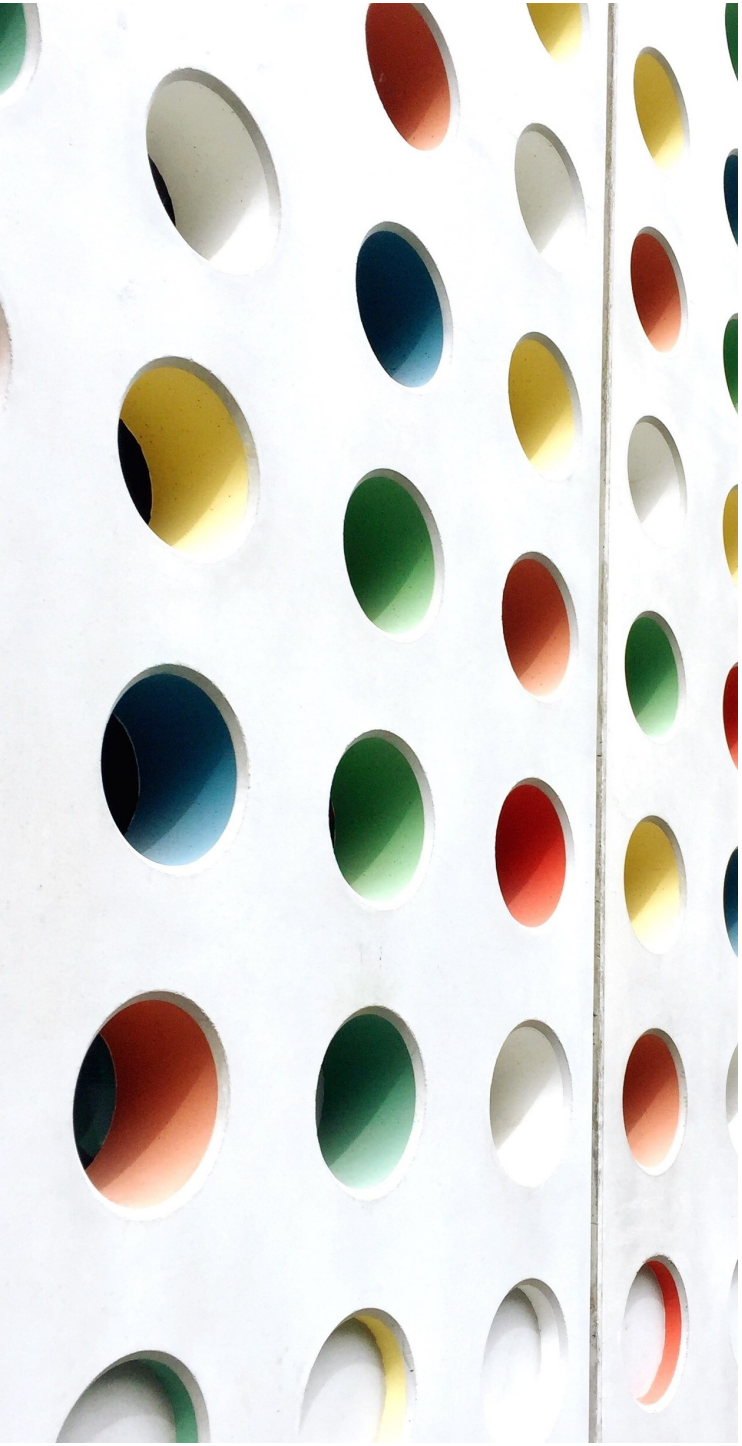
ONCE WE CAN DETERMINE WHAT IS THE MOST COMMON CLUSTER AMONG THE CITIES OF LA COUNTY, WE CAN MAKE AN INFERENCE ON HOW TO BUILD OUR BUSINESS WITHIN THAT SCOPE.



Los Angeles County Data Collection

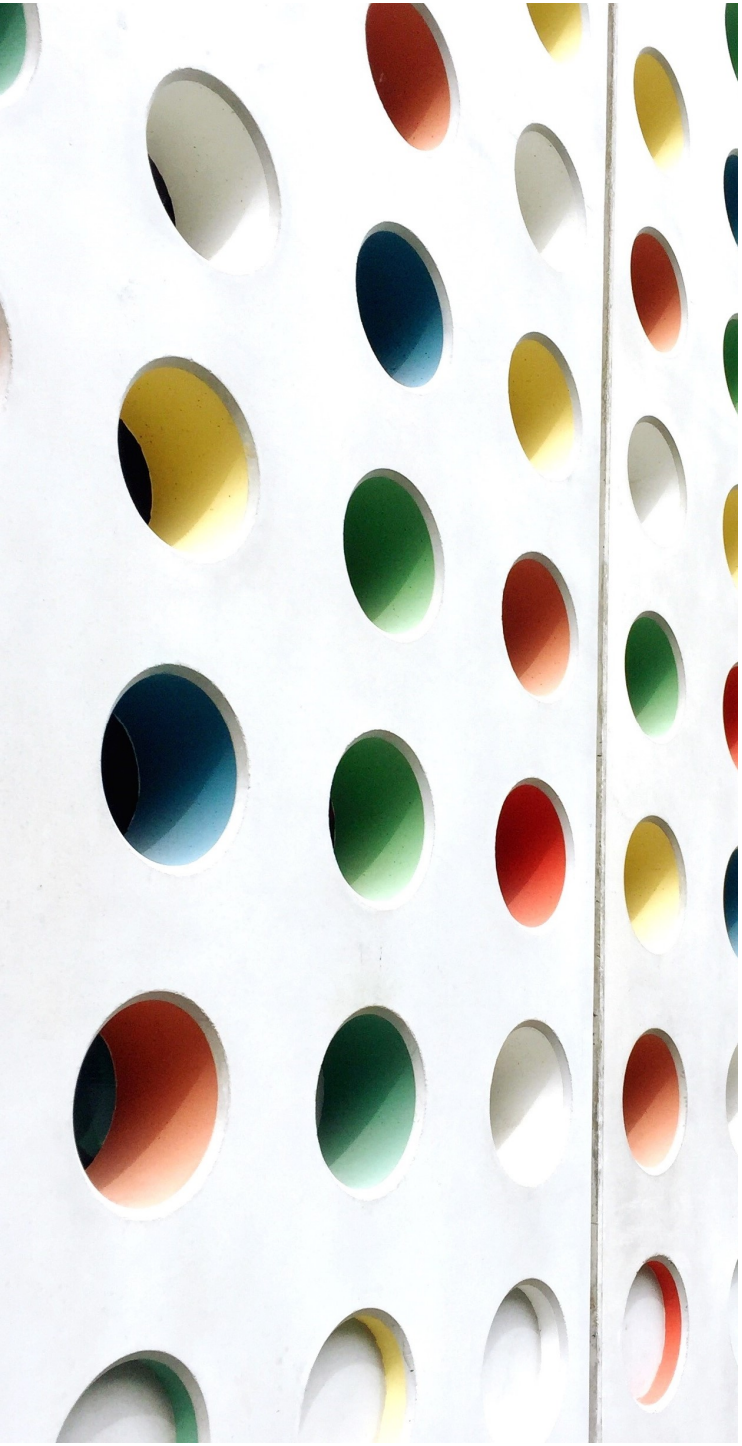
- We will require several sources of data to collect:
  - The number of cities within LA County.
  - The number of small businesses within LA County.
  - The zip codes of the cities to identify the relevant Longitude and Latitude of each venue location's proximity to the city within a cluster.
  - The venues of relevant Longitude and Latitude within those city zip codes.

- To find these data points we can use several sources of data:
  - https://en.wikipedia.org/wiki/List_of_cities_in_Los_Angeles_County,_California
  - http://www.laalmanac.com/communications/cm02_communities.php
  - We will also use the Foursquare API tool to find our venues within these cities.



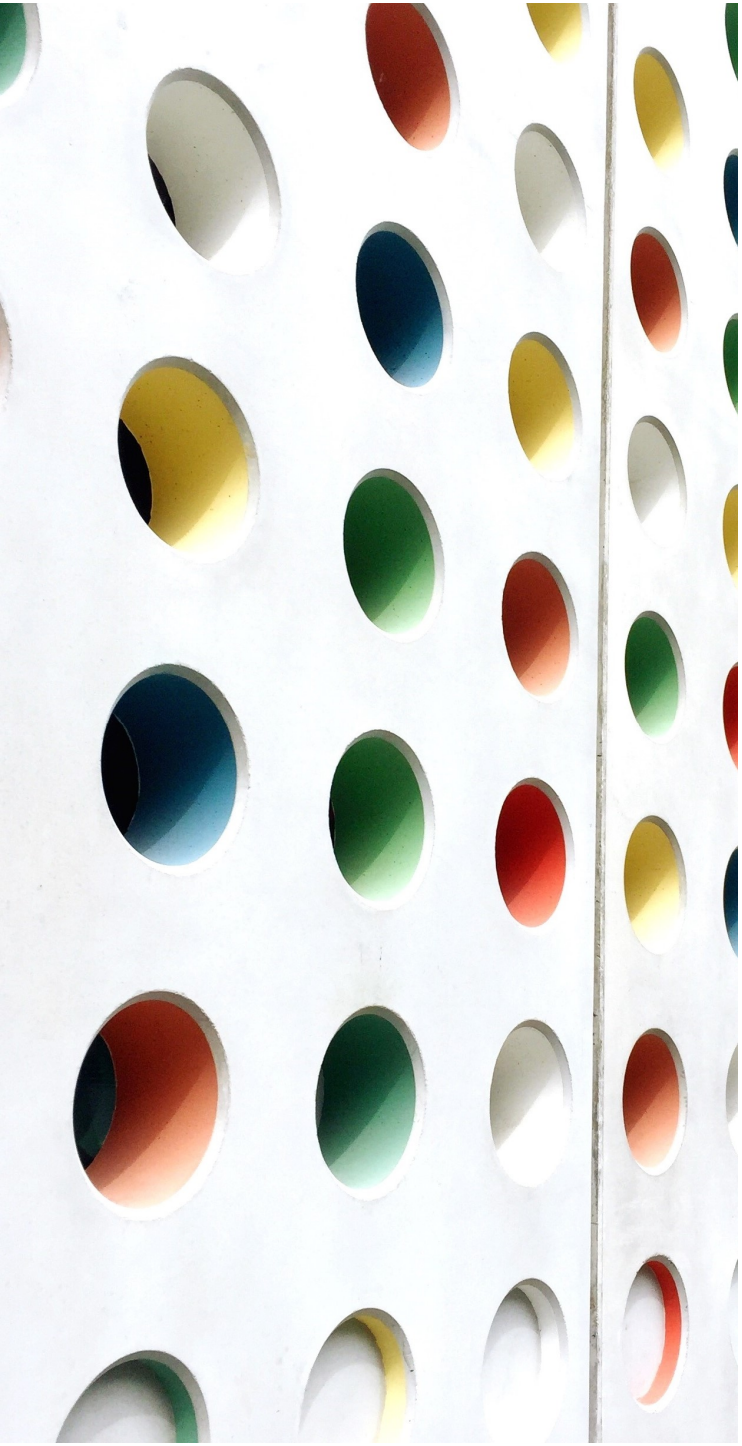
Los Angeles County Methodology

- We will need to pool our data sources and create a manageable data frame of all Incorporated LA Counties. This helps us understand our size and scope of the data we will need.
- Using the data frame for all known Zip Codes and Counties, allows us to find the Longitude and Latitude using our Geocode library and add this to the data frame to further clean the data for mapping purposes.



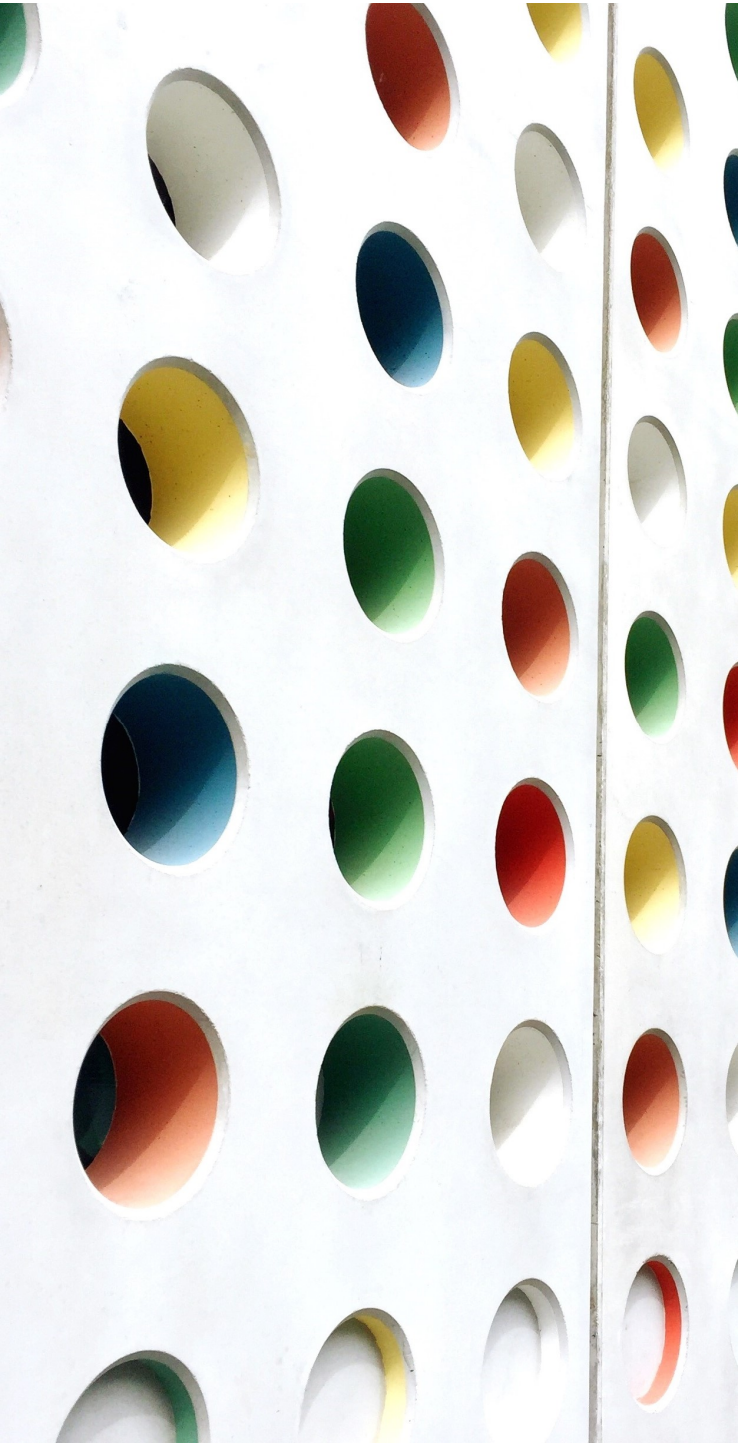
Los Angeles County Methodology

- Once the data frame has been cleaned, we can map our findings using Folium to help us plot preliminary points as a visual tool.
- We can then move on to the next step of our analysis, using the Foursquare API to call all known venues within the given latitude and longitude coordinates. This helps us establish the amount of venues within a given city cluster.
- We can also now determine certain patterns based on frequency and popularity of that venue based on the location data provided earlier.



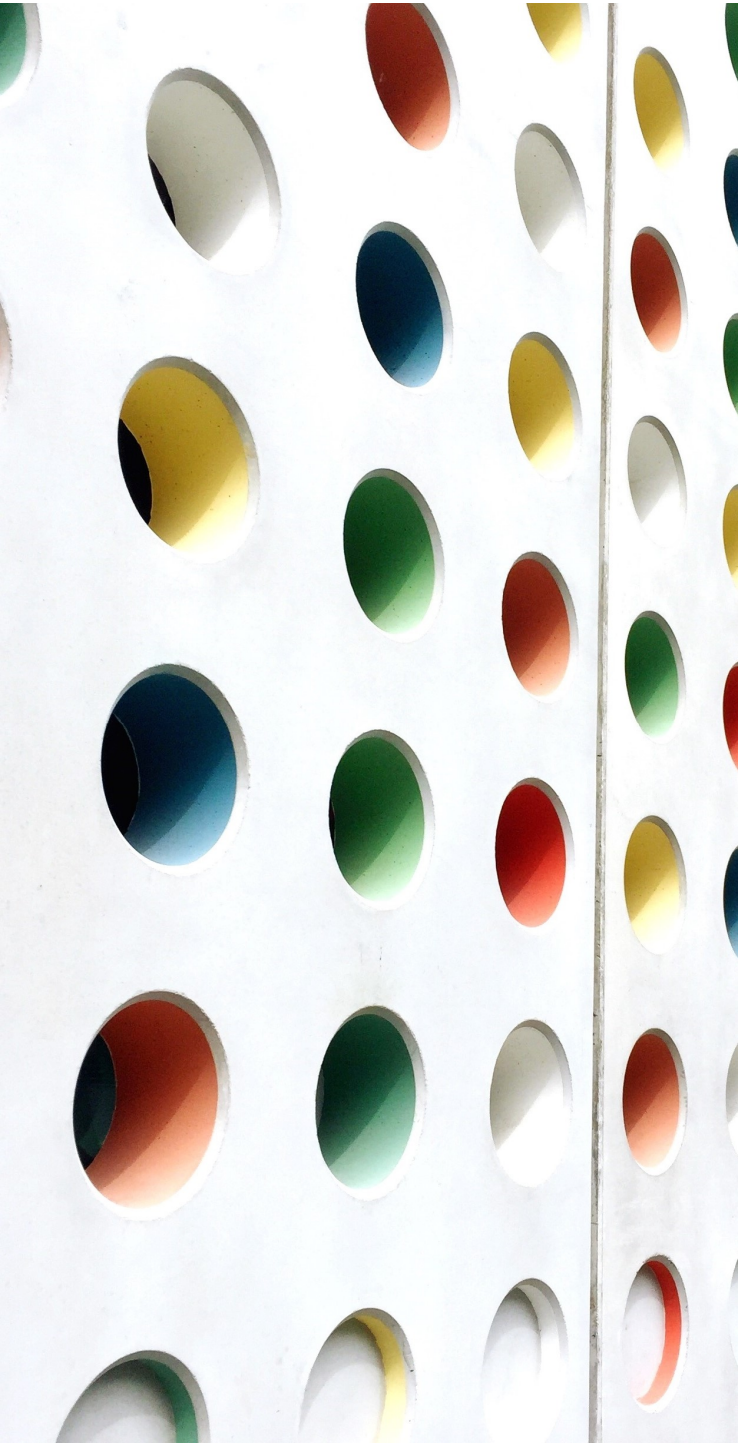
Los Angeles County Methodology

- We can now use a machine learning algorithm to help us determine a commonality between clusters found in LA County's 88 Cities.
- To help us establish this clustering, K-Means is used to find similarities between clusters and help us make an inference based on these similarities that may seem random, but all have a common link in each city.
- Once our cluster array has been established, we can then combine this information to our modified data frame that holds our mapping information for longitude and latitude.



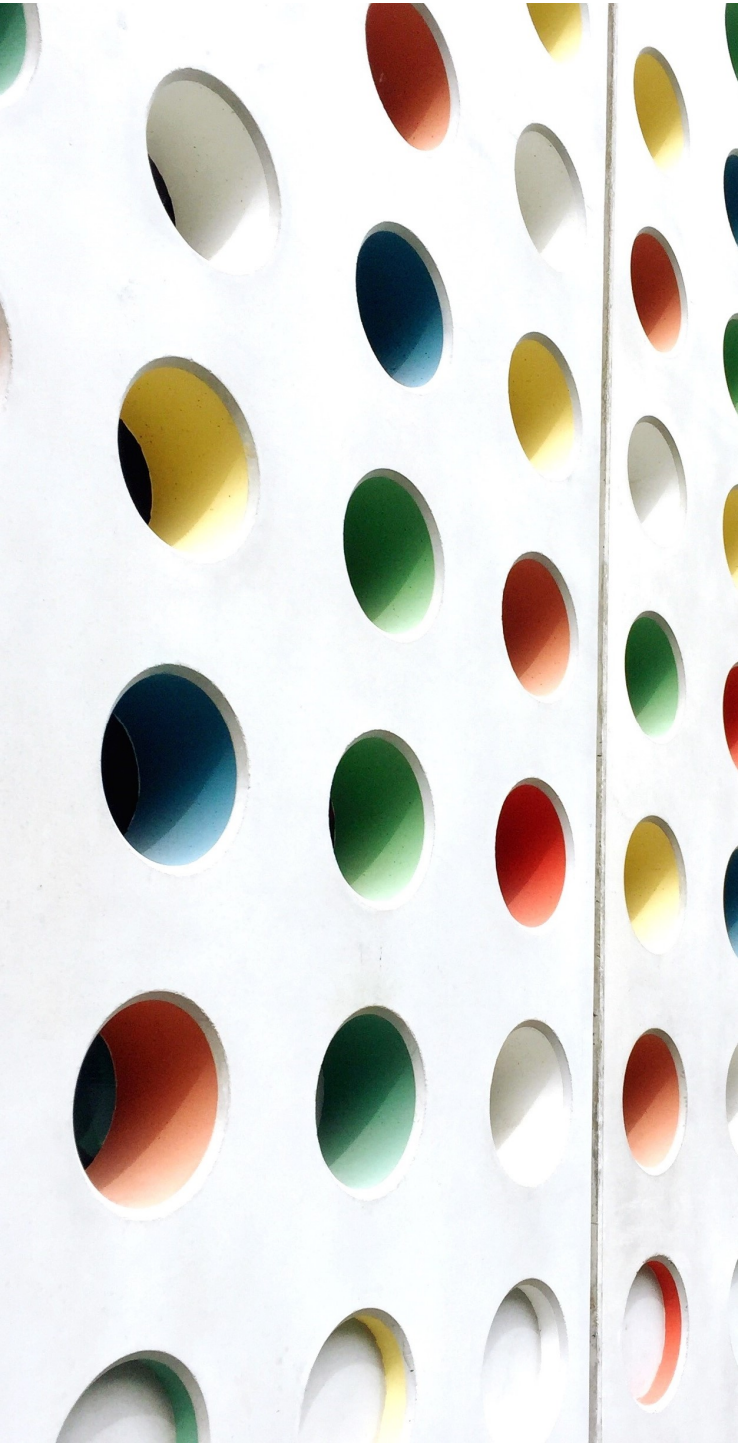
Los Angeles County Methodology

- We can now create a new modified Folium map to visualize these clusters within LA County.
- We can also make a determination on which cluster is the most commonly found using our K-Means cluster analysis.
- This helps us determine the top ten venues within a certain cluster, and what similarities they hold between each city.



Los Angeles County Discussion of Findings

- Once all the clusters have been accounted for, we are able to find a certain pattern in cluster 1. It has the most similarities for venues and helps us make an inference based the first most common venues column.
- The service sector containing restaurants show to be the largest and most frequented type of business within LA County.
- It also helps us understand that customers prefer to have a favorite restaurant than go to the convenience store, grocery, or Pub.



Los Angeles County Conclusion

- Based on our findings and making an inference from our cluster analysis using K-Means, restaurants are very popular within the Los Angeles Metro and surrounding 80+ cities.
- The Foursquare API helped determine what the most frequented venues are within a City of LA County, it also helped establish in a quantifiable format to the data frame that ranks the top ten venues within a city of LA County.
- The style of restaurants are based to the local culture within that city, but people seem to enjoy Seafood, Local Ethnic/Regional Cuisine, and BBQs.