

# Coffee, the Fuel of Modern Industry in Moline, IL

by Aaron Balk



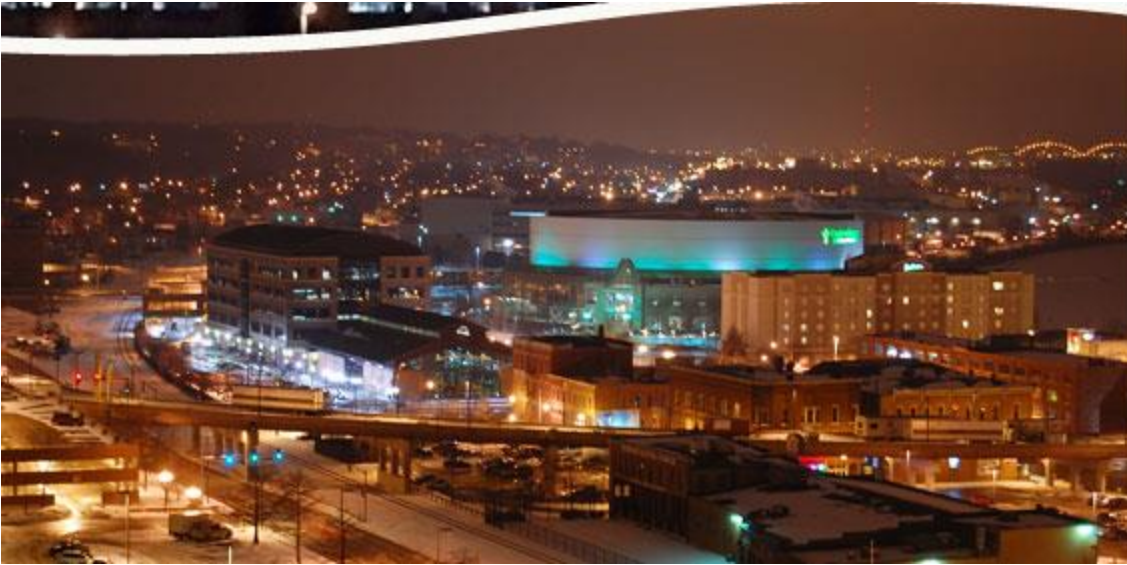
# Business Problem: Where to build a new modern coffee shop in Moline, IL?

- Opportunity = most local coffee shops are in newer developed retail areas on the outskirts of a city
- If a new shop was located closer to the residential areas of the city, it could be more convenient for daily commuters to downtown.
- Residents tend to be more loyal to local shops than chains like Starbucks.





# Target audience = who would be interested in this project?

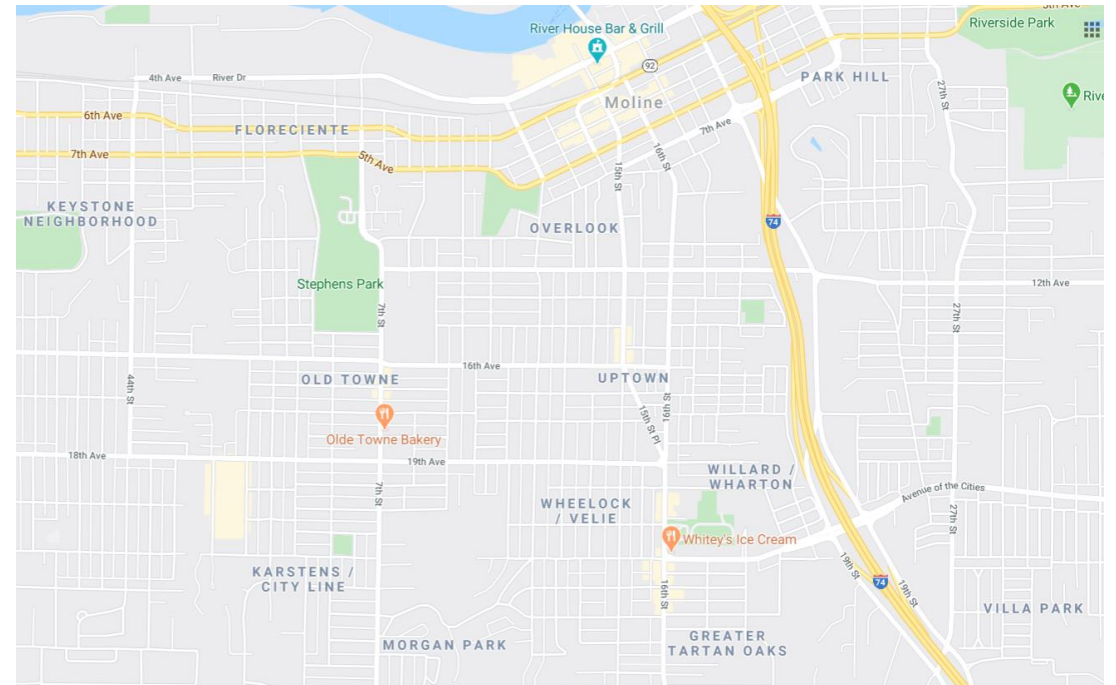


Downtown Moline at night

- Entrepreneurs looking to start a new coffee business
- Potential investors in our new business venture
- Locals coffee lovers
- Moline locals who would find the data analysis of their hometown interesting

# How can we use data to determine the ideal location for our new shop?

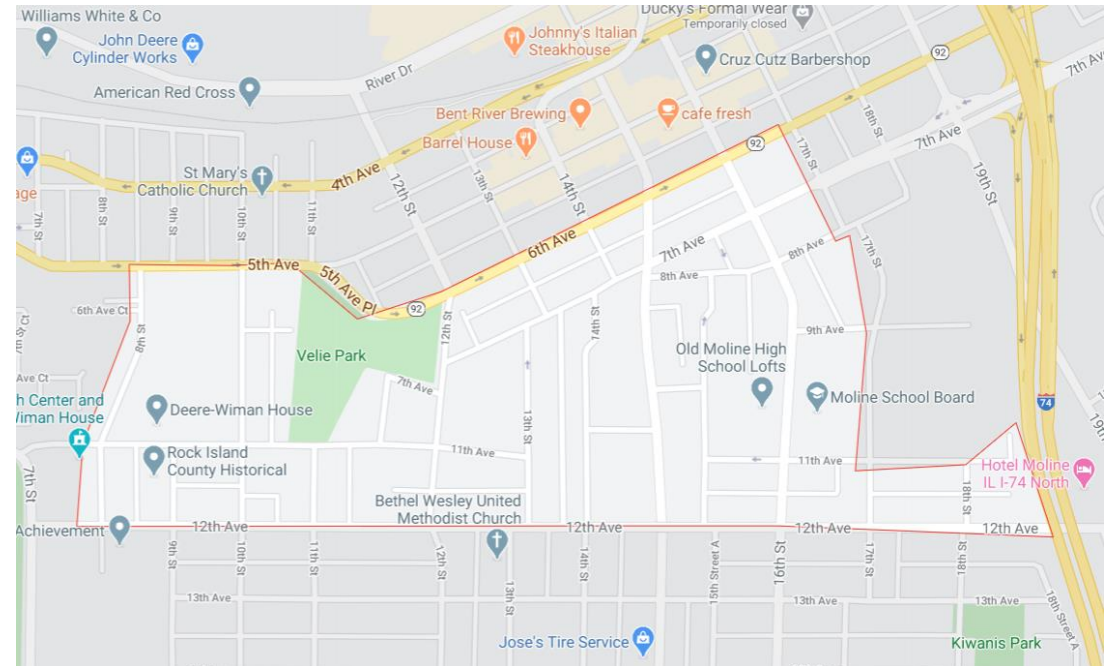
- We will use location data for the 26 historic neighborhoods in Moline
- Collect venue data from Foursquare
- We will want to ensure we are not building our shop too close to similar coffee options



Many Moline neighborhood locations and names shown in Google Maps

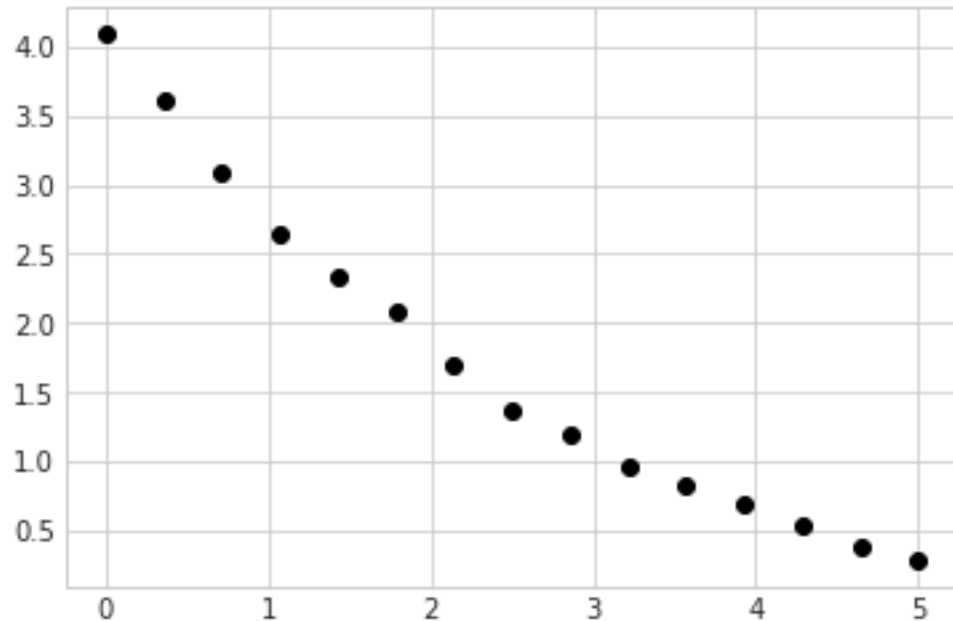
# Data Collection

- Since detailed accessible data on Moline's historic neighborhoods did not already exist, I had to build my own CSV, documenting the longitude and latitude of each neighborhood using Google Maps and online research.
- Nearby venue data collected from Foursquare
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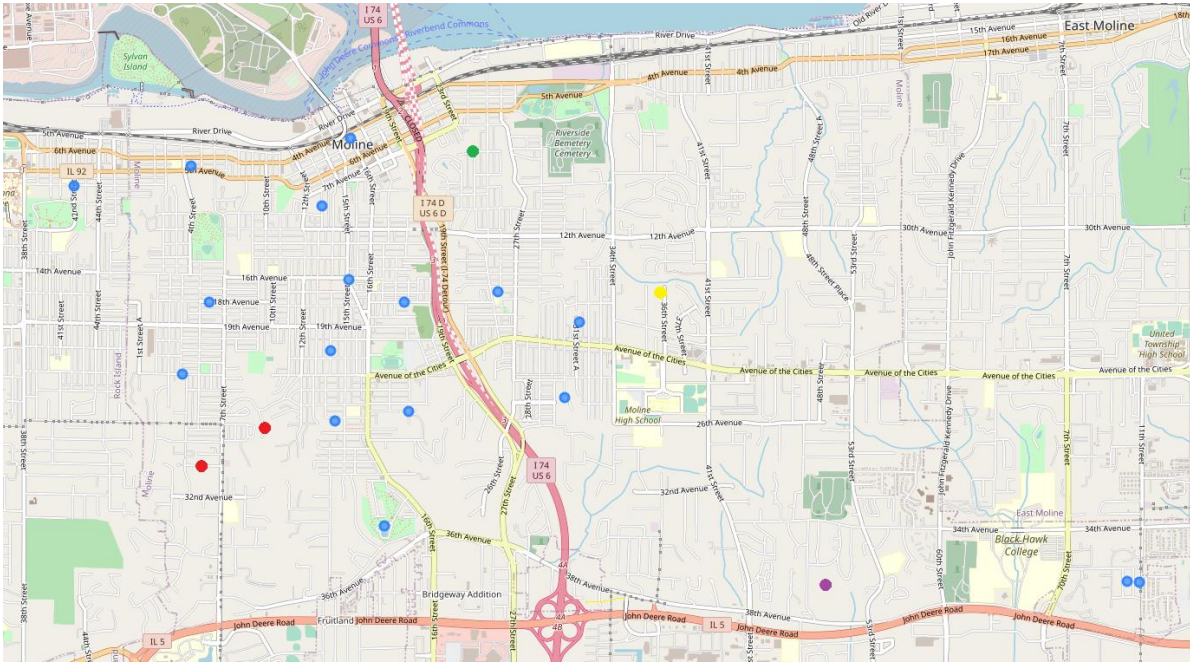
Outline of the “Overlook” neighborhood in Moline

# K means Clustering



- To avoid having to go through every single neighborhood in detail, we will use K means cluster analysis to cluster the neighborhoods into similar groups based on location and the most common venues.
- I needed to decide how many clusters I should create (the value of K). in order to do so, I computed the total within-cluster sum of square for a variety of values of K
- No clear “elbow” is visible, so I chose 5 for my number of clusters

# Cluster Results



- Created a map of the clusters using Folium
- Most neighborhoods were grouped into cluster 1, which is in line with what we saw on the Toronto assignment.
- Clusters 2-5 are all along the outskirts of the city



# Is the Foursquare Data incomplete for Moline?

- There were several indicators from my results that suggested that Foursquare may not have complete venue data for Moline
- Many nearby neighborhoods are almost indistinguishable from a venue perspective
- Coffee shops and Cafés didn't show up as common venues, even though I know they exist in the area





# Detailed Cluster Analysis

- Cluster 1: not an ideal location because there are many coffee competitors in the area (convenience stores, cafés, and donut shops)
- Cluster 2: promising area, only diners listed as possible competitors
- Cluster 3: maybe, gas stations are listed as the most common venue
- Cluster 4: not ideal, because there are convenience stores and donut shops as common venues
- Cluster 5: no competitors, but geographically distant from most of Moline

# Conclusion: Best location for our new modern drive-through coffee shop?

- Cluster 2, representing the Morgan park and Hamilton Heights neighborhoods, seems to be the best location
  - No competitors
  - Near a main road used by morning commuters
  - Near heavily-populated residential areas
- Future improvement to analysis = more rigor may be needed to validate that the Foursquare data is complete for Moline.

