Food Trucks and Neighborhood Clustering: A Decision Tool

CAPSTONE PROJECT – BATTLE OF THE NEIGHBORHOODS (PART 2 – WEEK 5)
1.3.21

Expanding into a new market brings high risk

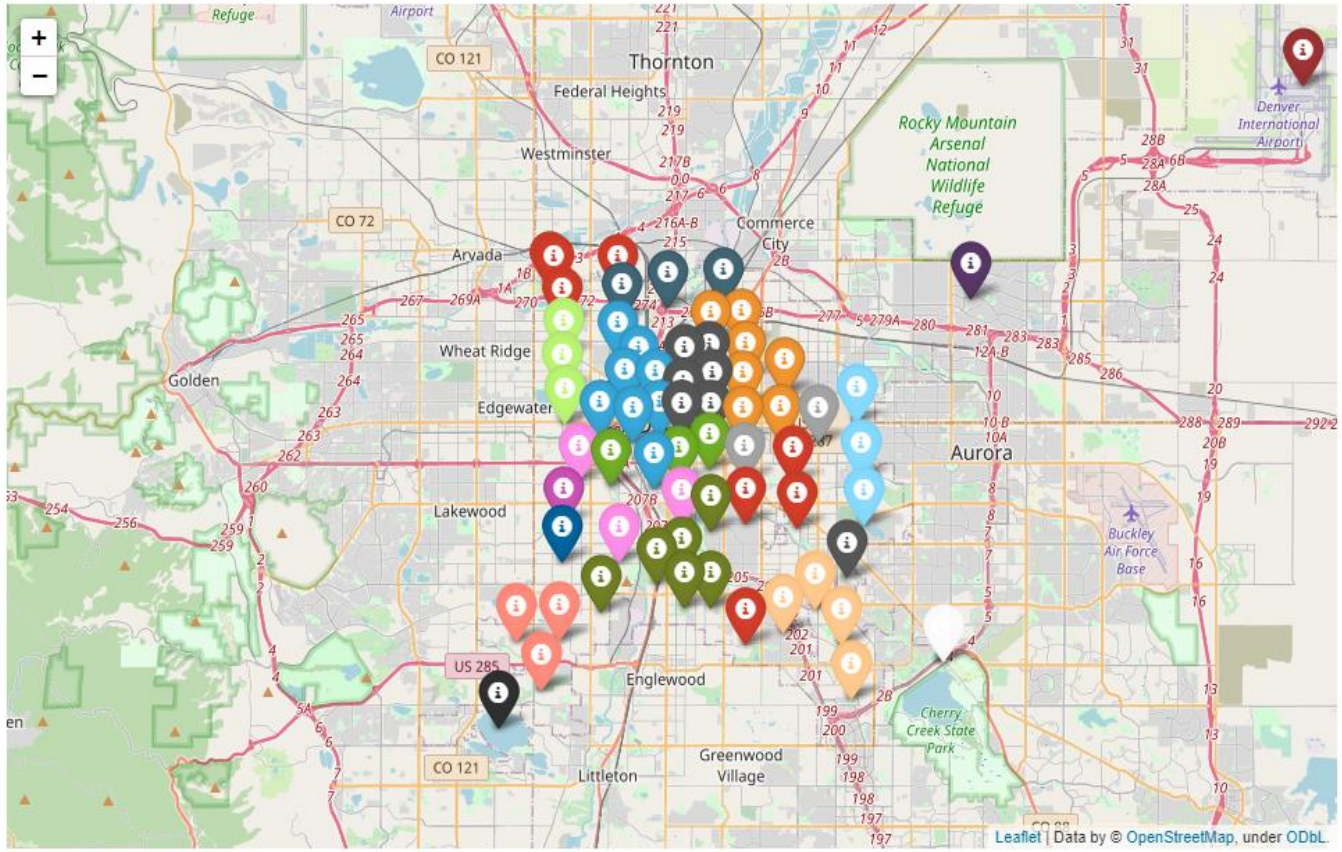
- Restaurant industry is fast-moving with ebbs and flows and low profit margins
- Food trucks have advantages
  - Mobile
  - Lower overhead
- Still carries risk opening to new markets
- Data Science can reduce risk to restauranters and investors
  - Find similar location to successful food truck cultures
  - Clustering locations to find new markets

Data

- Neighborhood names for Denver and Jacksonville from denvergov.org https://www.denvergov.org/opendata/dataset/city-and-county-of-denver-statistical-neighborhoods and Wikipedia Neighborhoods of Jacksonville https://en.wikipedia.org/wiki/Neighborhoods_of_Jacksonville
- Neighborhood venues for Foursquare.
- Geolocation from Positionstack

Denver Neighborhood Clustering

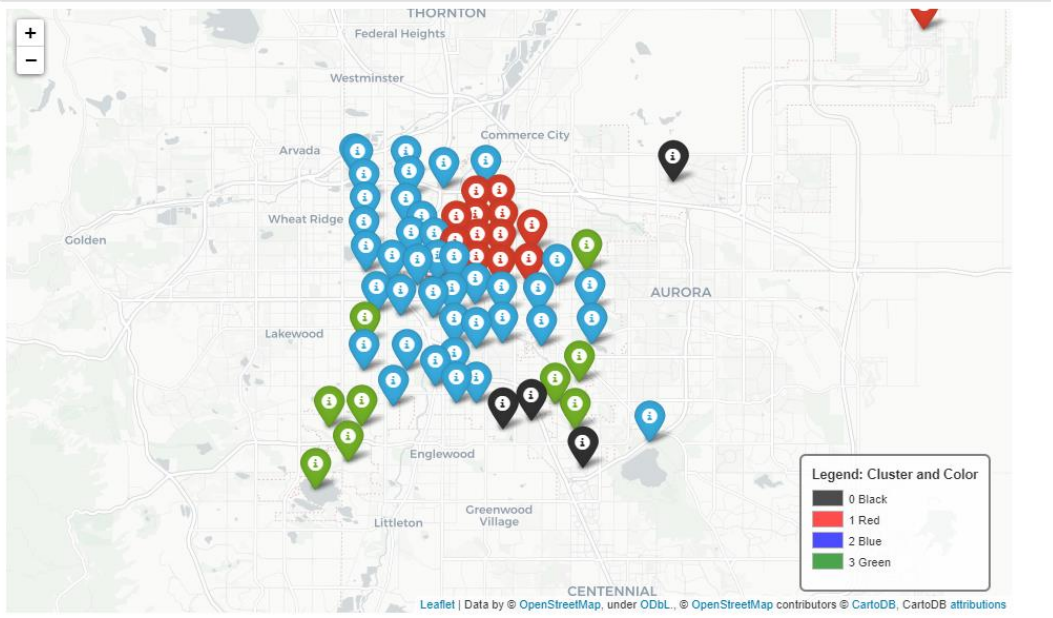
Out[43]:



- Neighborhoods venues collected
- Clustered Denver neighborhoods by venue types

Cluster Denver and Jacksonville

Out[51]:



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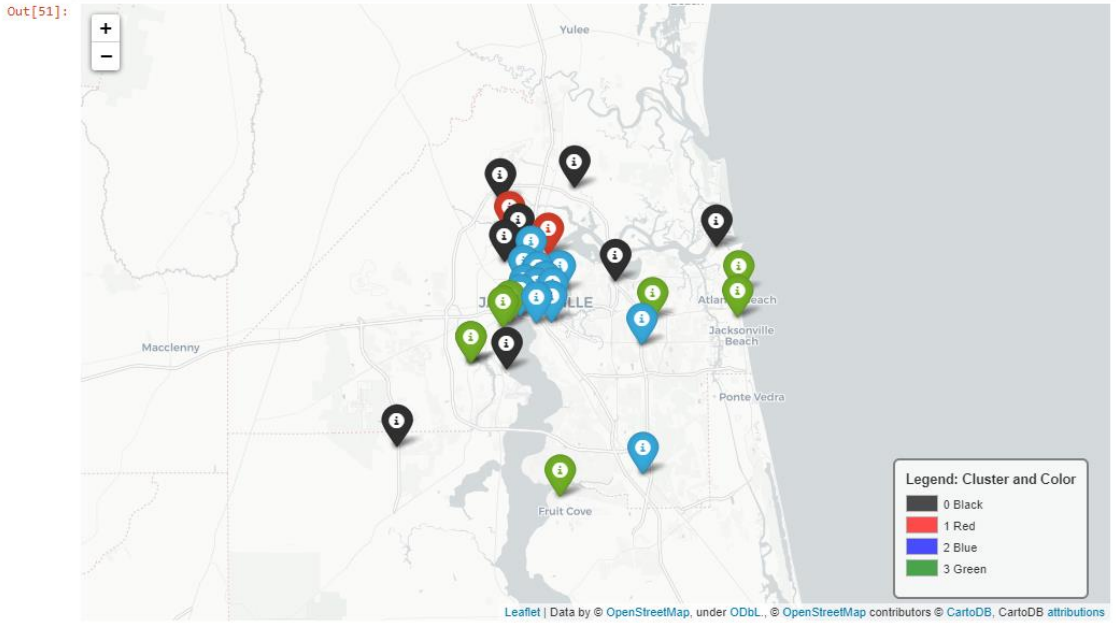
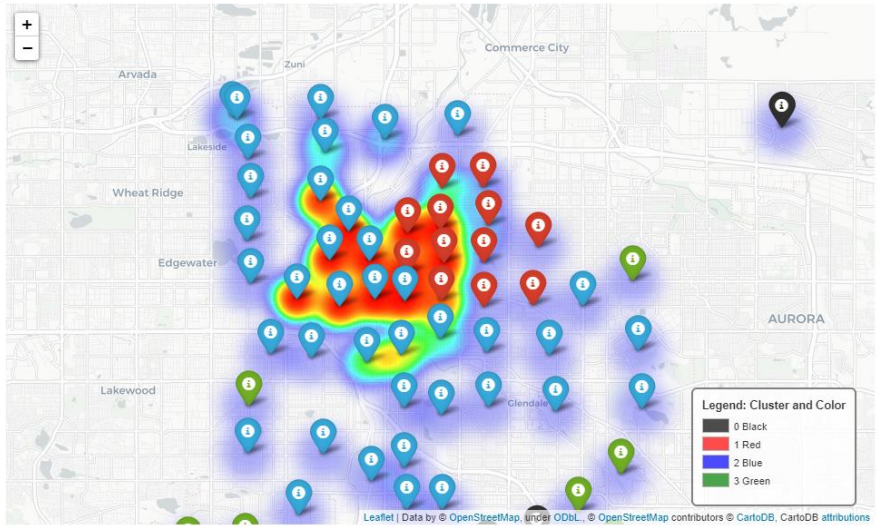


Clusters 1 and 2 Associated with Food Trucks in Denver

Cluster Labels	Denver	Jacksonville	Percent Denver	Percent Jacksonville	Difference
0	4	8	6	26	-20
1	13	2	20	6	14
2	40	13	61	42	19
3	9	8	14	26	-12

Out[56]:



Conclusion

- Clustering of neighborhoods can help determine viable new locations for food trucks
- This project is a starting point for a decision
- A density-based or t-SNE clustering may improve detection of irregular cluster shapes or address high dimensional analysis
- Additional factors that may be considered in future analysis
  - Population density
  - Social-economics status
  - Local permit costs