

# **Using machine learning to find location for opening a new restaurant in Michigan.**

Awet Tsegai

IBM Data Science Capstone Project

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# Neighborhood characteristics

In this project we will consider three variables in predicting the optimum location for opening a restaurant.

- The presence of other businesses
- The population size.
- Income of the neighborhood

- **Target Audience**

- Entrepreneurs who want to open Restaurant in Michigan

# DATA

- Neighborhood, population size of the neighborhood and income per capital will be downloaded from **Wikipedia**

(83, 3)

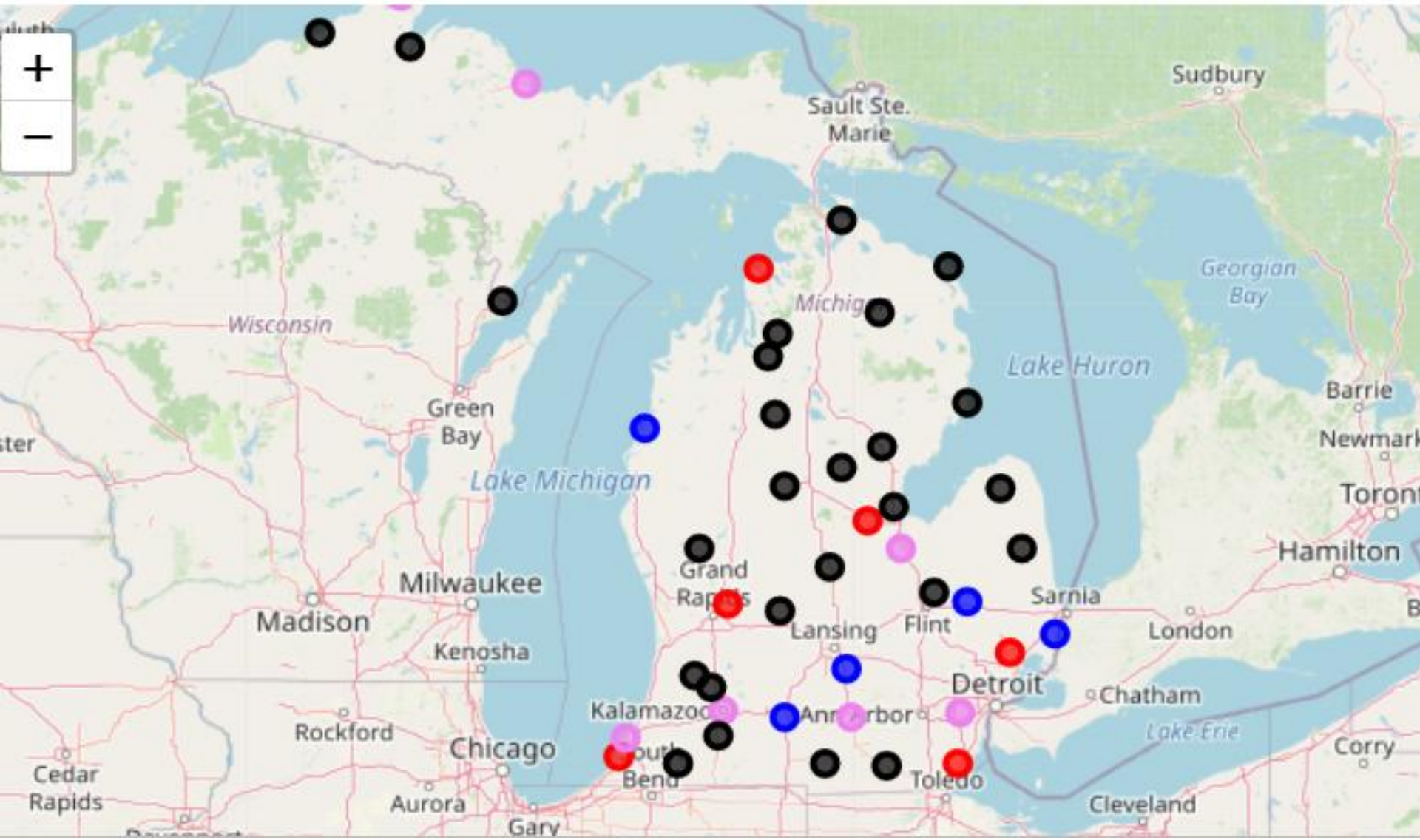
	Neighborhood	Income	Population
0	Oakland	56138	1202362
1	Leelanau	32194	21708
2	Livingston	31609	180967
3	Washtenaw	31316	344791
4	Charlevoix	28403	25949







# Michigan map with clusters superimposed



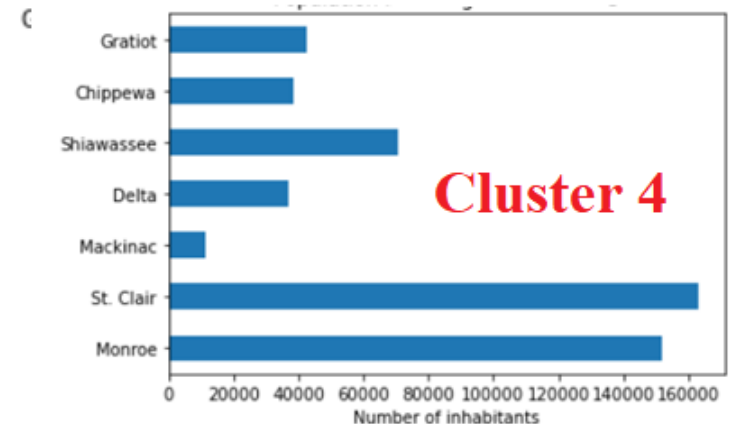
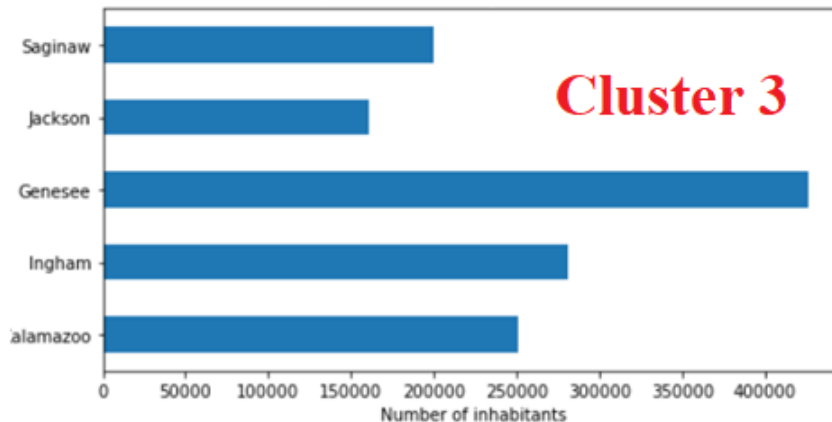
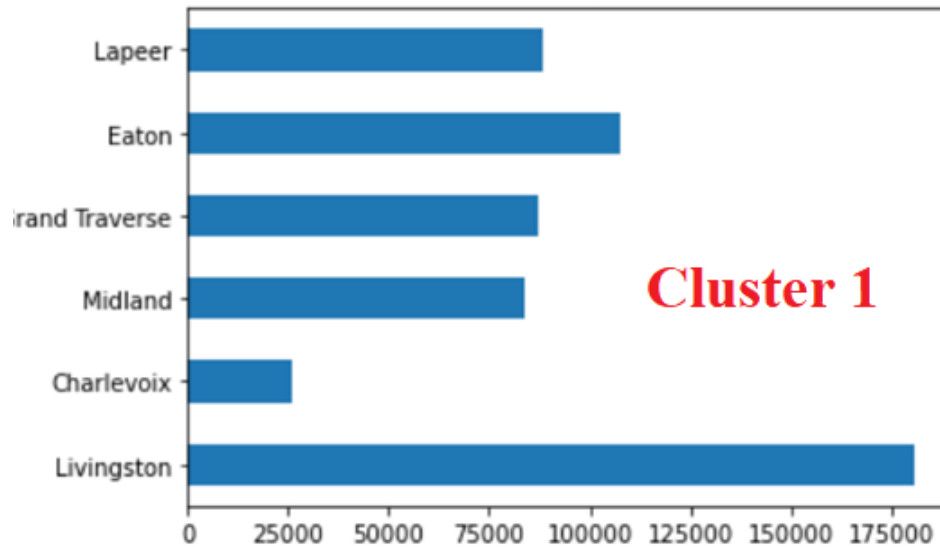




# RESULTS

- From the result it could be noted Cluster 1 has high income population but fewer number of restaurants. While Cluster 4 has the highest number of restaurants and average income.
- Majority of the neighborhood is in Cluster 2 and they have low income and fewer restaurants. Neighborhoods in Cluster 3 have relatively higher number of income and more restaurants as compared to Cluster 2.

# Clusters and number of population







# Conclusion

- From the results it can be concluded that majority of the neighborhoods in Michigan might not be an optimum location to open a restaurant.
- Therefore, a careful consideration is needed when selecting a neighborhood to open a new restaurant.
- From this analysis we found Livingstone to be the most optimum neighborhood to open a restaurant.