



IBM Applied Data Science Capstone

Richmond, VA Supermarket Study

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Richmond, Virginia

Incorporated 1742; Established as a city in 1871

Population: Richmond ~ 227,000, Metro area ~1.2 million people

Opportunity:

Explore the Richmond, Virginia metro area for a potential new supermarket to serve an area of Richmond that currently lacks that grocery option.



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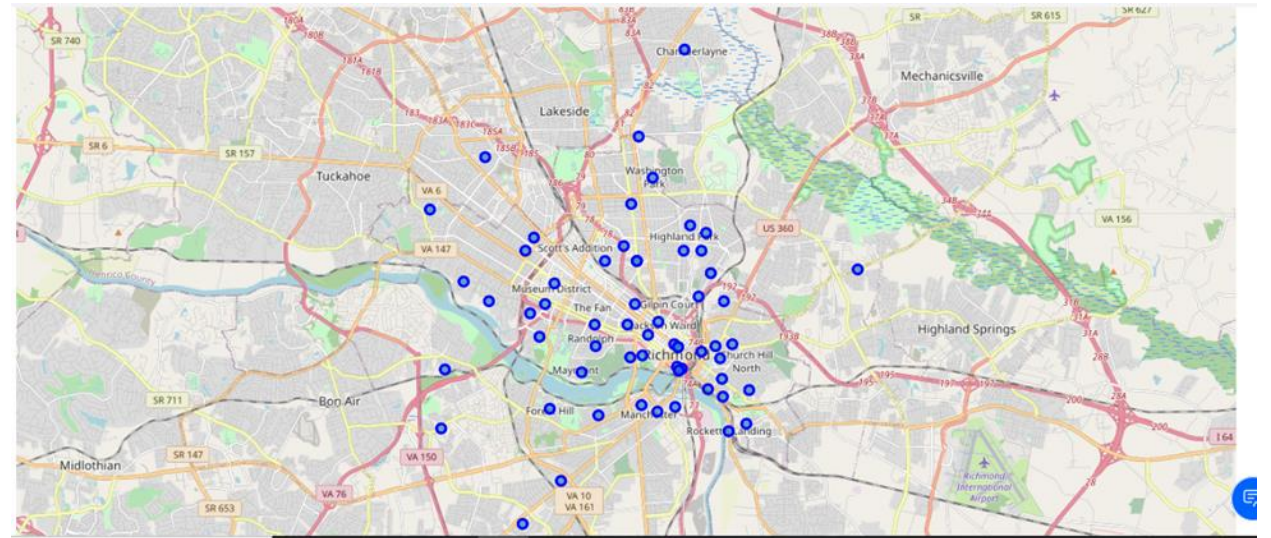
Mohamed Ahmed Soliman | Dreamstime.com

Analysis and Modeling

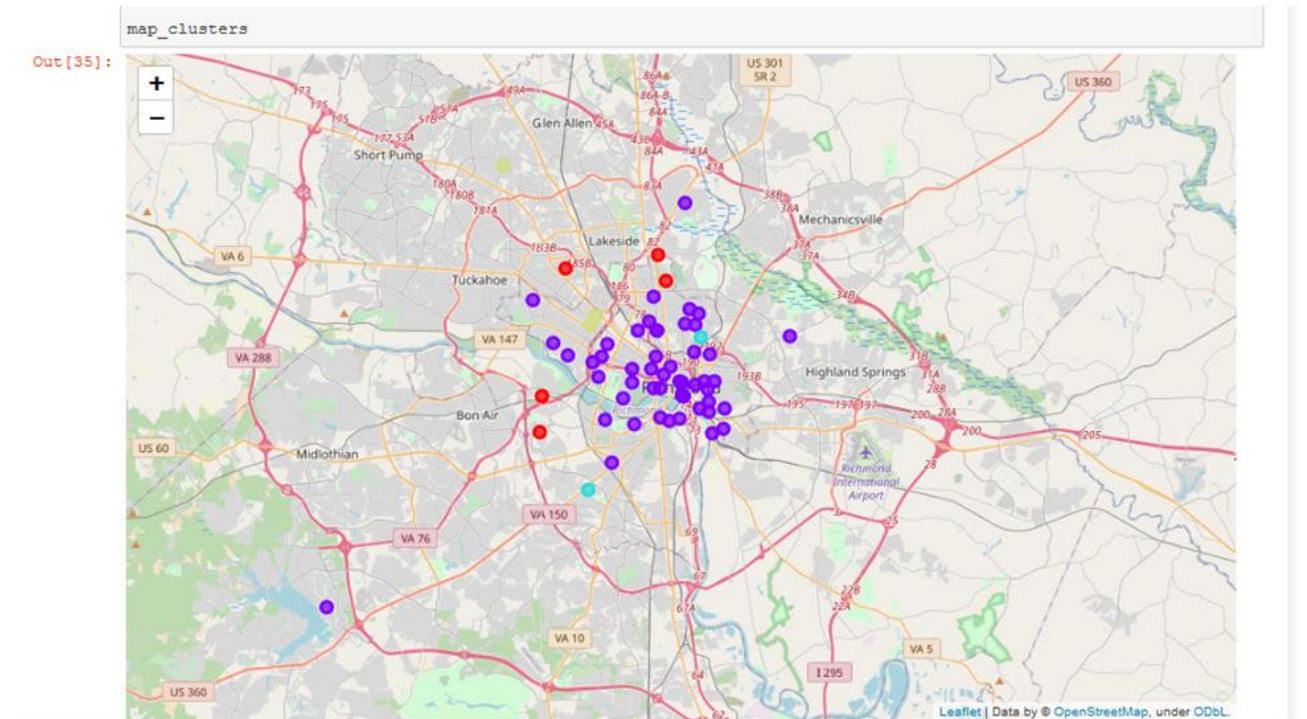
- Data from Richmond, Virginia city data portal, Wikipedia, and Foursquare were utilized
- Data was wrangled – cleaned, merged, evaluated
- Information was visualized into maps
- Statistical analysis – Kmeans – utilized to cluster
- Cluster mapping and evaluation

Examples of Data Visualization:

Top - Neighborhood mapping for the Richmond, Virginia metro area



Bottom - Clustered data of venue information from Foursquare for the Richmond, Virginia metro area



Conclusions

Upon completing the data science exercise and analysis:

- When segmented into clusters, three of the clusters showed that areas are being served by large chain supermarkets.
- A single cluster, mostly comprised of the inner city neighborhoods, showed a lack of supermarkets as a grocery option for that area.
- This single cluster represents opportunity for a supermarket company to enter the inner city neighborhoods of Richmond, Virginia to offer residents and businesses that grocery option.

Next Step – The density of inner city neighborhoods could present a challenge to establishing a large supermarket within that cluster. While most of these areas may be served by smaller markets and grocery stores, a real estate study would be the next step to identify a location that could accommodate a large supermarket to serve this area.