



# Finding a New Pet Store Location in St. Paul, MN

IBM Applied Data Science - Coursera Capstone

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## Introduction / Business Problem

- Estimates of more than \$75 billion are going to be spent for pets in the US this year
- More than 40% of it is being spent on food:
  - Pet store is a lucrative business
- Target Audience: John Doe wants to open a new pet store in St. Paul, MN area
- Can we use our machine learning skills to solve this problem?



# Data

- Zip code data from [uszipcode](#) Python package
- Nominatim data for latitude and longitude of St. Paul, MN
- Venues data from:
  - FourSquare data from [FourSquare Places API](#)
  - Yelp data from [Yelp Fusion API](#)

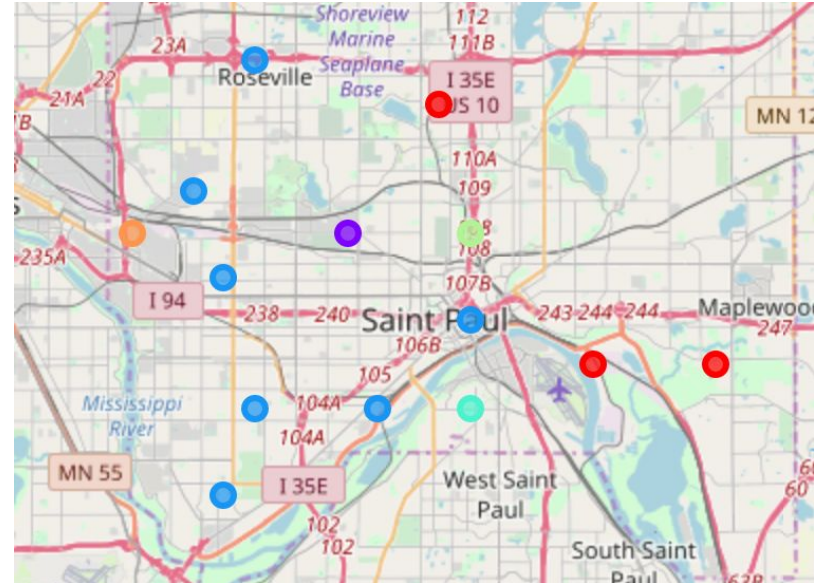


# Methodology

- Combining the dataset from FourSquare and Yelp API
- Reshaping the data for the k-Nearest-Neighbor algorithm
- Determine the k value for the algorithm
- Run the algorithm and visualize it on the map using Folium

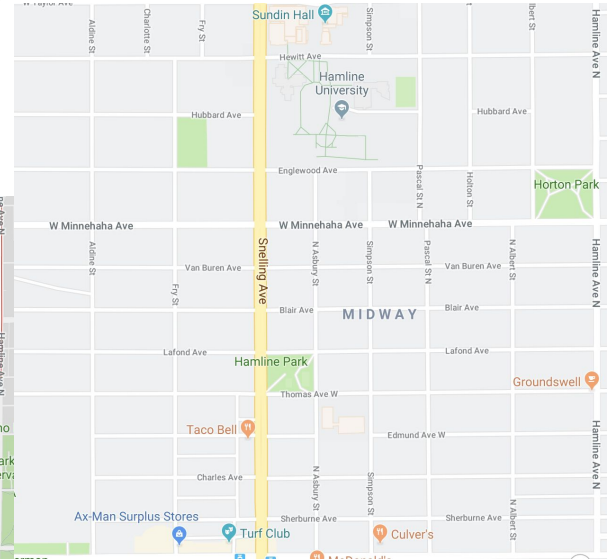
# Results

- Categorize the data into 6 clusters:
  - Cluster 1: Veterinarians area
  - Cluster 2: North End Neighborhood
  - Cluster 3: Most promising cluster
  - Cluster 4: West End neighborhood
  - Cluster 5: Payne-Phalen neighborhood
  - Cluster 6: St. Anthony neighborhood



# Discussions

- Three zip codes are nominated for the new pet store locations:
  - Macalester-Groveland neighborhood (55105)
  - Falcon Heights area (55108)
  - Hamline-Midway neighborhood (55104)



# Macalester-Groveland neighborhood

- Pros: they have a lot of pet services, high median income area (\$74k):

Venue
Bubbly Paws
Dog Days Daycare & Boarding - Grand Ave
Grand Avenue Veterinary Center
Grand Groomers
St. Paul Pet Supply
Animal Medical Clinic



## Venue

Trader Joe's

Kowalski's Market

Cons: they have two grocery stores nearby:

- Recommendation: the best location to open a new pet store, make sure items are different enough from the ones sold in St. Paul Pet supply and the two grocery stores

## Falcon Heights area

- Pros: two veterinary services and one animal shelter without any pet store in sight

Venue
Raptor Center
University of Minnesota Veterinary Medical Center
Animal Humane Society - St. Paul



Cons: not as high of a median income (\$56k) as the Macalester neighborhood (\$76k)

- Recommendation: a very promising location to open a new pet store

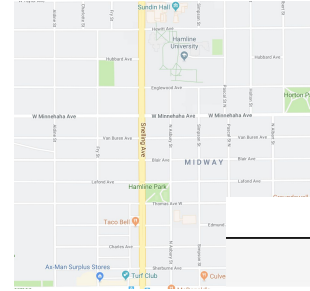


# Hamline-Midway Neighborhood

- Pros: plenty of pet services without any pet store in sight

Cons: the lowest median income area (~\$44,000) from the other two zip codes (~\$56,000 and ~\$76,000)

- Recommendation: a good location to open a new pet store



## Venue

Urban Tails Waggin

St. Paws Dog Daycare & Boarding

Midway Animal Hospital

Grand Paws Professional Dog & Cat Grooming

Feline Rescue

VCA Feist Animal Hospital

Pawsitivity Service Dogs



## Conclusion

- Based on the k-Nearest-Neighbor algorithm, the three most promising location for opening a new pet store are:
  - [Macalester-Groveland neighborhood](#)  
Ensure items are different enough from the other stores
  - [Falcon Heights](#)  
A very promising location due to no pet stores in sight
  - [Hamline-Midway neighborhood](#)  
A good location to open a new pet store, but with lower median income than the other two above