



Retirement Recommender

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Problem

- ▶ Retirees have so many options to choose from when it comes to where to retire.
 - ▶ There are so many cities in the US
 - ▶ The dataset used in this project contains more than 300 US cities.
 - ▶ Retirees want an easy and painless transition to retirement
- ▶ Moving to a new city is hard
 - ▶ Having amenities and attractions similar to your previous city is useful
 - ▶ Choosing a new place is a hassle

Question

- ▶ Can we make it easy for those people who are choosing a new place to live by allowing them to enter a city of their choice, and provide multiple suggestion of similar cities that might also be a good idea for retirement?
- ▶ Can we reduce the number of options they have?

Dataset

- ▶ US top cities by population data from Wikipedia 314 cities
- ▶ From this data, we used three data
 - ▶ Population data from the Wikipedia table
 - ▶ Geographical Latitude and Longitude data from geocoders
 - ▶ Amenity and attraction data from Foursquare API
- ▶ The final dataset is of size 312X518
- ▶ 517 different features the model is trained on
 - ▶ 516 amenity and attraction categories

Data transformation

- ▶ Start with top 314 cities in US
- ▶ Add population data
- ▶ Add geographic data
- ▶ Create new data frame with venues for each city listed
- ▶ Convert the venue category into a numerical value
- ▶ Get the mean for each category for each city
- ▶ Make the location the index of the table

Data Analysis and Modeling

	Location	ATM	Accessories Store	Adult Boutique	Advertising Agency	Afghan Restaurant	African Restaurant	Airport	Airport Terminal	Alter
0	New York,NY	0	0	0	0	0	0	0	0	
1	New York,NY	0	0	0	0	0	0	0	0	
2	New York,NY	0	0	0	0	0	0	0	0	
3	New York,NY	0	0	0	0	0	0	0	0	
4	New York,NY	0	0	0	0	0	0	0	0	

- K Means Clustering algorithm

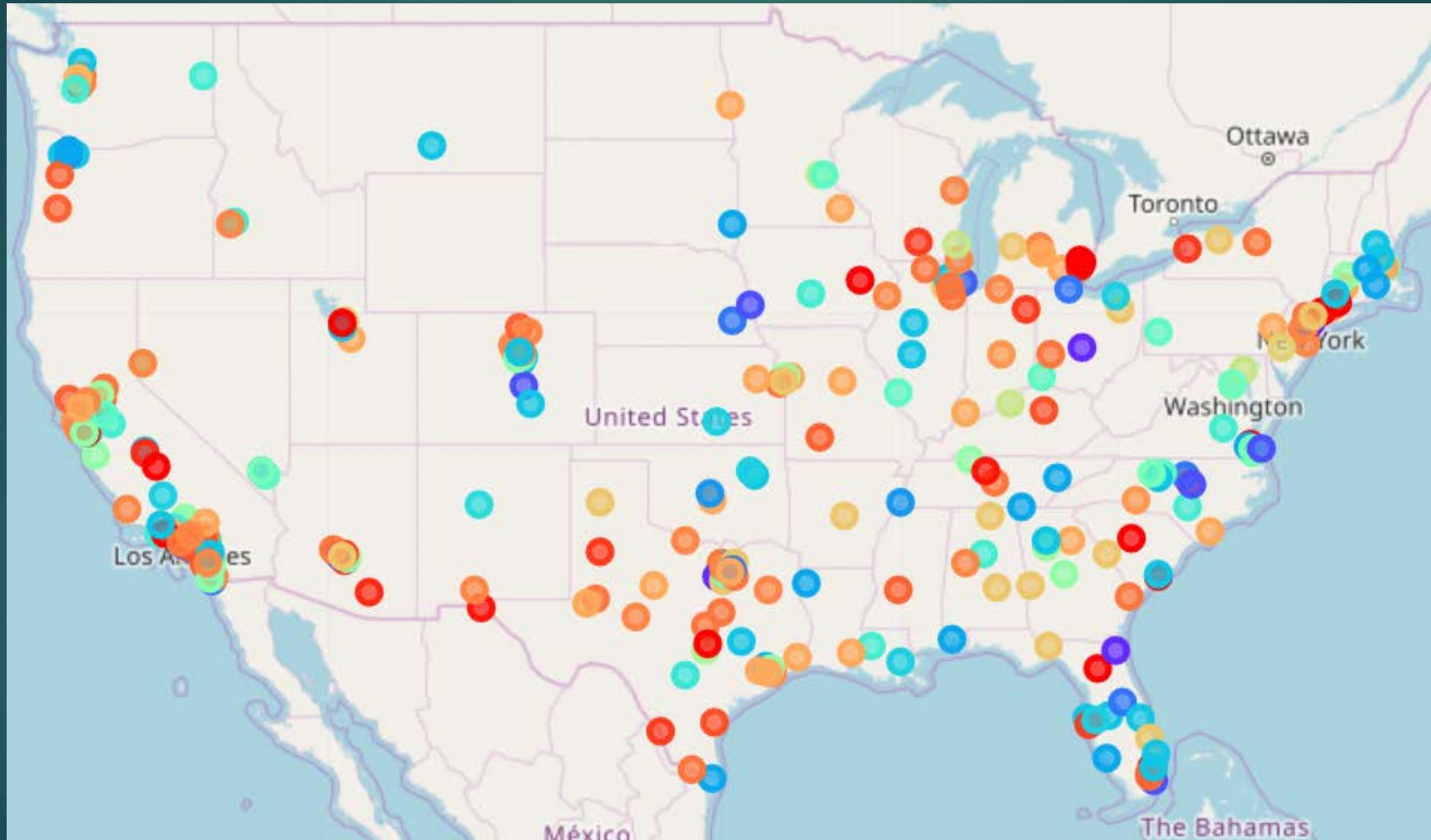
K = 40

N = 312

Features = 517

Output groups were filtered to only contain the groups that have 5+ cities

Results



Results (Cont)

Cluster Labels			
0	19	19	19
5	6	6	6
7	9	9	9
10	14	14	14
12	36	36	36
13	8	8	8
16	13	13	13
18	7	7	7
20	11	11	11
22	15	15	15
29	20	20	20
31	28	28	28
33	32	32	32
34	25	25	25
35	14	14	14
37	9	9	9

Cluster Labels		Location
0	31	Abilene,TX
1	29	Akron,OH
2	14	Albuquerque,NM
3	22	Alexandria,VA
4	33	Allen,TX
5	31	Allentown,PA
6	29	Amarillo,TX
7	27	Anaheim,CA
8	7	Anchorage,AK
9	31	Ann Arbor,MI
10	12	Antioch,CA
11	13	Arlington,TX
12	31	Arvada,CO
13	31	Athens,GA
14	23	Atlanta,GA

Output

```
cities_final2.loc[cities_final2['Location'] == 'Miami,FL']
```

	Cluster Labels	Location	City Latitude	City Longitude
15064	5	Miami,FL	25.774266	-80.193659

```
cities_final2.loc[cities_final2['Cluster Labels'] ==5]
```

	Cluster Labels	Location	City Latitude	City Longitude
4894	5	Colorado Springs,CO	38.833958	-104.825349
13663	5	Long Beach,CA	33.769016	-118.191605
15064	5	Miami,FL	25.774266	-80.193659
17519	5	Omaha,NE	41.258746	-95.938376
19791	5	Raleigh,NC	35.780398	-78.639099
26167	5	Virginia Beach,VA	36.852984	-75.977418