

Where to live in Washington metropolitan area?

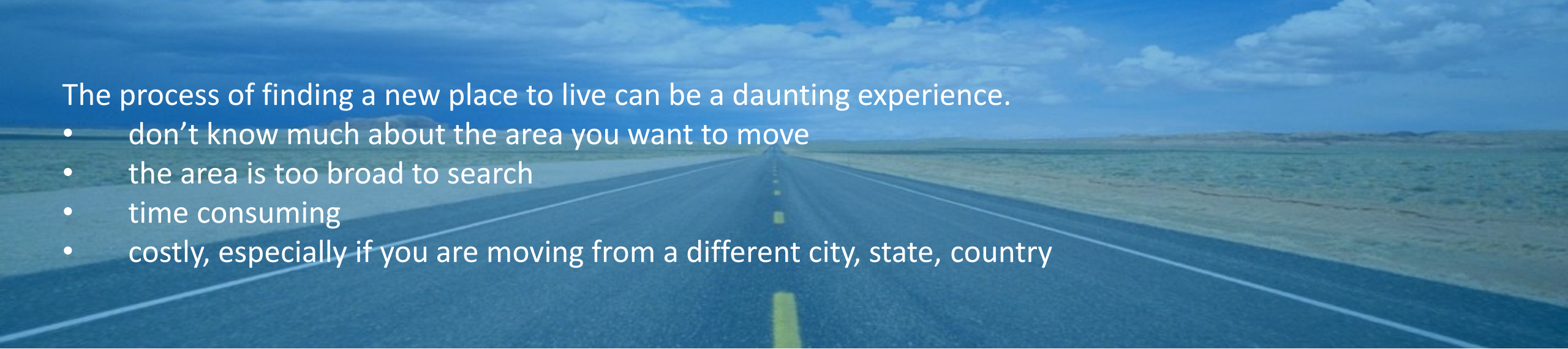
March 2019

Agenda

- 1. Business Problem
- 2. Data to support this analysis
- 3. Methodology
- 4. Conclusion
- 5. Future work

1. Business Problem

Where to live in Washington metropolitan area?



The process of finding a new place to live can be a daunting experience.

- don't know much about the area you want to move
- the area is too broad to search
- time consuming
- costly, especially if you are moving from a different city, state, country

Target audience:

Real Estate companies

- knowing what the client requirements (venue profile) are will help limit the search area to the preferred venues of clients
- Reduce the need of company real estate resources and time.

Families that want to move or relocate to this area

- speed up the process of searching a place to live saving time and money.
- to take a more informed decision

2. Data to support this analysis

Where to live in Washington metropolitan area?

- **List of all counties from the Washington Metropolitan area.**

Web scraping The Wiki page Washington metropolitan area with BeautifulSoup -> 23 counties

- **Getting coordinates for the list of counties**

Nominatim from geopy.geocoders

- **Foursquare API to get all venues in each County.**

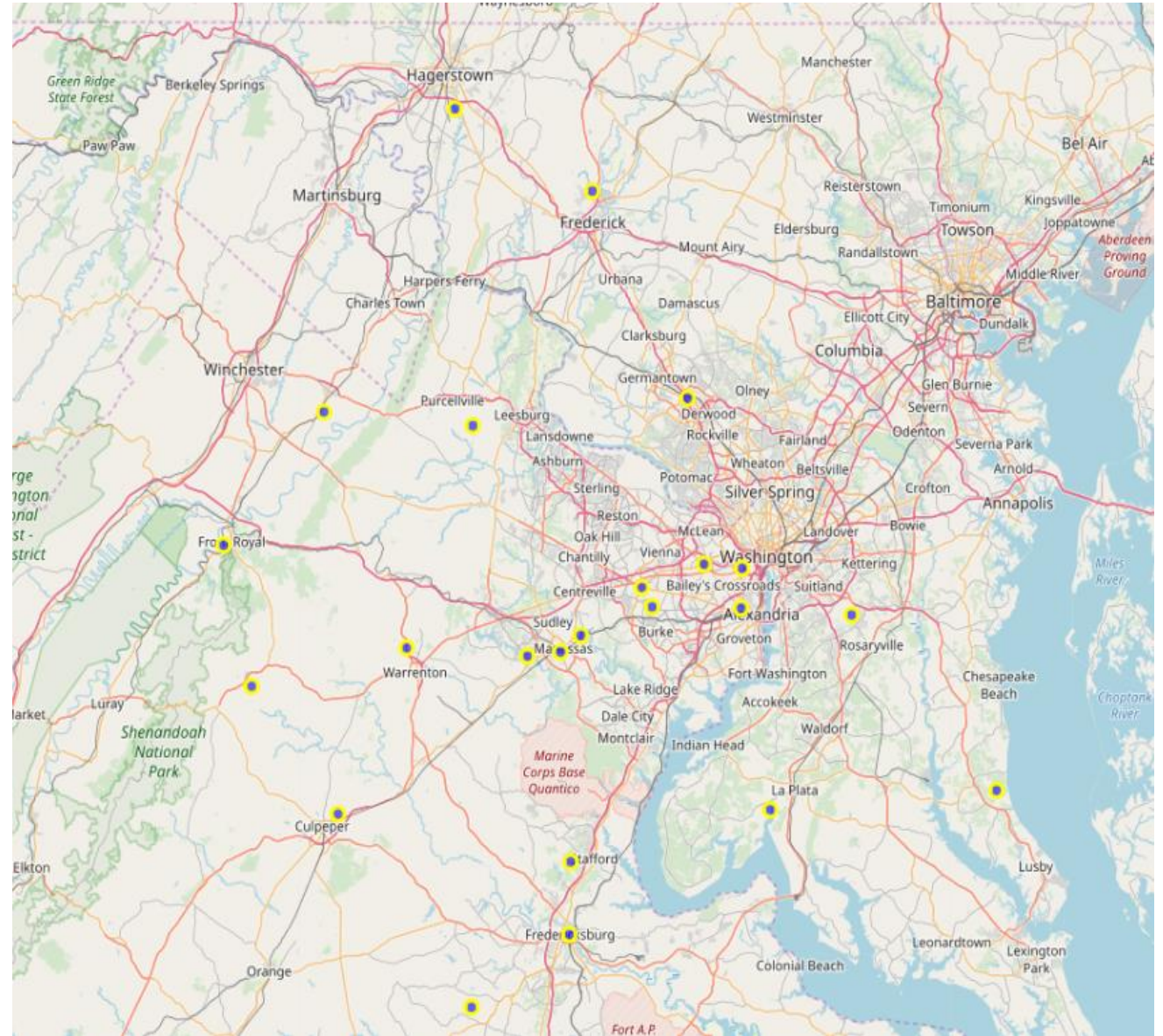
Got 235 different type of venues.

After eliminating the ones that represented that represent 0.5% of the total number of venues we were left with 51 categories.

3. Methodology

Where to live in Washington metropolitan area?

Mapped 23 counties that represent
Washington Metropolitan area

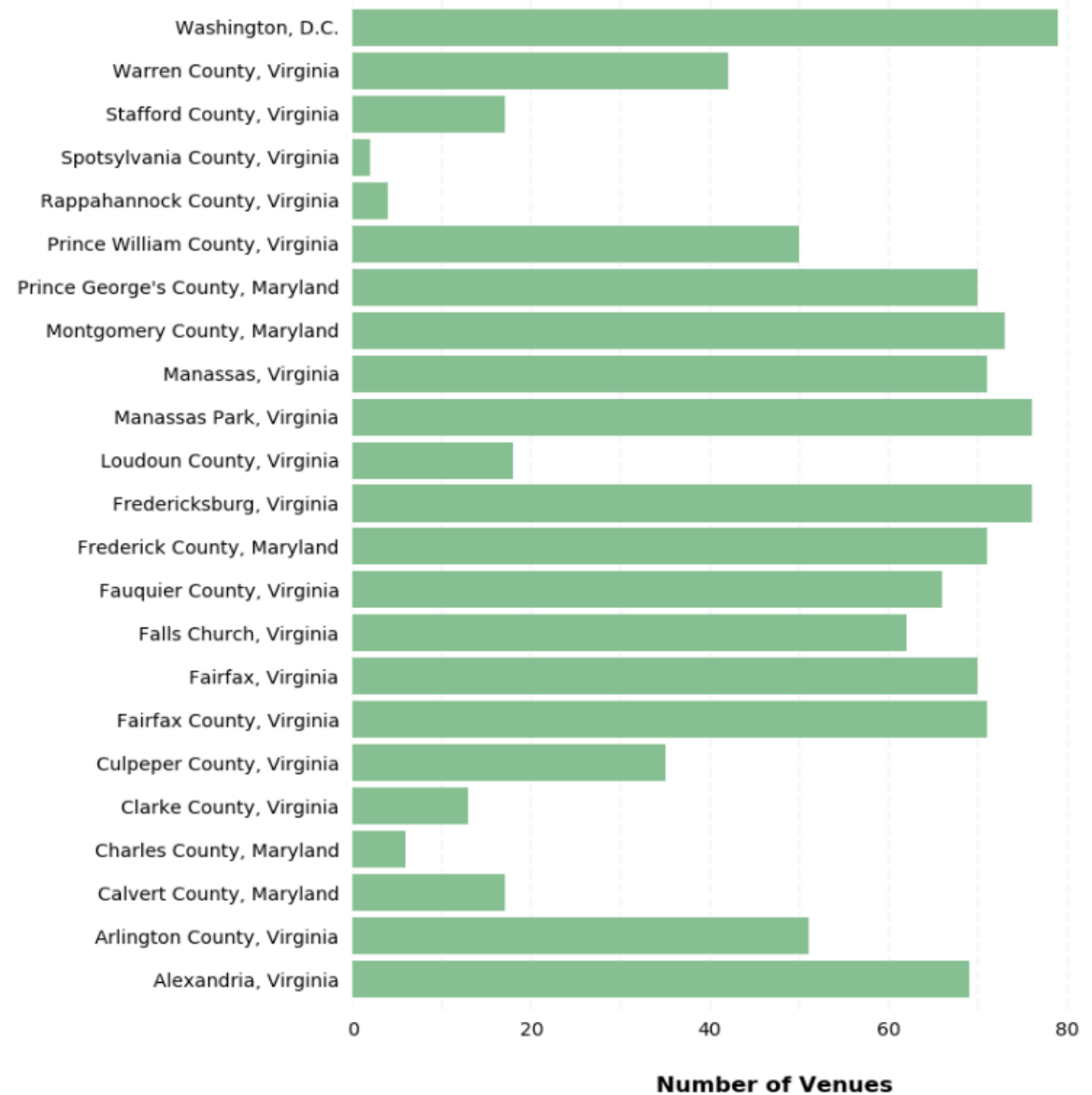


3. Methodology

Where to live in Washington metropolitan area?

Number of venues per County

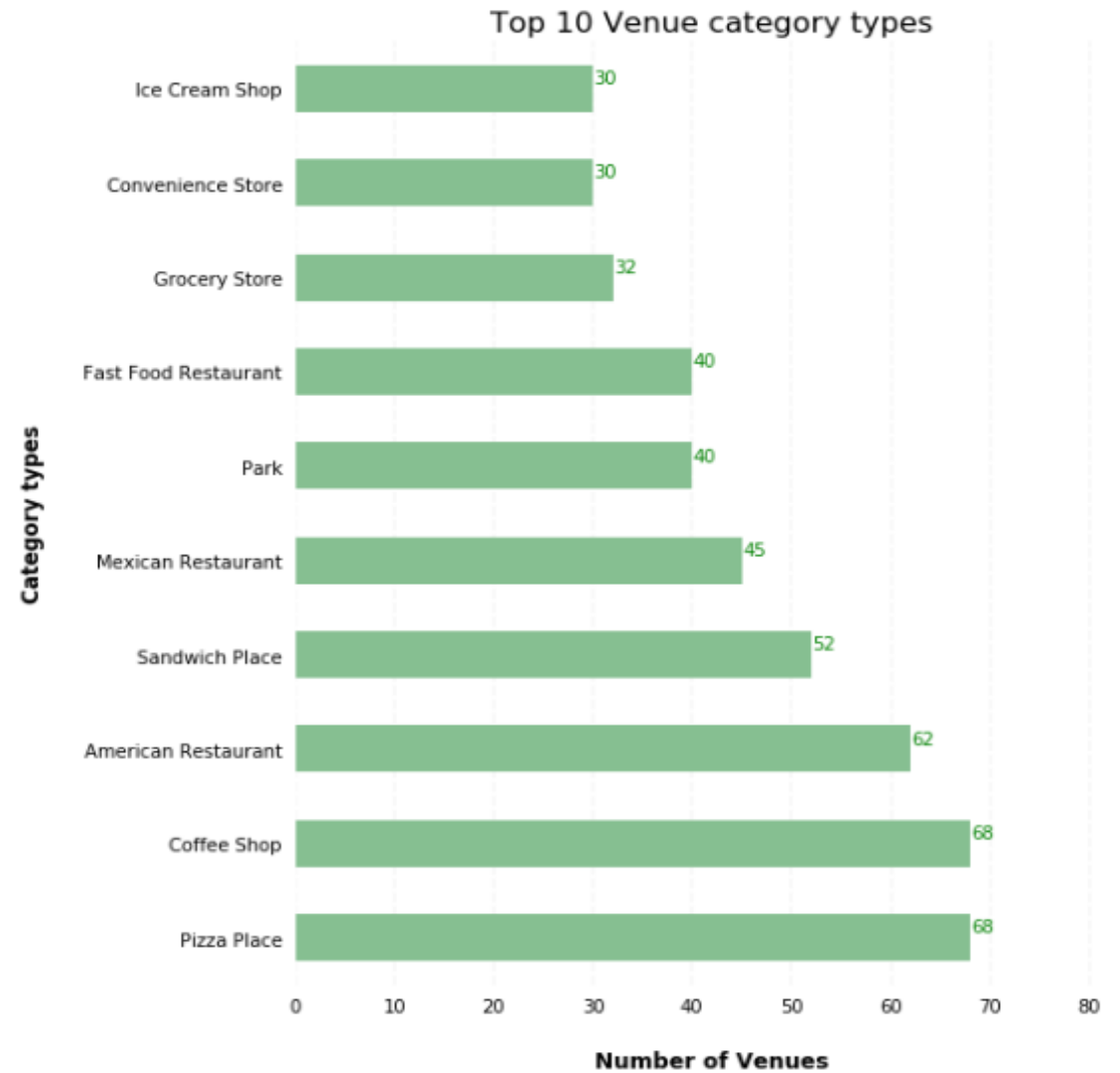
Washington metropolitan area Counties



3. Methodology

Where to live in Washington metropolitan area?

Top 10 Venue category types



3. Methodology

Where to live in Washington metropolitan area?

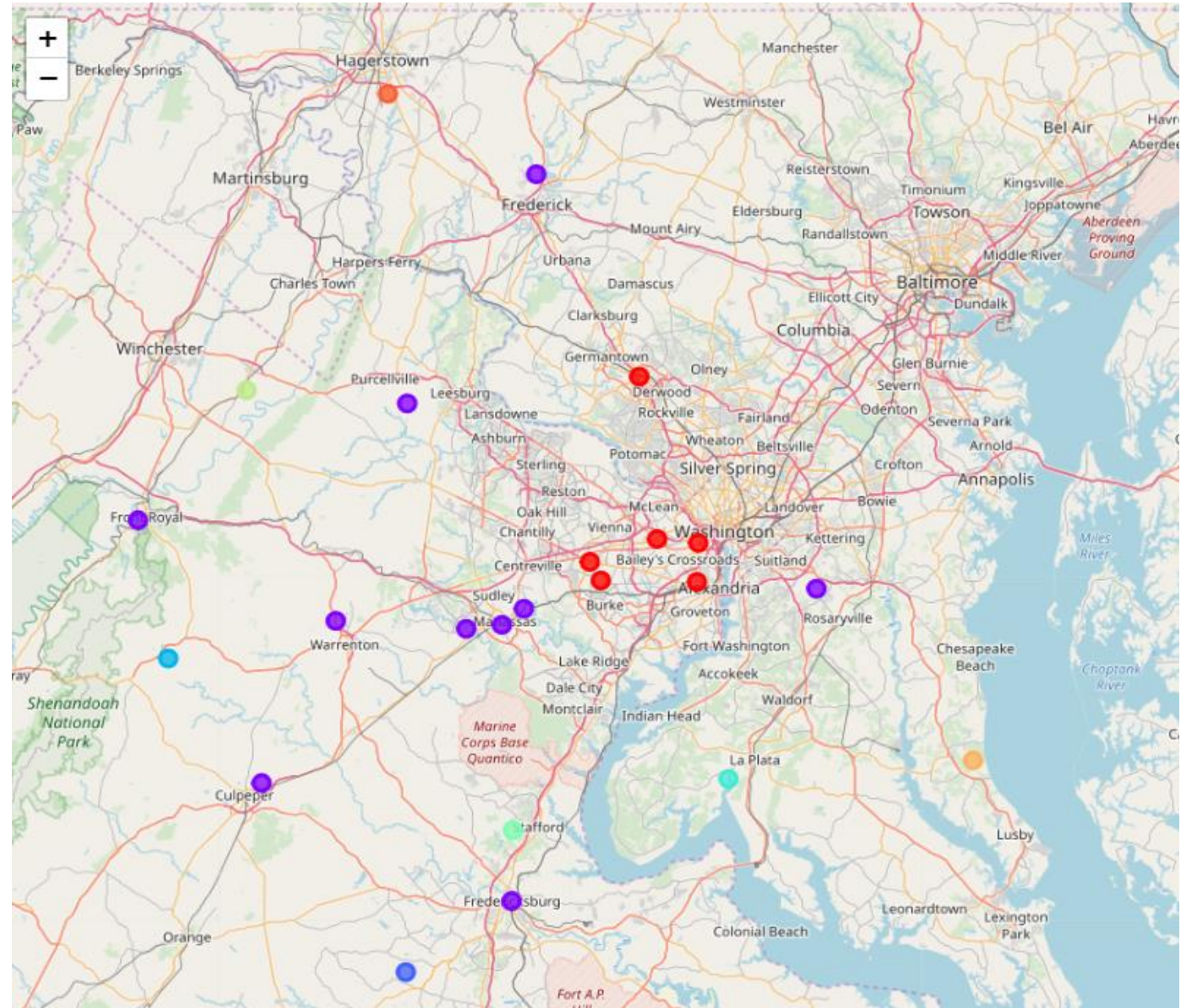
List of Counties per Cluster

	Names	Latitude	Longitude	Cluster
9	Culpeper County, Virginia	38.4912	-77.9618	0
13	Fauquier County, Virginia	38.7514	-77.8141	0
3	Frederick County, Maryland	39.4608	-77.4118	0
14	Fredericksburg, Virginia	38.3032	-77.4605	0
15	Loudoun County, Virginia	39.0985	-77.6705	0
17	Manassas Park, Virginia	38.7709	-77.4363	0
16	Manassas, Virginia	38.7449	-77.4824	0
5	Prince George's County, Maryland	38.8039	-76.8519	0
18	Prince William County, Virginia	38.739	-77.5537	0
22	Warren County, Virginia	38.9132	-78.2097	0
20	Spotsylvania County, Virginia	38.1881	-77.6742	1
19	Rappahannock County, Virginia	38.6926	-78.1496	2
2	Charles County, Maryland	38.4992	-77.0278	3
21	Stafford County, Virginia	38.4167	-77.458	4
8	Clarke County, Virginia	39.1197	-77.9926	5
1	Calvert County, Maryland	38.5289	-76.5378	6
0	Washington, D.C.	39.5894	-77.7103	7
6	Alexandria, Virginia	38.8148	-77.0902	8
7	Arlington County, Virginia	38.8769	-77.0893	8
10	Fairfax County, Virginia	38.8156	-77.2837	8
11	Fairfax, Virginia	38.8462	-77.3064	8
12	Falls Church, Virginia	38.8823	-77.1711	8
4	Montgomery County, Maryland	39.1406	-77.2076	8

3. Methodology

Where to live in Washington metropolitan area?

Mapped 23 counties
per cluster (color classification)



3. Methodology

Where to live in Washington metropolitan area?

Client Venue requirements

- Grocery stores
- Gym
- Restaurants
- Cafe
- Parks

4. Conclusion

Where to live in Washington metropolitan area?

The Custer that best match
client venue requirements
is Cluster 8

Profile of cluster with ID=8:

It has 6 members (26.1% of total venues)

	Venue Category	Venue Mean Frequency	Venue Frequency in top-10
0	Coffee Shop	8.776478	19.1
1	Pizza Place	4.896964	10.7
2	American Restaurant	4.697009	10.2
3	Park	4.448044	9.7
4	Bakery	4.393418	9.6
5	Thai Restaurant	4.022663	8.8
6	Mexican Restaurant	3.883669	8.5
7	Grocery Store	3.634802	7.9
8	Gym	3.623849	7.9
9	Café	3.454320	7.5

5. Future work

Where to live in Washington metropolitan area?

Future enhancements to this analysis to help families choose an area to live:

- New clustering to reduce search area
- include office locations of the major companies established in this area.
- include types of public transportation to the map
- include school locations and ranking to the map

Other enhancements:

- use the profession profiles of the family, and scrap results of type of profession in Google jobs (<https://careers.google.com/jobs/>) and map it to map.