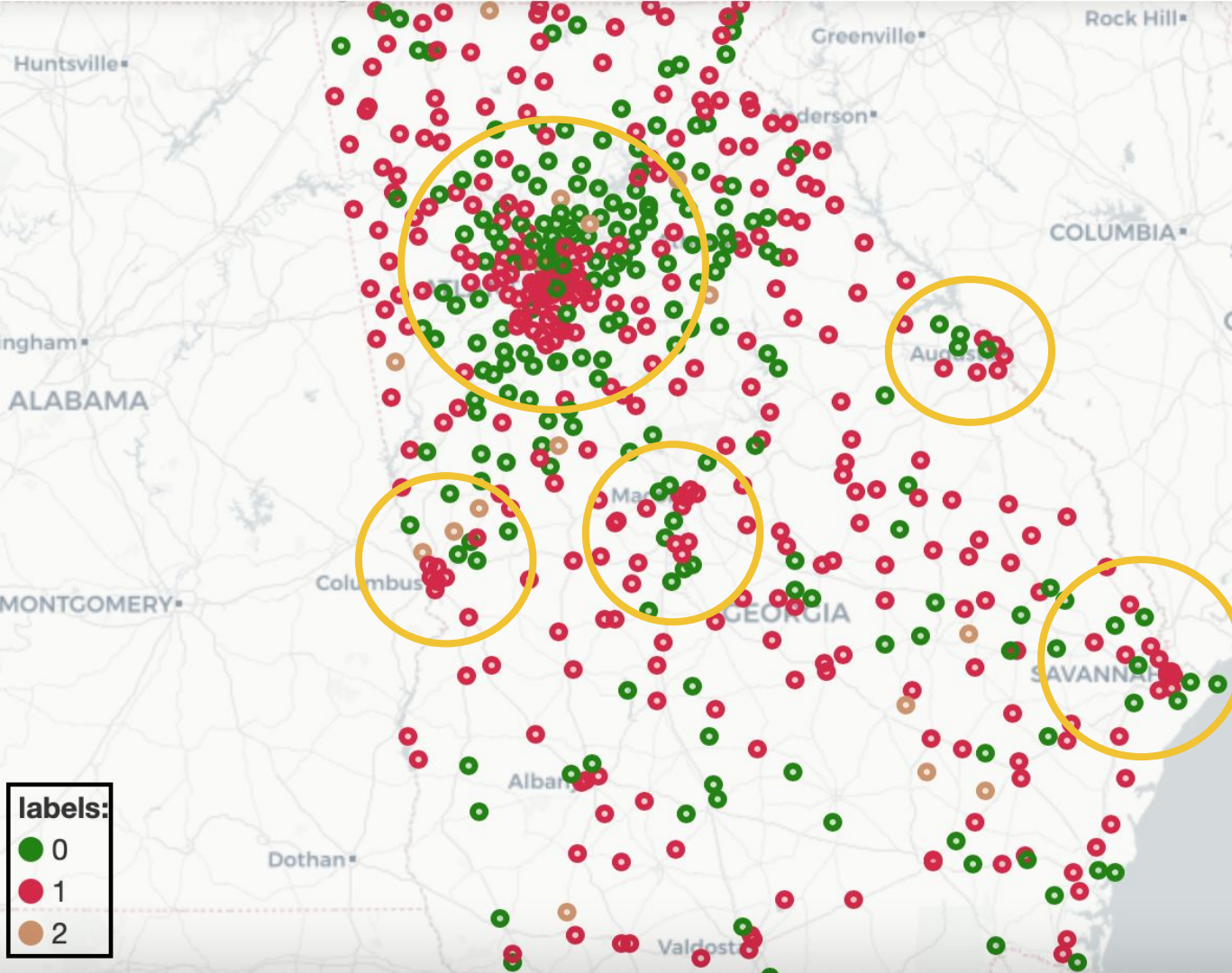


Haystacks Ai Project Clustering for Real Estate





Atlanta

Atlanta is the capital of Georgia, and with a population of about six million in the metro area, is also the state's largest city

Columbus

A city with good schools, has ranked among the top cities in which to live for people of all ages and top 100 places to raise a family

Macon

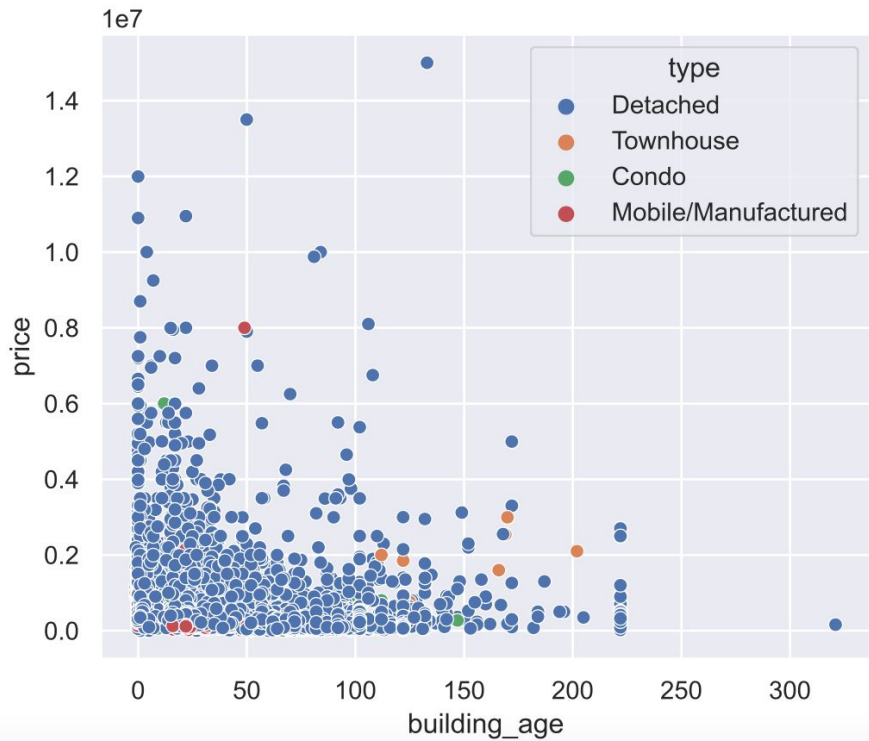
A city in central Georgia, has population of 153,095

Augusta

Located on the banks of the Savannah River and the South Carolina border, Augusta is the second-largest city in Georgia

Savanna

A growing city on the coast.its metropolitan area has grown by 100,000 people over the past decade.

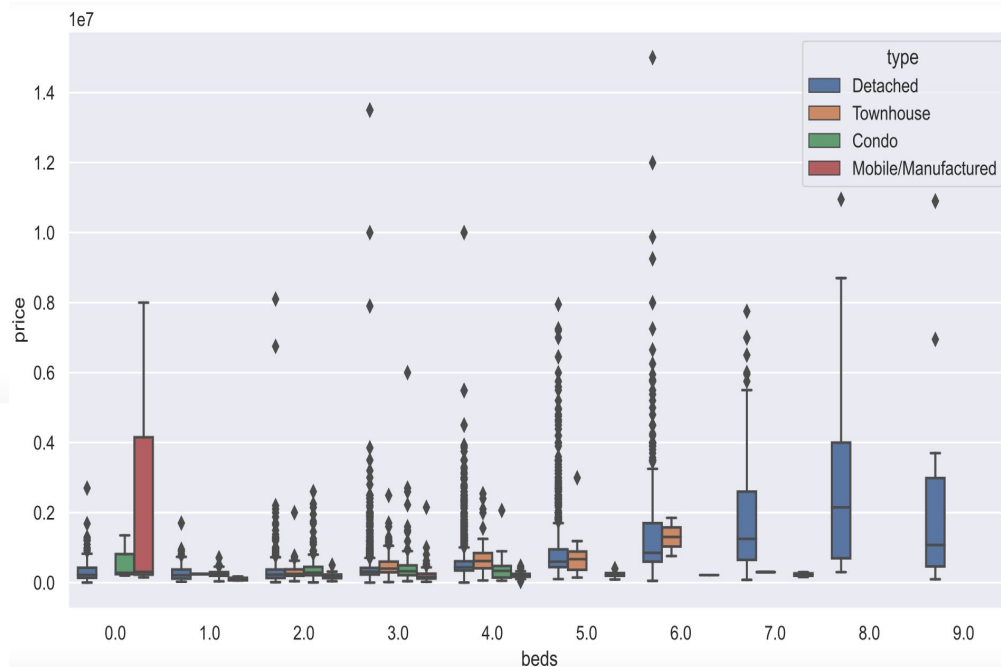


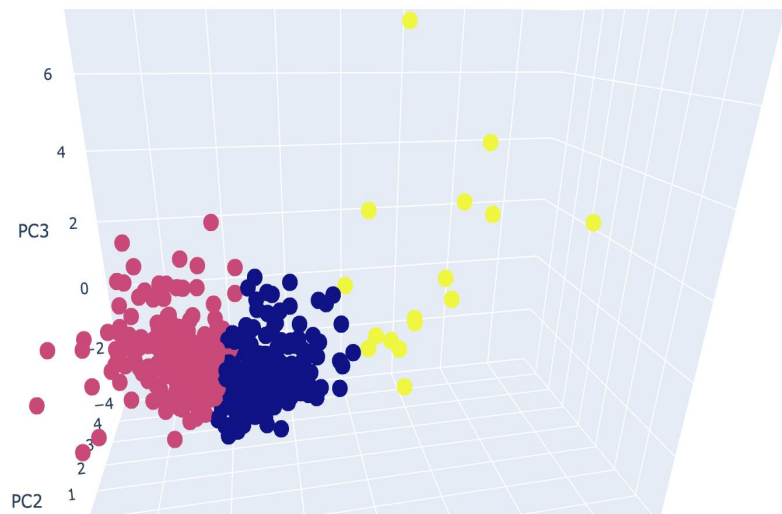
- The newer the house, the higher the price
- Single-family house/detached house is the majority in GA real estate market.
- The townhouse has a higher price for 3 and 4 bedrooms.

mean 583,955
 50% 3.990000e+05
 max 4,525,000
 Beds 71 bedrooms

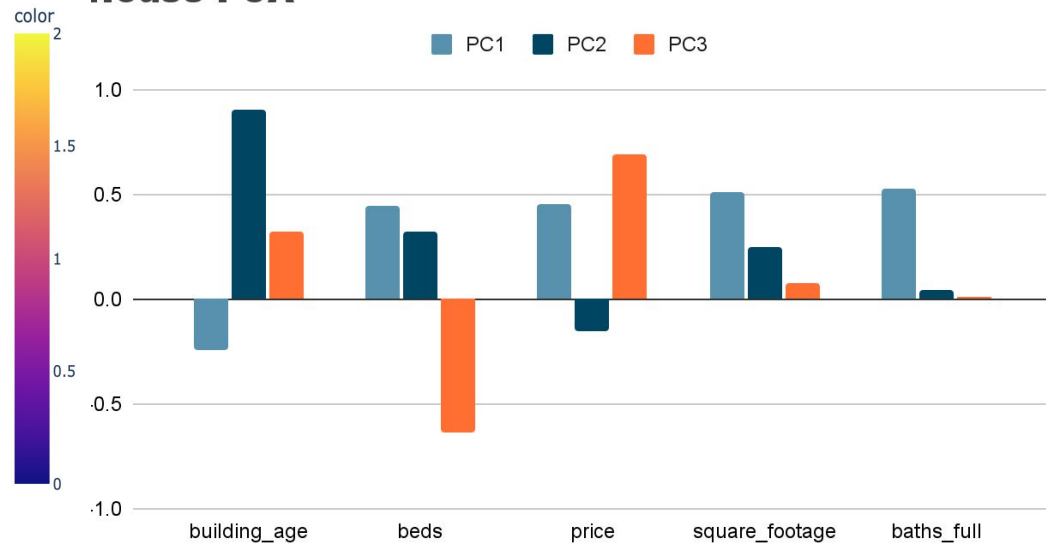


mean 5.677241e+05
 50% 3.899000e+05
 max 1.500000e+07
 Beds 9 bedrooms





House PCA



	beds	baths_full	square_footage	price	building_age	PC1	PC2	PC3
labels								
0	3.914634	2.624390	2416.619512	5.053961e+05	25.497561	1.135523	-0.068214	-0.359351
1	2.996894	1.877329	1764.192547	2.886798e+05	44.459627	-1.007825	0.011238	0.159266
2	4.875000	3.687500	4613.468750	1.614544e+06	24.937500	5.733594	0.647826	1.398957

Cluster 1

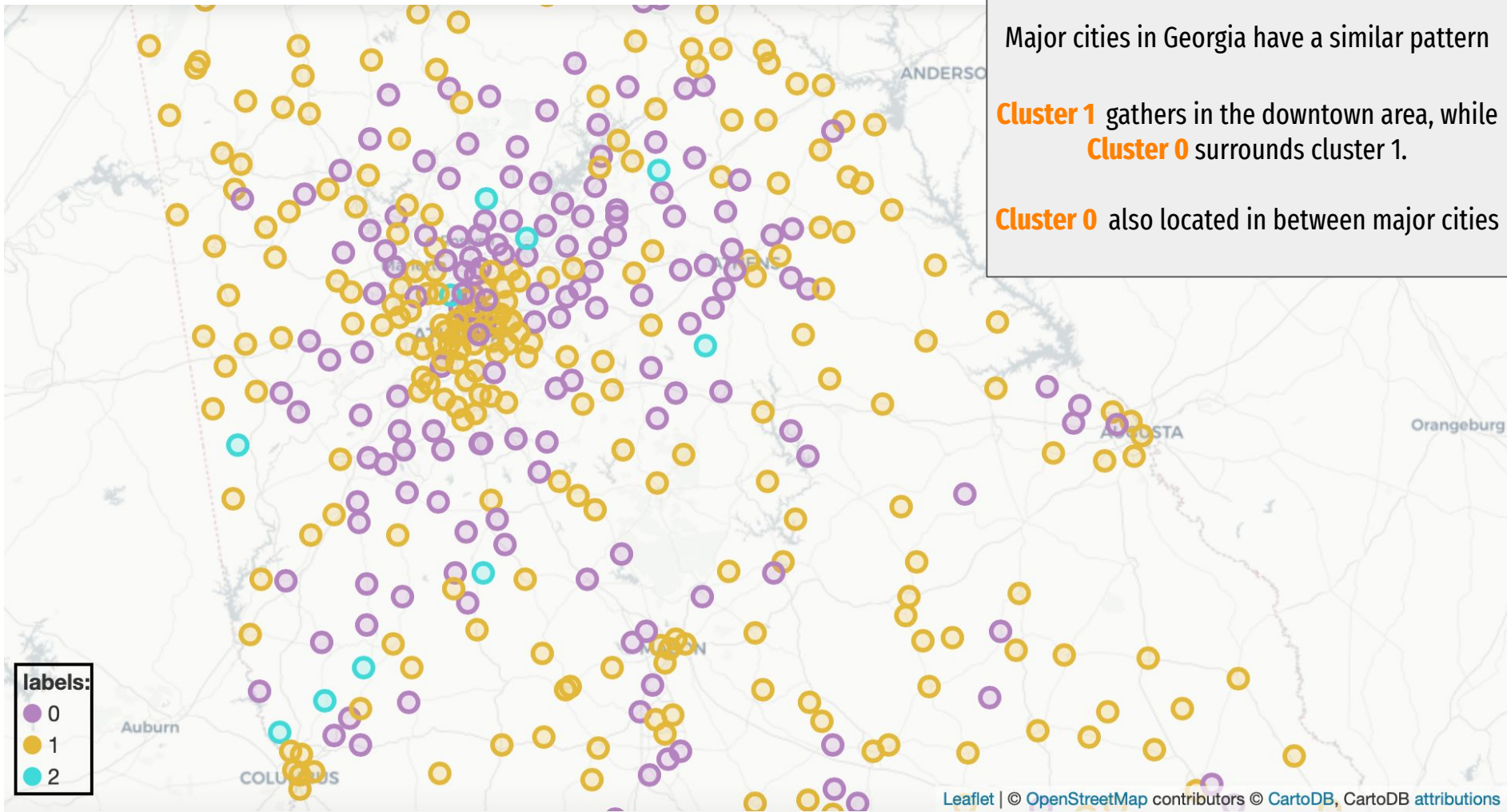
Older house, Smaller size, Lower Price

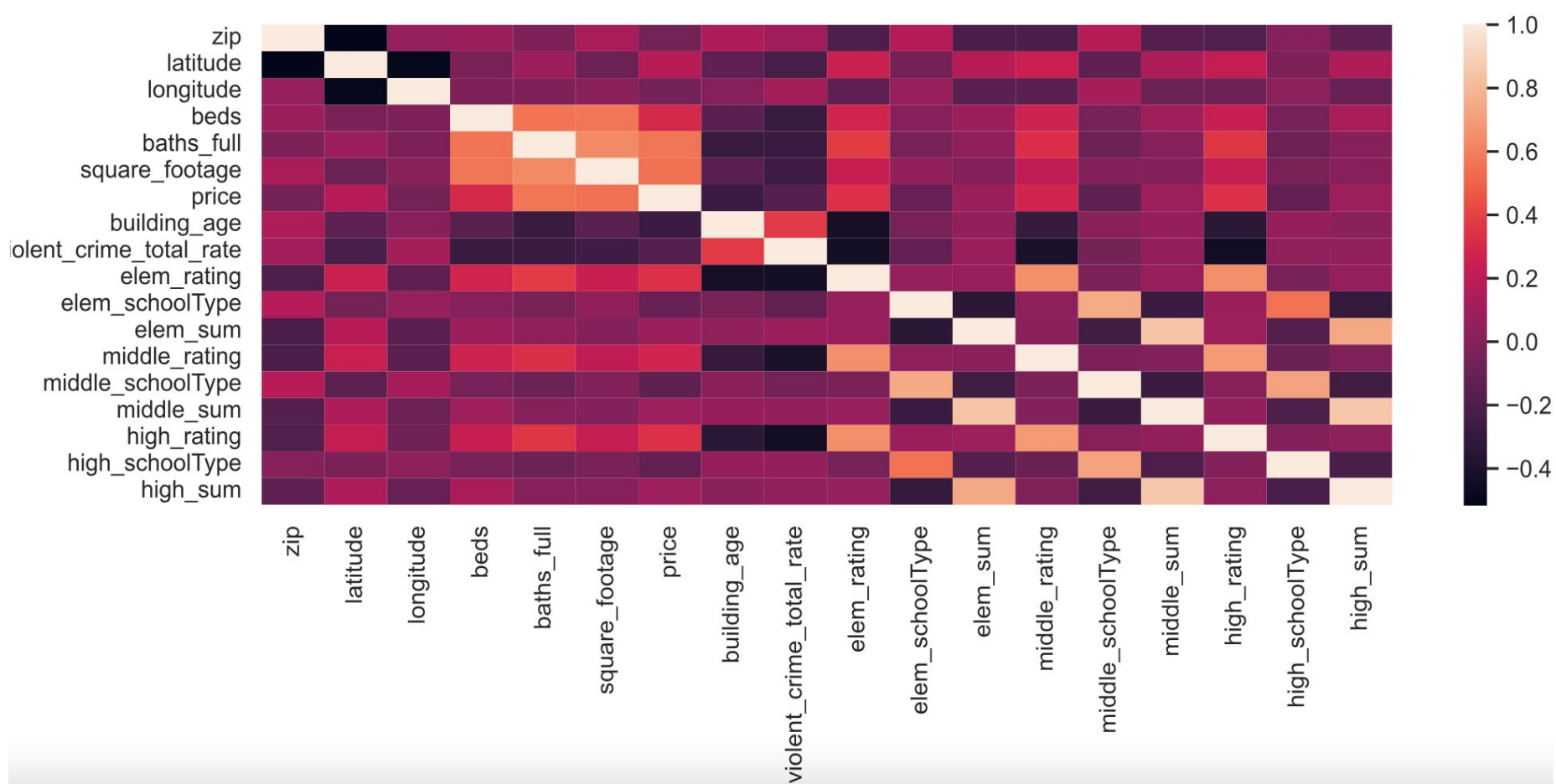
Cluster 0

In between cluster 1 and 2

Cluster 2

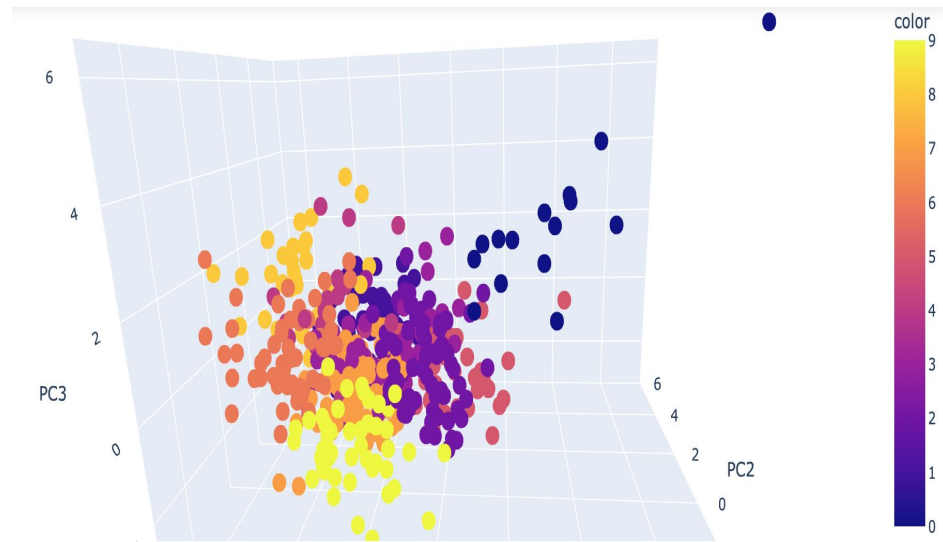
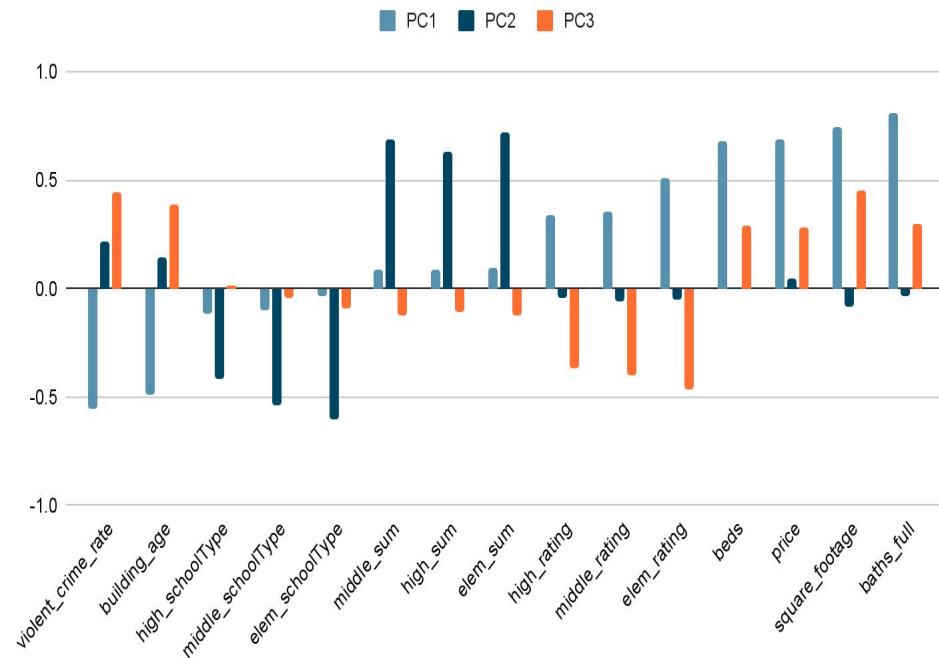
Higher Price, Low supply



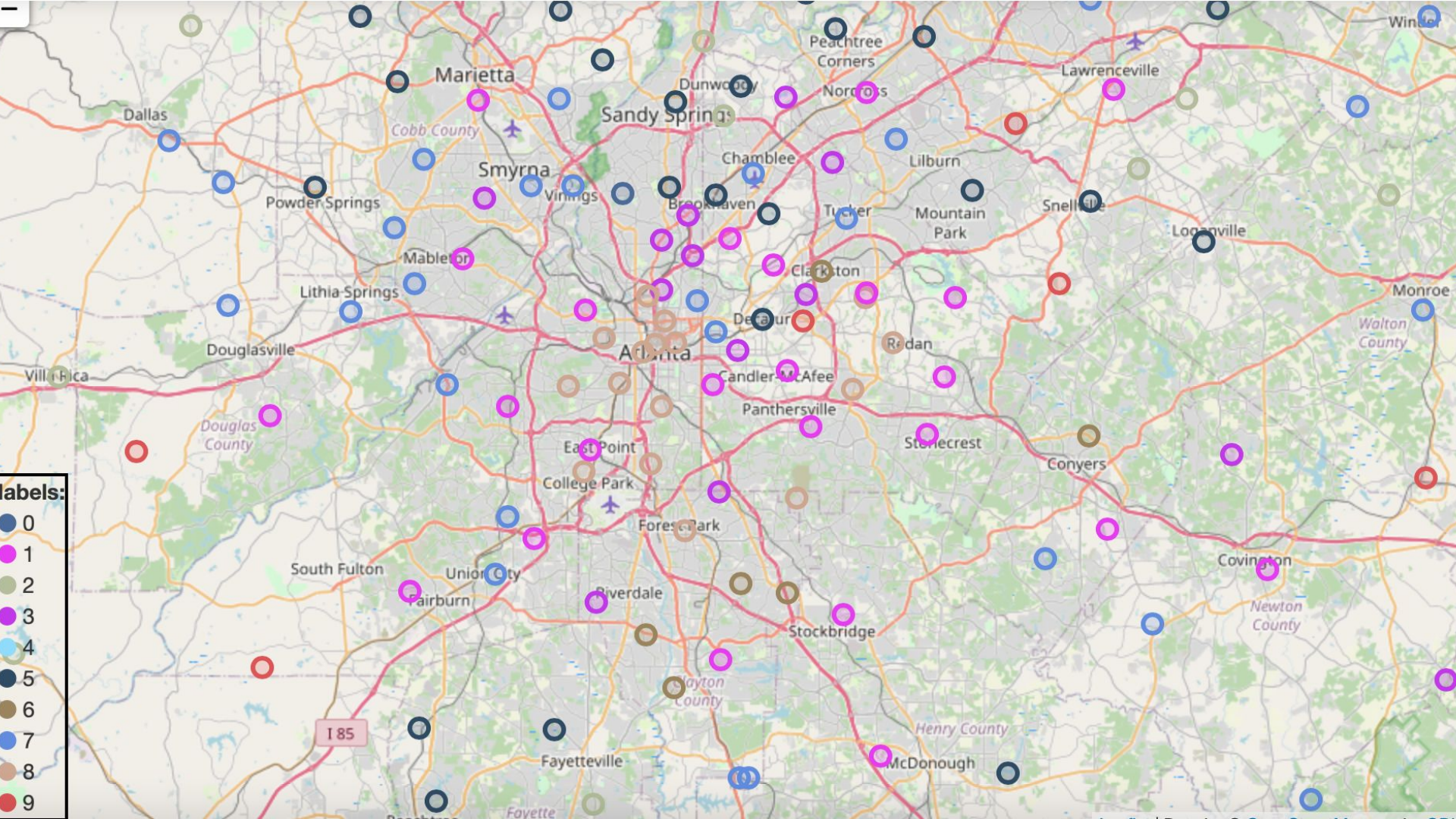


- **Building Age, Crime Rate and School Type have high correlation with House Price.**
- **Higher Sale Price - Newer house, lower crime rate, more private schools.**

House with Neighborhood PCA



- PC1 focus on the house features - baths, SF, price
- PC2 focus on school features
- PC3 on crime rate and building age



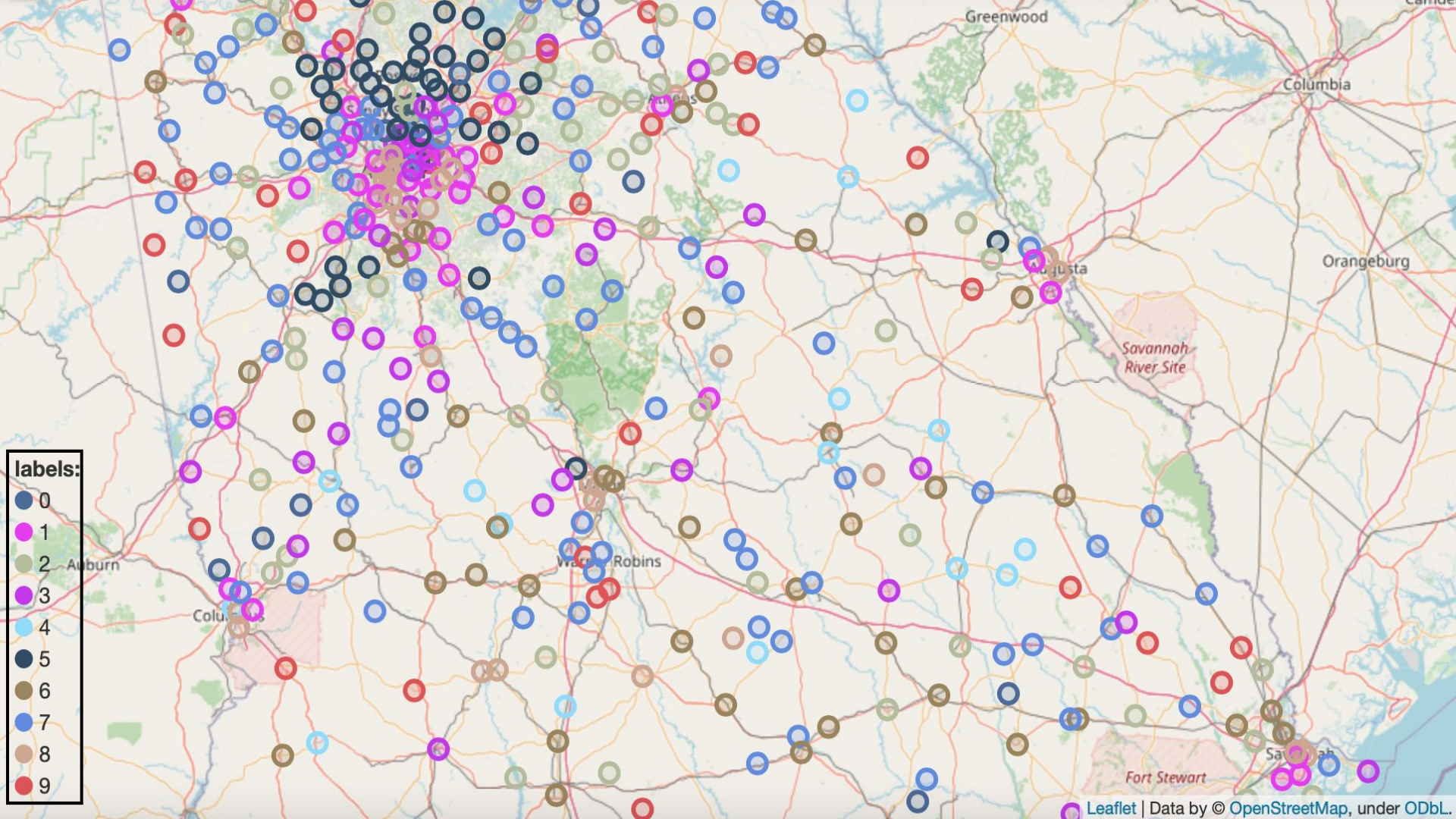
	beds	baths_full	square_footage	price	building_age	violent_crime_total_rate	elem_rating	elem_sum	middle_rating	middle_sum	high_rating	high_sum	PC1	PC2	PC3
labels															
0	4.866667	3.666667	4659.700000	1.632247e+06	25.600000	2.727533	6.000000	4.000000	5.833333	3.000000	5.916667	2.714286	5.080081	-0.545831	2.872745
1	3.300000	1.987500	1838.862500	3.178920e+05	45.400000	4.345450	4.305755	14.675000	4.255617	7.850000	3.977477	5.875000	-0.789737	2.911821	0.101017
2	4.067568	2.918919	2576.222973	4.968261e+05	22.554054	2.586068	6.223898	3.818182	6.181373	2.447368	6.040000	1.843750	1.681117	-0.765070	0.198701
3	3.394737	2.315789	2035.763158	4.544221e+05	29.508772	2.918439	4.954286	2.672727	6.107143	1.600000	5.428571	1.437500	0.303169	0.259106	0.144907
4	3.369565	2.021739	2195.260870	2.304847e+05	106.673913	3.539087	4.237179	3.000000	4.750000	2.444444	4.714286	2.222222	-1.233806	-0.068622	1.000785
5	3.892857	2.630952	2457.738095	6.067100e+05	28.059524	1.851019	6.934382	12.833333	6.821250	6.380952	6.747917	4.928571	2.250801	1.900836	-1.085415
6	3.039062	1.781250	1755.851562	2.316598e+05	50.632812	4.103906	3.674881	2.936508	3.713836	1.875000	3.555556	1.703704	-1.889076	-1.174667	0.664934
7	3.119863	1.945205	1884.041096	3.522198e+05	27.428082	2.866786	5.314949	5.466667	5.546154	3.458333	5.101695	2.771429	-0.313022	-0.087004	-0.637919
8	2.871429	1.828571	1620.671429	2.773399e+05	60.257143	9.058314	3.759770	6.838710	3.870513	3.900000	3.591270	3.111111	-2.468077	1.209945	1.362392
9	3.287234	2.127660	1899.563830	3.358945e+05	29.893617	2.705319	6.188830	2.489362	6.240310	1.363636	6.223684	1.205128	0.011353	-2.109848	-0.949561

Cluster0
Luxury houses, some of the houses are mansion

Cluster 8
At the downtown area. Lower price, smaller house, higher crime rate, and lower school rating.

Cluster 1, Cluster 3, Cluster 7
Located around the downtown area. Similar as house PCA - better living quality yet not too far from the cities.

Cluster 5
Higher price (second highest), lowest crime rate, at the best school district of Georgia.



labels:

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Conclusion

- Georgia real estate does have the pattern, especially for those major cities.
- In Georgia, suburban houses have more value than houses in cities.

Future Work

- Take a closer look and investigate at those anomalies.
- Add more environment and neighborhood features.