

By Viyang Shah

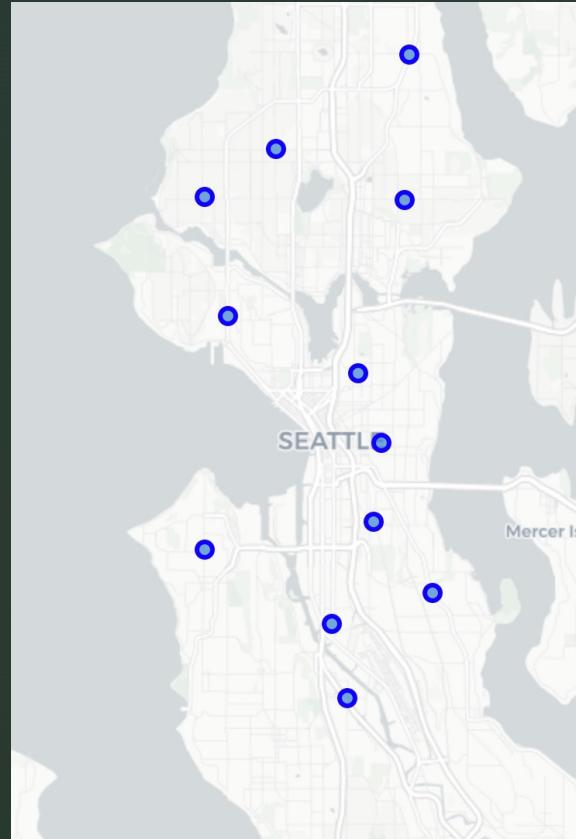


Where do I move into in Seattle?



Problem

- For people moving to Seattle, how can we find a good neighborhood to move into?
- Is there a neighborhood that has places unlike any other?
- Is rent there affordable?
- Factors considered: average rent and uniqueness of venues in a set of 12 popular neighborhoods.

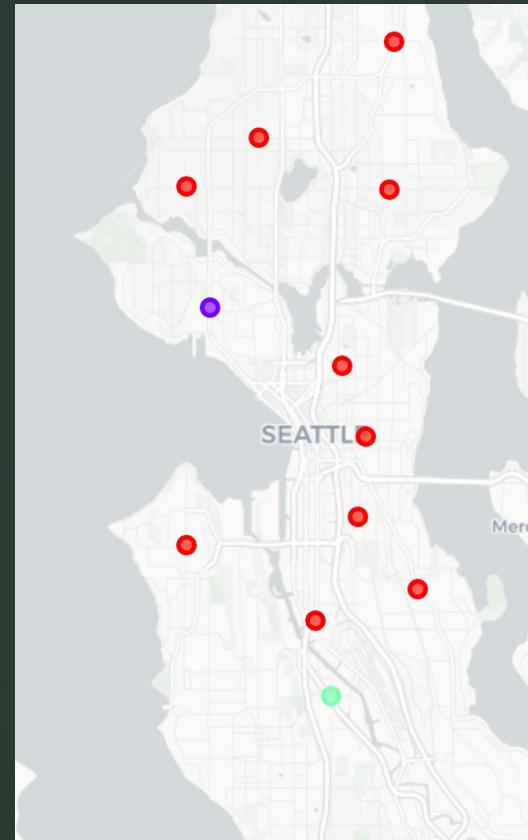


Data acquisition and use

- Twelve neighborhoods considered, as listed: West Seattle, Beacon Hill, Ravenna, Columbia City, Ballard, Interbay, South Park, Central District, Georgetown, Lake City, Greenwood, and Capitol Hill.
- Website used to acquire neighborhood names and average rent.
- Foursquare API used to query venues at these neighborhoods (within a 500-meter radius), their category and their location.

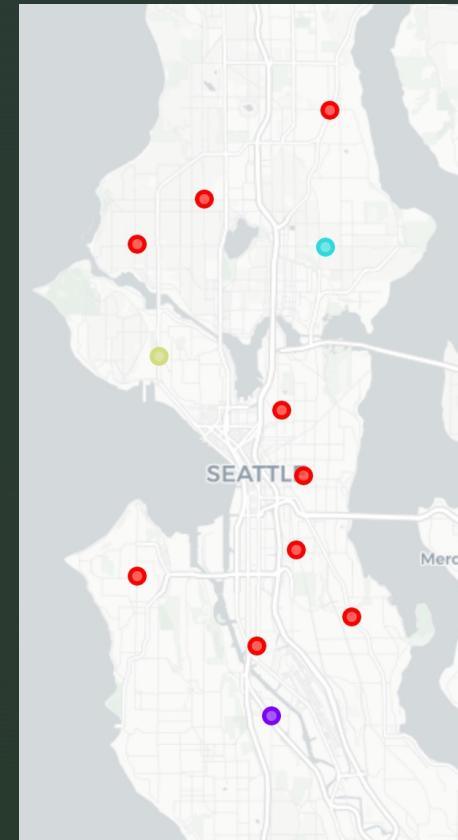
K-means clustering using k = 3

- Clustering algorithm sorts two neighborhoods into their individual clusters, and the rest in a big cluster.
- Common venues such as coffee shops and bars cause the big cluster.

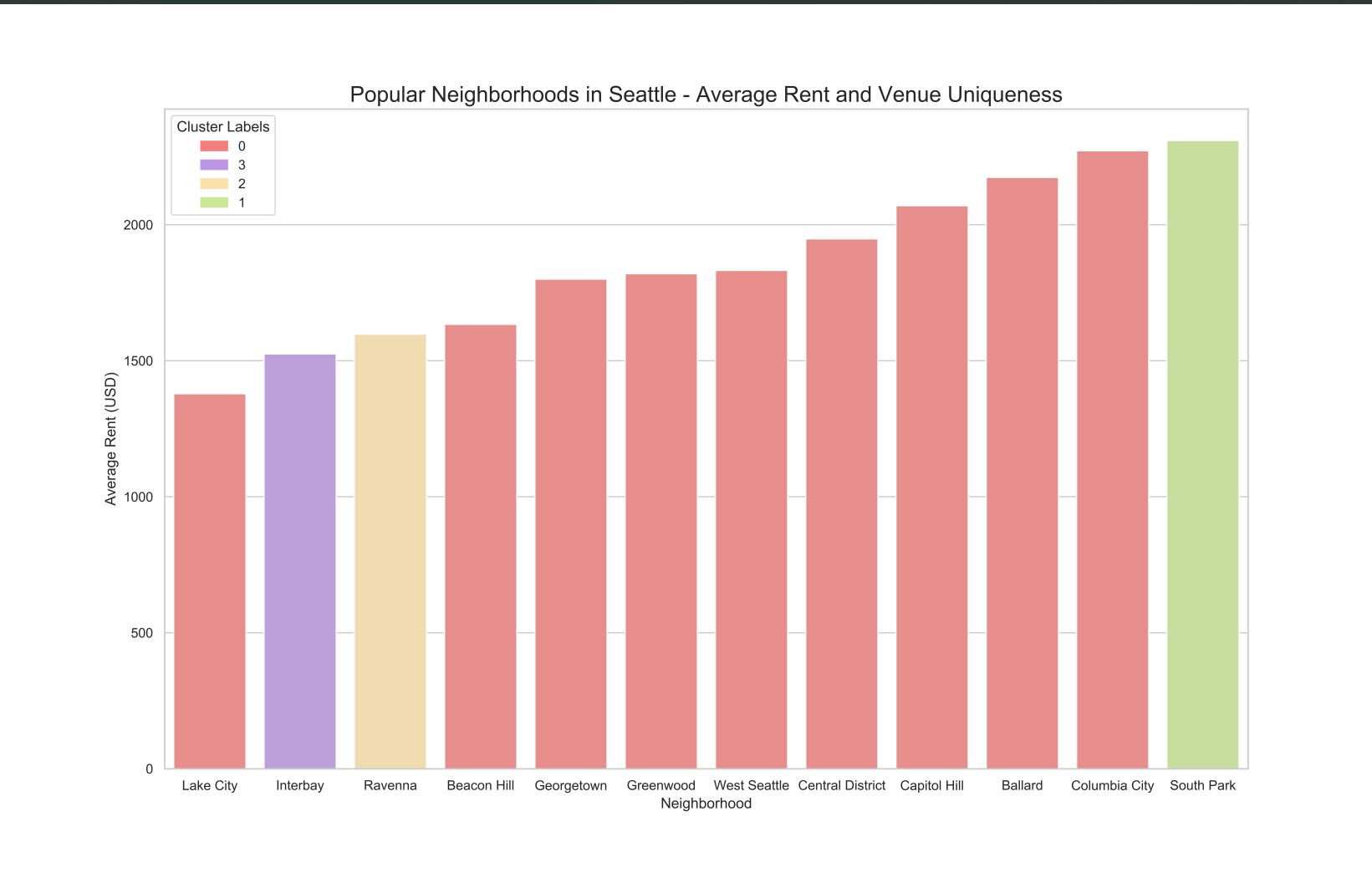


K-means clustering using $k = 4$

- Another unique neighborhood singled out.
- Increasing cluster number might cause overfitting.



Results



- Adding more clusters does not separate the neighborhoods in clusters of multiple sizes, but it singles out unique neighborhoods that have less venues in common with others.
- South Park in Seattle is unique, but the rent there is too high.
- Interbay and Ravenna are recognized as unique neighborhoods with affordable rent.

Conclusion

- The two neighborhoods I would consider moving into are Interbay and Ravenna.
- The K-means clustering algorithm works to single out unique items if very few items are considered.
- More data can be involved to better the model, and to make it historically accurate, dynamic data can be used.