

Where Should I Visit in Seattle?

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Introduction

My sister moved to Seattle before the pandemic and I *still* haven't been able to visit her. I hope I'll be able to someday soon...

In the meantime, I'm going to go ahead and figure out where to visit when I do get a chance to go. Seattle is a big city, so I'll narrow down my search by comparing various Seattle neighborhoods below to my recent vacation destinations using k-means clustering.

- *Ballard*
- *Beacon Hill*
- *Belltown*
- *Capital Hill*
- *Central District*
- *Chinatown-International*
- *Downtown*
- *Fremont*
- *Georgetown*
- *Lake City*
- *Pioneer Square*
- *Queen Anne*
- *Seattle Waterfront*
- *SoDo*
- *University District*
- *Wallingford*
- *West Seattle*

Data

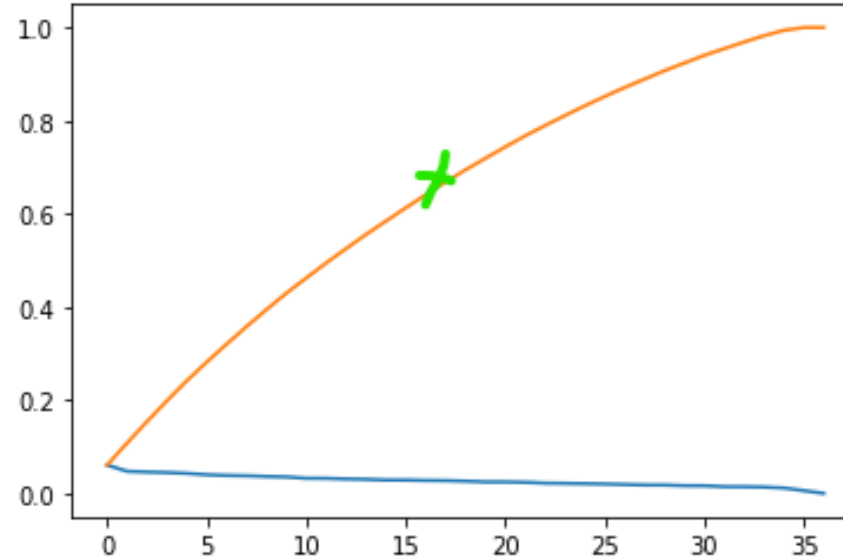
My source data will come in two forms: location data for my previous vacations and the Seattle neighborhoods and venue data from Foursquare for each neighborhood/destination. Previous vacation locations are presented below.

- *Highland, Denver, Colorado, USA*
- *Lodo, Denver, Colorado, USA*
- *River North, Denver, Colorado, USA*
- *Manitou Springs, Manitou Springs, Colorado, USA*
- *Downtown, Atlanta, Georgia, USA*
- *Midtown, Atlanta, Georgia, USA*
- *Downtown, Gatlinburg, Tennessee, USA*
- *Little Five Points, Atlanta, Georgia, USA*
- *Downtown, Mendocino, California, USA*
- *Little River, Little River, California, USA*
- *PCB, Panama City Beach, Florida, USA*
- *Downtown, Ukiah, California, USA*
- *Perdido Key, Perdido Key, Florida, USA*
- *Cinco Bayou, Fort Walton Beach, Florida, USA*
- *Destin, Destin, Florida, USA*
- *French Quarter, New Orleans, Louisiana, USA*
- *Downtown, Memphis, Tennessee, USA*
- *Historic District, Savannah, Georgia, USA*
- *Tybee Island, Savannah, Georgia, USA*
- *Downtown, Charleston, South Carolina, USA*
- *South of Broad, Charleston, South Carolina, USA*
- *Mountain Top, Mentone, Alabama, USA*
- *Alexandra Park, Toronto, Ontario, Canada*
- *Casa Loma, Toronto, Ontario, Canada*
- *Church and Wellesley, Toronto, Ontario, Canada*
- *Chinatown, Toronto, Ontario, Canada*
- *Distillery District, Toronto, Ontario, Canada*
- *Entertainment District, Toronto, Ontario, Canada*
- *Financial District, Toronto, Ontario, Canada*
- *Garden District, Toronto, Ontario, Canada*
- *Harbourfront, Toronto, Ontario, Canada*
- *Kensington Market, Toronto, Ontario, Canada*
- *Old Town, Toronto, Ontario, Canada*
- *Old Montreal, Montreal, Quebec, Canada*
- *Downtown, Montreal, Quebec, Canada*
- *Chinatown, Montreal, Quebec, Canada*
- *Mile End, Montreal, Quebec, Canada*
- *Old Town, Quebec City, Quebec, Canada*
- *Asakusa, Taito, Tokyo, Japan*
- *Ginza, Chuo, Tokyo, Japan*
- *Roppongi, Minato, Tokyo, Japan*
- *Shibuya Station, Shibuya, Tokyo, Japan*
- *Lake Kawaguchi, Fujikawaguchiko, Yamanashi, Japan*
- *Higashiyama, Kyoto, Kyoto, Japan*
- *Shimogyo, Kyoto, Kyoto, Japan*
- *Minami, Osaka, Osaka, Japan*
- *Nara Park, Nara, Nara, Japan*

Methodology

The vacation venue data were transformed using one hot encoding, standardization, and Principal Component Analysis (PCA). 18 components out of 317 captured ~67% of the variation in the venue data. Next, a k-means cluster analysis was conducted. After a suitable k parameter was chosen, the Seattle district data was imported, transformed and scored.

	0	cumsum
0	0.060794	0.060794
1	0.047451	0.108244
2	0.045818	0.154063
3	0.044783	0.198846
4	0.042983	0.241829
5	0.040027	0.281856
6	0.038500	0.320356
7	0.037761	0.358116
8	0.036341	0.394457
9	0.035387	0.429844
10	0.032426	0.462270
11	0.032264	0.494534
12	0.030947	0.525481
13	0.030225	0.555706
14	0.028725	0.584431
15	0.028598	0.613028
16	0.027849	0.640878
17	0.027460	0.668338



K: 4
Silhouette: 0.06326278842464582

K: 5
Silhouette: 0.0593574545655956

K: 6
Silhouette: 0.03404409318864639

K: 7
Silhouette: 0.06973708401884836 *

K: 8
Silhouette: 0.06881707468869878

K: 9
Silhouette: 0.06889378747841537

K: 10
Silhouette: 0.046154870629061165

Results & Discussion

The resulting Seattle neighborhood cluster distribution and listing are below.

Distribution of Cluster		Cluster Labels		Name	
1	4	0	3	Ballard, Seattle, Washington, USA	
3	4	1	4	Beacon Hill, Seattle, Washington, USA	*
4	3	2	2	Belldowntown, Seattle, Washington, USA	*
0	2	3	2	Capitol Hill, Seattle, Washington, USA	*
2	2	4	6	Central District, Seattle, Washington, USA	
6	2	5	0	Chinatown-International, Seattle, Washington, USA	
		6	1	Downtown, Seattle, Washington, USA	
		7	6	Fremont, Seattle, Washington, USA	
		8	3	Georgetown, Seattle, Washington, USA	
		9	3	Lake City, Seattle, Washington, USA	
		10	1	Pioneer Square, Seattle, Washington, USA	
		11	3	Queen Anne, Seattle, Washington, USA	
		12	1	Seattle Waterfront, Seattle, Washington, USA	
		13	4	SoDo, Seattle, Washington, USA	*
		14	4	University District, Seattle, Washington, USA	*
		15	0	Wallingford, Seattle, Washington, USA	
		16	1	West Seattle, Seattle, Washington, USA	

Based on my most favorite vacation destinations (below), I selected Clusters 2 and 4 to focus on. This led to the identification of the 5 green starred Seattle neighborhoods that I absolutely must visit.

- Downtown, Mendocino, California, USA: **Cluster 2**
- Ginza, Chūō, Tokyo, Japan: **Cluster 4**
- Minami, Osaka, Osaka, Japan: **Cluster 0**
- Nara Park, Nara, Nara, Japan: **Cluster 4**
- Historic District, Savannah, Georgia, USA: **Cluster 2**
- Church and Wellesley, Toronto, Ontario, Canada: **Cluster 4**
- Lodo, Denver, Colorado, USA: **Cluster 2**
- Mile End, Montreal, Quebec, Canada: **Cluster 5**

Conclusion

Well, that was fun! I've come up with a short list of five Seattle neighborhoods that I will have to visit on my trip to Seattle. They are:

- Beacon Hill
- Belltown
- Capital Hill
- SoDo
- University District

Honestly, though, I'll probably still take recommendations from my sister as well. She lives there after all! Hope you enjoyed reading through my project! 😊

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