

Exploring the Neighborhood in Seattle

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1.Introduction

A world-wide event planning and management company is currently working on a project to organize an international event for one week in Washington State Convention Center (WSCC), Seattle, WA. The Washington State Convention Center (WSCC) is a convention center in Seattle, Washington, United States. It consists of several exhibition halls and meeting rooms in buildings along Pike Street in Downtown Seattle. Part of the complex straddles Interstate 5 and connects with Freeway Park. The convention center was planned in the late 1970s and funded through \$90 million in bonds issued by the state legislature. The requests are including finding list of hotels of residence, restaurants and coffee shops close to the conference center. This project will help the event planner to find the list of restaurants, coffee shops and hotels. Since most of the people are from Italy, the planner also want to know the list of Italian restaurants near WSCC.

2.Data Description

2.1 Data sources

The data used in this project is provided by Foursquare location data. I will construct a URL to send a request to the API to search for a specific to explore a geographical location, and to get trending venues around a location. The data are grouped by landscape area, and each area included the information about this area and all information about hotels, restaurants and shopping malls in this area.

2.2 Data cleaning

There were a lot of missing values from address, because of lack of record keeping. I decided to only have completed information from Foursquare and ignore the unrelated columns.

3.Methodology

The convention center is located along Pike Street between 7th Avenue and Hubbell Place in Downtown Seattle. The complex straddles Pike Street, 8th Avenue, and Interstate 5, stretching from Union Street in the south to Pine Street in the north. It is adjacent to several downtown hotels and

the Pike–Pine retail corridor, which includes Westlake Center and Pacific Place. The convention center is served by several transit routes, including Westlake station in the Downtown Seattle Transit Tunnel; the tunnel carries suburban buses and Link light rail trains, which serve Seattle–Tacoma International Airport. The facility is also served by buses on surface streets, including several trolleybus routes.

In this project I will direct our efforts on detecting areas of WSCC for the people attending the event for one week. The public transportation is convenient in Seattle downtown. I will limit my analysis to area ~500m around WSCC.

In the first step I will collect and clean the required data: location of restaurants, hotels and coffee shops within 6km from WSCC. Second step in my analysis will be calculation and exploration of 'Italian shops density' across different areas of Seattle. I will create clusters (using k-means clustering) of those locations to identify general.

4. Results

My analysis shows that there is a great number of restaurants, coffee shops and hotels around Seattle Convention Center (~500 meters from WSCC). The list of restaurants, hotels and coffee shops will help the event planner to make consideration about the schedule of the event. From the map, we can see the high concentration of restaurants and hotels were detected west of I5, in west lake neighborhood.

For Italian shops (including restaurant, coffee shop, wine and dessert shop), I focused on around 5km from WSCC. Those location candidates were then clustered to create zones of interest which contain the greatest number of location candidates. Result of all this is 5 zones containing the largest number of potential new restaurant locations based on number of and distance to existing venues. This does not imply that those zones are actually optimal locations for participant from Italy. From the map, I would recommend the zone on the west of WSCC. There are low Italian shop density fairly close to WSCC.

5. Discussion

Purpose of this project was to identify the list of hotels, restaurants and coffee shops which are close to Washington State Convention Center for the event planner. Particularly, most of the people were from Italy, I provided the analysis about Italian community near WSCC. By calculating hotel, restaurant and coffee shop density distribution from Foursquare data I have first identified the location map for recommendation. Clustering of those Italian shop locations was then performed in order to create major zones of interest.

Final decision on optimal location will be made by the event planner. Based on my analysis, I will recommend the region on the west of the I5 with high density of hotels and restaurants and specific characteristics of Italian neighborhoods.

6.Appendix

Below is the list of hotels, restaurants and coffee shops close to WSCC.

name	categories	address	lat	lng	postalCode	state
Sheraton Seattle Hotel	Hotel	1400 6th Ave	47.610697	-122.333895	98101	WA
Thai Garden Restaurant	Thai Restaurant	400 Pine St	47.611256	-122.337571	98101	WA
Starbucks	Coffee Shop	600 Stewart St	47.613830	-122.336876	98101	WA
Dragonfish Asian Cafe	Asian Restaurant	722 Pine St	47.613019	-122.333437	98101	WA
Nikko Restaurant	Japanese Restaurant	1900 5th Ave	47.613300	-122.337997	98101	WA
Urbane	New American Restaurant	1639 8th Ave	47.613924	-122.334158	98101	WA
Il Fornaio Seattle	Italian Restaurant	600 Pine St	47.613027	-122.336302	98101	WA
Barolo Ristorante	Italian Restaurant	1940 Westlake Ave	47.614298	-122.337838	98101	WA
Ristorante Machiavelli	Italian Restaurant	1215 Pine St	47.615092	-122.328125	98101	WA
Anchorhead Coffee Co	Coffee Shop	1600 7th Ave Ste 105	47.613450	-122.334702	98101	WA
Urban Coffee House	Coffee Shop	1900 4th Ave	47.612460	-122.338748	98101	WA
Tully's Coffee - Two Union	Coffee Shop	601 Union	47.610529	-122.331964	98101	WA
Victrola Coffee Roasters	Coffee Shop	1600 3rd Ave	47.610895	-122.338952	98101	WA
Cherry Street Coffee	Coffee Shop	509 Olive Way	47.612932	-122.337017	98101	WA
Starbucks Reserve Roastery	Coffee Shop	1124 Pike St	47.614044	-122.328289	98101	WA
Starbucks	Coffee Shop	400 Pine St	47.611447	-122.337502	98101	WA
Seattles Best Coffee - Retail Cafes, Downtown ...	Coffee Shop	1100 4th Ave	47.606770	-122.333550	98101	WA
Seattles Best Coffee	Coffee Shop	622 Olive Way	47.613553	-122.335382	98101	WA
Julie's Coffee	Coffee Shop	1501 4th Ave	47.610487	-122.337111	98101	WA
Seattles Best Coffee	Coffee Shop	413 Pine St	47.611368	-122.337336	98101	WA
Starbucks	Coffee Shop	601 Union St	47.610153	-122.333080	98101	WA
Starbucks	Coffee Shop	1125 4th Ave	47.607340	-122.334250	98101	WA
Amicis Family Italian Restaurant	Italian Restaurant	1106 8th Ave	47.608721	-122.329190	98101	WA
Palomino	Italian Restaurant	1420 5th Ave	47.610410	-122.335191	98101	WA
Elephant & Castle	Bar	1415 5th Ave	47.610186	-122.334925	98101	WA
Geneva Restaurant	Food	1106 8th Ave	47.609366	-122.329687	98101	WA
Fairmont Olympic Hotel	Hotel	411 University St	47.608328	-122.334211	98101	WA

Kimpton Hotel Vintage Seattle	Hotel	1100 5th Ave	47.607657	-122.332345	98101	WA
Kimpton Hotel Monaco Seattle	Hotel	1101 4th Ave	47.606932	-122.334100	98101	WA
Hotel Max	Hotel	620 Stewart St	47.614220	-122.336460	98101	WA
The Paramount Hotel Seattle	Hotel	724 Pine St	47.613007	-122.333485	98101	WA
Mayflower Park Hotel	Hotel	405 Olive Way	47.612293	-122.338419	98101	WA
Hotel Seattle	Hotel	315 Seneca St	47.607422	-122.334399	98101	WA
Daily Grill	Cocktail Bar	629 Pike St	47.611417	-122.333394	98101	WA
The Westin Seattle	Hotel	1900 5th Ave	47.613700	-122.338193	98101	WA
Hyatt At Olive 8	Hotel	1635 8th Ave	47.613488	-122.333755	98101	WA
Hotel Theodore	Hotel	1531 7th Ave	47.612370	-122.334263	98101	WA
Starbucks	Coffee Shop	515 Pine Street	47.611847	-122.335724	98101	WA
The W Hotel Great Room 1	Hotel	1112 4th Ave	47.607155	-122.334130	98101	WA
Grand Hyatt Seattle	Hotel	721 Pine St	47.612583	-122.333618	98101	WA
Saigon Vietnamese Restaurant II	Vietnamese Restaurant	1529 6th Ave	47.612039	-122.335397	98101	WA
Kumagoro Restaurant	Food	1506 6th Ave	47.611190	-122.334570	98101	WA
Andalucia Restaurant	Restaurant	407 Olive Way	47.612257	-122.338135	98101	WA
Tango Restaurant & Lounge	Argentinian Restaurant	1100 Pike St	47.613550	-122.329025	98101	WA
Thai Ginger Restaurant	Thai Restaurant	600 Pine St Fl 4	47.612759	-122.335104	98101	WA
Retro Restaurant And Lounge	Lounge	216 Stewart St	47.611369	-122.339823	98101	WA
Renaissance Seattle Hotel	Hotel	515 Madison St	47.606667	-122.330685	98104	WA
Hotel Sorrento	Hotel	900 Madison St	47.608885	-122.326757	98104	WA
Pho Saigon Asian Cuisine	Asian Restaurant	1016 Madison St	47.609219	-122.325660	98104	WA
Coffee Tree	Coffee Shop	905 8th Ave	47.607388	-122.328003	98104	WA
Baroness Hotel	Hotel	1005 Spring St	47.609667	-122.326470	98104	WA
Executive Hotel Pacific	Hotel	400 Spring St	47.606935	-122.333325	98104	WA
RC Restaurant Enterprises	Food	2033 6th Ave	47.614641	-122.338601	98121	WA
Ghost Note Coffee	Coffee Shop	1623 Bellevue Ave	47.615920	-122.326912	98122	WA
Cherry Street Coffee House	Coffee Shop	320 E Pine St	47.615267	-122.327288	98122	WA
Victrola Cafe and Roastery	Coffee Shop	310 E Pike St	47.614203	-122.327277	98122	WA
Noren Sushi Kitchen & Bar	Sushi Restaurant	320 E Pike St	47.614240	-122.327028	98122	WA