

Seattle Airbnb Prices in 2016 Analysis with Foursquare API

Introduction : Background

Airbnb is a community-based online platform for listing and renting local homes. It connects hosts and travelers and facilitates the process of renting without owning any rooms itself. Moreover, it cultivates a sharing-economy by allowing property owners to rent out private flats. More and more people would like to be Airbnb host. But if people know which factors are important for high income, It will help them to start their own business. In July 2016, Seattle was the fastest-growing major U.S. city, with a 3.1% annual growth rate. Seattle is the northernmost large city in the United State.

Problem & Interest

I analyzed it for someone who wants to be a Seattle Airbnb host in the future. They analyzed which areas were the most expensive, which areas were given good location scores by users of Airbnb, and the venues in 2016

Data acquisition and cleaning

Data Source

I got data from Kagge (<https://www.kaggle.com/airbnb/seattle>)

Data Cleaning

I have 2 dataframe. One is calendar.csv and the other is listings.csv. I calculated year average price and merged two data.

```
In [2]: import pandas as pd
```

```
In [3]: cal = pd.read_csv('C:/kaggle/calendar/calendar.csv')
        listing = pd.read_csv('C:/kaggle/listings/listings.csv')
```

```
In [4]: cal.head()
```

```
Out[4]:
```

	listing_id	date	available	price
0	241032	2016-01-04	t	\$85.00
1	241032	2016-01-05	t	\$85.00
2	241032	2016-01-06	f	NaN
3	241032	2016-01-07	f	NaN
4	241032	2016-01-08	f	NaN

```

In [17]: a = pd.merge(listing, year_clean)
In [18]: a.head()
Out[18]:

```

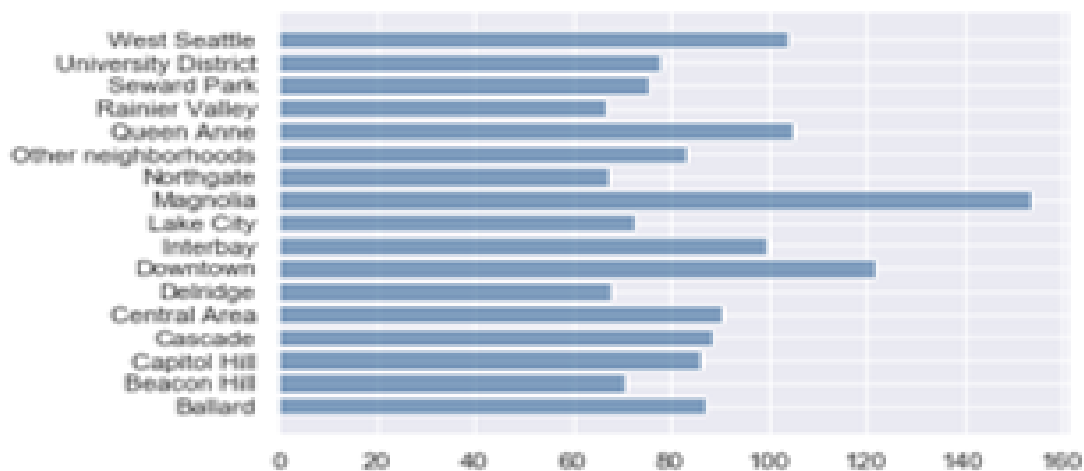
	cancellation_policy	require_guest_profile_picture	require_guest_phone_verification	calculated_host_listings_count	reviews_per_month	year_average_price
	moderate	f	f	2	4.07	80.550964
	strict	t	t	6	1.48	134.716253
	strict	f	f	2	1.15	206.473829
	flexible	f	f	1	NaN	38.842975
	strict	f	f	1	0.89	462.809917

Exploratory Data Analysis

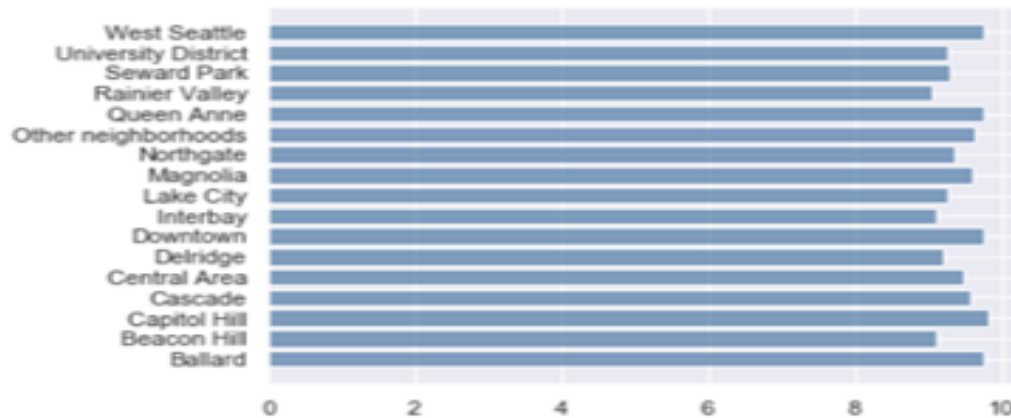
I chose those

columns(id,street,neighbourhood_group_cleansed,zipcode,latitude,longitud,e,year_ave
rage_price,review_scores_location)

Relationship between Neighborhood and Year Average Price



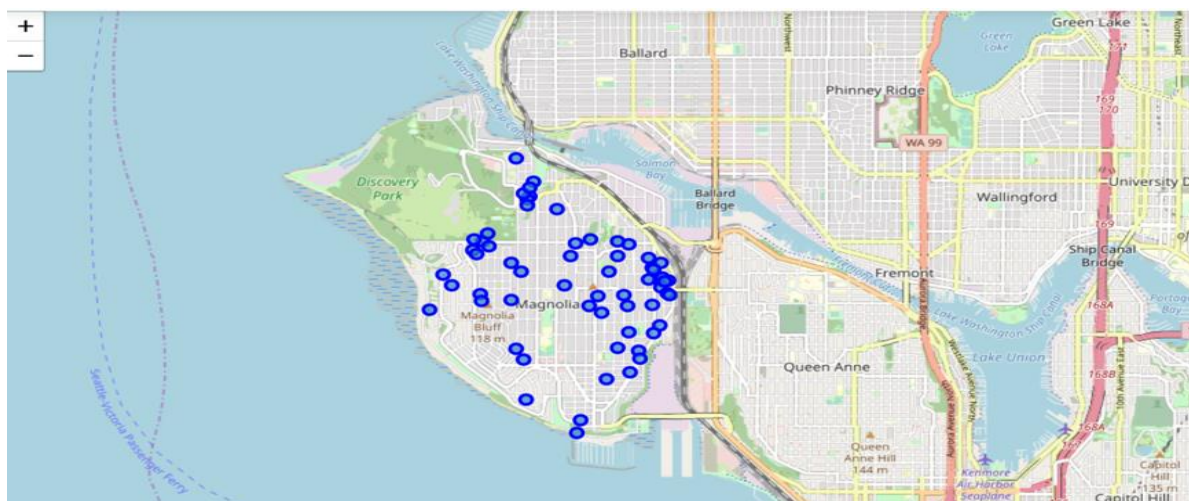
Relationship between Location review scores and Year Average Price



Question : Why can those areas get the highest price and review scores (with Foursquare API)

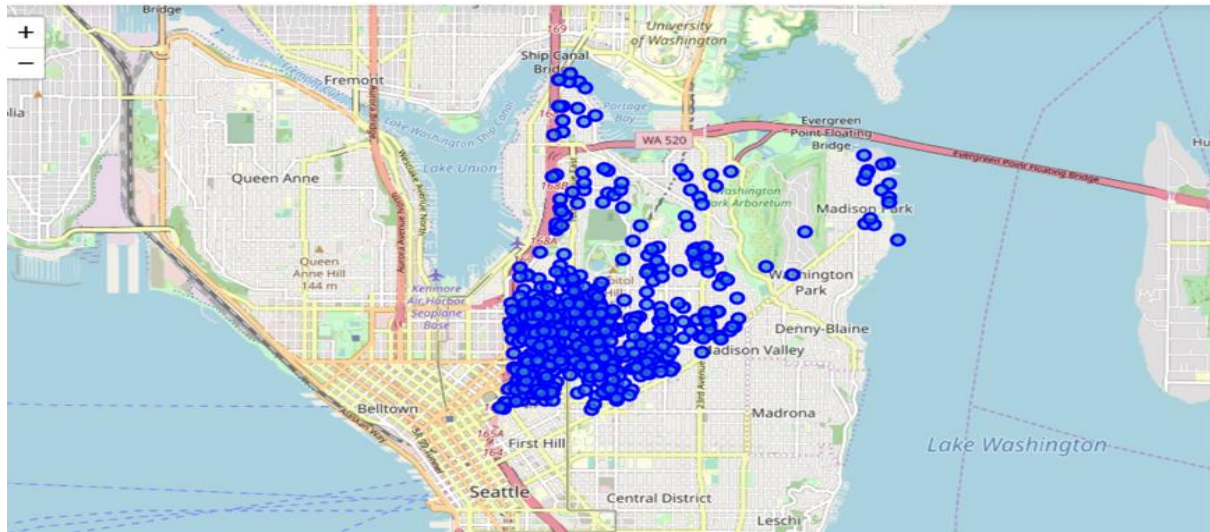
Venue Analysis

The highest price : Magnolia



Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Park	Coffee Shop	Trail	Athletics & Sports	Playground	Breakfast Spot	Restaurant	Café	Chinese Restaurant	Chiropractor
1	20th Avenue West	Coffee Shop	Vietnamese Restaurant	Bar	Video Store	Gym	Irish Pub	Convenience Store	Burger Joint	Pizza Place
2	21st Avenue West	Convenience Store	Irish Pub	Coffee Shop	Bar	Park	Vietnamese Restaurant	Burger Joint	Video Store	Gym
3	22nd Avenue West	Vietnamese Restaurant	Asian Restaurant	Golf Course	Irish Pub	Park	Coffee Shop	Playground	Pizza Place	Convenience Store
4	23rd Avenue West	Vietnamese Restaurant	Bar	Irish Pub	Convenience Store	Playground	Asian Restaurant	Bakery	Bank	Garden

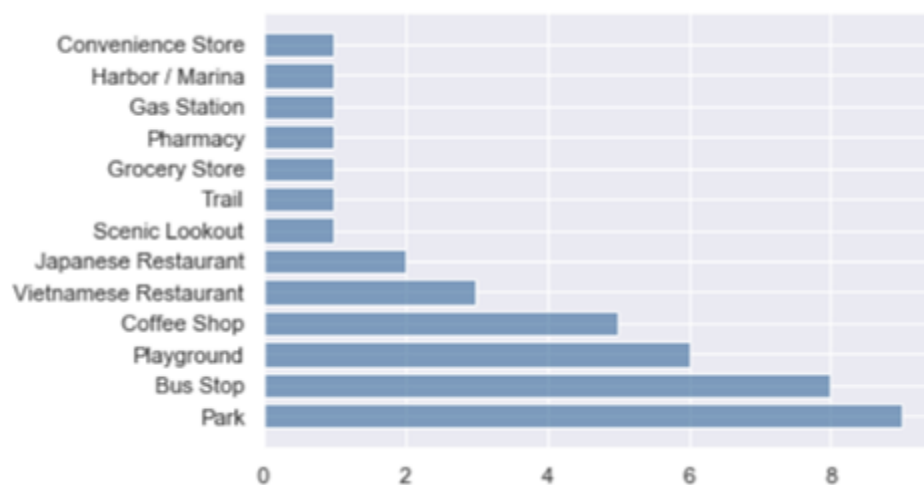
The highest location review : Capitol Hill



	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0		Coffee Shop	Thai Restaurant	Italian Restaurant	Cocktail Bar	Bar	Bakery	Yoga Studio	Gift Shop	Marijuana Dispensary	Men's Store
1	10th Ave E	Cocktail Bar	Coffee Shop	American Restaurant	Bar	Thai Restaurant	Italian Restaurant	Café	Indian Restaurant	Japanese Restaurant	Men's Store
2	10th Avenue East	Coffee Shop	Cocktail Bar	Bar	American Restaurant	Café	Italian Restaurant	Thai Restaurant	Men's Store	Indian Restaurant	Mexican Restaurant
3	10th East Ave	Bar	Pizza Place	Mexican Restaurant	Café	Coffee Shop	Cocktail Bar	Gay Bar	Japanese Restaurant	Dance Studio	Boutique
4	11th Ave E	Coffee Shop	Cocktail Bar	Italian Restaurant	Thai Restaurant	Yoga Studio	Japanese Restaurant	Café	Bakery	Indian Restaurant	American Restaurant

Conclusion

Magnolia Venues Rank



Capitol Hill Venues Rank



I found that the area which has the most highest price is Magnolia and the area which has the highest location review score is Capitol Hill. Also, I analyzed the surroundings using the Foursquare API, and there were many bus stops and coffee shops in both areas. The difference is that Magnolia had more parks and playgrounds than Capitol Hill, and many Vietnamese and Japanese restaurants. On the other hand, Capitol Hill