

Finding the best city for an upcoming Metal Band

Introduction: Business Problem

I have a metal band. One of our goals is to improve the reach of our music. In addition, we want to improve our live shows. One way to work on both goals is to find a set of local venues where we can present our show in a continuous fashion. Using the data from the Foursquare database we can identify the density of such venues across different cities. For this study we will compare the data from Manhattan in New York with the data from Toronto named neighborhoods in the city of Toronto. With this comparison we can plan to relocate our band and schedule local shows.

Datasets

The Foursquare location data contains information about the venues across different cities. With some work the information about the positions (latitude and longitude) of the neighborhoods of interest can be retrieved from the web. Then this positions can be used to retrieve venues from Foursquare. Venues information include type of venue. Filtering through music related venues, such as clubs and concert halls will give an idea of which neighborhood may be better suited for a local band.

After scraping the data from the web and direct sources the following dataframes were built using python

```
toronto_data.head()
```

The dataframe has 15 boroughs and 103 neighborhoods.

	Postal Code	Borough	Neighborhood	Latitude	Longitude
0	M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636
1	M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937
2	M5C	Downtown Toronto	St. James Town	43.651494	-79.375418
3	M4E	East Toronto	The Beaches	43.676357	-79.293031
4	M5E	Downtown Toronto	Berczy Park	43.644771	-79.373306

The dataframe has 5 boroughs and 306 neighborhoods.

```
manhattan_data = neighborhoods[neighborhoods['Borough' == 'Manhattan']]
manhattan_data.head()
```

	Borough	Neighborhood	Latitude	Longitude
0	Manhattan	Marble Hill	40.876551	-73.910660
1	Manhattan	Chinatown	40.715618	-73.994279
2	Manhattan	Washington Heights	40.851903	-73.936900
3	Manhattan	Inwood	40.867684	-73.921210
4	Manhattan	Hamilton Heights	40.823604	-73.949688

Methodology: Exploratory Analysis

Venues information were extracted from the Foursquare API

```
toronto_venues.head()
```

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Regent Park, Harbourfront	43.65426	-79.360636	Roselle Desserts	43.653447	-79.362017	Bakery
1	Regent Park, Harbourfront	43.65426	-79.360636	Tandem Coffee	43.653559	-79.361809	Coffee Shop
2	Regent Park, Harbourfront	43.65426	-79.360636	Cooper Koo Family YMCA	43.653249	-79.358008	Distribution Center
3	Regent Park, Harbourfront	43.65426	-79.360636	Impact Kitchen	43.656369	-79.356980	Restaurant
4	Regent Park, Harbourfront	43.65426	-79.360636	Body Blitz Spa East	43.654735	-79.359874	Spa

```
manhattan_venues.head()
```

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Marble Hill	40.876551	-73.91066	Arturo's	40.874412	-73.910271	Pizza Place
1	Marble Hill	40.876551	-73.91066	Bikram Yoga	40.876844	-73.906204	Yoga Studio
2	Marble Hill	40.876551	-73.91066	Tibbett Diner	40.880404	-73.908937	Diner
3	Marble Hill	40.876551	-73.91066	Dunkin'	40.877136	-73.906666	Donut Shop
4	Marble Hill	40.876551	-73.91066	Starbucks	40.877531	-73.905582	Coffee Shop

After filtering with the keywords: “Music”, “Rock”, “Metal”, “Stadium”, and “Concert” the following venues were found

```
music_venues_toronto.head()
```

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Garden District, Ryerson	43.657162	-79.378937	Jazz Bistro	43.655678	-79.379276	Music Venue
1	Dufferin, Doverscourt Village	43.669005	-79.442259	Rehearsal Factory	43.668877	-79.443603	Music Venue
2	Harbourfront East, Union Station, Toronto Islands	43.640816	-79.381752	Redpath Stage	43.638764	-79.383317	Music Venue
3	Harbourfront East, Union Station, Toronto Islands	43.640816	-79.381752	WestJet Stage	43.638022	-79.383536	Music Venue
4	High Park, The Junction South	43.661608	-79.464763	Junction City Music Hall	43.665334	-79.466253	Music Venue

```
music_venues_manhattan.head()
```

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Chinatown	40.715618	-73.994279	Sofar HQ	40.713523	-73.996289	Music Venue
1	Central Harlem	40.815976	-73.943211	Shrine World Music Venue	40.814403	-73.944242	Music Venue
2	Clinton	40.759101	-73.996119	DiMenna Center for Classical Music	40.756323	-73.997192	Music School
3	Soho	40.722184	-74.000657	Rudy's Music Soho	40.722380	-74.001128	Music Store
4	Noho	40.723259	-73.988434	The Slipper Room	40.721425	-73.988597	Music Venue

```
rock_venues_manhattan.head()
```

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Clinton	40.759101	-73.996119	MPHC Climbing Gym	40.759657	-73.994088	Rock Climbing Spot
1	Lower East Side	40.717807	-73.980890	Parkside Lounge	40.721088	-73.983174	Rock Club
2	Little Italy	40.719324	-73.997305	Bowery Ballroom	40.720328	-73.993335	Rock Club
3	Noho	40.723259	-73.988434	Rockwood Music Hall	40.722196	-73.988841	Rock Club
4	Noho	40.723259	-73.988434	Rockwood Music Hall, Stage 2	40.722038	-73.988634	Rock Club

```
concert_venues_manhattan.head()
```

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Lincoln Square	40.773529	-73.985338	New York Philharmonic	40.772526	-73.983139	Concert Hall
1	Lincoln Square	40.773529	-73.985338	David Geffen Hall	40.772305	-73.983156	Concert Hall
2	Lincoln Square	40.773529	-73.985338	Alice Tully Hall	40.773359	-73.982373	Concert Hall
3	Lincoln Square	40.773529	-73.985338	Merkin Concert Hall	40.775179	-73.983130	Concert Hall
4	Midtown	40.754691	-73.981669	The Town Hall	40.756058	-73.984595	Concert Hall

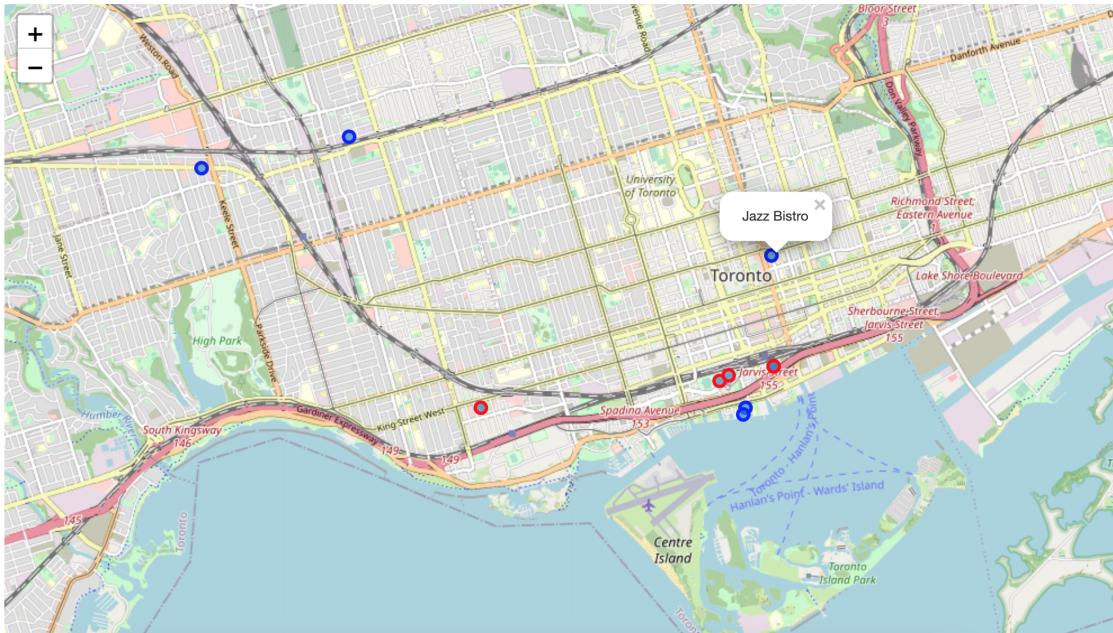
```
stadium_venues_toronto.head(7)
```

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Berczy Park	43.644771	-79.373306	Scotiabank Arena	43.643446	-79.379040	Basketball Stadium
1	Harbourfront East, Union Station, Toronto Islands	43.640816	-79.381752	Scotiabank Arena	43.643446	-79.379040	Basketball Stadium
2	Harbourfront East, Union Station, Toronto Islands	43.640816	-79.381752	Rogers Centre	43.641753	-79.387150	Baseball Stadium
3	Harbourfront East, Union Station, Toronto Islands	43.640816	-79.381752	Toronto Blue Jays Box Office	43.642416	-79.385862	Baseball Stadium
4	Toronto Dominion Centre, Design Exchange	43.647177	-79.381576	Scotiabank Arena	43.643446	-79.379040	Basketball Stadium
5	Brockton, Parkdale Village, Exhibition Place	43.636847	-79.428191	Lamport Stadium	43.638778	-79.423534	Stadium
6	Enclave of M5E	43.646435	-79.374846	Scotiabank Arena	43.643446	-79.379040	Basketball Stadium

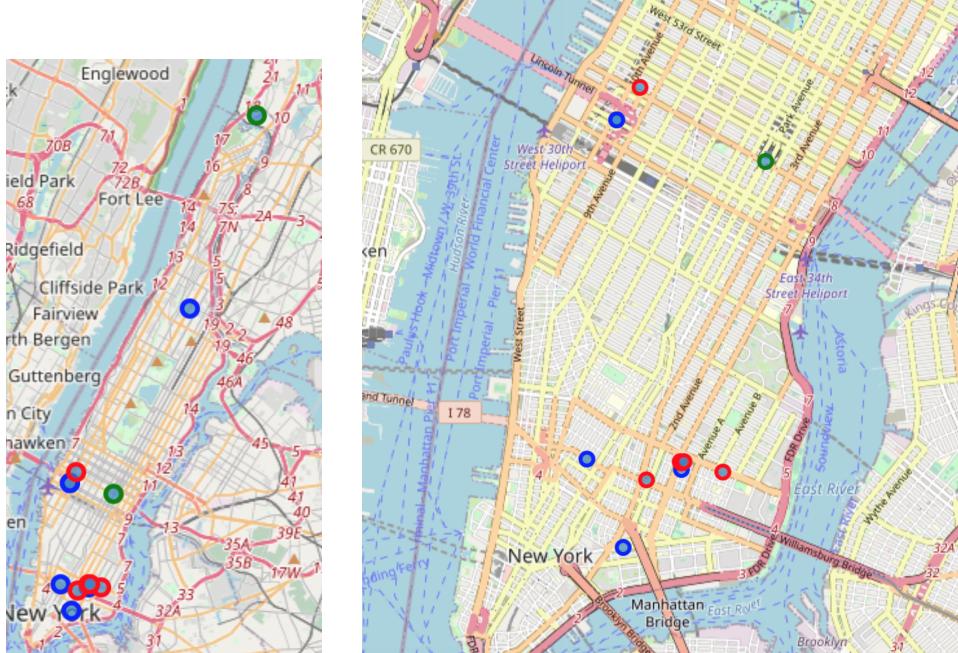
```
stadium_venues_manhattan.head()
```

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category	
0	Marble Hill	40.876551	-73.910660	TCR The Club of Riverdale	40.878628	-73.914568	Tennis Stadium
1	Murray Hill	40.748303	-73.978332	Vanderbilt Tennis Club	40.752252	-73.977477	Tennis Stadium

Drawing a map of the results in Toronto. Red labels for Stadiums and Blue for Music Venues



Drawing a map of the results in Manhattan. Red labels for Rock Venues, Green for Stadiums, and Blue for Music Venues



Results

It can be seen from the exploratory analysis that Manhattan has both more venues suited for a metal band to perform. It is also evident that the venues are closer to each other in Manhattan providing an easier opportunity for transporting the equipment necessary to perform a show.

Discussion

It is important to note that the present analysis is very limited in scope. The two neighborhoods compared both have stadiums and concert Halls. But those venues are more suited to large events. A forthcoming band that needs to develop experience prefers a continuous set of shows to improve their performance. And the availability of numerous rock clubs in Manhattan is better suited for this proposal.

Conclusion

This could be a useful preliminary result in a more comprehensive study. The limited scope (two neighborhoods into major cities) implies the possibility to extend the exploration. In addition to adding more cities, different kinds of venues may be used for concerts in different parts of the world. An investigation of the local culture in different places is important to add context to the data. In this direction, maybe different parts of the world have not updated their venue locations into the Foursquare platform as exhaustively as others.

In conclusion, a comparison between the venues appropriate for an upcoming metal band (Tuner_mx) was performed. The data from the neighborhoods of Manhattan in NY and Toronto in Canada were scraped from the web. The exploration of the venues was done using the Foursquare database. The results show a higher concentration of Rock Music Clubs in Manhattan.