



# **New entertainment in Montréal**

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## Introduction & Business problem

Montréal is a great and multicultural city, home of several video game industry studios, top technology firms and a young population of graduate students. This project is directed to stakeholders willing to invest in the electronic entertainment business of Montréal, such as video game stores, gaming cafés or arcades, whichever seems most promising as a local business.

We are going to use data science techniques to figure out the most promising type of business within the entertainment category, given the data of existing places, such as rating, location and demand. After the analysis, a suggestion of business type and best locations will be given, prioritizing the city center.



## Data

In order to figure out the best business type and location I am going to use the following:

- Geospatial data from Montréal's boroughs locations, from which we will search entertainment places. The data will be extracted from <http://donnees.ville.montreal.qc.ca/dataset/arros-liste>
- The number of existing business, their type, rating and location in each borough will be obtained using the **Foursquare API**

Montréal has 21 boroughs, where each center is located in the following coordinates:

	Neighborhood	Latitude	Longitude
0	Ahuntsic-Cartierville	45.548620	-73.672374
1	Anjou	45.605264	-73.556336
2	Côte-des-Neiges-Notre-Dame-de-Grâce	45.484924	-73.629965
3	L'Île-Bizard-Sainte-Geneviève	45.489924	-73.876470
4	LaSalle	45.427733	-73.627594
5	Lachine	45.439094	-73.683462
6	Le Plateau-Mont-Royal	45.523375	-73.580624
7	Le Sud-Ouest	45.474932	-73.578508
8	Mercier-Hochelaga-Maisonneuve	45.572524	-73.538989
9	Montréal-Nord	45.600857	-73.630751
10	Outremont	45.517682	-73.609762
11	Pierrefonds-Roxboro	45.493795	-73.835825
12	Rivière-des-Prairies-Pointe-aux-Trembles	45.654201	-73.535597
13	Rosemont-La Petite-Patrie	45.548560	-73.584090
14	Saint-Laurent	45.512492	-73.693559
15	Saint-Léonard	45.585087	-73.593721
16	Verdun	45.457736	-73.564435
17	Ville Mont-Royal	45.516941	-73.644954
18	Ville de Westmount	45.485589	-73.592320
19	Ville-Marie	45.508690	-73.563545
20	Villeray-Saint-Michel-Parc-Extension	45.550554	-73.620043

Figure 1: Montréal Boroughs and their latitude and longitude.

In the following map we can see the location of each borough center and their distance from each other:

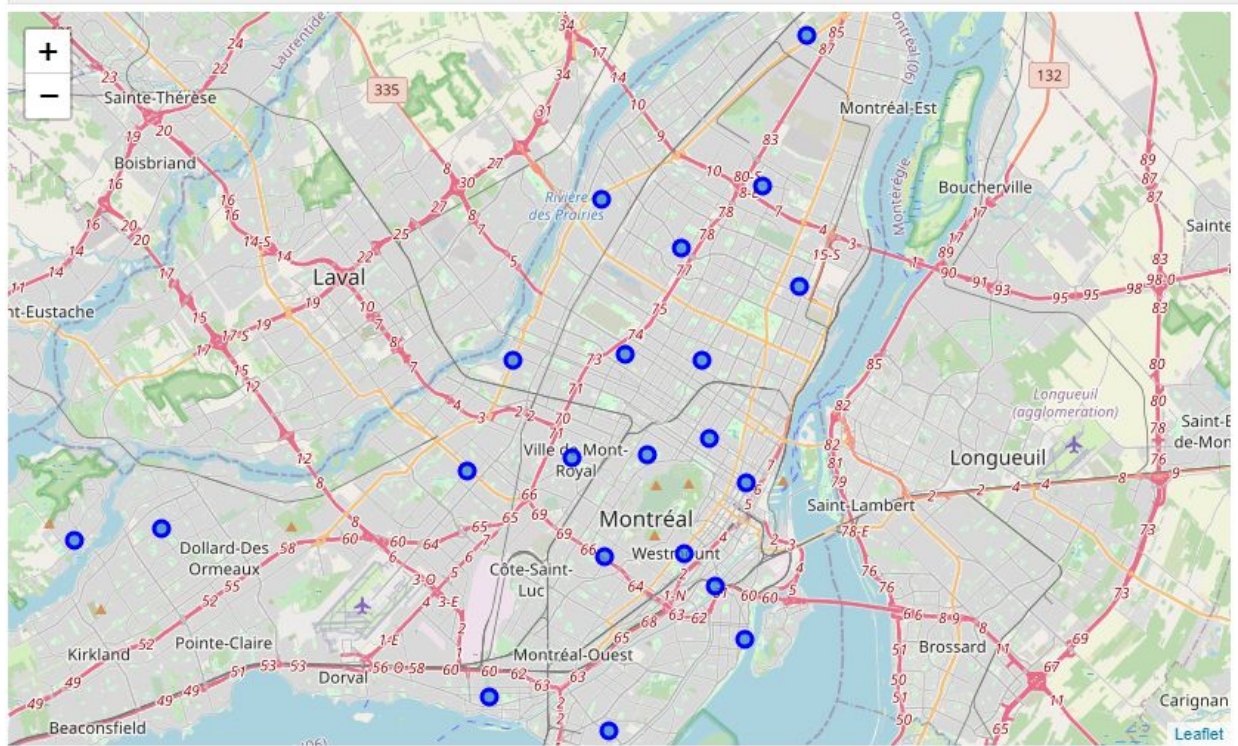


Figure 2: Map of Montréal area, where blue dots are the boroughs center.

## Methodology

In order to search for venues within each borough I used the **Foursquare API**. From the map above we can see that each borough center can be quite far from others, so in order to ensure covering the entire area I searched for venues within 4.5 km from each center and cleaned up the results afterwards to drop duplicate venues.

I also refined the search to be of venues within entertainment related categories only, where the categories IDs of interest could be found in **Foursquare** documentation. After search **Foursquare** returned each venue name, ID, location and category, like the table below:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category	Venue ID
0	Ahuntsic-Cartierville	45.54862	-73.672374	Tango Social Club	45.537763	-73.626113	Arts & Entertainment	4e483352483b03d090f7d98d
1	Ahuntsic-Cartierville	45.54862	-73.672374	Maison des arts de Laval	45.558242	-73.716289	Concert Hall	4adb6372f964a520d42621e3
2	Ahuntsic-Cartierville	45.54862	-73.672374	Salle André-Mathieu	45.559711	-73.719335	Concert Hall	4adb63c3f964a520d92621e3
3	Ahuntsic-Cartierville	45.54862	-73.672374	Eastern Bloc	45.534372	-73.620008	Art Gallery	4ba4402bf964a520129038e3
4	Ahuntsic-Cartierville	45.54862	-73.672374	Studio Danse Montréal	45.534402	-73.619603	Dance Studio	4b7c9047f964a520419b2fe3

It was found 1175 venues in total. However, among these there were still venues non related to entertainment, like different types of restaurants. So I still had to clean up the results a bit in order to have only entertainment related venues, which resulted in 1095 distinct venues.

The next step was to separate such venues between electronic and gaming entertainment (target category of the future business) and non-electronic entertainment, such as parks and clubs. The resulting electronic entertainment table looked like:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category	Venue ID
0	Le Plateau-Mont-Royal	45.523375	-73.580624	Laser Quest	45.498344	-73.574511	Laser Tag	4ad4c06ef964a520e9fa20e3
1	Outremont	45.517682	-73.609762	Le Colonel Moutarde	45.523386	-73.581842	Gaming Cafe	560de70c498e45c0333c30b5
2	Outremont	45.517682	-73.609762	La P'tite Place	45.538315	-73.610858	Karaoke Bar	4c7717115cd6b1f734323e94
3	Rosemont-La Petite-Patrie	45.548560	-73.584090	Bar Zoe	45.559673	-73.597542	Karaoke Bar	4cd21ce53e63721ed8c5a7cc
4	Verdun	45.457736	-73.564435	Karaoke Bar Pang Pang	45.495280	-73.575920	Karaoke Bar	4b2db722f964a520c2da24e3

Figure 3: Sample data from Foursquare venues search.

And we can visualize how these venues are distributed along Montréal:



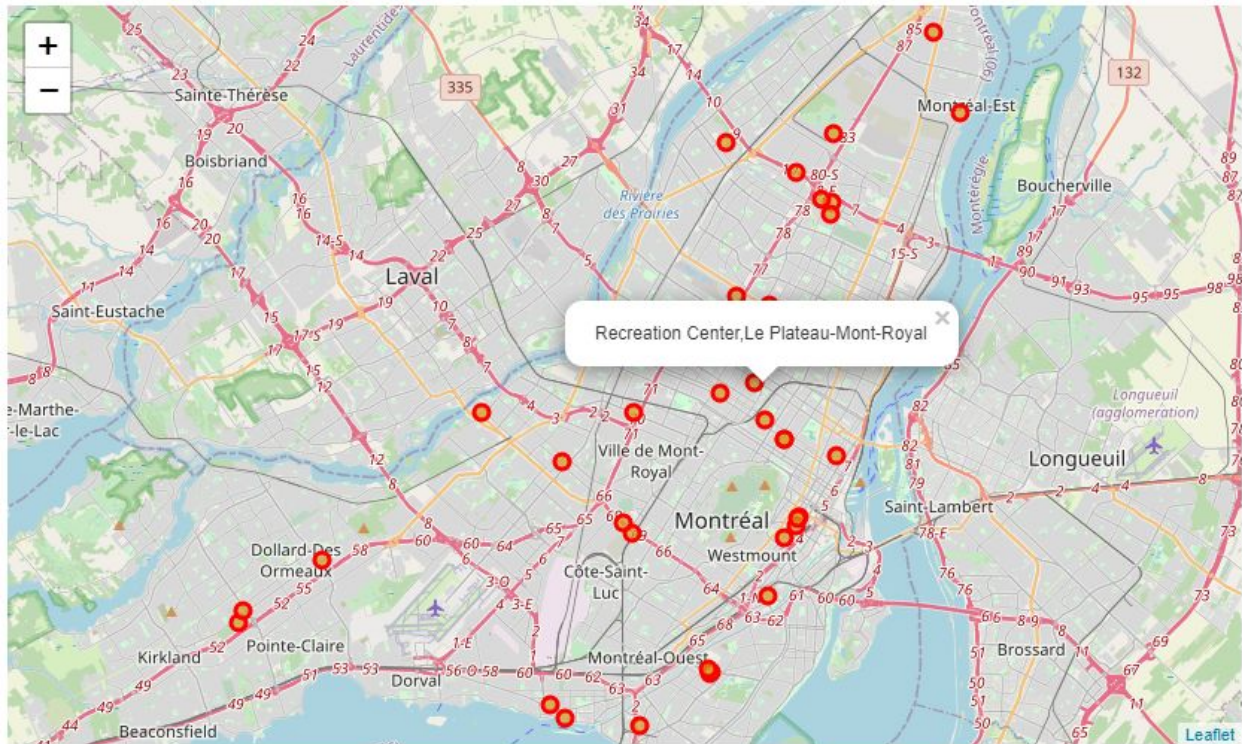
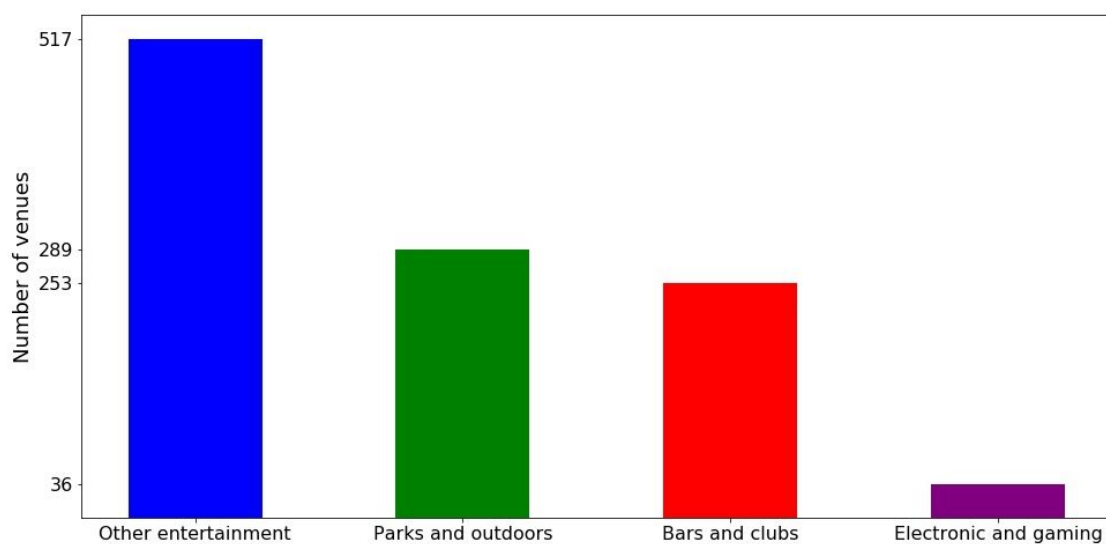


Figure 4: Electronic and gaming venues

In order to better see if the target type of business is really interesting and appealing, we can take a look at the number of such existing venues compared to other types of entertainment places:



We see that indeed electronic and gaming represent only 3% of the entertainment options found in Montréal, against 23% of Bars and Clubs and 26% of Parks, which indicates possibilities of market expansion in this field.

To proceed our data analysis let's look at the number of venues in each target category:

Number of Venues	
Venue Category	
Electronics Store	16
Gaming Cafe	1
Karaoke Bar	5
Laser Tag	1
Recreation Center	6
Toy / Game Store	3
Video Game Store	1
Video Store	3

We see that there is only one Gaming Café, Laser Tag and Video Game store in Montréal. Therefore, let's focus on these categories now, as we want a business with the lowest competition. Also, although only one venue was listed as a Video Game Store, we know that Electronics stores and Toy/Games stores might sell similar products. So I dropped this category and focused on Gaming Café and Laser Tag. The two places are listed below:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Le Plateau-Mont-Royal	45.523375	-73.580624	Laser Quest	45.498344	-73.574511	Laser Tag
1	Outremont	45.517682	-73.609762	Le Colonel Moutarde	45.523386	-73.581842	Gaming Cafe

Figure 5: Electronic and gaming entertainment with the smaller number of venues.

And their location in Montréal:

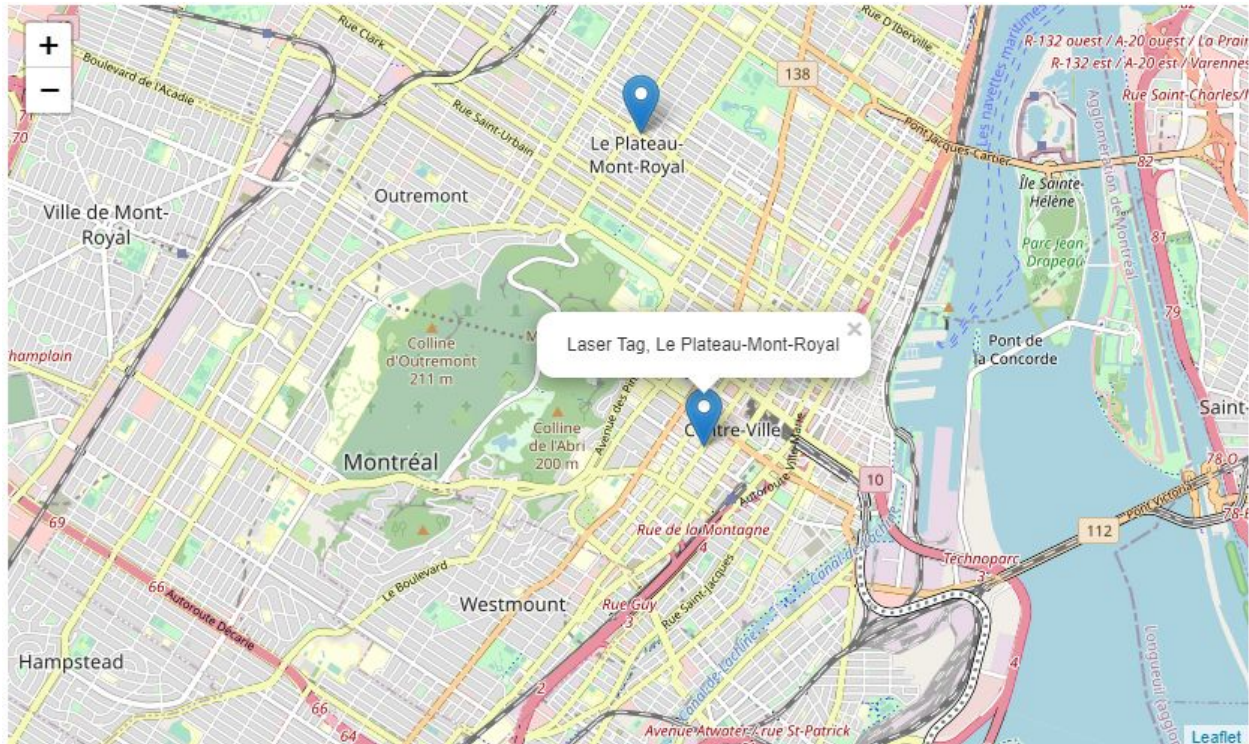


Figure 6: Laser Tag and Gaming Café locations.

I explored the places further and checked the users rating for these two places using the **Foursquare API**. The results were:

- The Laser tag “Laser Quest” has an average rating of 7.5 from 48 users
- The Gaming Café “Le Colonel Moutarde” has an average rating of 8.1 from 21 users

## Results and Discussion

Data analysis of the results from **Foursquare** venues search showed that Gaming Café and Laser Tag are the two electronic and gaming related entertainment options most scarce in Montréal, with only one venue each. The Laser Tag is very close to the city center, *Centre Ville*, while the Gaming Café is a little further away, located at Outremont.



At this point, we can conclude that opening a new business similar to both of these seems viable. If we want a business closer to the city center, then a new Gaming Café could be a good choice. However, as it was rated by twice as many users, Laser Tag business seems to be also of higher demand. And its rating of 7.5 might indicate that a competitor offering better services could have great success.

If Laser Tag is the business choice, then it would be a good idea to place it in boroughs with higher density of similar type of entertainment, in order to take advantage of the customers of the existing business, such as LaSalle, to the south of the city center, and Villeray–Saint-Michel–Parc-Extension, to the north. It is also possible to put the business closer to the existing Laser Tag option, as it is a place that already has the target customers.



## Conclusion

In this project I explored the entertainment venues in Montréal and the prospects for opening a new electronic and gaming entertainment business. I found that this type of venues comprises only 3% of the entertainment places in Montréal, which indicates a market open to expansion.

The data analysis also showed that there is only one Gaming Café and one Laser Tag in Montréal area, so these seemed to be the most promising future business categories within the electronic and gaming entertainment fields. The existing Laser Tag appears to have more customers than the Gaming Café, and also has a rating that indicates needs of a better service.

Therefore, Laser Tag is a good option for business, and the ideal location is not very constrained, which could be close to the city center, to the north or to the south, based on the density of existing similar business in the area.