

# Improving Montevideo

An insight on the city venues and services in the  
Uruguay capital city

# About this project

- Find ways to improve the city of Montevideo, Uruguay
- Authored by Jorge Vallego
- Target audience: Government of Montevideo

# Data Sources

- Municipalities of Montevideo
- Venue information from Foursquare Platform
- Poll results

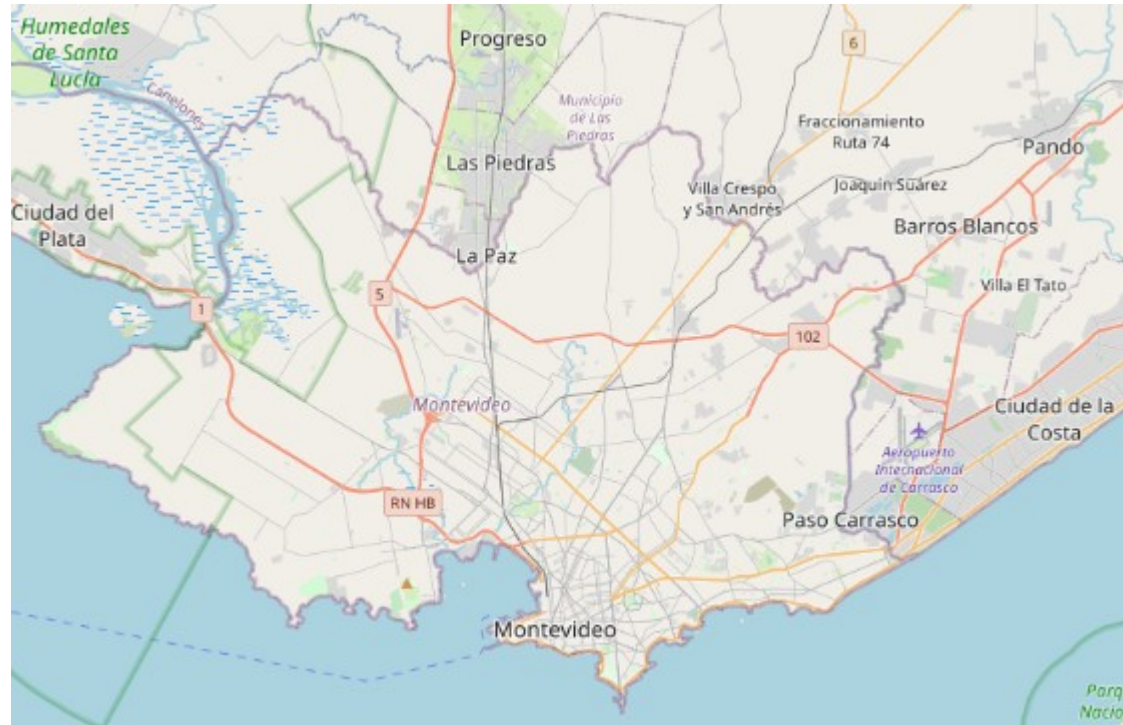
# Raw Data Sources

- <https://registronacional.com/uruguay/elecciones/series-electorales-de-municipios-en-uruguay.htm>
- <https://registronacional.com/uruguay/elecciones/circuitos-electorales-en-montevideo.htm>
- <https://municipioe.montevideo.gub.uy/preguntas-frecuentes/donde-estan-ubicados-los-municipios-de-montevideo>
- [https://eleccionesnacionales.corteelectoral.gub.uy/json/Exportaciones/Inf\\_D\\_Lema.xlsx](https://eleccionesnacionales.corteelectoral.gub.uy/json/Exportaciones/Inf_D_Lema.xlsx)

# Foursquare Data Example

id	name	pluralName	shortName
4d4b7104d754a06370d81259	Arts & Entertainment	Arts & Entertainment	Arts & Entertainment
4d4b7105d754a06372d81259	College & University	Colleges & Universities	College & Education
4d4b7105d754a06373d81259	Event	Events	Event
4d4b7105d754a06374d81259	Food	Food	Food
4d4b7105d754a06376d81259	Nightlife Spot	Nightlife Spots	Nightlife
4d4b7105d754a06377d81259	Outdoors & Recreation	Outdoors & Recreation	Outdoors & Recreation
4d4b7105d754a06375d81259	Professional & Other Places	Professional & Other Places	Professional
4e67e38e036454776db1fb3a	Residence	Residences	Residence
4d4b7105d754a06378d81259	Shop & Service	Shops & Services	Shops
4d4b7105d754a06379d81259	Travel & Transport	Travel & Transport	Travel

# The City



# Example of Municipality Curated Data

Municipio	Address	Latitude	Longitude
A	Carlos María Ramírez 862	-34.8657302	-56.2358269
B	Joaquín Requena 1701	-34.8973036	-56.17114
C	L. A. de Herrera 4547	-34.8671485	-56.1714536
X	Brito del Pino 1590	-34.89969	-56.15665
D	Av. Gral. Flores 4694	-34.8455253	-56.1544663
E	Estadio Charrúa	-34.87850575	-56.08935713
F	Av. 8 de Octubre 4700	-34.8587861	-56.1334955
G	Cno. Castro 730	-34.8595754	-56.2134535

# Example of Curated Poll Results

```
dfs.head()
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	Circuito	SERIE	Municipio	Habilitados	No_Obs	Obs	Emitidos	EnBlanco	Anulados	PorSi	FA	PN	PC	PI	AP	PT	PE	PG	PV	PD	CA	Desde	Hasta	Local	Direccion	Notas
0	1	AAA	B	389	302	8	310	4	3	4	117	87	38	5	2	0	5	4	2	0	31	1	6091.0	Centro SUB OFICIALES NAVALES	WASHINGTON 267 esq. PÉREZ CASTELLANO	NaN
1	2	AAA	B	389	344	4	348	7	8	3	129	81	23	6	4	0	6	2	2	0	73	6092	7223.0	Centro SUB OFICIALES NAVALES	WASHINGTON 267 esq. PÉREZ CASTELLANO	NaN
2	3	AAA	B	389	333	2	335	8	10	1	124	67	35	5	4	1	3	2	5	0	68	7224	8035.0	Centro SUB OFICIALES NAVALES	WASHINGTON 267 esq. PÉREZ CASTELLANO	NaN
3	4	AAA	B	389	317	2	319	4	10	2	133	62	20	5	3	0	3	6	1	0	68	8036	9788.0	MINISTERIO de GANADERÍA AGRICULTURA Y PESCA	CERRITO 318 esq. COLÓN	NaN
4	5	AAA	B	389	338	2	340	1	5	3	164	78	26	4	5	0	2	1	5	1	43	9789	10402.0	MINISTERIO de GANADERÍA AGRICULTURA Y PESCA	CERRITO 318 esq. COLÓN	NaN



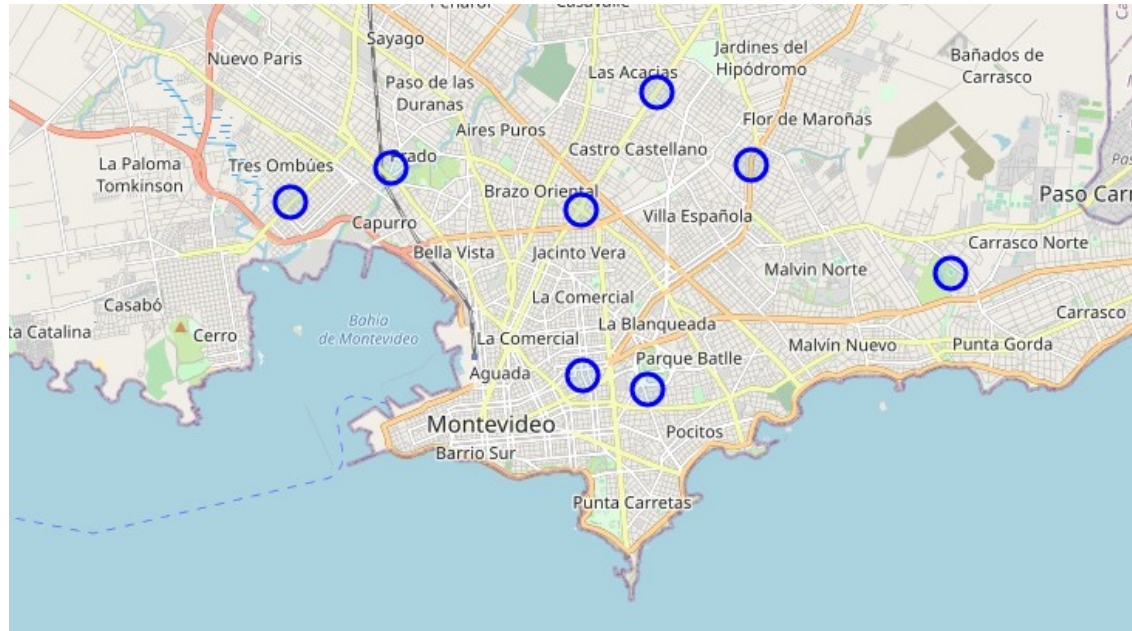
# Exploration I

Max Percentage nearly doubles Minimum

:	Municipio	FA	PN	PC	PI	AP	PT	PE	PG	PV	PD	CA	FA_Percentage	Total_Votes
0	A	84472	25658	7204	1364	1744	134	2047	2068	1274	286	9792	0.620921	136043
1	B	49126	28264	14607	1829	1624	95	2167	961	1450	485	8620	0.449756	109228
2	C	55013	27337	13171	1701	1617	107	2432	1177	1491	456	8960	0.484858	113462
3	D	58034	26336	7980	1322	1124	89	1678	2051	1089	297	13757	0.510158	113757
4	E	43811	28034	17490	1589	1129	89	2191	986	1363	438	7017	0.420705	104137
5	F	53004	24749	6681	1229	979	54	1427	2125	1025	307	12040	0.511523	103620
6	G	52538	20349	7171	1211	1221	89	1735	1481	1078	282	7723	0.553743	94878
7	X	40247	32422	23507	2088	1348	54	2156	810	1238	494	6567	0.362811	110931

# Exploration II

## Municipalities in Montevideo



# Exploration III

Venue types where the satisfaction is higher

Categories in Municipio A:

	name	categories	lat	lng
0	Rosedal	Garden	-34.859560	-56.205701
1	Campomar F5	Soccer Field	-34.864487	-56.215044
2	La fortaleza	Pizza Place	-34.874959	-56.250936
3	Circulo De Tenis	Tennis Court	-34.862401	-56.205919
4	Parque José Nasazzi	Soccer Stadium	-34.861640	-56.208767

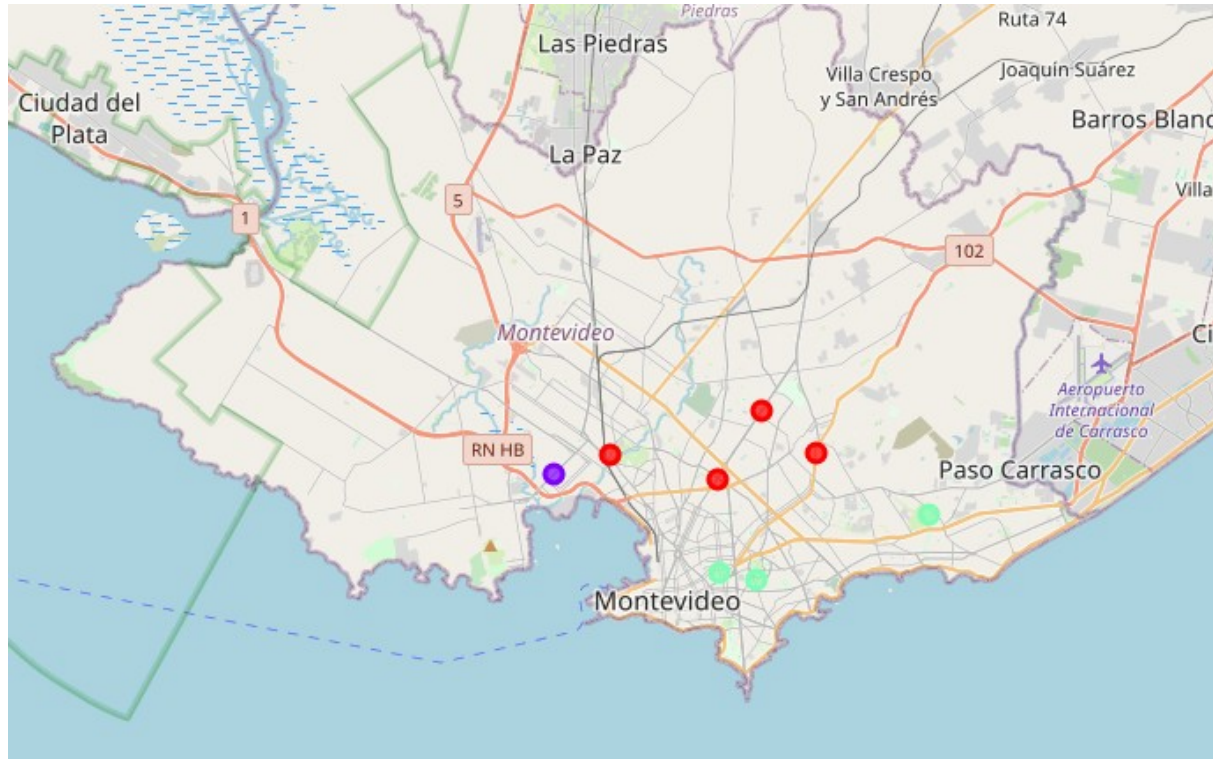
# Exploration IV

Venue types where the satisfaction is lower

Categories in Municipio X:

	name	categories	lat	lng
0	Parque Batlle	Park	-34.898597	-56.156181
1	Parrillada Feliciano	BBQ Joint	-34.899649	-56.153281
2	Sophilabs HQ	IT Services	-34.897425	-56.160791
3	Ulpiano	Restaurant	-34.901611	-56.160266
4	Velódromo Municipal	Track Stadium	-34.897758	-56.155868

# Results – Cluster locations



# Results – Cluster Summary

Municipio	Address	Latitude	Longitude	Cluster Labels	Cluster Name	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	A	Carlos María Ramírez 862	-34.865730	-56.235827	1	OpenSpaces	Soccer Stadium	Garden	Soccer Field	Basketball Court	Pizza Place	Restaurant	Shipping Store	Bus Station	Basketball Stadium	Historic Site
1	B	Joaquín Requena 1701	-34.897304	-56.171140	2	Entertainment	Bar	Restaurant	Coffee Shop	BBQ Joint	Deli / Bodega	Pub	Brewery	Soccer Stadium	Comfort Food Restaurant	Sushi Restaurant
2	C	L. A. de Herrera 4547	-34.867148	-56.171454	0	Balanced	Pizza Place	BBQ Joint	Gastropub	Gym	Restaurant	Soccer Field	Ice Cream Shop	Supermarket	Athletics & Sports	Bakery
3	X	Brito del Pino 1590	-34.899690	-56.156650	2	Entertainment	Restaurant	Hotel	Bar	Coffee Shop	Soccer Stadium	Park	Pub	Café	Electronics Store	Other Great Outdoors
4	D	Av. Gral. Flores 4694	-34.845525	-56.154466	0	Balanced	Supermarket	Pharmacy	BBQ Joint	Coffee Shop	Pizza Place	Restaurant	Soccer Field	Department Store	Cosmetics Shop	Convenience Store
5	E	Estadio Charrúa	-34.878506	-56.089357	2	Entertainment	Plaza	Pizza Place	Soccer Field	Restaurant	Bakery	Shopping Mall	Beach	Park	Pharmacy	Supermarket
6	F	Av. 8 de Octubre 4700	-34.858786	-56.133496	0	Balanced	Pizza Place	Soccer Field	Ice Cream Shop	Convenience Store	Pharmacy	Restaurant	Grocery Store	Bakery	Supermarket	Steakhouse
7	G	Cno. Castro 730	-34.859575	-56.213453	0	Balanced	Garden	BBQ Joint	Bakery	Gastropub	Gym	Ice Cream Shop	Supermarket	Soccer Field	Soccer Stadium	Pizza Place

# Results – Citizen satisfaction

	Municipio	Cluster Name	FA_Percentage
3	X	Entertainment	0.362811
5	E	Entertainment	0.420705
1	B	Entertainment	0.449756
2	C	Balanced	0.484858
4	D	Balanced	0.510158
6	F	Balanced	0.511523
7	G	Balanced	0.553743
0	A	OpenSpaces	0.620921

# Discussion

- The city can be separated in three main groups
  - Outdoors
  - Entertainment
  - Balanced
- The groups are also geographically separated
- These groups show differences in type of venues
- They also show differences in citizen satisfaction



# Conclusion

- This study has successfully found patterns
- Identified clusters that relate by type of venues
- Same clusters also relate to citizen satisfaction
- This study will serve the intended purpose
- It can be improved further by adding data sources