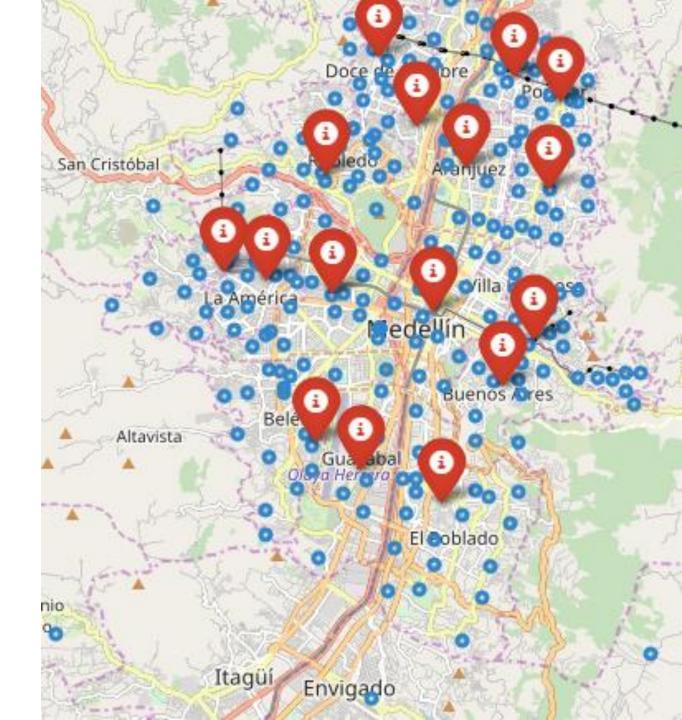


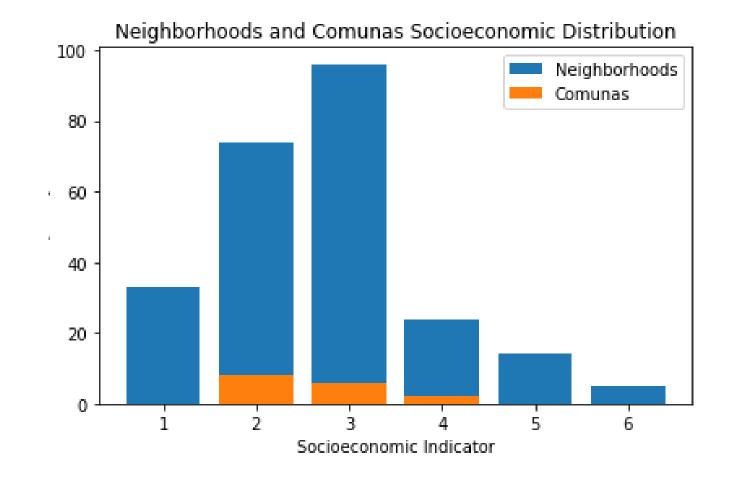
### Introduction

- Medellín is a city in Colombia that is divided in zones called "Comunas", each one of them has several neighborhoods associated with it.
- The goal of this project is to determine a great location for a restaurant in Medellín based in the number of restaurants and current density of restaurants in certain zones of the city, and a socioeconomic index of each zone.



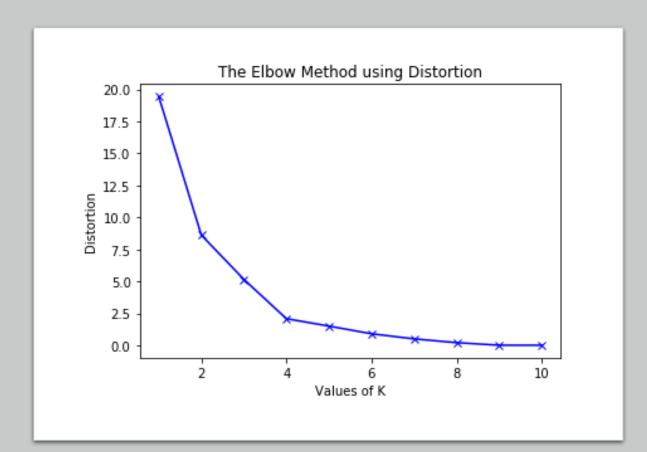
#### Socioeconomic Index Distribution

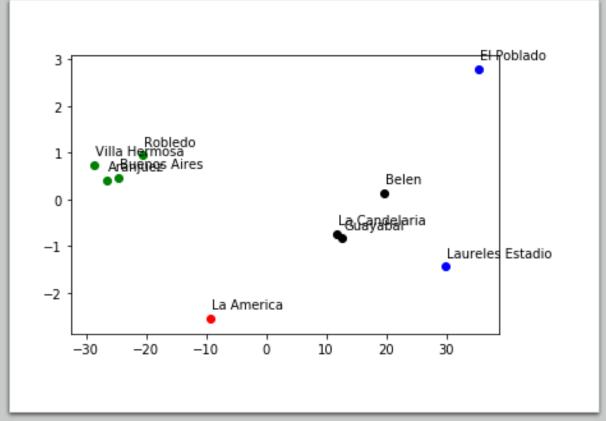
- 1 = Low Low
- 2 = Low
- 3 = Low Medium
- 4 = Medium
- 5 = High Medium
- 6 = High



# **Summarized Data**

	comuna	count	restaurant_density	se	avg_rent	count_norm	rest_density_norm	se_norm	avg_rent_norm	score
id										
14	El Poblado	66	4.576976	4	1.3	1.000000	0.481351	1.0	1.000000	1.096270
11	Laureles Estadio	62	8.378378	4	1.0	0.933333	1.000000	1.0	0.666667	1.040000
15	Guayabal	46	6.310014	3	0.6	0.666667	0.717800	0.5	0.222222	0.599116
10	La Candelaria	44	5.978261	3	0.6	0.633333	0.672537	0.5	0.222222	0.576730
16	Belen	29	3.273138	3	0.8	0.383333	0.303460	0.5	0.444444	0.491803
12	La America	23	5.793451	3	0.7	0.283333	0.647322	0.5	0.333333	0.476131
7	Robledo	12	1.268499	2	0.6	0.100000	0.029954	0.0	0.222222	0.134880
9	Buenos Aires	8	1.322314	3	0.4	0.033333	0.037297	0.5	0.000000	0.120793
4	Aranjuez	6	1.229508	2	0.5	0.000000	0.024635	0.0	0.111111	0.049371
8	Villa Hermosa	6	1.048951	2	0.4	0.000000	0.000000	0.0	0.000000	0.000000





# K-Means Clustering

# **Summarized Results**

	count	restaurant_density	se	avg_rent	count_norm	rest_density_norm	se_norm	avg_rent_norm	kmeans_labels	score	comuna
id											
14	68	4.715673	4	1.3	1.000000	0.523028	1.0	1.000000	1	1.104606	El Poblado
11	62	8.378378	4	1.0	0.906250	1.000000	1.0	0.666667	1	1.029167	Laureles Estadio
16	52	5.869074	3	0.8	0.750000	0.673228	0.5	0.444444	3	0.712423	Belen
15	45	6.172840	3	0.6	0.640625	0.712786	0.5	0.222222	3	0.587696	Guayabal
10	44	5.978261	3	0.6	0.625000	0.687447	0.5	0.222222	3	0.576378	La Candelaria
12	23	5.793451	3	0.7	0.296875	0.663380	0.5	0.333333	0	0.484759	La America
7	12	1.268499	2	0.6	0.125000	0.074123	0.0	0.222222	2	0.153714	Robledo
9	8	1.322314	3	0.4	0.062500	0.081131	0.5	0.000000	2	0.141226	Buenos Aires
4	6	1.229508	2	0.5	0.031250	0.069046	0.0	0.111111	2	0.070754	Aranjuez
8	4	0.699301	2	0.4	0.000000	0.000000	0.0	0.000000	2	0.000000	Villa Hermosa

### **Selected Locations**

The selected neighborhoods that represent a great location for a restaurant of Medellin are ones that belong to either El Poblado or Laureles Estadio comuna and have a socioeconomic index of 5 or 6.

comuna		name	latitude	longitude	se
id					
1406	14	Las Lomas No.1	6.210818	-75.561149	6
1413	14	El Diamante No.2	6.285250	-75.585219	6
1420	14	Astorga	6.210516	-75.573519	6
1422	14	La Aguacatala	6.199026	-75.577885	6
1423	14	Santa Maria de los Angeles	6.190038	-75.579340	6
1102	11	Suramericana	6.255346	-75.584433	5
1105	11	Los Conquistadores	6.242355	-75.581523	5
1108	11	Laureles	6.251594	-75.588799	5
1109	11	Las Acacias	6.240964	-75.601167	5
1110	11	La Castellana	6.240500	-75.607715	5
1113	11	Estadio	6.260128	-75.593892	5
1404	14	Castropol	6.216140	-75.566970	5
1405	14	Lalinde	6.212935	-75.567698	5
1407	14	Las Lomas No.2	6.209378	-75.558436	5
1414	14	El Castillo	6.190502	-75.572791	5
1415	14	Los Balsos 2	6.195581	-75.569881	5