

1. Introduction

A Chinese student



ESADE Business School, Barcelona, Spain

My analysis goes through following processes:

- a) Pick out neighborhoods near my school, ESADE, as candidates.
- b) Use data from Foursquare to explore famous venues in selected neighborhoods.
- c) Cluster these neighborhoods base on their.
- d) Sort out the most common venues in each neighborhood.
- e) Multiply the neighborhoods dataframe by the preference vector to choose the best place to live.

2. Data

The geospatial data of ESADE Business School.

The geographical coordinate of ESADE Business School are 41.3947771, 2.1150794468981124.

The list of neighborhoods in Barcelona and their geospatial data.

	District	Density	Neighbourhoods	Latitude	Longitude
0	Ciutat Vella	24786	La Barceloneta, El Gòtic, El Raval, Sant Pere,	41.374962	2.173265
1	Eixample	35586	L'Antiga Esquerra de l'Eixample, La Nova Esque	41.393394	2.166085
2	Sants-Montjuïc	8321	La Bordeta, la Font de la Guatlla, Hostafrancs	41.340234	2.133347
3	Les Corts	13584	les Corts, la Maternitat i Sant Ramon, Pedralbes	41.385244	2.132863
4	Sarrià-Sant Gervasi	6992	El Putget i Farró, Sarrià, Sant Gervasi - la B	41.413043	2.108356
5	Gràcia	28660	Vila de Gràcia, el Camp d'en Grassot i Gràcia	41.410171	2.155136
6	Horta-Guinardó	14217	El Baix Guinardó, El Guinardó, Can Baró, El Ca	41.428540	2.143597
7	Nou Barris	20520	Can Peguera, Canyelles, Ciutat Meridiana, La G	41.446727	2.172565
8	Sant Andreu	21737	Baró de Viver, Bon Pastor, El Congrés i els In	41.437439	2.196859
9	Sant Martí	20466	El Besòs i el Maresme, el Clot, El Camp de l'A	41.406782	2.203655

2. Data

The geographical coordinates of the top 5 closest districts to ESADE Business School.

	District	Neighborhood	Latitude	Longitude
0	Eixample	L'Antiga Esquerra de l'Eixample	41.388765	2.156597
1	Eixample	La Nova Esquerra de l'Eixample	41.382816	2.149966
2	Eixample	Dreta de l'Eixample	41.394124	2.166471
3	Eixample	Fort Pienc	41.395925	2.182325
4	Eixample	Sagrada Família	41.403479	2.174410
5	Eixample	Sant Antoni	41.380578	2.160102
6	Les Corts	les Corts	41.385244	2.132863
7	Les Corts	la Maternitat i Sant Ramon	41.381975	2.115474
8	Les Corts	Pedralbes	41.390140	2.112218
9	Sarrià-Sant Gervasi	El Putget i Farró	41.407476	2.143283
10	Sarrià-Sant Gervasi	Sarrià	41.399373	2.121513
11	Sarrià-Sant Gervasi	Sant Gervasi - la Bonanova	41.409637	2.129637

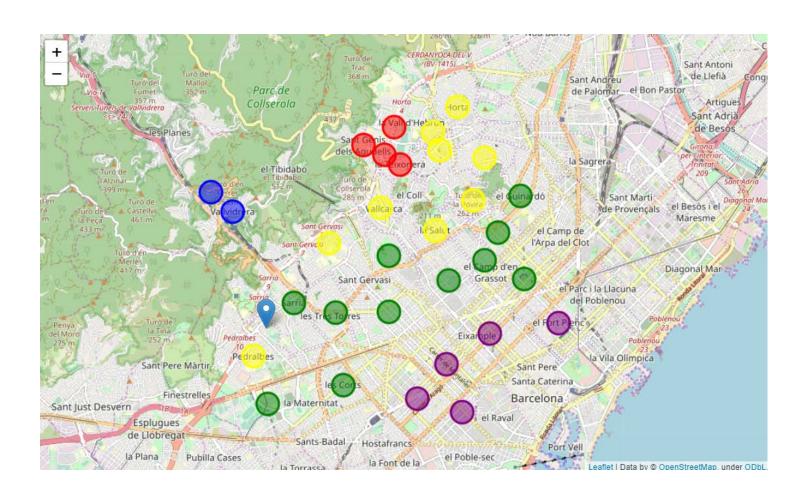
Information of venues in specific neighborhoods provided by Foursquare.com.

	District	Neighborhood	Venue	Venue Category
0	Eixample	L'Antiga Esquerra de l'Eixample	Roast Club Café	Coffee Shop
1	Eixample	L'Antiga Esquerra de l'Eixample	Foc i Oli	Sandwich Place
2	Eixample	L'Antiga Esquerra de l'Eixample	Tandem	Cocktail Bar
3	Eixample	L'Antiga Esquerra de l'Eixample	The Corner Hotel Barcelona	Hotel
4	Eixample	L'Antiga Esquerra de l'Eixample	Mikkeller Bar Barcelona	Beer Bar

Machine learning: k-means clustering

Neighborhood Cluster

0	Can Baró	4
1	Dreta de l'Eixample	3
2	El Baix Guinardó	1
3	El Carmel	4
4	El Guinardó	1



Sort out the top 10 most common venues

Cluster 2

	Neighborhood	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10
2	El Baix Guinardó	Restaurant	Tapas Restaurant	Bakery	Plaza	Bar	Italian Restaurant	Vegetarian / Vegan Restaurant	Pizza Place	Brewery	Hotel
4	El Guinardó	Restaurant	Tapas Restaurant	Bakery	Spanish Restaurant	Italian Restaurant	Café	Bar	Brewery	Hotel	Gym
5	El Putget i Farró	Bakery	Pizza Place	Plaza	Italian Restaurant	Wine Bar	Mediterranean Restaurant	Park	Japanese Restaurant	Café	Deli / Bodega
13	Sagrada Família	Italian Restaurant	Burger Joint	Hotel	Restaurant	Bar	Plaza	Pizza Place	Mexican Restaurant	Steakhouse	Sandwich Place
16	Sant Gervasi - Galvany	Restaurant	Spanish Restaurant	Mediterranean Restaurant	Pizza Place	Tapas Restaurant	Japanese Restaurant	Italian Restaurant	Deli / Bodega	French Restaurant	Wine Bar
18	Sarrià	Hotel	Mediterranean Restaurant	Bakery	Grocery Store	Café	Burger Joint	Japanese Restaurant	Park	Gym / Fitness Center	Restaurant
22	Vila de Gràcia	Tapas Restaurant	Plaza	Restaurant	Café	Cocktail Bar	Mediterranean Restaurant	Bar	Pizza Place	Wine Bar	Indie Movie Theater
23	el Camp d'en Grassot i Gràcia Nova	Tapas Restaurant	Plaza	Mediterranean Restaurant	Indie Movie Theater	Vegetarian / Vegan Restaurant	Restaurant	Bar	Bakery	Hotel	Japanese Restaurant
26	la Maternitat i Sant Ramon	Hotel	Pizza Place	Café	Spanish Restaurant	Bar	Bakery	Nightclub	Park	Coffee Shop	Mediterranean Restaurant
29	les Corts	Restaurant	Pizza Place	Sandwich Place	Café	Spanish Restaurant	Hotel	Burger Joint	Supermarket	Cocktail Bar	Asian Restaurant
30	les Tres Torres	Spanish Restaurant	Japanese Restaurant	Italian Restaurant	Mediterranean Restaurant	Café	Hotel	Restaurant	Bakery	Pizza Place	Cocktail Bar

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Preferences vector and recommend system

	Accessories Store	African Restaurant	American Restaurant	Animal Shelter	Arcade	Argentinian Restaurant	Art Gallery	Art Museum	Arts & Crafts Store	F
0	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.010000	0.00	
2	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
3	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
4	0.00	0.00	0.000000	0.00	0.0	0.010000	0.00	0.000000	0.00	
5	0.00	0.00	0.000000	0.00	0.0	0.000000	0.01	0.000000	0.01	
7	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
12	0.00	0.00	0.018182	0.00	0.0	0.000000	0.00	0.000000	0.00	
13	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
16	0.01	0.01	0.000000	0.00	0.0	0.000000	0.02	0.000000	0.00	
17	0.00	0.00	0.000000	0.01	0.0	0.000000	0.00	0.000000	0.00	
18	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
20	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.010000	0.00	
22	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.02	
23	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
24	0.00	0.00	0.000000	0.00	0.0	0.018868	0.00	0.000000	0.00	
25	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
26	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
27	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.013158	0.00	
29	0.00	0.00	0.000000	0.00	0.0	0.000000	0.00	0.000000	0.00	
30	0.00	0.00	0.000000	0.00	0.0	0.000000	0.01	0.000000	0.00	

```
pre dict = {
 'Art Museum': 5,
 'Bakery': 6,
 'Bar': 3,
'Cafeteria': 3,
'Café': 3.
'Chinese Restaurant': 8,
'Convenience Store': 6,
'Fast Food Restaurant': 6,
'Food & Drink Shop': 6,
'Football Stadium': 3,
'Fruit & Vegetable Store': 8,
 'Grocery Store': 8,
 'Japanese Restaurant': 4,
 'Market': 5,
 'Mediterranean Restaurant': 3,
 'Museum': 5.
 'Restaurant': 4.
 'Soccer Field': 3,
 'Soccer Stadium': 3,
 'Spanish Restaurant': 4,
 'Supermarket': 5,
 'Tapas Restaurant': 4
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      Г1. 98
     Γ1. 34
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     [1.22]
     [1.37]
```

4. Results

The best neighborhoods to live:

	Neighborhood	Score	Latitude	Longitude
0	Horta	2.291139	41.433021	2.159088
1	la Font d'en Fargues	2.186047	41.424364	2.165320
2	Can Baró	2.150000	41.416966	2.162693
3	Sant Gervasi - la Bonanova	2.130000	41.409637	2.129637
4	El Carmel	2.012195	41.425591	2.154959

