

Best Location for Indian Residents/Visitors in Barcelona

1. Introduction

1.1 Background

Barcelona is one of the world's leading tourist, economic, trade fair and cultural centres, and its influence in commerce, education, entertainment, sports, media, fashion, science, and the arts all contribute to its status as one of the major global cities. In 2016 about 59% of the inhabitants of the city were born in Catalonia and 18.5% coming from the rest of the country. In addition to that, 22.5% of the population was born outside of Spain, a proportion which has more than doubled since 2001 and more than quintupled since 1996 when it was 8.6% respectively 3.9%.

1.2 Problem

Since immigration has increased there are lots of Indians who travel there but they don't know which location will be most suitable for them. We wish to find a good neighbourhood for living in the city which has good Indian restaurants and other places which might interest them.

1.3 People Benefitted by the Project

People of Indian Origin who want to settle in Barcelona and people who are going there for long trips will be most benefitted. Also, tourist can use this to find neighbourhoods which will have quick access to Indian stores and veg food available. Vegetarian people are most benefitted as its difficult to find suitable food in such countries.

2. Data Acquisition and Cleaning

Data is mostly collected from Four-square and web scraping.

List of Neighbourhoods will be collected using web Scraping the following link:

https://en.wikipedia.org/wiki/Category:Neighbourhoods_of_Barcelona

For each neighbourhood, we will use Geocoder Python to get its coordinate.

Venues from Four-Square will be used. Web scraping will be used for other data which isn't available on FourSquare.

Data will be cleaned and organized then displayed in forms understandable to basic users.

Machine learning techniques will be used to classify and segment neighbourhoods.

We have used K-Means Method here for the sake of simplicity.

This will help decide which one is most suitable for the person's needs.

3. Results and Observations

We formed 6 clusters which group different areas based on types of venues

Frequency of Venues in all Places were shown as-

----Baró de Viver----

venue freq

- 0 Clothing Store 0.08
- 1 Burger Joint 0.05
- 2 Bar 0.04
- 3 Spanish Restaurant 0.04
- 4 Supermarket 0.04

----Bon Pastor----

venue freq

- 0 Clothing Store 0.10
- 1 Supermarket 0.05
- 2 Electronics Store 0.04
- 3 Spanish Restaurant 0.04
- 4 Mediterranean Restaurant 0.04

----Camp d'en Grassot i Gràcia Nova----

venue freq

- 0 Tapas Restaurant 0.06
- 1 Restaurant 0.05
- 2 Plaza 0.04
- 3 Indie Movie Theater 0.04
- 4 Bar 0.04

----Can Baró----

venue freq

- 0 Bar 0.07
- 1 Park 0.06
- 2 Spanish Restaurant 0.06
- 3 Gym 0.05
- 4 Grocery Store 0.04

----Can Peguera----

venue freq

- 0 Tapas Restaurant 0.09
- 1 Grocery Store 0.07
- 2 Spanish Restaurant 0.06
- 3 Supermarket 0.06
- 4 Pizza Place 0.05

----Canyelles (neighbourhood)----

venue freq

- 0 Mediterranean Restaurant 0.2

1	Soccer Stadium	0.2
2	Restaurant	0.2
3	BBQ Joint	0.2
4	Pizza Place	0.2

----Ciutat Meridiana----

venue freq

0	Metro Station	0.22
1	Mediterranean Restaurant	0.11
2	Plaza	0.11
3	Train Station	0.11
4	Café	0.11

----Diagonal Mar i el Front Marítim del Poblenou----

venue freq

0	Mediterranean Restaurant	0.13
1	Restaurant	0.07
2	Italian Restaurant	0.04
3	Spanish Restaurant	0.04
4	Hotel	0.04

----Dreta de l'Eixample----

venue freq

0	Hotel	0.17
1	Hostel	0.08
2	Tapas Restaurant	0.05

- 3 Boutique 0.05
- 4 Bookstore 0.04

----El Baix Guinardó----

venue freq

- 0 Italian Restaurant 0.05
- 1 Restaurant 0.05
- 2 Bakery 0.04
- 3 Tapas Restaurant 0.04
- 4 Brewery 0.04

----El Besòs i el Maresme----

venue freq

- 0 Hotel 0.07
- 1 Café 0.05
- 2 Tapas Restaurant 0.05
- 3 Spanish Restaurant 0.04
- 4 Restaurant 0.04

----El Camp de l'Arpa del Clot----

venue freq

- 0 Bakery 0.07
- 1 Italian Restaurant 0.06
- 2 Restaurant 0.05
- 3 Pizza Place 0.04
- 4 Spanish Restaurant 0.03

----El Carmel----

venue freq

- 0 Spanish Restaurant 0.12
- 1 Grocery Store 0.08
- 2 Park 0.08
- 3 Plaza 0.06
- 4 Mediterranean Restaurant 0.06

----El Clot----

venue freq

- 0 Gym / Fitness Center 0.07
- 1 Spanish Restaurant 0.07
- 2 Supermarket 0.05
- 3 Restaurant 0.05
- 4 Grocery Store 0.05

----El Coll----

venue freq

- 0 Café 0.09
- 1 Park 0.09
- 2 Spanish Restaurant 0.09
- 3 Grocery Store 0.06
- 4 Bar 0.06

----El Congrés i els Indians----

venue freq

- 0 Tapas Restaurant 0.07
- 1 Bar 0.07
- 2 Grocery Store 0.07
- 3 Restaurant 0.06
- 4 Spanish Restaurant 0.05

----El Guinardó----

venue freq

- 0 Tapas Restaurant 0.11
- 1 Restaurant 0.08
- 2 Bar 0.08
- 3 Grocery Store 0.06
- 4 Italian Restaurant 0.05

----El Parc i la Llacuna del Poblenou----

venue freq

- 0 Mediterranean Restaurant 0.06
- 1 Hotel 0.06
- 2 Restaurant 0.05
- 3 Spanish Restaurant 0.05
- 4 Vegetarian / Vegan Restaurant 0.03

----El Poble-sec, Barcelona----

venue freq

- 0 Tapas Restaurant 0.11
- 1 Cocktail Bar 0.06
- 2 Spanish Restaurant 0.06
- 3 Pizza Place 0.06
- 4 Park 0.05

----El Putget i Farró----

venue freq

- 0 Bakery 0.08
- 1 Spanish Restaurant 0.06
- 2 Plaza 0.05
- 3 Café 0.05
- 4 Japanese Restaurant 0.04

----El Raval----

venue freq

- 0 Tapas Restaurant 0.09
- 1 Spanish Restaurant 0.09
- 2 Cocktail Bar 0.07
- 3 Mediterranean Restaurant 0.06
- 4 Italian Restaurant 0.04

----El Turó de la Peira----

venue freq

- 0 Tapas Restaurant 0.09
- 1 Grocery Store 0.07

- 2 Supermarket 0.05
- 3 Spanish Restaurant 0.05
- 4 Pizza Place 0.05

----Fort Pienc----

venue freq

- 0 Hotel 0.09
- 1 Coffee Shop 0.08
- 2 Burger Joint 0.05
- 3 Spanish Restaurant 0.04
- 4 Tapas Restaurant 0.03

----Gothic Quarter, Barcelona----

venue freq

- 0 Tapas Restaurant 0.07
- 1 Spanish Restaurant 0.07
- 2 Italian Restaurant 0.06
- 3 Hotel 0.06
- 4 Cocktail Bar 0.06

----Gran Via (Barcelona)----

venue freq

- 0 Tapas Restaurant 0.07
- 1 Plaza 0.06
- 2 Mediterranean Restaurant 0.05
- 3 Spanish Restaurant 0.05

4 Bar 0.04

----Horta, Barcelona----

venue freq

0 Spanish Restaurant 0.09

1 Café 0.08

2 Tapas Restaurant 0.08

3 Park 0.06

4 Soccer Field 0.06

----Hostafrancs----

venue freq

0 Hotel 0.06

1 Tapas Restaurant 0.06

2 Restaurant 0.05

3 Mediterranean Restaurant 0.04

4 Scenic Lookout 0.03

----L'Antiga Esquerra de l'Eixample----

venue freq

0 Restaurant 0.08

1 Mediterranean Restaurant 0.07

2 Spanish Restaurant 0.07

3 Tapas Restaurant 0.05

4 Japanese Restaurant 0.05

----La Barceloneta, Barcelona----

venue freq

- 0 Tapas Restaurant 0.10
- 1 Mediterranean Restaurant 0.06
- 2 Bar 0.05
- 3 Spanish Restaurant 0.04
- 4 Restaurant 0.04

----La Bordeta (Barcelona)----

venue freq

- 0 Spanish Restaurant 0.06
- 1 Tapas Restaurant 0.06
- 2 Wine Bar 0.06
- 3 Supermarket 0.04
- 4 Mediterranean Restaurant 0.04

----La Clota----

venue freq

- 0 Tapas Restaurant 0.07
- 1 Spanish Restaurant 0.07
- 2 Plaza 0.06
- 3 Restaurant 0.06
- 4 Park 0.05

----La Font d'en Fargues----

venue freq

- 0 Tapas Restaurant 0.09
- 1 Grocery Store 0.05
- 2 Bar 0.05
- 3 Restaurant 0.05
- 4 Spanish Restaurant 0.05

----La Font de la Guatlla----

venue freq

- 0 Mediterranean Restaurant 0.05
- 1 Plaza 0.05
- 2 Hotel 0.04
- 3 Scenic Lookout 0.04
- 4 Tapas Restaurant 0.04

----La Guineueta, Barcelona----

venue freq

- 0 Grocery Store 0.11
- 1 Café 0.08
- 2 Tapas Restaurant 0.08
- 3 Plaza 0.06
- 4 Spanish Restaurant 0.06

----La Marina de Port----

venue freq

- 0 Clothing Store 0.07

- 1 Café 0.06
- 2 Spanish Restaurant 0.05
- 3 Restaurant 0.05
- 4 Italian Restaurant 0.04

----La Marina del Prat Vermell----

venue freq

- 0 Clothing Store 0.07
- 1 Café 0.06
- 2 Spanish Restaurant 0.05
- 3 Restaurant 0.05
- 4 Italian Restaurant 0.04

----La Maternitat i Sant Ramon----

venue freq

- 0 Pizza Place 0.07
- 1 Spanish Restaurant 0.07
- 2 Restaurant 0.06
- 3 Supermarket 0.05
- 4 Bakery 0.04

----La Nova Esquerra de l'Eixample----

venue freq

- 0 Restaurant 0.12
- 1 Spanish Restaurant 0.05
- 2 Hotel 0.05

- 3 Café 0.04
- 4 Wine Shop 0.04

----La Prosperitat----

venue freq

- 0 Spanish Restaurant 0.12
- 1 Grocery Store 0.08
- 2 Pizza Place 0.06
- 3 Supermarket 0.05
- 4 Tapas Restaurant 0.05

----La Sagrera----

venue freq

- 0 Grocery Store 0.08
- 1 Supermarket 0.07
- 2 Tapas Restaurant 0.06
- 3 Mediterranean Restaurant 0.05
- 4 Restaurant 0.05

----La Salut----

venue freq

- 0 Café 0.09
- 1 Restaurant 0.09
- 2 Tapas Restaurant 0.06
- 3 Indie Movie Theater 0.06
- 4 Donut Shop 0.06

----La Teixonera----

venue freq

0 Spanish Restaurant 0.09

1 Park 0.09

2 Metro Station 0.06

3 Tapas Restaurant 0.06

4 Grocery Store 0.06

----La Trinitat Nova----

venue freq

0 Spanish Restaurant 0.23

1 Supermarket 0.15

2 Grocery Store 0.15

3 Music Venue 0.08

4 Park 0.08

----La Verneda i la Pau----

venue freq

0 Tapas Restaurant 0.10

1 Coffee Shop 0.10

2 Supermarket 0.06

3 Café 0.06

4 Soccer Field 0.06

----La Vila Olímpica del Poblenou----

venue freq

- 0 Hotel 0.05
- 1 Tapas Restaurant 0.04
- 2 Café 0.04
- 3 Coffee Shop 0.04
- 4 Spanish Restaurant 0.03

----Les Corts (neighbourhood)----

venue freq

- 0 Restaurant 0.12
- 1 Spanish Restaurant 0.06
- 2 Café 0.05
- 3 Wine Shop 0.04
- 4 Cocktail Bar 0.04

----Les Roquetes, Barcelona----

venue freq

- 0 Spanish Restaurant 0.19
- 1 Grocery Store 0.12
- 2 Park 0.08
- 3 Café 0.04
- 4 Castle 0.04

----Les Tres Torres----

venue freq

0	Japanese Restaurant	0.07
1	Bakery	0.07
2	Mediterranean Restaurant	0.06
3	Restaurant	0.06
4	Spanish Restaurant	0.05

----Montbau----

	venue	freq
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0	Spanish Restaurant	0.11
1	Plaza	0.08
2	Park	0.08
3	Restaurant	0.08
4	Grocery Store	0.05

----Montjuïc----

	venue	freq
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0	Restaurant	0.08
1	Theater	0.05
2	Hotel	0.05
3	Pizza Place	0.05
4	Café	0.05

----Navas, Sant Andreu----

	venue	freq
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0	Spanish Restaurant	0.09
1	Supermarket	0.05

2	Restaurant	0.05
3	Plaza	0.04
4	Tapas Restaurant	0.04

----Pedralbes----

	venue	freq
0	Park	0.11
1	Restaurant	0.07
2	Hotel	0.07
3	Mediterranean Restaurant	0.07
4	Café	0.07

----Porta, Barcelona----

	venue	freq
0	Grocery Store	0.10
1	Tapas Restaurant	0.09
2	Spanish Restaurant	0.06
3	Supermarket	0.04
4	Park	0.04

----Provençals del Poblenou----

	venue	freq
0	Mediterranean Restaurant	0.08
1	Hotel	0.06
2	Bakery	0.05
3	Pizza Place	0.04

4 Spanish Restaurant 0.04

----Sagrada Família (neighborhood)----

venue freq

0 Italian Restaurant 0.06

1 Burger Joint 0.05

2 Bakery 0.05

3 Spanish Restaurant 0.04

4 Restaurant 0.03

----Sant Andreu de Palomar----

venue freq

0 Spanish Restaurant 0.08

1 Park 0.05

2 Supermarket 0.05

3 Tapas Restaurant 0.05

4 Coffee Shop 0.04

----Sant Antoni, Barcelona----

venue freq

0 Tapas Restaurant 0.09

1 Cocktail Bar 0.05

2 Coffee Shop 0.04

3 Pizza Place 0.04

4 Hotel 0.04

----Sant Genís dels Agudells----

venue freq

- 0 Park 0.21
- 1 Plaza 0.07
- 2 Playground 0.07
- 3 Bus Station 0.07
- 4 Restaurant 0.07

----Sant Gervasi – Galvany----

venue freq

- 0 Mediterranean Restaurant 0.05
- 1 Spanish Restaurant 0.05
- 2 Restaurant 0.05
- 3 Japanese Restaurant 0.04
- 4 Italian Restaurant 0.04

----Sant Gervasi – la Bonanova----

venue freq

- 0 Plaza 0.10
- 1 Mediterranean Restaurant 0.10
- 2 Spanish Restaurant 0.07
- 3 Japanese Restaurant 0.05
- 4 Park 0.05

----Sant Martí de Provençals----

venue freq

- 0 Supermarket 0.12
- 1 Tapas Restaurant 0.07
- 2 Coffee Shop 0.06
- 3 Bakery 0.06
- 4 Soccer Field 0.04

----Sant Pere, Barcelona----

venue freq

- 0 Tapas Restaurant 0.06
- 1 Cocktail Bar 0.05
- 2 Hotel 0.04
- 3 Restaurant 0.04
- 4 Bakery 0.04

----Sants----

venue freq

- 0 Mediterranean Restaurant 0.06
- 1 Tapas Restaurant 0.06
- 2 Restaurant 0.05
- 3 Spanish Restaurant 0.05
- 4 Hostel 0.04

----Sants-Badal----

venue freq

- 0 Tapas Restaurant 0.07

- 1 Pizza Place 0.06
- 2 Hostel 0.05
- 3 Bakery 0.04
- 4 Restaurant 0.04

----Sarrià, Barcelona----

venue freq

- 0 Bakery 0.09
- 1 Burger Joint 0.06
- 2 Train Station 0.06
- 3 Café 0.06
- 4 Hotel 0.06

----Tibidabo----

venue freq

- 0 Theme Park Ride / Attraction 0.30
- 1 Theme Park 0.21
- 2 Scenic Lookout 0.12
- 3 Mountain 0.06
- 4 Church 0.03

----Torre Baró----

venue freq

- 0 Metro Station 0.13
- 1 Grocery Store 0.13
- 2 Plaza 0.13

- 3 Park 0.07
- 4 Gym 0.07

----Trinitat Vella----

venue freq

- 0 Park 0.17
- 1 Supermarket 0.17
- 2 Pharmacy 0.08
- 3 Spanish Restaurant 0.08
- 4 Tapas Restaurant 0.08

----Vall d'Hebron----

venue freq

- 0 Park 0.11
- 1 Spanish Restaurant 0.09
- 2 Plaza 0.09
- 3 Restaurant 0.09
- 4 Grocery Store 0.04

----Vallbona, Barcelona----

venue freq

- 0 Metro Station 0.2
- 1 Tapas Restaurant 0.1
- 2 Train Station 0.1
- 3 BBQ Joint 0.1
- 4 Park 0.1

----Vallcarca i els Penitents----

venue freq

- 0 Café 0.09
- 1 Park 0.08
- 2 Bakery 0.05
- 3 Hotel 0.05
- 4 Mediterranean Restaurant 0.05

----Vallvidrera----

venue freq

- 0 Breakfast Spot 0.14
- 1 Park 0.14
- 2 Office 0.14
- 3 Gym / Fitness Center 0.14
- 4 Food & Drink Shop 0.14

----Vallvidrera, el Tibidabo i les Planes----

venue freq

- 0 Light Rail Station 0.12
- 1 Farmers Market 0.06
- 2 Spanish Restaurant 0.06
- 3 National Park 0.06
- 4 Fountain 0.06

----Verdum----

venue freq

- 0 Grocery Store 0.13
- 1 Spanish Restaurant 0.10
- 2 Supermarket 0.06
- 3 Tapas Restaurant 0.06
- 4 Pizza Place 0.05

----Vila de Gràcia----

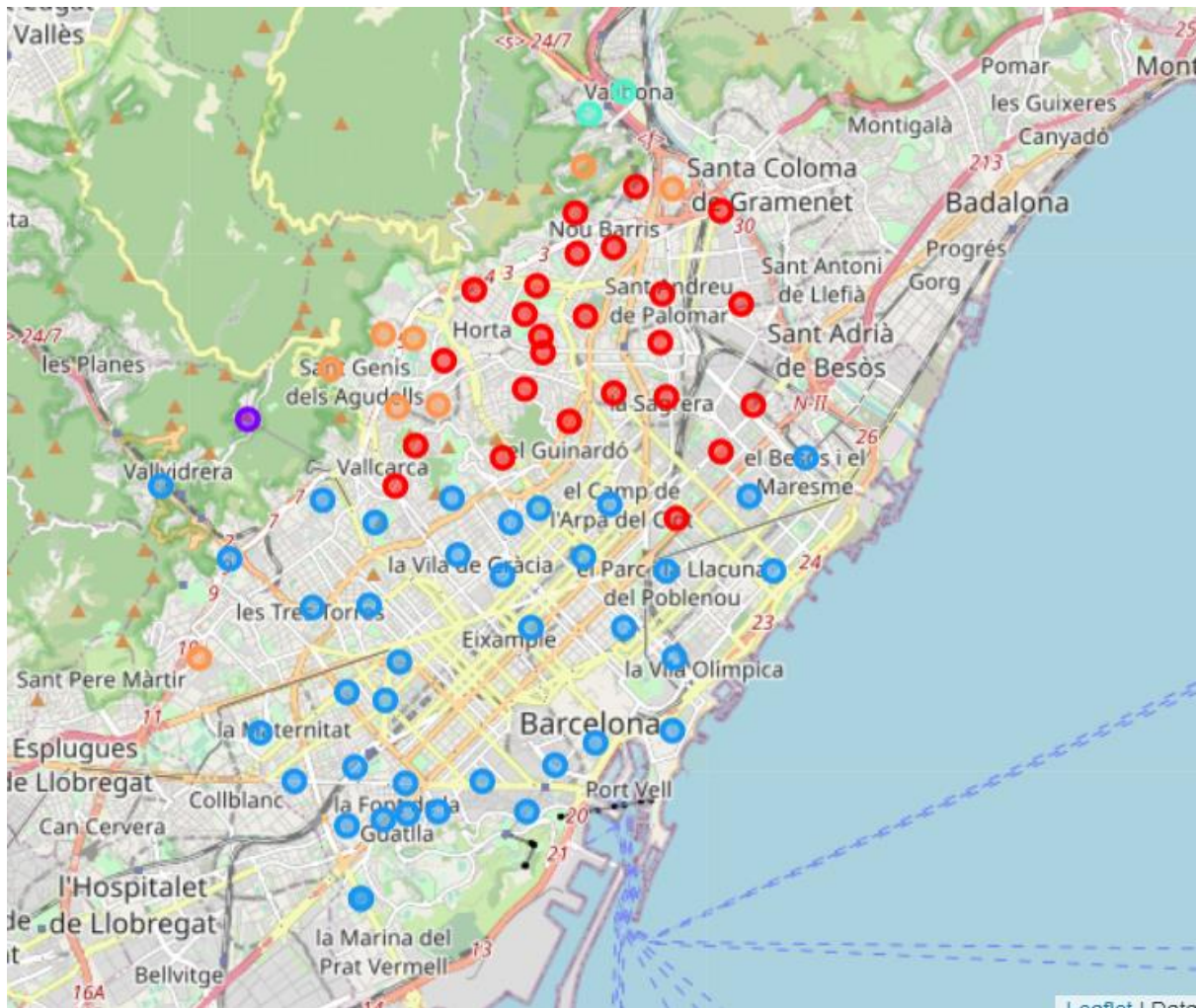
venue freq

- 0 Mediterranean Restaurant 0.05
- 1 Tapas Restaurant 0.05
- 2 Restaurant 0.05
- 3 Pizza Place 0.05
- 4 Plaza 0.04

----Vilapicina i la Torre Llobeta----

venue freq

- 0 Tapas Restaurant 0.09
- 1 Pizza Place 0.05
- 2 Restaurant 0.05
- 3 Grocery Store 0.05
- 4 Spanish Restaurant 0.05



4. Conclusion

So after the analysis we have classified different areas based on Venues they have-

Basically, we identified different clusters

Cluster 5 is most suitable for families-

Pedralbes ,Sant Genís dels Agudells ,Torre Baró being the most suitable

Cluster 2 is most suitable for Bachelors -

Fort Pienc, Sants,Sants-Badal being the most suitable

General good places for living are - El Congrés i els Indians,Can Peguera,Bon Pastor,Sant Andreu de Palomar,Vallvidrera,La Guineueta

For Specific places with Indian Restaurants

Les Tres Torres, Diagonal Mar i el Front Marítim del Poblenou

5. Limitations and Future Scope-

We need to incorporate more data to find what kind of population lives in what region.

Also, we haven't considered distance from workplace in our program.

We can add these and few small more details to make this program more accurate and useful.

We can also expand this to make this useful for people of different religions, countries etc.