

Determining the best neighbourhood to raise kids

1 Introduction

The quote 'There are three things that matter in property : location, location, location' is real estate gospel. Everyone knows that choosing the right neighbourhood to settle in when moving is important. But how do you determine the right neighbourhood? The goal of my project is to look at the city of Barcelona in order to find out the best neighbourhood for a family to settle in. Therefore, the audience for this data science project consists of families choosing to settle in the city of Barcelona and who want to raise their kids in a stimulating environment. Families spend a lot of time and energy trying to find the right apartment or house in the right place in order to make the right choice while moving, so having data science compare factors of different neighbourhoods in order to determine the optimal one is advantageous to them.

2 Data

The data used will include Foursquare location data. A special focus is placed on the amount of Parks, Restaurants, and Family-friendly fun that can be found in the neighbourhood. The Nightlife data will also be looked at in order to determine which neighbourhoods to avoid because they might be noisy at night.

As for school data, the website <https://www.elmundo.es/mejores-colegios.html> provides a list of the 100 best schools in Spain, of which we can choose the ones in the province of Barcelona. The proximity to these schools of the neighbourhoods will also be considered a factor in the choice of neighbourhood.

There are 10 districts in Barcelona which we will consider : Ciutat Vella, Eixample, Sants-Montjuïc, Les Corts, Sarrià-Sant Gervasi, Gràcia, Horta-Guinardó, Nou Barris, Sant Andreu, and Sant Martí. In order to obtain them and their location data, we use the website <https://opendata-ajuntament.barcelona.cat/data/en/dataset/20170706-districtes-barris>.

3 Methodology

The methodology is to keep eliminating districts according to whether or not they suit the needs of a family until we get to the correct choice. A preliminary venue exploration in each district using Foursquare is used to single out the neighbourhoods that are not appropriate because of noise at night. If one of the top 5 frequent types of venue in a district is Nightlife, Cocktail Bar, or similar, and also hotels, hostels, and restaurants are another frequent venue type, we deduce that those are tourist districts where there is more nightlife.

The second way to narrow down our choice is to use a visual map. We plot the map of Barcelona's districts and also the best schools in the Barcelona province. There are some districts which are significantly farther away from the schools. These are discarded.

There are five districts left that could be contenders to the best place in Barcelona for a family to settle in. In order to choose out of the three, we will see which districts have more parks, family-friendly fun, and cultural activities from these five.

In order to do these, the following statistical method is used : we take the frequency of occurrence of the categories PARK, PLAYGROUND, GARDEN, MUSEUM, THEATRE, MOVIE THEATRE, and POOL, which are indicators of what we want in the neighbourhood, and take the average for each district. The district with the highest average frequency score will be the best suited district, as on average it will have more family-friendly venues on average.

4 Results

The first preliminary narrowing down discards both Ciutat Vella and Eixample districts due to them being tourist hubs, having hotels, hostels, bars, cocktail bars, and nightclubs. As discussed before, they are discarded due to the noise pollution.

----Ciutat Vella----		
	venue	freq
0	Hotel	0.10
1	Cocktail Bar	0.08
2	Boat or Ferry	0.07
3	Plaza	0.06
4	Bar	0.05

----Eixample----		
	venue	freq
0	Hotel	0.15
1	Boutique	0.07
2	Tapas Restaurant	0.05
3	Mediterranean Restaurant	0.04
4	Spanish Restaurant	0.04

FIGURE 1 – Frequent types of venues of Ciutat Vella and Eixample.

As for education, we see that there are three districts that are very far away from the best schools : Nou Barris, Sant Martí, and Sant Andreu. Therefore we discard these districts too.

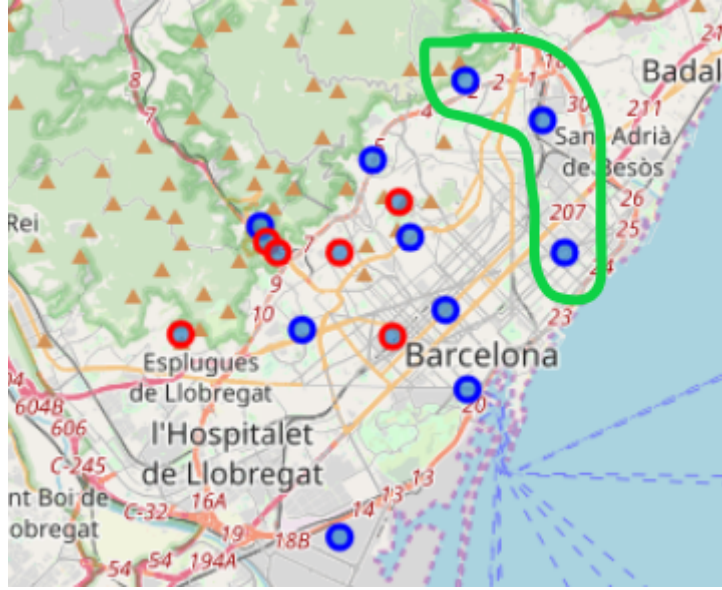


FIGURE 2 – The inconveniently located districts are circled in green.

The third step is the frequency average of family-friendly venue types in the 5 districts that are left. While doing so, we see that Horta-Guinardó has the best score. However, this score does not tell it all, as the frequency of parks in the Horta-Guinardó district is high but the other types of venues have a null score. Therefore, this district has no variety.

	District	Park	Playground	Garden	Museum	Movie Theater	Theater	Pool	Average frequency of family-friendly stuff
2	Gràcia	0.037500	0.0125	0.000000	0.025	0.0	0.0125	0.0	0.012500
3	Horta-Guinardó	0.100000	0.0000	0.000000	0.000	0.0	0.0000	0.0	0.014286
4	Les Corts	0.055556	0.0000	0.037037	0.000	0.0	0.0000	0.0	0.013228
8	Sants-Montjuïc	0.000000	0.0000	0.000000	0.000	0.0	0.0000	0.0	0.000000
9	Sarrià-Sant Gervasi	0.000000	0.0000	0.000000	0.000	0.0	0.0000	0.0	0.000000

FIGURE 3 – Table of frequency of venue types average per district.

That is why we look at the second and third highest scores, which are held by Les Corts and Gràcia. These two districts have more variety, and looking at the map of the best schools in Barcelona, the proximity of Les Corts to the schools seems to indicate it to be the best district to raise a family.

5 Discussion

Further research on the Horta-Guinardó district suggests that it a calm and tranquil district with many parks that is considered to be one of the best for children.

Therefore, we can say that the method that we have used to find out the best district to live in with kids could be refined and perfected to take into account other factors too, so that it is in accordance with what is found online.

Since the accuracy of the methodology used is questioned, we choose the top 3 districts instead of choosing a single one. After all, there has to be some leeway for personal choice, which probably explains discrepancies between opinions of people found in online research.

We conclude that the top 3 districts to live in Barcelona with kids are Horta-Guinardó, Les Corts, and Gràcia.

6 Conclusion

In this study, the location data of Barcelona's 10 districts was analyzed to find the best places to raise a family in the busy touristic city. Using data from different sources as well as Foursquare, we finally reached the conclusion that the top three districts to raise a family are Horta-Guinardó, Les Corts, and Gràcia. These districts are closer to the mountains and farther away from the city center, which gives them the tranquility and all the spacious parks and playgrounds needed for kids. Considering other factors in the analysis would be the further exploration of this topic.