

Battle of Neighborhoods ▶ in Barcelona

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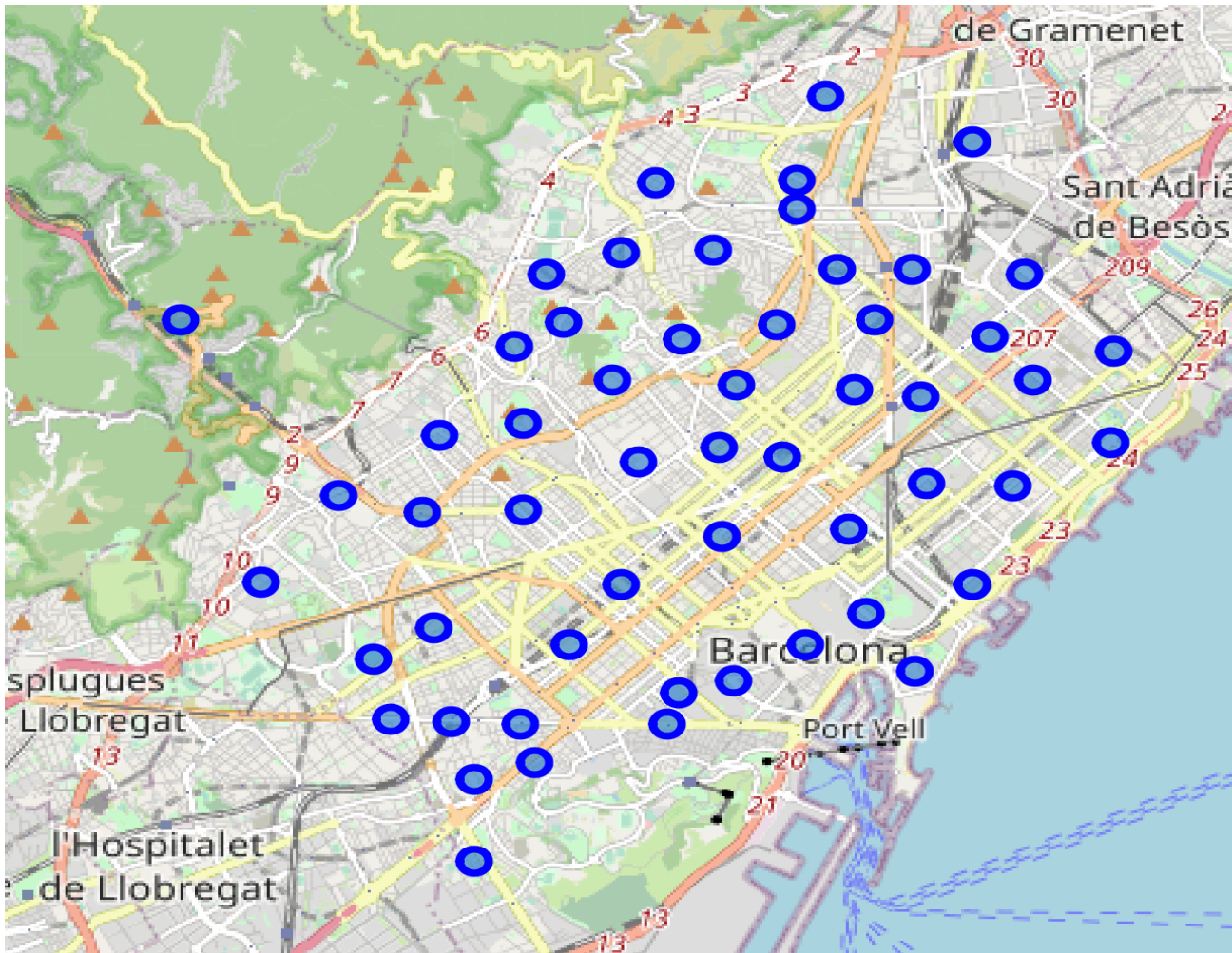
Background

- ▶ Objective:
- ▶ This project aims to get a general overview of neighborhoods' characteristics in Barcelona; and predict the housing price based on different features.
- ▶ Benefits:
- ▶ It can help real estate companies choosing neighborhoods where they can develop appropriate housing and setting reasonable prices.
- ▶ Helping potential housing buyers choosing neighborhoods to live in and checking whether the price is reasonable or not.

Data Acquisition and Cleaning

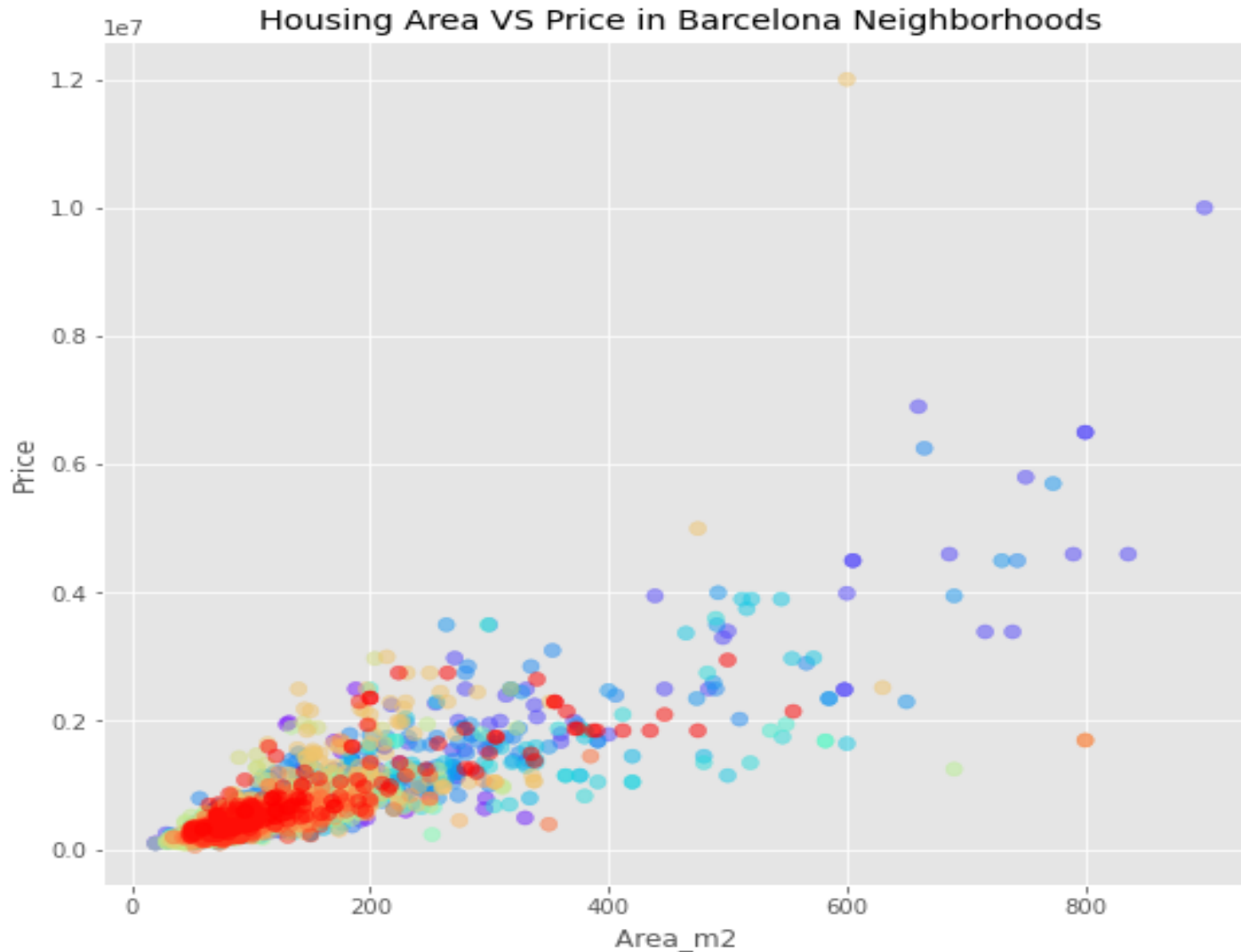
- ▶ Housing price data of Barcelona found in Kaggle dataset; neighborhood information from Foursquare Api; geographical coordinates from Geopy.
- ▶ Dropped features without obvious impact on housing price;
- ▶ Removed neighborhoods with little samples (less than 10) and outliers;
- ▶ Identified 55 Barcelona neighborhoods and 279 venue categories that can be analyzed.

Map of Barcelona Neighborhoods



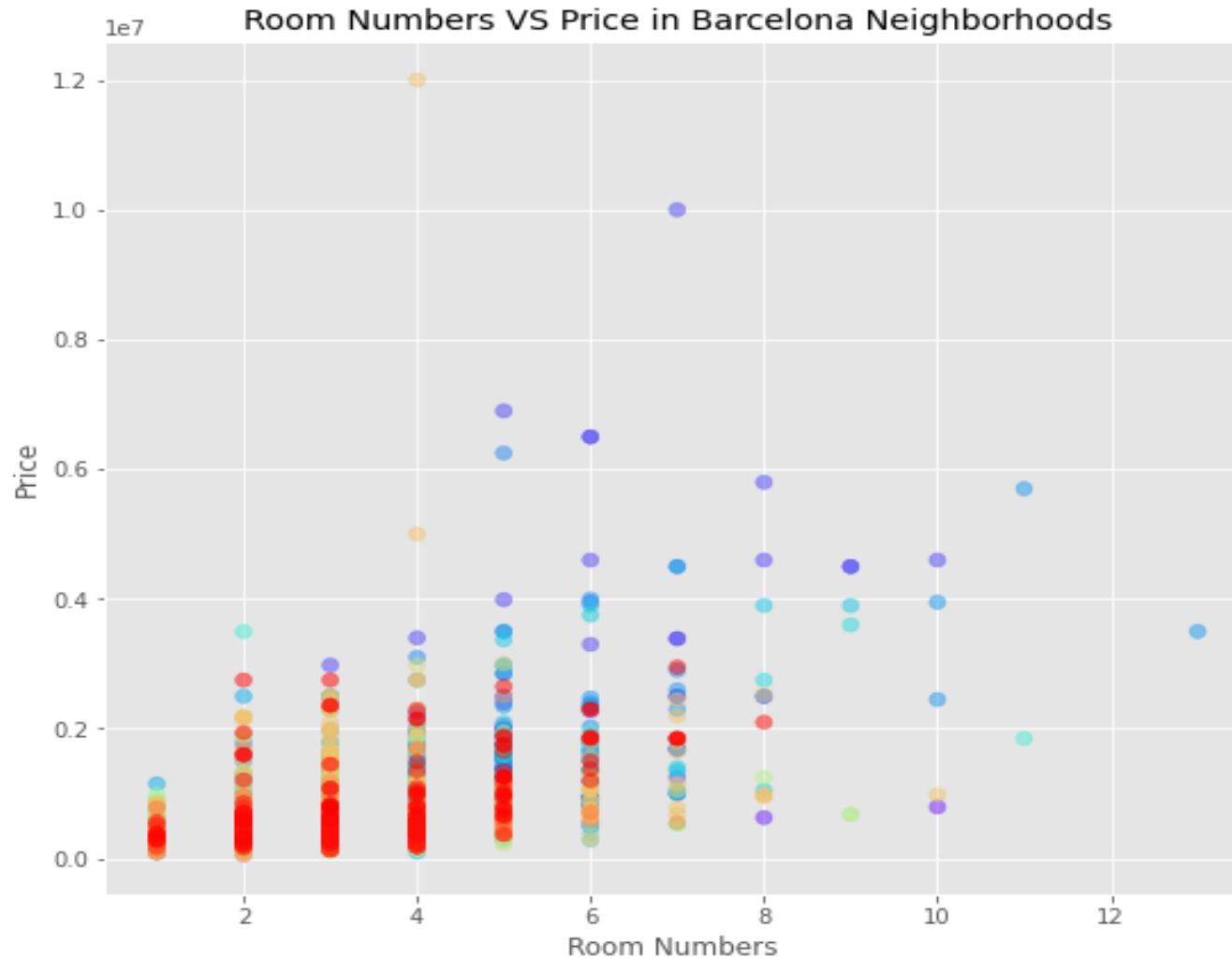
- City of Barcelona located near the coast;
- 55 neighborhoods are identified for analysis

Housing area (m²) VS price in different Neighborhoods



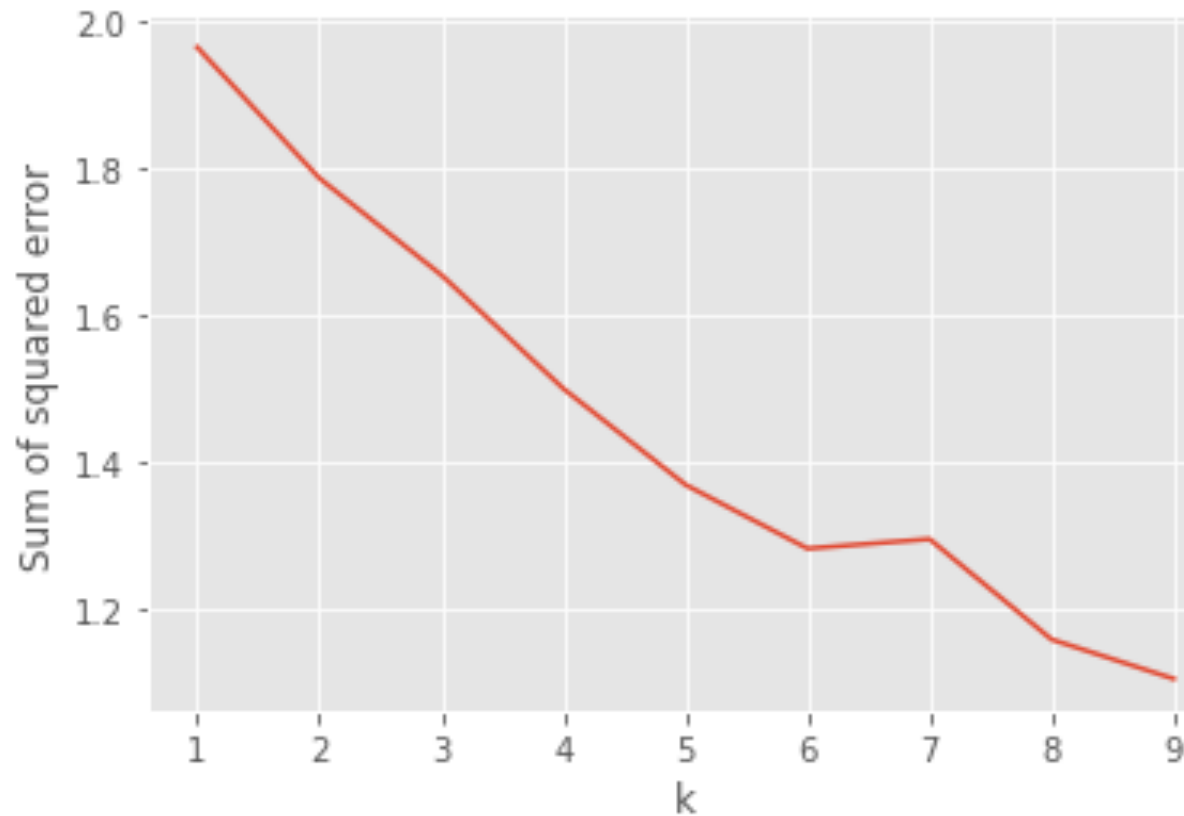
- ▶ Neighborhoods have decisive impact on the price;
- ▶ Within the same neighborhood, price increases with the housing size

Number of rooms VS price in different neighborhoods



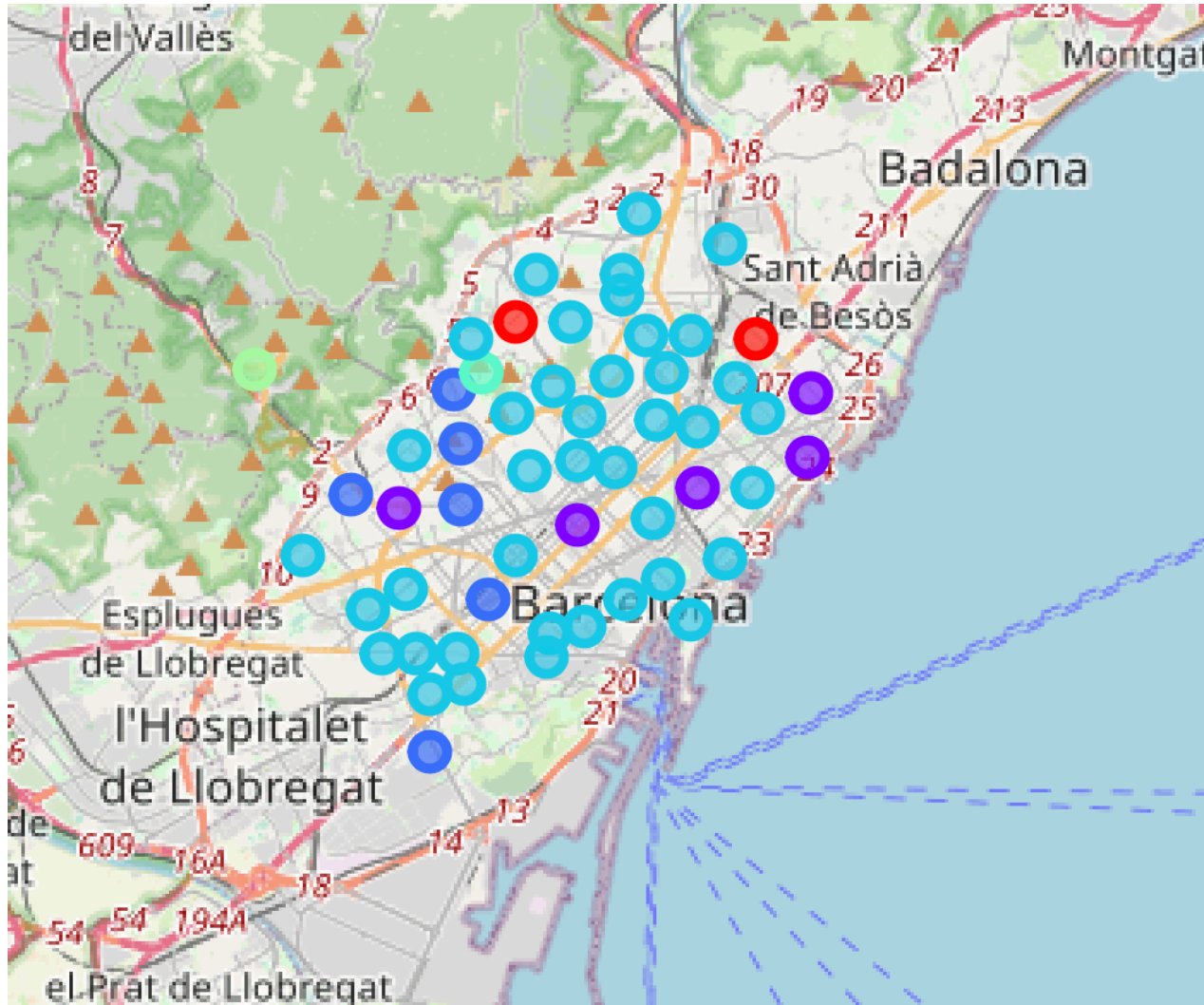
- Within the same neighborhood, more rooms may result in higher prices.

Deciding the number of clusters for K-means model



- The elbow point is at 6, which means when there are 6 clusters, the classification is optimal

Six Type of Barcelona Neighborhoods



- ▶ Type One ●
- ▶ Type Two ●
- ▶ Type Three ●
- ▶ Type Four ●
- ▶ Type Five ●
- ▶ Type Six ●

Type One - Food and Café Easily Accessible Neighborhoods

Neighborhoods

el Carmel

la Verneda i la Pau

Characteristics

Café and coffee shops are extremely common, nice for friends gathering. With many supermarkets, food courts and grocery stores, easily satisfying the demand of food. Located in the outer side of Barcelona

Tapas
Coffee
Restaurant
Shop
Café
Gym
Store
Grocery
Supermarket
Food

Neighborhood	Rooms	Area(m ²)	Predicted price
el Carmel	6	120	315,936

Type Two - Tourist-concentrated and Commercialized Neighborhoods

Neighborhoods	
Diagonal Mar i el Front Marítim del Poblenou	Characteristics
el Besòs i el Maresme	Located in the central and beach side of Barcelona, with plenty of hotels, also has train station, restaurants, boutiques and clothing store, frequented by tourists and travelers
el Parc i la Llacuna del Poblenou	
la Dreta de l'Eixample	
les Tres Torres	



Neighborhood	Rooms	Area(m ²)	Predicted price
la Dreta de l'Eixample	6	120	628,630

Type Three - Gourmet Neighborhoods

Neighborhoods	Characteristics
Sant Gervasi - Galvany	This type of neighborhoods have diversified restaurants, Japanese, Italian, Spanish, Indian, Mediterranean and Tapas restaurants. Bakery and dessert shop are also very common, suitable for foodies.
Sarrià	
Vallcarca i els Penitents	
el Putxet i el Farró	
la Marina de Port	
la Nova Esquerra de l'Eixample	



Neighborhood	Rooms	Area(m ²)	Predicted price
Sant Gervasi - Galvany	5	100	550,879

Type Four - Comprehensive Cozy Living Neighborhoods

Neighborhoods	
Baró	
Horta	
Hostafrancs	Characteristics 40 neighborhoods belong to this type and the venues are very comprehensive, from sporting venues, outdoor open spaces to different kinds of restaurants and bars; and convenient living facilities. Living comfortably here.
Navas	
Provençals del Poblenou	
Pedralbes	
.....	
les Corts	



Neighborhood	Rooms	Area(m ²)	Predicted price
les Corts	6	120	483,042
Hostafrancs	6	120	351,790

Type Five - Special Mountain View Neighborhood

Neighborhoods

el Coll

Characteristics

This is a special neighborhood, with a mountain nearby, scenic views and park, a very beautiful and natural neighborhood in the outer fringe of Barcelona

Scenic
Mediterranean
Hotel
Park
Supermarket
Lookout
Mountain
Restaurant

Neighborhood	Rooms	Area(m ²)	Predicted price
el Coll	6	120	303,193

Type Six - Exclusivity Away from City Bustle

Neighborhoods

Vallvidrera - el Tibidabo i les Planes

Characteristics

Another special neighborhood, located far away from the downtown area of Barcelona, a resort, tourist destination, with museum, zoo and open space. Place to enjoy living away from city bustle

Zoo Soccer
Museum Spanish
Center Tourist
Restaurant
Field Information

Neighborhood	Rooms	Area(m ²)	Predicted price
Vallvidrera - el Tibidabo i les Planes	5	160	386,378

Conclusion

- ▶ The accuracy of housing price prediction linear regression model is 78.3%; so the predicted price may better be used as a reference;
- ▶ The neighborhoods in Barcelona are divided into 6 types, client can choose appropriate neighborhoods based on the general characteristics of each type;
- ▶ This solution can also be used for other cities, but dataset is always very important for analysis results.