



# BARCELONA CASE STUDY

Local coffee shop vs Gourmet restaurant

## Opening a new location in Barcelona.

- One of the first steps when opening a business is choose the best location to maximize profit.
- We want to find the most feasible location to open a local where food is served.
- We will distinguish between two cases: opening a local coffee shop and opening a more exclusive gourmet restaurant.
- To solve the problem, we will use the existing data on restaurant and hotel location, as well rent per capita and population.

## Data sources, feature selection.

### DATA SOURCES

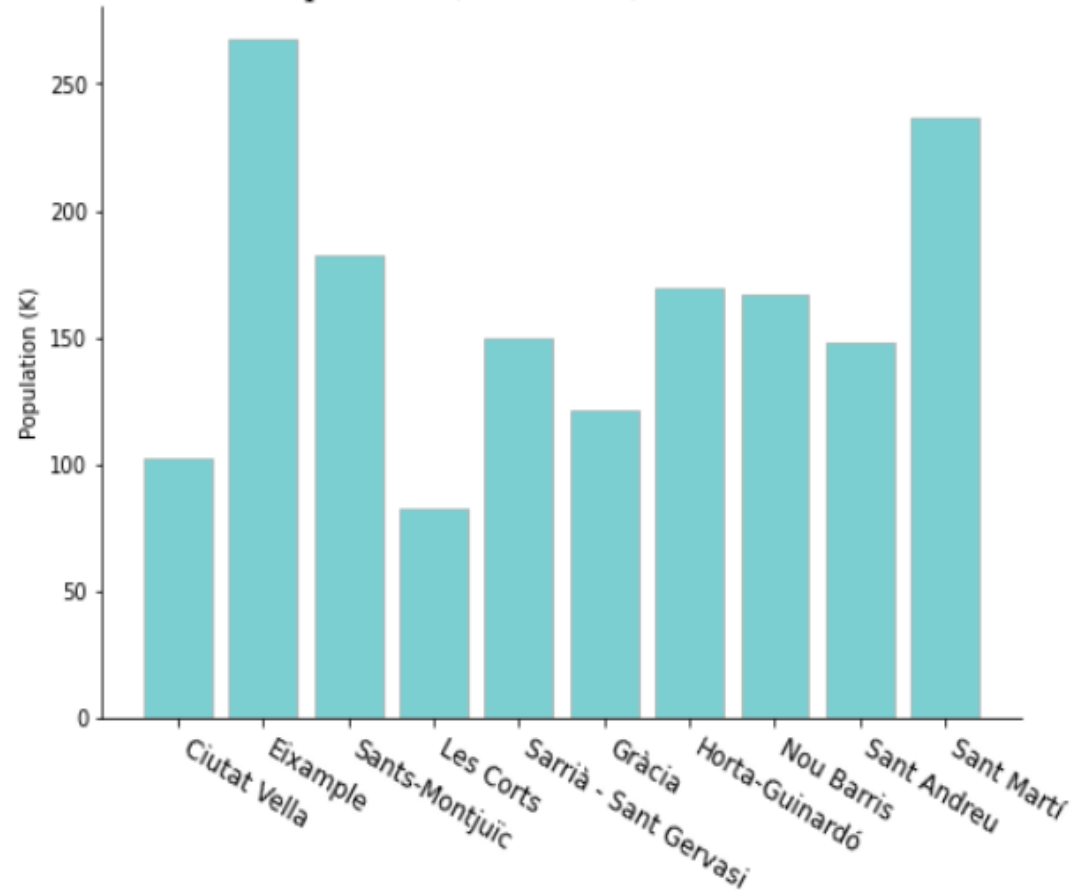
- [Barcelona city hall data](#): It is the base of the study, includes a list of districts, neighborhoods and rent per capita.
- [Wikipedia page for Barcelona districts](#): Used to get the names of the districts.
- Foursquare API: Used to get the data on the venues of each neighborhood.

### FEATURE SELECTION

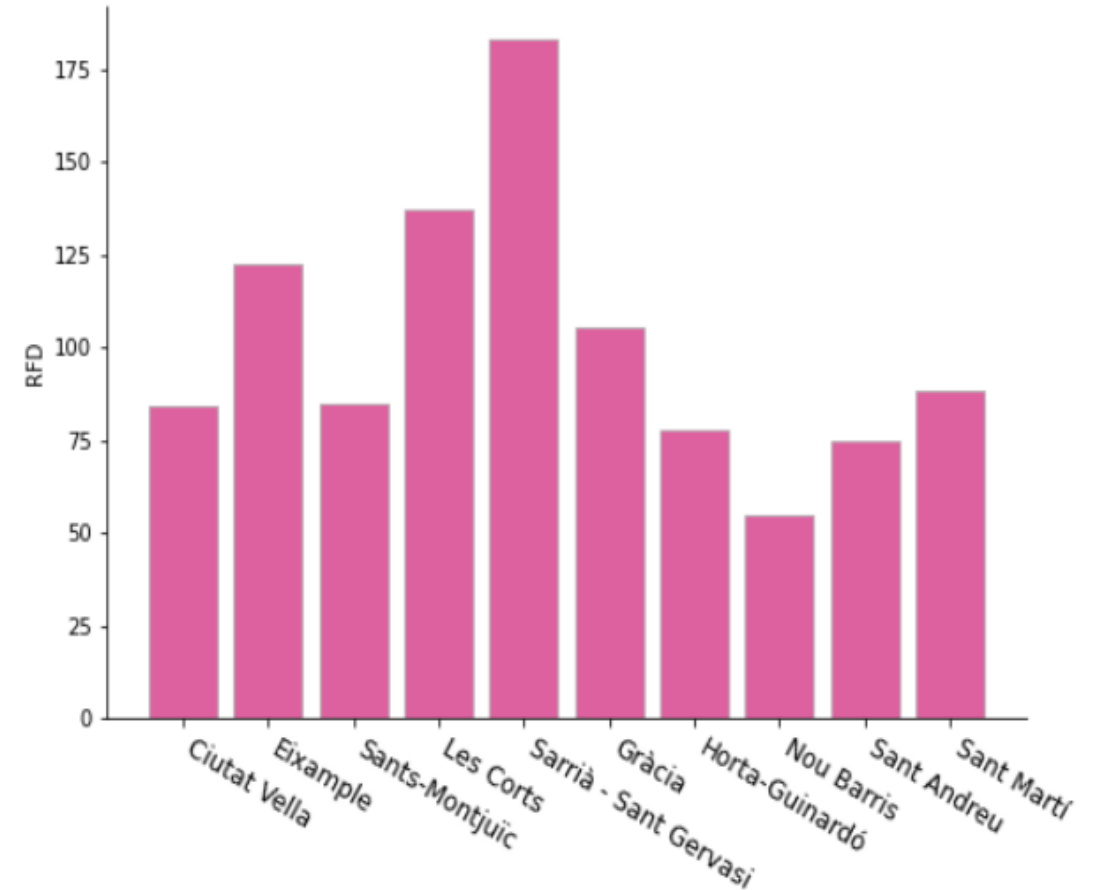
District / Neighborhood  
Population  
Rent per capita (RFD index)  
Nº of Restaurants  
Nº of Hotels

# Data exploration by district.

Population (thousands) in Barcelona

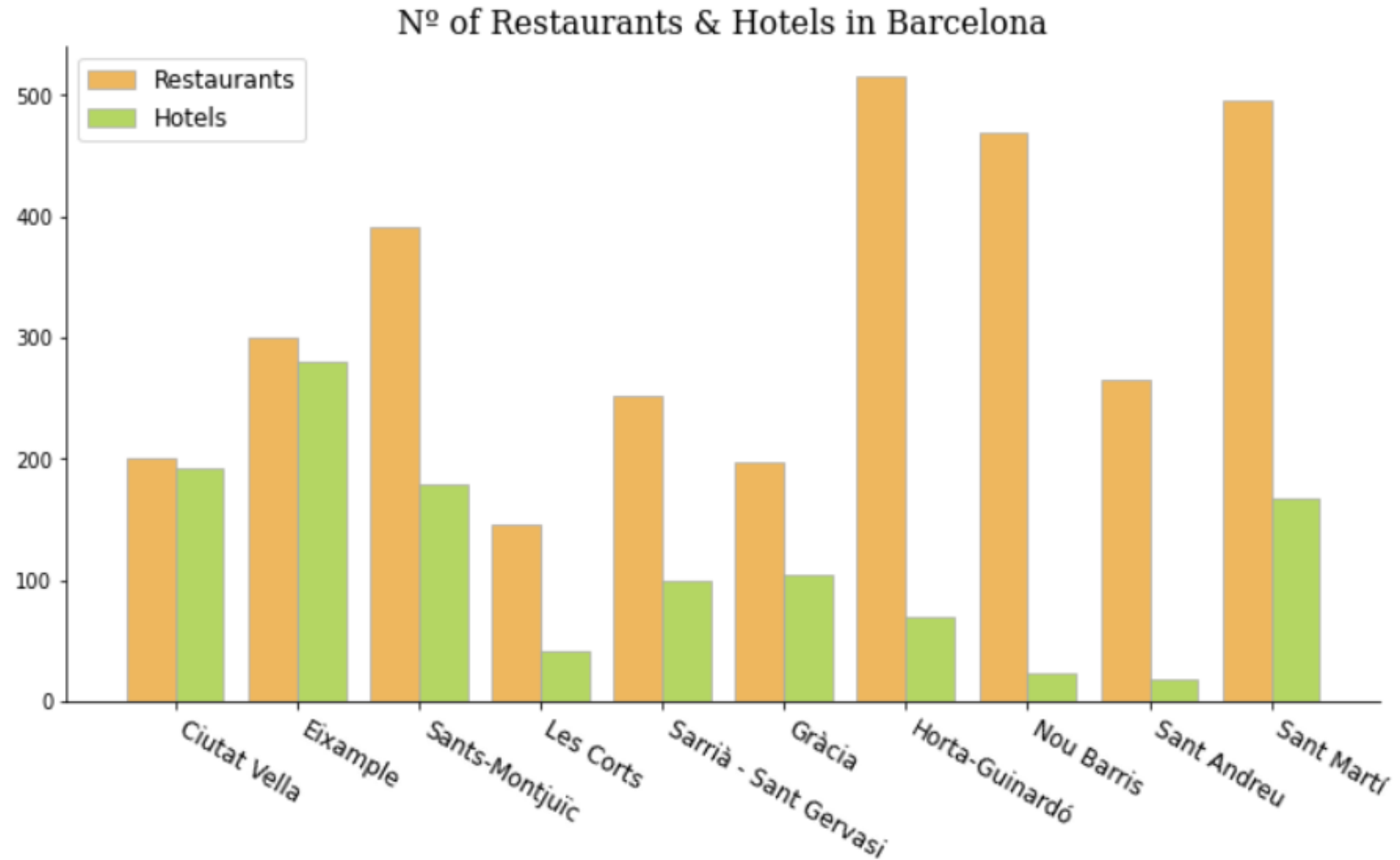


RFD in Barcelona



## Data exploration by district.

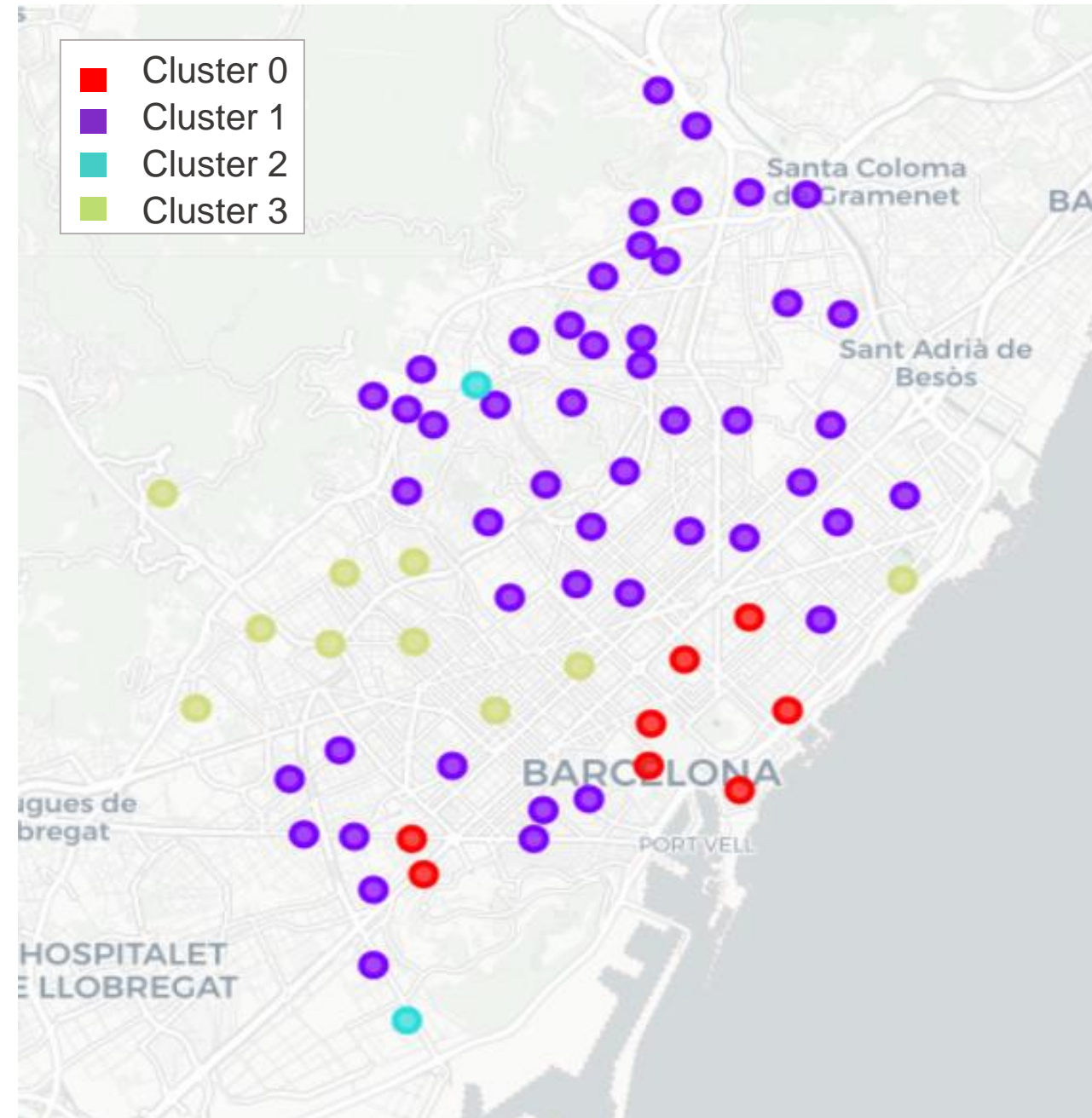
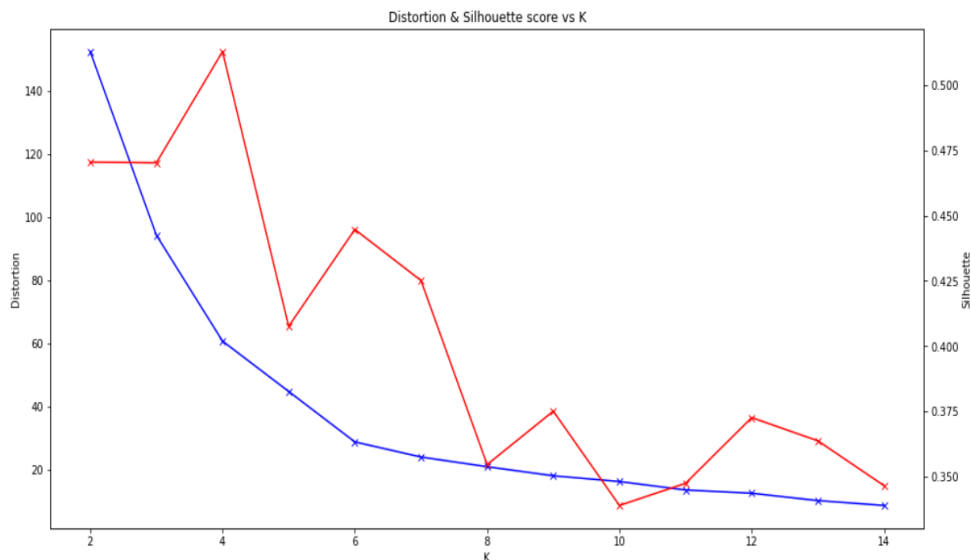
- Touristic neighborhoods have a high ratio of restaurants and hotels for the small population they have.
- Neighborhoods with a low RFD index (less rent per capita) tend to have the highest numbers of restaurants.





# K-means clustering and results.

- The neighborhoods are clustered using the ratio of nº restaurant/hab, nº hotels/hab and RFD index.
- Using the elbow method,  $k = 4$  is found to be the optimal number of cluster.



K-means  
clustering  
and  
results.

Cluster	% Population		RFD		% Restaurants		% Hotels		Label
0	8.45	↓	102.92		12.31		26.87	↑	Touristic
1	75.30	↑↑	83.46		70.90	↑↑	54.25	↑↑	Average
2	0.11	↓↓	58.55	↓↓	2.88	↓↓	0.26	↓↓	Underdeveloped
3	16.14	↑	175.58	↑↑	13.91	↑	18.62	↑	Affluent



## Discussion and conclusions.

- The **local coffee shop** should be situated in the Average Cluster (1). It has the highest amount of population to serve and highest percentage of restaurants. The rent per capita indicates that it is working class, which would also be suitable for this kind of local.
- The **gourmet restaurant** should be situated either in Touristic cluster (0) or Affluent cluster (3), depending on which kind of clientele it caters.

