DATA

The Business problem needs data of coordinates of each neighborhoods. Also, we need access to Foursquare API to get the list of nearby venues for each coordinates. The list of coordinates of the neighborhoods in Barcelona for the present problem is obtained from the, website https://www.aggdata.com/free/spain-postal-codes. The data looks like the following

Out[2]:

	Postal Code	Place Name	State	County	City	Latitude	Longitude
0	1001	Vitoria-Gasteiz	Pais Vasco	PV	Álava	42.8500	-2.6667
1	1002	Vitoria-Gasteiz	Pais Vasco	PV	Álava	42.8500	-2.6667
2	1003	Vitoria-Gasteiz	Pais Vasco	PV	Álava	42.8500	-2.6667
3	1004	Vitoria-Gasteiz	Pais Vasco	PV	Álava	42.8500	-2.6667
4	1005	Vitoria-Gasteiz	Pais Vasco	PV	Álava	42.8435	-2.6748

The data consists of coordinates of the Barcelona city as well as the suburban regions. It is filtered to get only the neighborhood data of the main city. Further, data of the rent prices are obtained through https://www.opendata-ajuntament.barcelona.cat. The table consists of prices per square meter of houses (average) for each district.

Dte.	Barris	1r Trimestre
BARCELONA		13
1	1. el Raval	13,5
1	2. el Barri Gòtic	14,1
1	3. la Barceloneta	19,5
1	4. Sant Pere, Santa Caterina i la Ribera	15
2	5. el Fort Pienc	12,8
2	6. la Sagrada Família	13
2	7. la Dreta de l'Eixample	12,8
2	8. l'Antiga Esquerra de l'Eixample	13,2
2	9. la Nova Esquerra de l'Eixample	13
2	10. Sant Antoni	12,4
3	11. el Poble Sec - AEI Parc Montjuïc	13
3	12. la Marina del Prat Vermell - AEI Zona Franca	nd

Foursquare API data is used to get the list of venues neraby a particular coordinates. The results are obtained as json file wherein the details of venue (for eg., venue name, rating, price point, type, users, etc.). We will use this Foursquare API data to get the list of top10 venues around a neighborhood. The list looks something like this,

Out[17]:

	Neighbourhood	Neighbourhood latitude	Neighbourhood longitude	Venue	Venue Latitude	Venue Longitude	Venue category	Id
0	El Raval	41.3818	2.1685	La Central del Raval	41.383586	2.168949	Bookstore	4b71cd74f964a5204b5d2de3
1	El Raval	41.3818	2.1685	Chivuo's	41.382961	2.169948	Sandwich Place	567873b9498e9f35c38e192e
2	El Raval	41.3818	2.1685	Llop	41.381849	2.169511	Restaurant	59de559766fc6558b0956589
3	El Raval	41.3818	2.1685	Caravelle	41.382337	2.168818	Restaurant	5040f5e5e4b06be18fa8af73
4	El Raval	41.3818	2.1685	A Tu Bola	41.380096	2.169054	Tapas Restaurant	52ffc95e498e5f219673b9d1

This will be used to cluster the neighborhoods based on similar or dissimilar they are.