Coursera Capstone Project Report

Course: The Battle of Neighborhoods

Title: "Business Analysis Support for New Investors in Paris"

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1- Introduction & Business Problem:

The City of Paris in France, is one of the most famous capital cities in the world, it's a touristic city that present good opportunity for investment.

My Objectif is to provide business mans that want to invest in Paris useful information and visualization with recommendations to support them to well orient their business

From Another hand I will also help them to find to bay or lent their house following their choice. By providing the house lent or acquisition and their evolution trend in Paris for each area.

Work Main Steps:

In this Work the objective is to help the person how wants to build their new business in Paris by providing element (recommendation and visualization) about:

- Neighborhoods house lent Price recommendation (as temporary solution)
- Neighborhoods House Sales Price recommendation (as temporary solution)
- Population distribution and type for business investigation
- Venue distribution bests activities and clustering for their investment analysis
- Existing companies' categories, numbers, activities…, this can help for investment orientation
- …

Target Audience:

Business person to will understand Paris and opportunities, and life in Paris for personal needs.

Success Criteria:

The success criteria of the project will be a good recommendation for personal and business needs to new and future investors in Paris

2- Data Section:

In this section you will find all data sources I use in my Project

➢ Paris Neighbrhoud with coordinates(json sile) :https://www.data.gouv.fr/fr/datasets/r/4765fe48-35fd-4536-b029-4727380ce23c

	Code Arroundissement	Nom Arroundissement	Latitude	Longitude

➢ Population and géo data: https://fr.vikidia.org/wiki/Arrondissements_de_Paris

	Arrondissement de Paris	Superficie_Hectar	Density pop per Hec	Population	Code Arroundissement
0	Paris 1er arrondissement	183	93	17 100	1
1	Paris 2e arrondissement	99	227	22 390	2
2	Paris 3e arrondissement	117	307	35 991	3
3	Paris 4e arrondissement	160	173	27 769	4

➢ House lent :https://www.linternaute.com/argent/immobilier/1199363-prix-au-m2-l-immobilier-dans-600-villes-de-france/1199365-paris

	Tree Mounth Trend Location	Prix location par m2	Code Arroundissement
0	0.32%	37.31	1
1	1.81%	33.70	2
2	-0.82%	36.26	3
3	-0.21%	37.69	4
4	-1.97%	34.41	5

➢ House acquisition: https://www.journaldunet.com/patrimoine/prix-immobilier/paris/ville-75056

	Arrondissement de Paris	Price_per_m2	Code Arroundissement
0	Paris1erArrondissement	9844	1
1	Paris2eArrondissement	9750	2
2	Paris3eArrondissement	11310	3
3	Paris4eArrondissement	11380	4
4	Paris5eArrondissement	11890	5

> Companies data and distribution: https://opendata.paris.fr (CSV files)

	street_number	street_name	postal_code	city	country	Code Arrondissement	website	leader_firstname
name								
THORNTON FRANCES LYNNE	32	RUE CHARLOT	75003	PARIS 3	FRANCE	3	NaN	FRANCES
ROYAL PROVENANCE	5	RUE DE CASTIGLIONE	75001	PARIS 1	FRANCE	1	NaN	NaN
BAMBA RAMATA	34	RUE DE VAUCOULEURS	75011	PARIS 11	FRANCE	11	NaN	RAMATA

> And For Sure **Foursquare API to get more details about each neighborhood venues**

3- Methodology:

The objective of this part is to go into exploration and analysis I did to support new investor get good understanding of Paris opportunities, segmentation and life support.

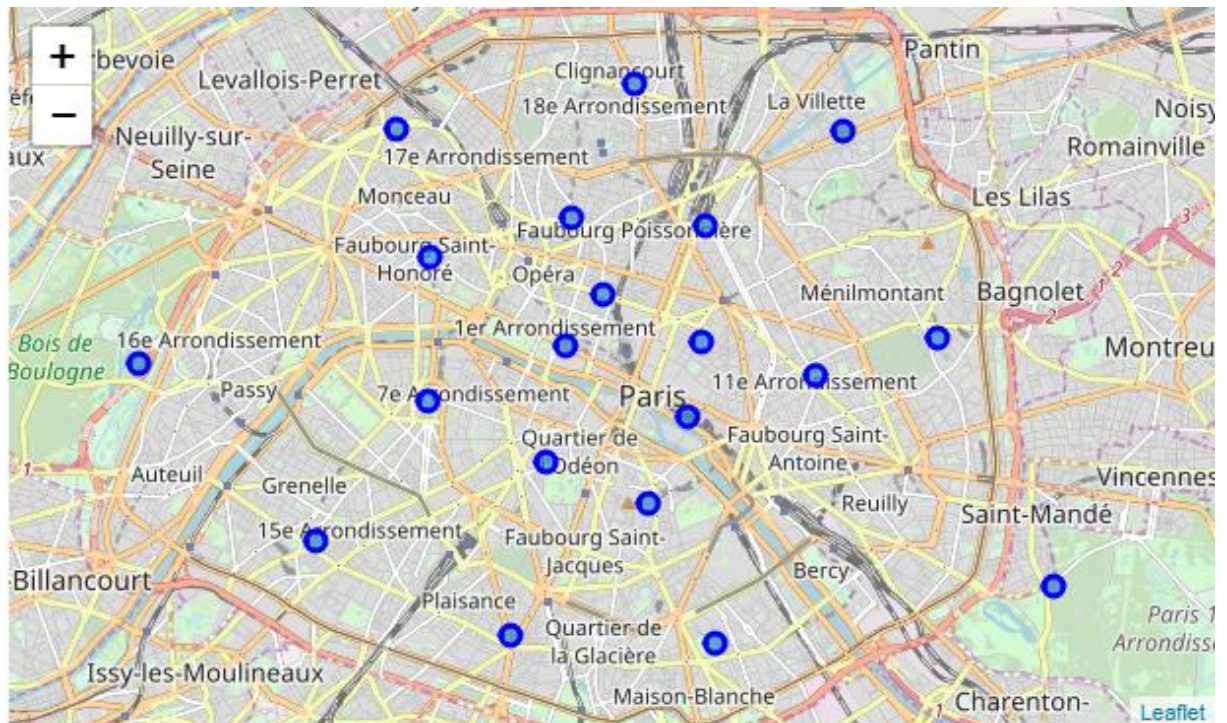## Part 1: Paris Neighborhood data loading and analysis/Clustering.

Fig1: Map of the 20 neighborhoods   of Paris

Below are the list of Paris neighborhoods ("Arrondissement"):

Code"Arrondissment" (Neighborhoud)	Name "Arrondissement" (Neighborhoud)
1	Louvre
2	la Bourse
3	Temple
4	Hôtel-de-Ville
5	Panthéon
6	Luxembourg
7	Palais-Bourbon
8	Élysée
9	Opéranote 1
10	Entrepôt, anciennement Enclos Saint-Laurent
11	Popincourt
12	Reuilly (hors bois de Vincennes)
13	Gobelins
14	Observatoire
15	Vaugirard
16	Passy (hors bois de Boulogne)
17	Batignolles-Monceau
18	Buttes-Montmartre
19	Buttes-Chaumont
20	Ménilmontant

The Following Map shows the clustering of Paris neighborhoods based on their venue's similarity
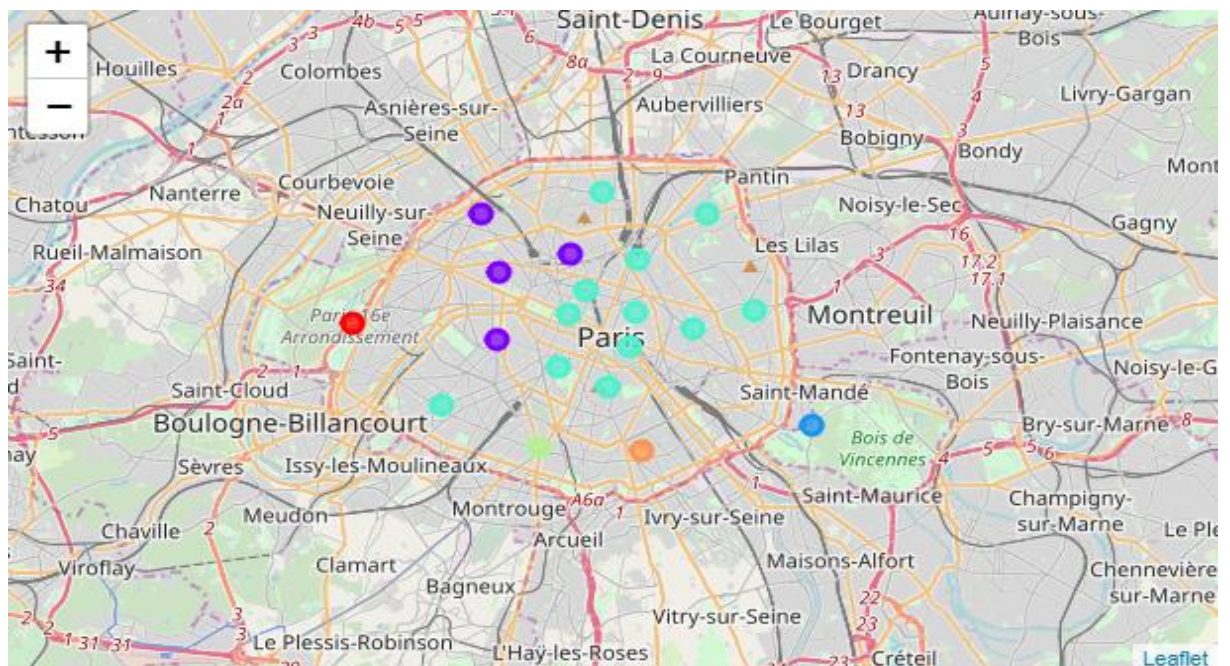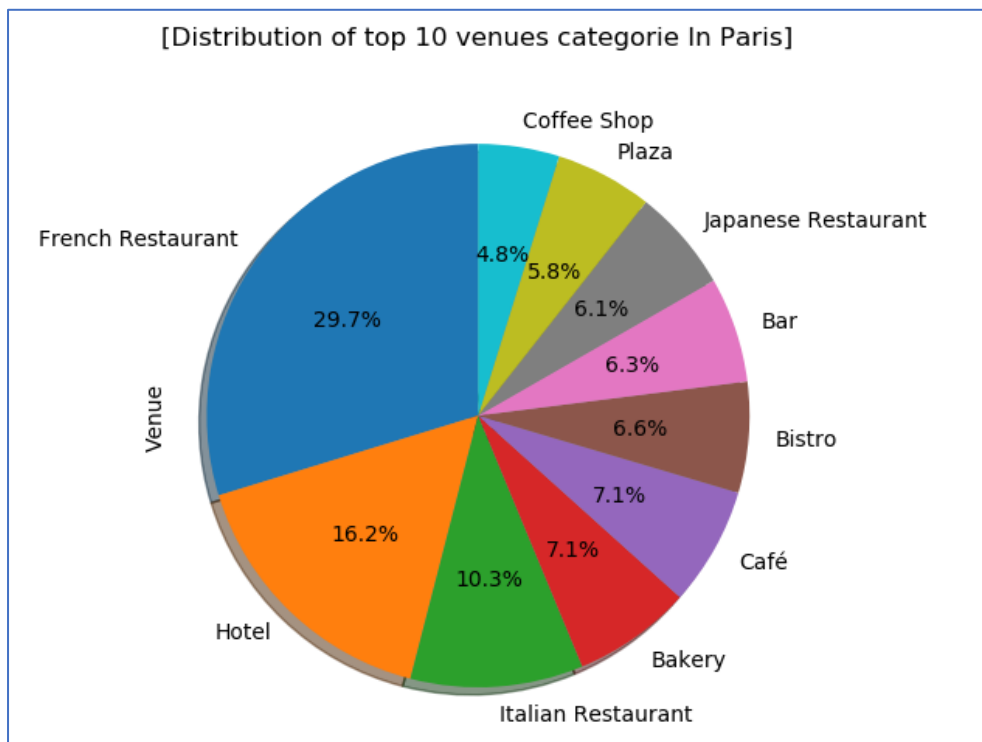

Fig2: Clustering of Paris Neighborhoods

Comment: the center Of Paris presents a homogeneity in venues type and distribution as they cluster in the same cluster, except border's ones.

[Distribution of top 10 venues categorie In Paris]

Analysis:

For this Plot we can see that "French Restaurant" and Hotels are most common in Paris. We can also read it as there is some margin to add new "Coffee shop" or "Plaza" which can a good investment with good ROI

Part 2: Paris Neighborhood Population data visualization and analysis
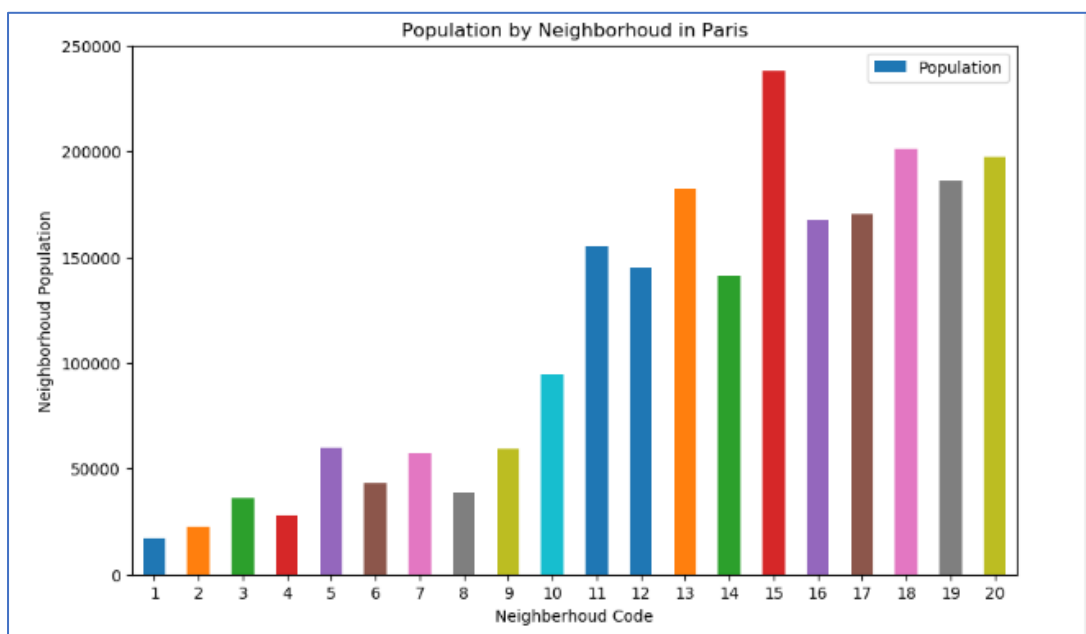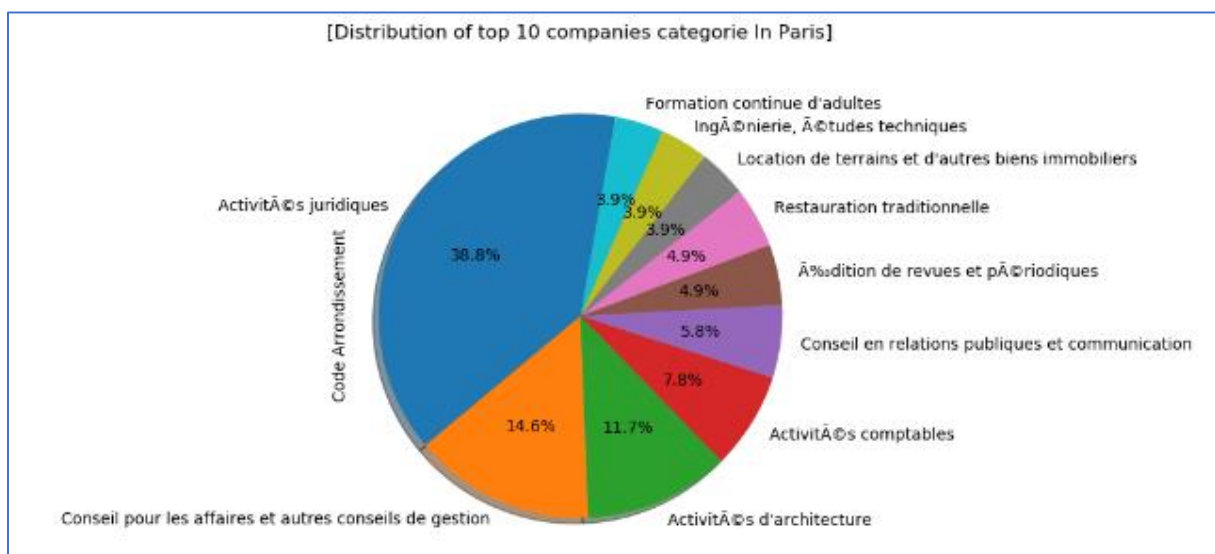
Analysis:

From this Chart it's clear that Paris "15" & "18" have more population and present a good opportunity for investment but let's combine the population with the Surface with will give more Insight
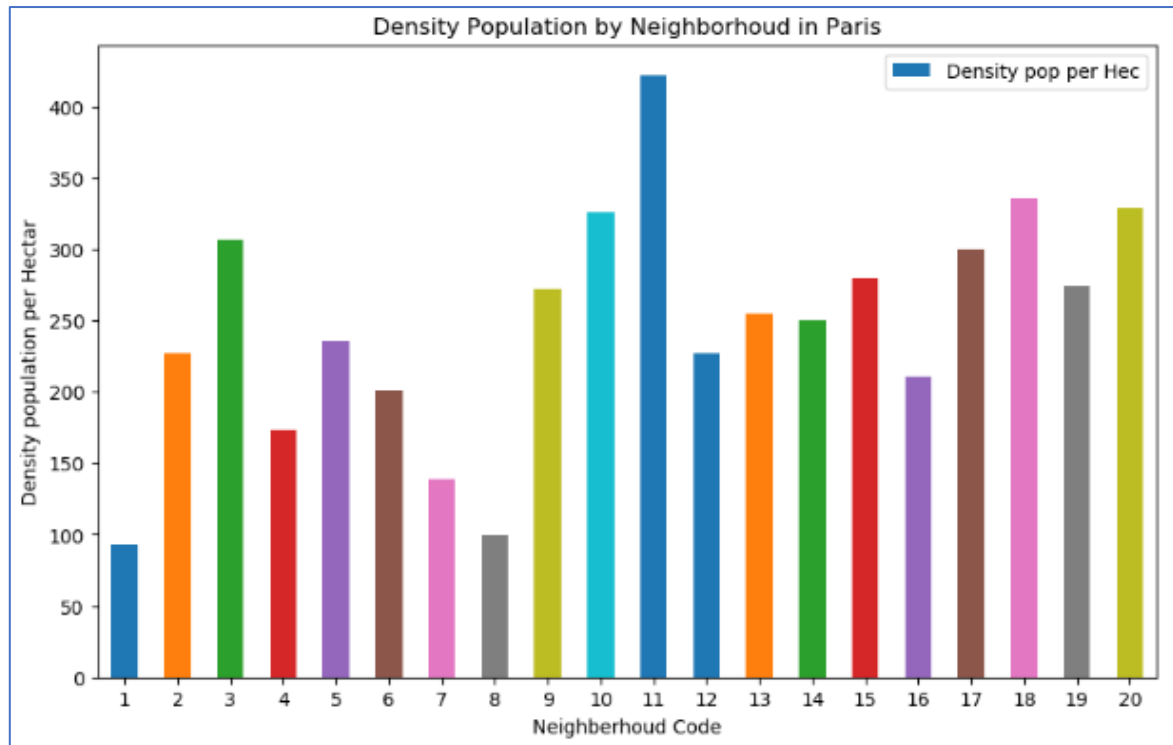
Analysis:

This Chart above shows that Paris "11" has high Population per Hectare or Km2 , it depend on type of business , example for restaurant and coffee shop this is highly important to have big density of population rather than the total per neighborhood

Part 3: Paris down city Neighborhood existing companies' distribution:
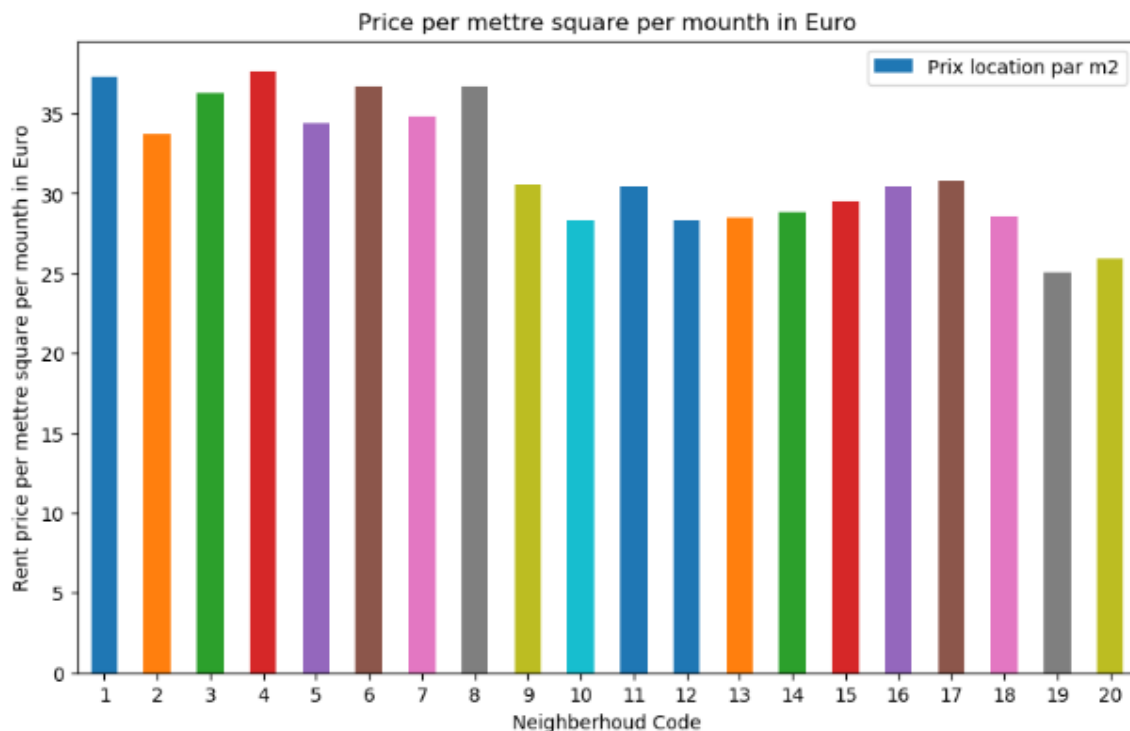
Analysis:

In Paris down cities the most dominant activities are:

- Legal Acivites with more than 30%
- Business and managemnt support activites with 11,4%
- And Architects cabinets with arround 9% over all activites
- Traditionnal Restaurants may be a good option for persons with cocking skills

## Part 4: Advices for both houses rent or acquisition to our investor:

Option1 : Our Investor will first rent a house , once the project is going well he can go for house acquisition that will be analyzed in option2

Analysis:

- **From Below graph it's clear that the "Arrondissement 19 & 20" are less expensive than the others.**

- **And Also, neighborhoods 1, 3, 4 and 8" to be avoided, they are expensive**

- **The means Rent per m2 per month in Euro is: 31.1 Euro/m2/month**

Option2 : **Suppose know that our Investor has high confidence in his Project success or he decide to come to Paris anyway and the risk doesn't matter , House acquisition will be better than Renting that will generate more OPEX, so let's advice and help him**

Price per mettre square in Euro
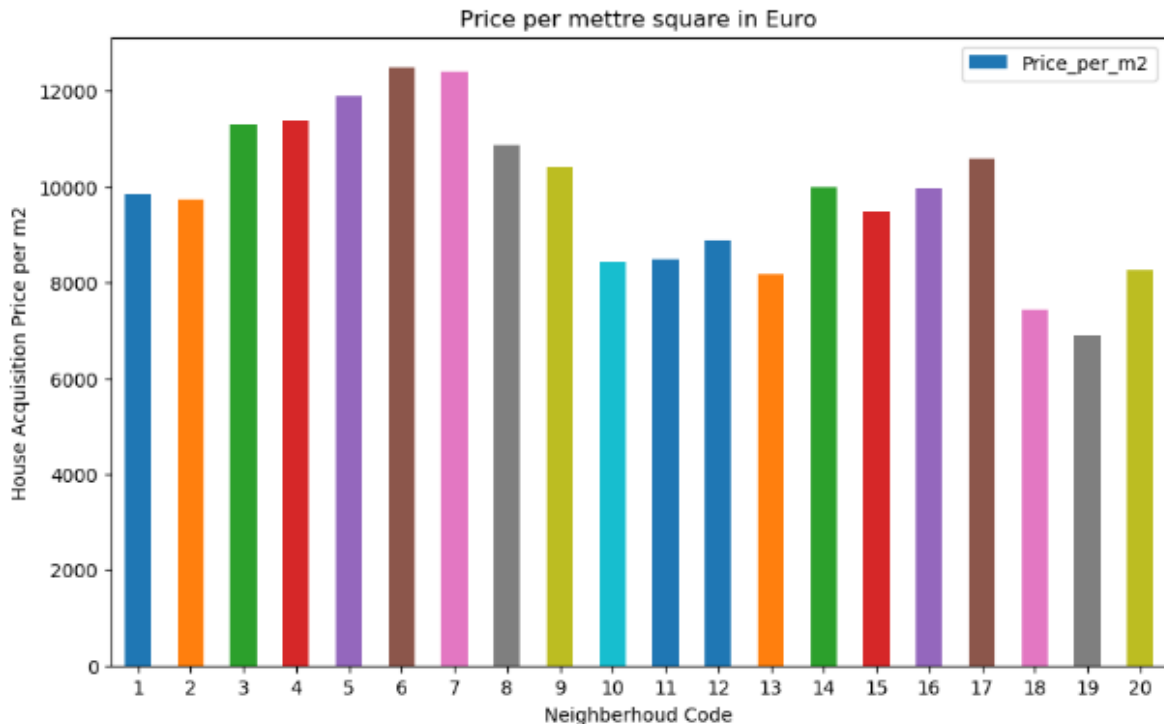
Analysis:

From Below graph it's clear that the "Arrondissement 6 & 7" are most expensive than the others in Paris.

And as likely for renting, acquisition also is more suitable in " Arrondissement " 18, 19 and 20

The acquisition mean value in Paris per m2 is: 9843.7 Euro per m2

4- Results section:

After running all above analysis, we can note that:

- **The center Of Paris presents a homogeneity in neighborhoods venues type and distribution as they cluster in the same cluster, except border's ones. This gives our investor more choices**
- **The neighborhood "11" is with high population per hectare, where "15" and "18" are the most populated in total.**
- **Existing down city companies analysis shows:**
  - Legal Activities with more than 30%
  - Business and management support activities with 11,4%
  - And Architects cabinets with around 9% over all activities
  - Traditional Restaurants may be a good option for persons with cocking skills

- **Either from renting or acquisition perspective 18,19 and 20 neighborhoods are cost effective house renting/acquisition**

5- Discussion section:

This project will give a general vision with some details to future investor in Paris. But if the investor is interested in a particular neighborhood based and special venue a deep analysis can be done for the selected neighborhood.

From the analysis we can see that Paris provide diversity for investment not only in term of project type but also in neighborhoods homogeneity and demographic population distribution.

6- Conclusion:

By Providing all above details, explanation, visualization and recommendations, I hope that Investor coming to Paris will find inside valuable information and good support to their investment, project and life in Paris