Capstone Project - The Battle of the Neighborhoods (Week 2)

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Introduction/Business Problem

1- A description of the problem and a discussion of the background.

It will be explored how many theatres are in Lisbon and which ones are near the "Rotunda do Marquês". Also, it will be important to choose in which restaurant to have dinner, but it must be near the chosen theatre.

1.2 Problem

We want to find all the theatres near "Rotunda do Marquês", in Lisbon. Then, pick one (with the higher classification in Foursquare) and choose the closest restaurant to the theatre.

1.3 Interest

Visiting the city and enjoying theatre: it is important to find the best/ closest place to a given point ("Rotunda do Marquês"), as well as finding a restaurant closest to the theatre.

Data Section

Data Sources / Data Cleaning

2 - A description of the data and how it will be used to solve the problem.

Data is loaded from data given from "Câmara Municipal de Lisboa":

http://geodados.cm-lisboa.pt/datasets/teatros/data.

Data also must be cleaned, keeping the columns that really matter: name, latitude, longitude, address:

```
df_theatres.head()
```

	X	Y	OBJECTID	INF_NOME	INF_MORADA
0	-9.192913	38.760653	1	Teatro Armando Cortez	Estrada da Pontinha, 7
1	-9.211664	38.694272	2	Gabinete Curiosidades Karnart	Avenida da Índia, 168
2	-9.202426	38.750718	3	Teatro Turim	Estrada de Benfica, 723A
3	-9.145780	38.712304	4	Teatro do Bairro	Rua Luz Soriano, 63
4	-9.131669	38.711071	5	Café - Teatro Santiago Alquimista	Rua de Santiago, 19

Data will also be loaded using the foursquare API, searching for where to eat, near the chosen theatre.

Relevant questions to be answered:
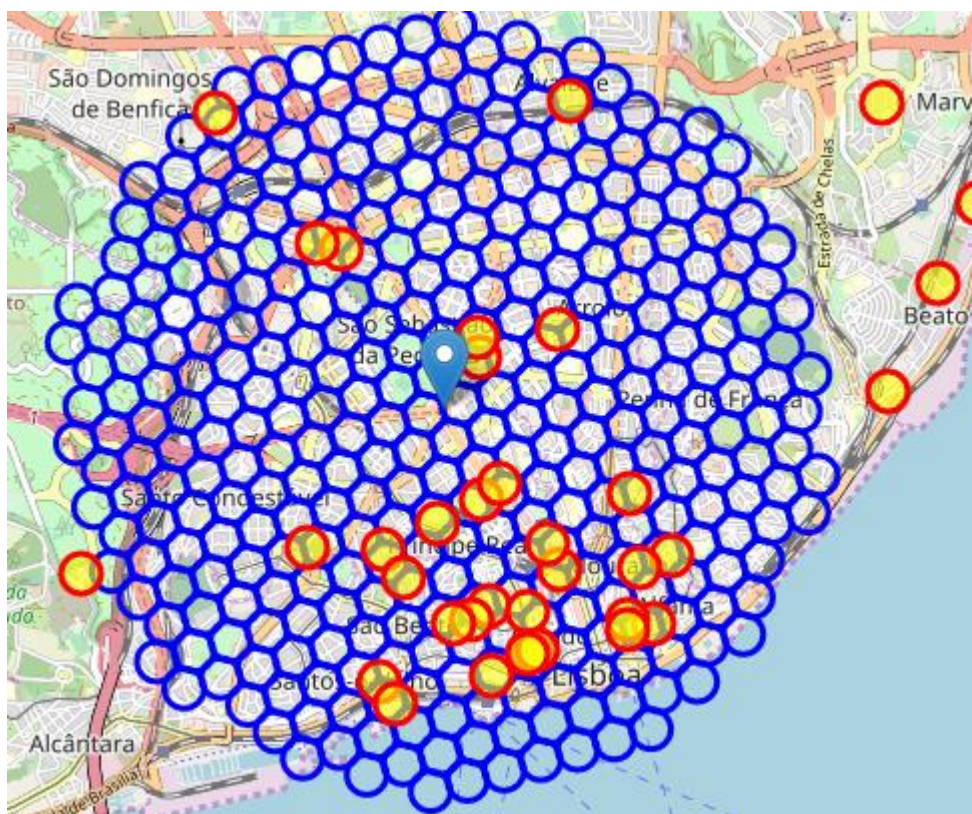
1 – Which theatres are near the "Rotunda do Marquês?

2 – when finding the theatre with the higher rate in foursquare, where is the nearest place to eat?

3 – Methodology

3.1 - Using visual exploration of the place, through folium library, it was defined a radio through the chosen point ("Rotunda do Marquês).

3.2 – Then, with all coordinates of the geolocation data previously found, it is possible to find the theatres in the defined circle.

3.3 – In foursquare it was found the theatre with best rating: "São Luiz Teatro Municipal":

1. São Luiz Teatro Municipal
Teatro · €€€€
R. António Maria Cardoso, 38, Lisboa

☐ Salvar

9.3

After discover the theatre with highest rate, it must be found the closest restaurant, through foursquare API:

	name	categories	address	cc	city	country	distance	formattedAddress	labeledLatLngs	lat	
0	Re-Food	Food Service	R. do Teixeira 9	PT	Lisboa	Portugal	428	[R. do Teixeira 9, 1200-089 Lisboa, Portugal]	[{'label': 'display', 'lat': 38.714367, 'lng':...	38.714367	-9.14
1	Stairwell - Wine Bar & Creative Food	Wine Bar	Rua da Misericórdia, 139	PT	Lisboa	Portugal	381	[Rua da Misericórdia, 139, 1200 Lisboa, Portugal]	[{'label': 'display', 'lat': 38.712764, 'lng':...	38.712764	-9.14
2	Penhas Douradas Food	Gourmet Shop	NaN	PT	NaN	Portugal	418	[Portugal]	[{'label': 'display', 'lat': 38.71101467110674...	38.711015	-9.1:
3	Ahmad Halal Foods Restaurante	Halal Restaurant	NaN	PT	Lisboa	Portugal	146	[1150 Lisboa, Portugal]	[{'label': 'display', 'lat': 38.71527, 'lng': ...	38.715270	-9.1:
4	Ofício	Portuguese Restaurant	Rua Nova da Trindade,	PT	Lisboa	Portugal	418	[Rua Nova da Trindade, 10, 1200-108 Lisboa	[{'label': 'display', 'lat': 38.71154, 'lng':	38.711540	-9.14

4 – Analysis

By labelling all the points, it was quickly found, by visual exploration, the required theatre:

5 – Result and Discussion

Through data analysis and visualization exploration, it is found that the theatre nearest and with higher rate is São Luis and also the closest restaurant is Ahmad Halal Foods Restaurante.

6 – Conclusion

The stakeholder found the answer to the question and, with the same data/ methodology can also find new answers if choosing different initial point or new assumptions to identify the theatre or restaurant.