1 - Introduction

1.1 - Business Problem & Interested Stakeholders

Where to open a restaurant in Lisbon?

This is the question that we will help to answer, understanding the actual configuration and possibilities using available data. Lisbon is the capital city of Portugal and one of the most beautuiful and charismatic cities of Europe. It has a vibrant life with lots of people coming from suburbs to work and many tourists. It is also well known by having a great climate and of course the great food. Those who try to open a new restaurant face a great competition and challenge. All the help they can have is for sure wellcome.

This kind of knowledge can have a lot of interested stakeholders:

- Someone who wants to open a new restaurant and know the competition.
- Local authorities who want to better develop their municipalities.
- Real estate agents who want to get additional knowledge for their clients.
- Other intereste stakeholdes like students, foodies or just curious people.

2 - Data section

On this section we will gather all the information needed to answer the question of this problem.

Since the new administrative reordering on 2013, Lisbon is divided into 24 borgoughs (freguesias in Portuguese). We will use this administrative division for our sutdy.

For this we need the following data:

- Coordinates to search from using the Foursquare API

  > Using the wikipedia page in which we can get the borough's coordinates:
  > https://pt.wikipedia.org/wiki/Lisboa (https://pt.wikipedia.org/wiki/Lisboa)

- Boroughs shapes to match with the venues location

  > Define in which borough the venue belongs, this information does not come from Foursquare API
  >
  > https://geodados-cml.hub.arcgis.com/datasets/freguesias-2012?
  > geometry=-9.315%2C38.702%2C-
  > 8.988%2C38.749&page=2&selectedAttribute=Shape__Length (https://geodados-
  > cml.hub.arcgis.com/datasets/freguesias-2012?geometry=-9.315%2C38.702%2C-
  > 8.988%2C38.749&page=2&selectedAttribute=Shape__Length)

- Aditional information by borough (population, population density, visiting population)

  > It will be helpful for the final anaysis, use also wikipedia page:
  > https://pt.wikipedia.org/wiki/Lista_de_freguesias_de_Lisboa
  > (https://pt.wikipedia.org/wiki/Lista_de_freguesias_de_Lisboa)

- Venues information

  > Use the Foursquare API to get explore the venues location and other relevant information

	Borough	Population	Area(km2)	Density(per km2)	Lat	Lon	Geometry
0	Ajuda	15617	2.88	5422.6	38.707500	-9.198333	MULTIPOLYGON (((-9.19303 38.71619, -9.19295 38...
1	Alcântara	13943	5.07	2750.1	38.706389	-9.174167	MULTIPOLYGON (((-9.17812 38.72376, -9.17800 38...
2	Alvalade	31813	5.34	5957.5	38.746944	-9.136111	MULTIPOLYGON (((-9.12857 38.76302, -9.12859 38...
3	Areeiro	20131	1.72	11704.1	38.740278	-9.128056	MULTIPOLYGON (((-9.12374 38.73866, -9.12477 38...
4	Arroios	31653	2.13	14860.6	38.728889	-9.138889	MULTIPOLYGON (((-9.13306 38.73019, -9.13311 38...
5	Avenidas Novas	21625	2.99	7232.4	38.738889	-9.145833	MULTIPOLYGON (((-9.14758 38.74494, -9.14752 38...
6	Beato	12737	2.48	5135.9	38.734722	-9.105833	MULTIPOLYGON (((-9.12374 38.73866, -9.12323 38...
7	Belém	16528	10.43	1584.7	38.700000	-9.200000	MULTIPOLYGON (((-9.20591 38.71526, -9.20620 38...
8	Benfica	36985	8.02	4611.6	38.751111	-9.202222	MULTIPOLYGON (((-9.19402 38.75724, -9.19439 38...
9	Campo de Ourique	22120	1.65	13406.1	38.715278	-9.166944	MULTIPOLYGON (((-9.15764 38.72246, -9.15735 38...
10	Campolide	15460	2.77	5581.2	38.726389	-9.163333	MULTIPOLYGON (((-9.16667 38.73939, -9.16642 38...
11	Carnide	19218	3.69	5208.1	38.760833	-9.183611	MULTIPOLYGON (((-9.17522 38.78027, -9.17522 38...
12	Estrela	20128	4.60	4375.7	38.713333	-9.160000	MULTIPOLYGON (((-9.16081 38.71555, -9.16075 38...
13	Lumiar	45605	6.57	6941.4	38.765278	-9.158611	MULTIPOLYGON (((-9.16682 38.78379, -9.16624 38...
14	Marvila	37793	7.12	5308.0	38.745278	-9.104167	MULTIPOLYGON (((-9.12567 38.76252, -9.12532 38...
15	Misericórdia	13044	2.19	5956.2	38.711389	-9.148056	MULTIPOLYGON (((-9.14552 38.71556, -9.14510 38...
16	Olivais	33788	8.09	4176.5	38.773611	-9.117500	MULTIPOLYGON (((-9.13429 38.78492, -9.13393 38...
17	Parque das Nações	21025	5.44	3864.9	38.768056	-9.093889	MULTIPOLYGON (((-9.09570 38.79676, -9.09569 38...
18	Penha de França	27967	2.71	10319.9	38.730000	-9.131667	MULTIPOLYGON (((-9.12640 38.73774, -9.12602 38...
19	Santa Clara	22480	3.36	6690.5	38.785278	-9.145000	MULTIPOLYGON (((-9.14846 38.79474, -9.14832 38...
20	Santa Maria Maior	12822	3.01	4259.8	38.712778	-9.135556	MULTIPOLYGON (((-9.13504 38.71978, -9.13499 38...
21	Santo António	11836	1.49	7943.6	38.724167	-9.145000	MULTIPOLYGON (((-9.14492 38.72825, -9.14405 38...
22	São Domingos de Benfica	33043	4.29	7702.3	38.743611	-9.170000	MULTIPOLYGON (((-9.16970 38.75732, -9.16978 38...
23	São Vicente	15339	1.99	7708.0	38.719444	-9.126389	MULTIPOLYGON (((-9.12715 38.72365, -9.12646 38...