

Coursera Capstone Project Report

Location of a new car park in Grenoble

Business Problem

The city of Grenoble (France) would like to build a new car park in the city. The main purpose of this new car park will be to help people to park their cars when they go shopping or dining down town. Actually, the need of this car park comes from shopkeepers and restaurants who are complaining that less and less people go shopping or dining down town because it is too difficult to find a car park.

The city of Grenoble has asked a data scientist to help them finding the best place to build an underground car park. They would like to identify the best location for the car park taking into account the density of the different neighborhoods in terms of shops, bars and restaurants. The city would like to build the car park in the shopping neighborhood that is currently the furthest away from all existing car parks.

Data

To solve the above-described problem we are going to use 2 different datasets:

Dataset 1: Foursquare data

We are going to use Foursquare data to find all the popular venues of the city. This dataset will give us the name, category, latitude and longitude of each venue within a given radius around the city. This dataset will allow us to perform a density based clustering of Grenoble's venues.

- **Example of dataset 1:**

	name	categories	lat	lng
0	Jardin du thé	Tea Room	45.188788	5.727536
1	Place Victor Hugo	Plaza	45.188994	5.724607
2	L'Ardoise	French Restaurant	45.190558	5.725346
3	Okko Hotels Grenoble Jardin Hoche	Resort	45.184859	5.726299
4	Amorino	Dessert Shop	45.191037	5.727638

Dataset 2: City of Grenoble data

The city of Grenoble offers different datasets on their web site. One of them is particularly interesting for our project: a dataset containing the name and geolocation of all parking lots of the city. This dataset will allow us to compute the distance from each parking lot to the different density based clusters previously identified.

- **Example of dataset 2:**

<http://data.metropolegrenoble.fr/ckan/dataset/parkings-de-grenoble/resource/a6919f90-4c38-4ee0-a4ec-403db77f5a4b>

_id	CODE	LIBELLE	ADRES...	TYPE	TOTAL	type	id	lon	lat
1	EFF_PK...	BERRIA...	RUE DE...	PKG	578	PKG	EFF_PK...	5.716033	45.18878
2	EFF_PK...	EUROP...	2, AVEN...	PKG	1055	PKG	EFF_PK...	5.712008	45.191959
3	PVP_PK...	HOICHE	RUE FR...	PKG	677	PKG	PVP_PK...	5.726327	45.185748
4	EFF_PK...	LAFAYE...	RUE RA...	PKG	311	PKG	EFF_PK...	5.729321	45.190778
5	PVP_PK...	MUSÉE	50, AVE...	PKG	770	PKG	PVP_PK...	5.732239	45.194399
6	PVP_PK...	PHILIPP...	PLACE ...	PKG	519	PKG	PVP_PK...	5.725235	45.191835
7	EFF_PK...	TERRAY	33 BIS, ...	PKG	106	PKG	EFF_PK...	5.712443	45.185621
8	PVP_PK...	VERDUN	PLACE ...	PKG	110	PKG	PVP_PK...	5.732018	45.18897
9	QPA_PK...	CHAVANT	17, BD ...	PKG	394	PKG	QPA_PK...	5.731463	45.185612
10	EFF_PK...	IRVOY	RUE IRV...	PKG	200	PKG	EFF_PK...	5.713873	45.181478
11	SPR_PK...	CATANE	RUE AM...	PKG	490	PKG	SPR_PK...	5.70503	45.181035
12	PVP_PK...	HÔTEL ...	VALMY (...)	PKG	200	PKG	PVP_PK...	5.741289	45.188365
13	EFF_PK...	LE CÈDRE	RUE AN...	PKG	77	PKG	EFF_PK...	5.710835	45.18898
14	EFF_PK...	GARE L...	34 AVEN...	PKG	395	PKG	EFF_PK...	5.711838	45.1935
15	PVP_PK...	ENCLO...	PLACE ...	PKG	130	PKG	PVP_PK...	5.728358	45.188401
16	PVP_PK...	ENCLO...	RUE EM...	PKG	200	PKG	PVP_PK...	5.713614	45.194345