Analysis & exploration of car parks according to proximity of amenities in Paris city

A. Introduction

1. Description & Discussion of the background

Paris is the capital and most populous city of France, with an area of 105 square kilometers (41 square miles) and an official estimated population of 2,140,526 residents as of 1 January 2019.[1] Since the 17th century, Paris has been one of Europe's major centers of finance, diplomacy, commerce, fashion, science, and the arts.

Whether you are Parisian or coming for tourism in Paris, or for a particular event taking place in the capital, if you are planning on getting there by car, we do not doubt that you have tried to understand **circulating and parking in Paris**.

The mayor has decided an application to citizens to list the available parking spaces. A company specializing in the field has been mandated to carry out this project. the project team needs to know which car parks have close proximity to all the conveniences, in order to propose it to the application's users, also allow them the possibility **to park their cars as quickly as possible and to find themselves in a place full of amenities that meet theirs needs**

2. Data Description

To consider the problem we can list the data as below:

- Use the cars parks data set found in the https://opendata.paris.fr as different formats, the **.json** file was downloaded and used for feeding the prime Dataframe.
- Foursquare API is used to get the most common venues of a given Park

The direct link to download the data set is : https://opendata.paris.fr/explore/dataset/parcs-de-stationnement-concedes-de-la-ville-de-paris/information/

The Parks data set is structured with 174 parks and more than 30 fields.

The useful fields in our case are :

- ID: id of the park
- NOM_PARC: park's name
- latitude: latitude position of the park

- longitude: longitude position of the park

For some Foursquare restrictions (number of access), the study will be focused on just 30 parks.

This is a head of the used dataframe:

	ID	NOM_PARC	latitude	longitude
0	94	CAMBRONNE (SURFACE)	48.847687	2.303116
1	190	CAMBRONNE (SURFACE)	48.847333	2.302846
2	111	DIDOT	48.833902	2.321473
3	149	MANDEL 2 (SURFACE)	48.863838	2.277569
4	176	PORTE D ORLEANS	48.820383	2.325949