**Best location for car wash centre in Toronto**

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**1.Introduction:**

**Business Problem:**

Starting a car wash business can be interesting, and profitable business. With the right location, and top-notch service, you can draw in numerous customers who need their cars washed quickly, efficiently, and at a good price. Considering this, in this project we will find a best location to open a Car wash centre.

This is a tricky task, because in the city there are already car wash centres exist. So, we need to explore the existing car wash centres to find the best location for new car wash centre. The following steps to needs to be executed to find the best location.

1. Find the existing car wash centres in the entire Toronto city.
2. Find the boroughs which has dense population and less car wash centres.
3. Explore the nearby venues of the existing car wash centres and find which is the better location for new car wash centre.

This project is targeted for the stack holders/Businesspeople who wants to open a **Car wash centre** in Toronto, Canada.

**2. Data**

**Data acquisition and cleaning:**

* **Toronto neighbourhood data:**

The Toronto city neighbourhood information is gathered by web scrapping the [https://en.wikipedia.org/wiki/List\_of\_postal\_codes\_of\_Canada:\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M%20) this link. The table scrapped from the web has unassigned neighbourhoods, unassigned boroughs and duplicate postal codes. So, the data has been wrangled and prepared for further analysis.

1. Removed the boroughs which have the value “Not assigned”
2. Removed the neighbourhoods for which the boroughs are “Not Assigned”
3. Combined the neighbourhoods which has same postal code.

* **Boroughs Population:**

The boroughs population is acquired from <https://en.wikipedia.org/wiki/Demographics_of_Toronto>.

* **Geographical data:**

Geographical data is gathered from Geospatial\_Coordinates.csv. The longitude and latitude values are required by the foursquare API to search/explore the nearby venues.

* **Foursquare APIs:**

1. To get the car wash centres in entire Toronto city, search Foursquare API call has been invoked with category id. The category id for **car wash centre** is **4f04ae1f2fb6e1c99f3db0ba**. Car wash centres within 10km radius of neighbourhood has been fetched. After getting the details, the duplicate venues have been removed and unique car wash centre details has been stored to find car wash centres per borough.
2. The nearby venues of the car wash centre have been fetched using the explore foursquare api call to see where exactly these existing car wash centres located and for applying the clustering algorithm to find the commonality.