

# ACCESSING THE POPULATION SIZE, DENSITY AND VENUES INFORMATION OF LAGOS NEIGHBOURHOODS

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# Introduction

- Lagos is the most populous city in Nigeria despite it being the smallest state in the country.
- Lagos has a population size of 21 million according to 2016 official statistics.
- The large population of the state compared to its small size has created a problem that some stakeholders have termed as overpopulation. This problem has given rise to another problem - high traffic congestion in the state.
- It has been known that not all neighbourhoods of the state are overpopulated but no real knowledge of which ones that actually are .
- The aim of this project was to create a visual access to the population distribution and important venues of Lagos neighbourhoods.
- This project will benefit migrants, travelers, business investors and government through provision of ease of access to vital information.

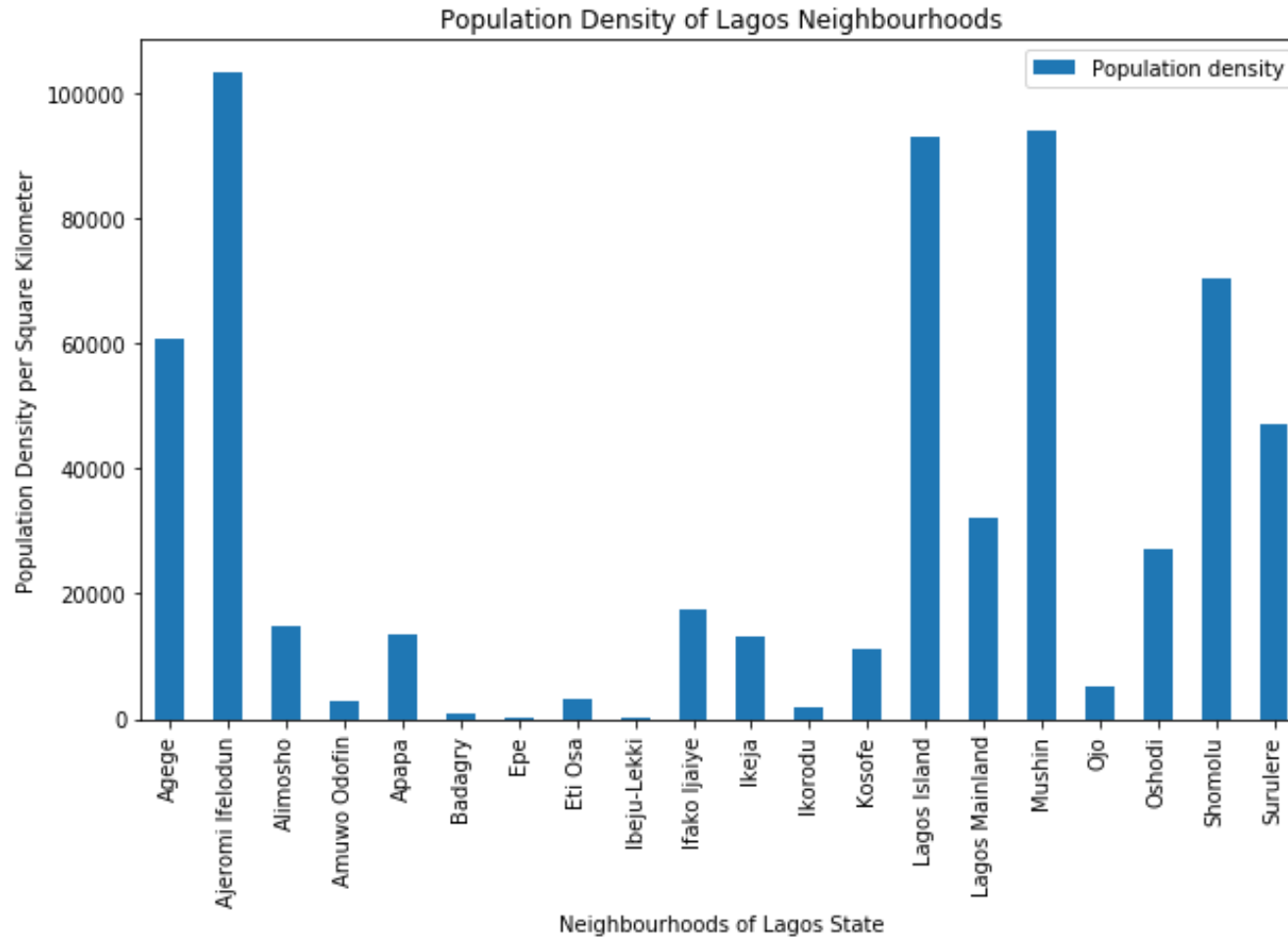
# Data and Methodology

- The following data were used for the project:
  - Postal codes of the different neighbourhoods (Local Government Areas)
  - Lagos State official population data listing the Local Government Areas (neighbourhoods) with their population densities
  - Geo-coordinates of all neighbourhoods of Lagos
  - Venues information of the different neighbourhoods
- Data hosting on *github*
- Map generation using python *folium* library
- Venues data generation using *Foursquare API*
- Machine learning using *kmeans clustering*

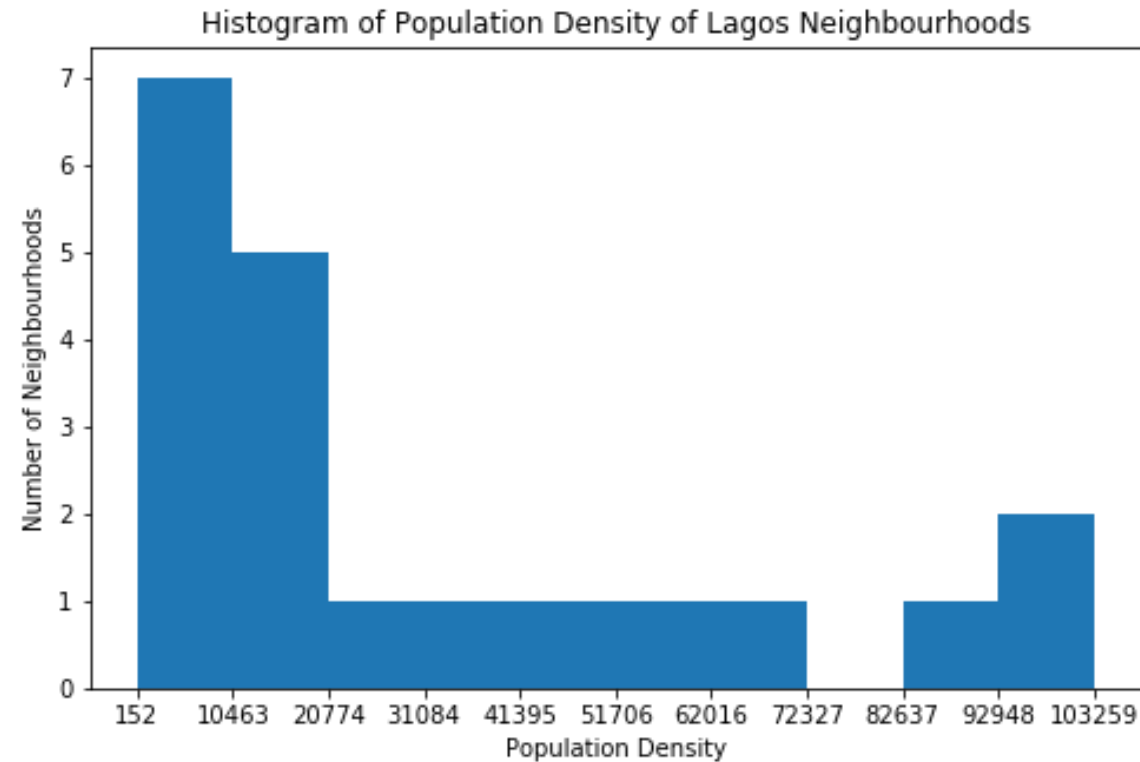
## Prepared dataset – view of first 5 rows

	Postal Code	Neighbourhoods	Population	Population density	Latitude	Longitude
0	100283	Agege	1,415,547	60,768.47	6.619830	3.322165
1	102103	Ajeromi Ifelodun	1,966,700	103,258.63	6.455480	3.333860
2	100275	Alimosho	2,804,919	14,855.05	6.610556	3.295830
3	102102	Amuwo Odofin	719,337	2,931.16	6.450000	3.266667
4	102241	Apapa	715,792	13,568.42	6.449998	3.366665

# Comparative view of Lagos Neighbourhoods Densities




# Distribution of Population Density of Lagos Neighbourhoods – from low to high



# Map of Lagos showing all 20 Neighbourhoods with vital information in a popup





# Total count of venues of select Lagos Neighbourhoods

Badagry	4
Epe	1
Eti Osa	4
Ibeju-Lekki	6
Ifako Ijaiye	4
Ikeja	38
Ikorodu	7
Kosofe	24
Lagos Island	28
Lagos Mainland	28
Mushin	11
Ojo	5
Oshodi	4



# Top 5 venues of select Lagos Neighbourhoods

## \*\*\*\*\* Lagos Island \*\*\*\*\*

	venue	frequency
0	Fast Food Restaurant	0.18
1	Shopping Mall	0.07
2	Hotel	0.07
3	Market	0.07
4	African Restaurant	0.04

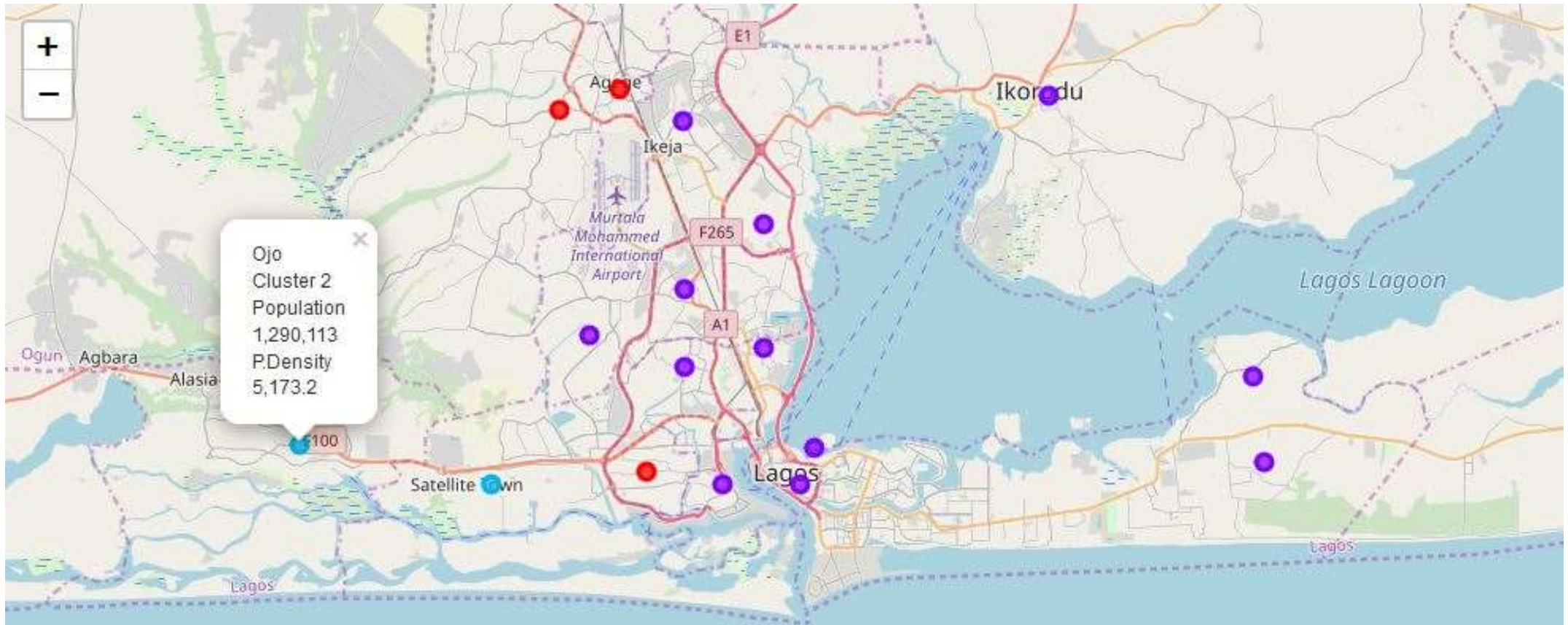
## \*\*\*\*\* Lagos Mainland \*\*\*\*\*

	venue	frequency
0	Fast Food Restaurant	0.11
1	Nightclub	0.11
2	Bus Station	0.07
3	Shopping Mall	0.07
4	Breakfast Spot	0.04

# Cluster Labels of Neighbourhoods after kmeans clustering

	Postal Code	Neighbourhoods	Population	Population density	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue
0	100283	Agege	1,415,547	60,768.47	6.619830	3.322165	0	Bus Station	Fast Food Restaurant	Market	Convenience Store	Shopping Mall	Wine Shop
1	102103	Ajeromi Ifelodun	1,966,700	103,258.63	6.455480	3.333860	0	Bus Station	Harbor / Marina	Rest Area	Chinese Restaurant	Coffee Shop	Convenience Store
2	100275	Alimosho	2,804,919	14,855.05	6.610556	3.295830	0	Bus Station	Fast Food Restaurant	Park	Boutique	Campground	Bus Stop
3	102102	Amuwo Odofin	719,337	2,931.16	6.450000	3.266667	2	Hotel	Harbor / Marina	Park	Electronics Store	African Restaurant	Spa
4	102241	Apapa	715,792	13,568.42	6.449998	3.366665	1	Shopping Mall	Indian Restaurant	Boat or Ferry	Pier	Pizza Place	Playground

# Map of Lagos with its 20 Neighbourhoods indicated as clustered points and showing their vital information



# Conclusion

- The use of a map to explore and visualize the population statistics of Lagos Neighbourhoods is a very effective way of providing fast and easy access to vital information for anyone that might be interested in it. It will help to foster geographical literacy and enable informed planning for migration, settling and business establishment purposes.
- Lagos Neighbourhood clustering helped to provide good insight into the kind of venues common to Neighbourhoods and the viewing of Neighbourhoods of similar characteristics at a glance.