

# **Opening a retail-shop in state of Pernambuco, Brazil**

Applied Data Science Capstone - Capstone Project  
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# Business problem

## **Objective**

Help investors to choose a place for the construction of a new retail-shop center.

## **Business Question**

Where would be a good place to invest some money and then build hits retail-shop in state of Pernambuco, Brazil?

# Data

The data used in this project is the list of top 8 biggest cities Pernambuco state, Brazil, list of districts (neighborhoods), latitude/longitude of districts and venue data (obtained using Foursquare API).

# Methodology used

The following methodology was used during the Project notebook.

1. Get the districts data from file
2. Get districts data from Foursquare API
3. Filter district category by 'Shopping Mall'
4. Filter for retail-entertainment center from 'Shopping Mall' category
5. Count amount of retail-entertainment centers
6. Perform clustering on data with k-mean method

# Results from the data



# Results



# Discussion - Cluster 0

17	Olinda	Peixinhos	-8.012453	-34.873519	0	0
18	Paulista	Centro	-7.939669	-34.881644	0	0
19	Paulista	Maranguape I	-7.947095	-34.866108	0	0
21	Petrolina	Jardim SP	-9.368733	-40.537871	0	0
22	Petrolina	Vila Moco	-9.386188	-40.504835	0	0
23	Recife	Aflitos	-8.040507	-34.896594	0	0
25	Recife	Agua Fria	-8.017228	-34.899414	0	0
26	Recife	Alto Jose Boninfacio	-8.013338	-34.913211	0	0
27	Recife	Alto Jose do Pinho	-8.022581	-34.908698	0	0
28	Recife	Alto Santa Teresinha	-8.017020	-34.908373	0	0
29	Recife	Alto do Mandu	-8.023241	-34.928119	0	0
30	Recife	Apipucos	-8.014603	-34.938699	0	0
31	Recife	Boa Viagem	-8.136785	-34.902626	0	0
32	Recife	Casa Amarela	-8.025106	-34.917766	0	0
33	Recife	Casa Forte	-8.034936	-34.919260	0	0

# CLuster I

	City	District	District Latitude	District Longitude	Amount	Cluster
2	Camaragibe	Aldeia	-7.954533	-35.018130	1	1
4	Camaragibe	Centro	-8.021171	-34.981495	1	1
6	Caruaru	Bairro Verde	-8.307989	-35.975820	1	1
13	Jaboatao	Vila Rica	-8.126125	-35.028578	1	1
24	Recife	Afogados	-8.077985	-34.911824	1	1



# Cluster II

	City	District	District Latitude	District Longitude	Amount	Cluster
20	Paulista	Pau Amarelo	-7.911297	-34.83145	2	2

# Discussion

- Cluster 0: clearly we can see that neighborhoods from Cluster 0 are the best to invest a shop. Note that it's important to consider the number of people nearby. In this way, the best cities (with its correspondent districts) to invest are Recife (Casa Forte, Casa Amarela and Boa Viagem) and Petrolina (all districts).
- Cluster I and II: shows shops in the correspondent districts. The risk of return and investment, would be higher on those.