1. Description

Budi just accepted to study at ITB (Bandung Institute of Technology), one of the best campus in the city of Bandung, Indonesia. Let say Budi is' not from Bandung, so he needs to get a flat or room in there. He wants a neighbor that is not really far from the campus and also around good cheap restaurants or cafes.

Let say I want to help Budi, I need to find data about restaurants and cafes around the city of Bandung. Bandung is notorious for being an Indonesian culinary destination. There's a lot of restaurants and cafes in the city but I must give him the best possible neighborhood to live on the data available. Ideally, I should use the Google places API to get better data, but due to the paywall limit regarding that API, my suggestion will be based on a combination of data from the Foursquare API and the Zomato API.

Foursquare City Guide, commonly known as Foursquare, is a local search-and-discovery mobile app developed by Foursquare Labs Inc. The app provides personalized recommendations of places to go near a user's current location based on users' previous browsing history and check-in history. Zomato is a restaurant aggregator and food delivery start-up which provides information, menus, and user-reviews of restaurants as well as food delivery options from partner restaurants in select cities. As of 2019, the service is available in 24 countries and in more than 10,000 cities, including Bandung. So here are the problems:

1. How could I determine which neighborhood is the best for Budi to live in Bandung?
2. Which neighborhood is the best for him?
3. What are the advantages and disadvantages of each neighborhood projected by the data?

2. Data

I use Zomato's(https://developers.zomato.com/api) and Foursquare's API (https://foursquare.com/developers/apps) to retrieve the data that I need and then I combine it. From Zomato's API I'll get data which consist of these properties of a restaurant :

1. Name:
2. Address
3. Rating
4. Price range
5. Price for two
6. Latitude
7. Longitude

Meanwhile, from Foursquare I will get data such as:

1. Name:
2. Category:
3. Latitude:
4. Longitude:

From all of those data, I will create clustering metrics and make some clusters with the K-Means algorithm. From each cluster, I'll retrieve any points that reflect the advantages or disadvantages, visualize it, and then tell Budi as a suggestion. Data and visualization example at **figure 1** and **2**.

index	categories	venue	latitude	longitude	average_price	price_range	rating	address	distance_from_center	bins_distance	bins_price
0	Coffee Shop	Kozi Lab	-6.916558	107.620945	0.142857	2.0	3.9	Jl. Gudang Selatan No. 22, Sumurbandung, Bandung	2.993580	nearby	low
1	Hotel	Infinite Cafe & Lounge - Crowne Plaza Bandung	-6.917136	107.612013	0.714286	4.0	3.4	Crowne Plaza Bandung, Lantai 22, Jl. Lembong N...	2.838805	nearby	medium-high
2	Fried Chicken Joint	Ayam Goreng Nikmat	-6.919658	107.617394	0.114286	2.0	3.9	Jl. Panaitan No. 9, Sumurbandung, Bandung	3.200650	not far	low
3	Hotel	Furama Restaurant	-6.915615	107.610410	0.285714	3.0	0.0	Jl. Merdeka No. 2, Braga, Bandung	2.667078	nearby	low-medium

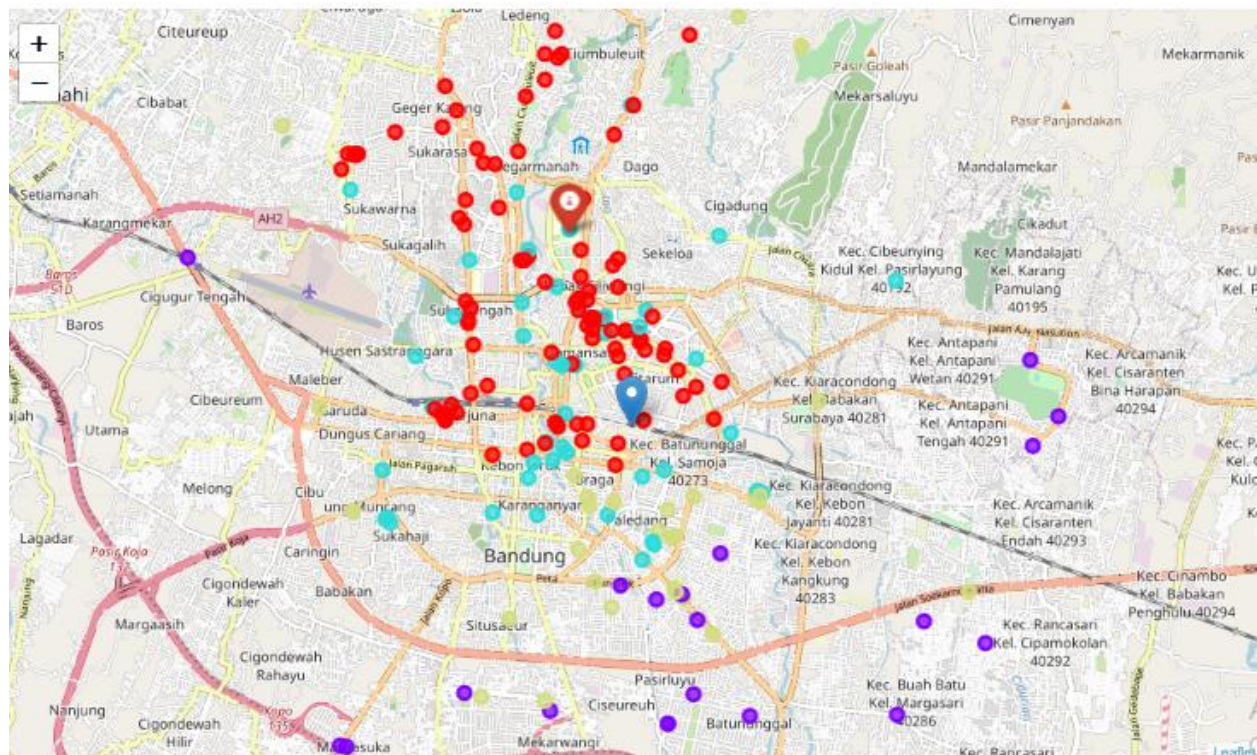**Fig1.** *Data sample about food venues in Bandung*

Fig2. *Visualization from the clusters. Red location baloon at the midle is the location of ITB, and blue lovation baloon is the city center.*