

# **Find the Best Location to Build a Boarding/Dormitory House in Bandung**

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### **I. Introduction**



Institut Teknologi Bandung. Source: Google

Institut Teknologi Bandung (ITB) or Bandung Institute of Technology is one of the most prestigious universities and top 3 universities in Indonesia. It is located in Bandung, West Java, Indonesia. I was a student there. Since it is a top campus, many students come from out of Bandung to study at ITB so that many students need a dormitory house. It is a big opportunity for the locals to open the dormitory house business.

I have a family member who lives in Bandung and wants to open a business. I have suggested him to build a dormitory house near ITB since it will give a huge revenue. Luckily, He is really excited and wants to open his dormitory house business near ITB. However, He does not know where the best location to open a dormitory house. He has two main considerations that are (1) the location is near to ITB and (2) there are a lot of restaurants, food sellers, and drink sellers. Why he thought that those considerations are suitable because in common, Indonesian students who live outside their hometown do not want to cook their meal and it is more convenient if they just buy food at restaurants, food trucks, etc. Also, if the location is near to the campus, the students do not spend much time to go to the campus and they can save their time and energy for another thing. I see that this project will attract people who want to build a dormitory house.

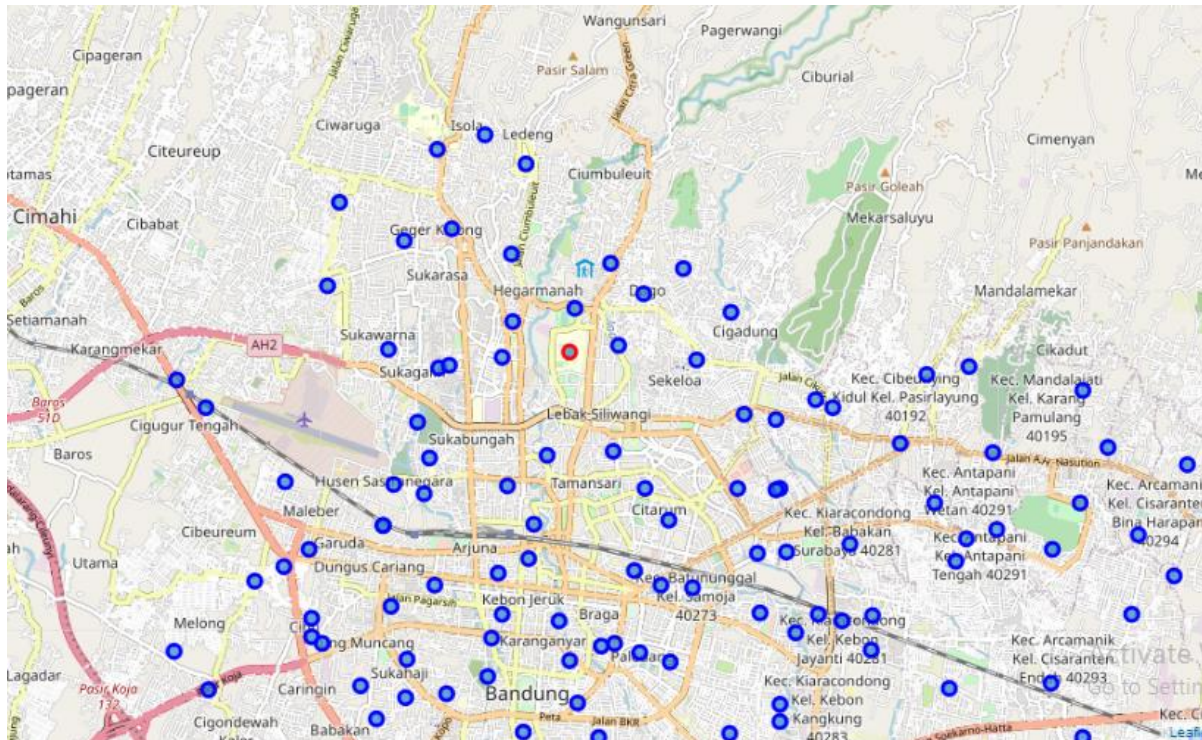
### **II. Data**

In this project, I used geolocation data of neighborhoods in Bandung from Bandung Data Portal ([http://data.bandung.go.id/beta/index.php/portal/detail\\_dataset/koordinat-dan-ketinggian-kantor-kelurahan-di-kota-bandung](http://data.bandung.go.id/beta/index.php/portal/detail_dataset/koordinat-dan-ketinggian-kantor-kelurahan-di-kota-bandung)). The data is provided by the government based on the location of the neighborhood offices. Others, I obtained the coordinate of ITB from geopy package, and the list of venues in the neighborhood is obtained from Foursquare API.

### **III. Methodology**

1. Find the neighborhoods which are nearby ITB using KMeans clustering. KMeans is used since the KMeans gives the desired result.
2. Find the restaurants, food shops, and drink shops in those neighborhoods using Foursquare API
3. Determine which neighborhoods are nearby ITB and there are a lot of restaurants, food shops, and drink shops

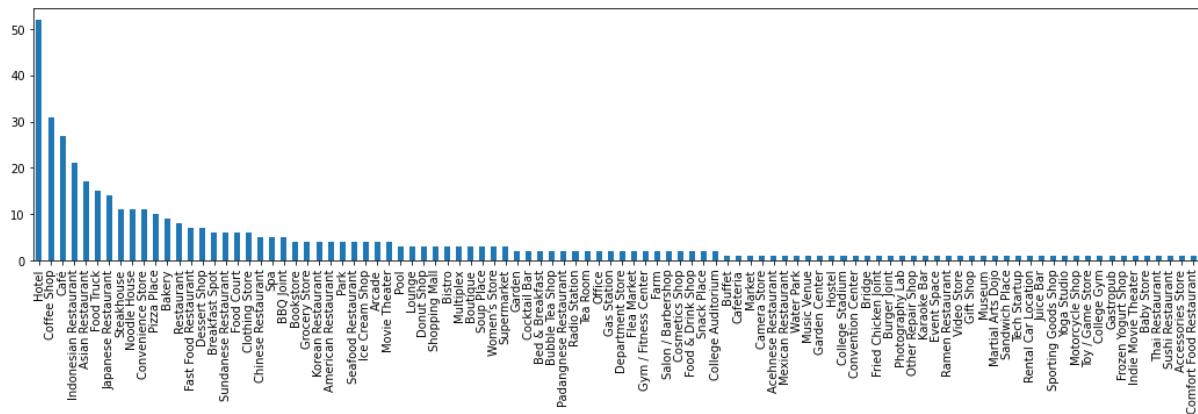
#### IV. Result and Discussion



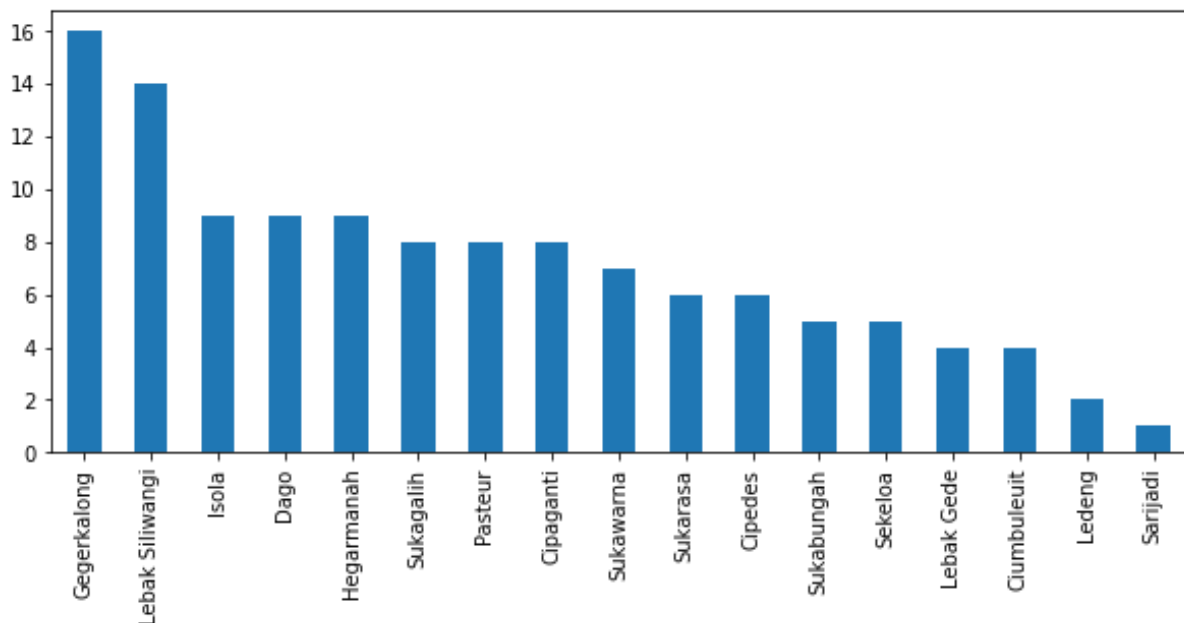
Bandung map which the center is ITB coordinate (a red point). The blue points are the center of the neighborhood







The categories did not satisfy me since the categories are still not general e.g. Restaurants, Hotels, etc. Therefore, I took the data in which the categories contain 'restaurant', 'food', 'drink' only for further analysis. Then, I grouped the data by the neighborhood and I obtained this graph.



From the graph above, we know that the neighborhoods which have a lot of food sellers, restaurants, and drink sellers are Gegerkalong and Lebak Siliwangi. However, if we have to choose one location, which is the best? Best on the problem, my sibling needs a location that is nearby ITB. Therefore, I measured the distance between the locations and ITB.

|     | Kelurahan       | Lintang Selatan | Bujur Timur | Cluster | Distance |
|-----|-----------------|-----------------|-------------|---------|----------|
| 134 | Lebak Siliwangi | -6.88499        | 107.61108   | 8       | 0.005669 |
| 146 | Gegerkalong     | -6.87480        | 107.59520   | 8       | 0.021877 |

Lebak Siliwangi is the nearest neighborhood to ITB

## V. Conclusion

Based on the analysis, the best location for building the dormitory house is Lebak Siliwangi since it has a lot of restaurants, food sellers, and drink sellers. Also, it is the nearest location to ITB.