# The Battle of Neighborhoods:

# Starting a Cloud Kitchen Business

## A. INTRODUCTION

### A.1. Business Problem

Jakarta is the capital of Indonesia. It is the center of economy, culture and politics in Indonesia with a population of 10,770,487 in the city as of 2020. It is also the world's second-most populous urban area after Tokyo. Jakarta offers great business opportunities, as well as a higher standard of living, that have attracted migrants from across the Indonesian archipelago or even immigrants across countries. Financial institutions and corporate headquarters of numerous Indonesian companies and multinational corporations are located in the city, making it full of high rise buildings. Jakarta's GRP was estimated at US$483.4 billion in 2017.

Food & beverage (F&B) business sector plays an important role to gross domestic product (GDP) of Indonesia. It has steadily increased since in the past five years, reaching 6,77% contribution by 2019. As in 2020, this sector has been hit hard by the COVID-19 pandemic as people opt to stay in rather than going out for meals. Long before the pandemic, Jakarta is challenged by gridlocked traffic, congestion, forcing people to spend most of their time on the road or commuting. Restaurants and cafes have been dealing the reduction of dine-ins by providing online delivery service, in addition of the rise of ride hailing start-ups which also provide similar services. This condition creates the opportunity for cloud kitchen or virtual kitchen to emerge as a potential business model.

Cloud kitchen is a professional food preparation and cooking facility set up for the preparation of delivery-only meals. To simplify, cloud kitchen is a restaurant without front-of-house operation. This concept allows restaurants to operate without having a physical presence at a central hip location, solving the problem of high property cost and initial set up cost. Consumers are also have the benefits to explore wide range of choices of food and beverage with delivery services.

It is not hard for people in Jakarta to find varieties of food and beverage around the city, and this might be a problem if we want to determine the best place to open a cloud kitchen. The objective of this project is to use Foursquare location data and regional clustering of venue information to determine what might be the ‘best’ neighbourhood or district in Jakarta to open a cloud kitchen facility. Ideally, we want to find districts which don’t have restaurants or cafes as their common venues.

### A.2. Target Audiences

This project is targeted for entrepreneurs who are interested about the concept of cloud kitchen and planning to open a cloud kitchen facility. This project is also targeted for business owners and stakeholders who want to expand their business and interested about how data science is applied to solve this kind of problem

### A.3. Data Description

The followings are data sources that is used for this project:

* List of administrative cities, districts and sub-districts in Jakarta (Excluding Kepulauan Seribu). This information can be found in Wikipedia
* Coordinates of each districts in Jakarta. This data is prepared by the author.
* The popular or most common venues of a given district in Jakarta. This information can be found inside Foursquare Location data, using Foursquare API to access it

To simplify, we will load the list of districts in Jakarta. Then, we will add the coordinates for each of the districts. Finally, using the coordinates of the district, we will use Foursquare credentials to acess the venues around them with their details. The frequency of the venue category in each neighborhood will be the features of the clustering model.