



# Opening a Bubble Tea Chain in Kuala Lumpur, Malaysia

IBM Applied Data Science Capstone  
Capstone Project: The Battle of Neighbourhoods

# Business Problem

If a bubble tea brand intends to open a chain in Kuala Lumpur, Malaysia, where would be the ideal location to set up a shop?

Target Audience:

- New bubble tea brands looking to venture into the Malaysian market
- Existing bubble tea chains in Malaysia looking to expand their store locations

# Data Sources

- *List of neighbourhoods in Kuala Lumpur, Malaysia*
  - Data scraped from Wikipedia page
- *Geographical coordinates of the neighbourhoods*
  - Extracted latitude and longitude coordinates with Geopy's Geocoder library, available in Python
- *Bubble tea shops in each neighbourhood*
  - Foursquare location data
  - Called Foursquare API to search for bubble tea shops (venue) in each neighbourhood's vicinity

# Data Preparation

- Removed any duplicate data
- Geopy's Geocoder unable to detect certain neighbourhoods' geographical coordinates; these neighbourhoods were omitted from the analysis
- Total of 61 neighbourhoods available for analysis
- Foursquare's search query radius limit set at 3,000 meters, and results limit at 100 per neighbourhood
- Venue name & venue category were extracted
- Removed any category that is not 'Bubble Tea Shop'

|   | Neighborhood       | Latitude | Longitude  |
|---|--------------------|----------|------------|
| 0 | Jinjang            | 3.217490 | 101.660869 |
| 1 | Taman Bukit Maluri | 3.202053 | 101.632994 |
| 2 | Bandar Menjalara   | 3.194136 | 101.633634 |
| 3 | Bukit Kiara        | 3.158462 | 101.636003 |
| 4 | Bukit Tunku        | 3.170930 | 101.678945 |

|    | Neighborhood | VenueName                | VenueCategory   |
|----|--------------|--------------------------|-----------------|
| 0  | Jinjang      | Yi Zhong Tang Bubble Tea | Bubble Tea Shop |
| 14 | Jinjang      | Tealive                  | Bubble Tea Shop |
| 22 | Jinjang      | Q Q Tea Bar              | Bubble Tea Shop |
| 27 | Jinjang      | Tealive                  | Bubble Tea Shop |
| 31 | Jinjang      | Tealive                  | Bubble Tea Shop |

# Data Analysis & Clustering

- 410 bubble tea shops in Kuala Lumpur
- 48 unique bubble tea shops

Aggregated and grouped results according to neighbourhoods based on:

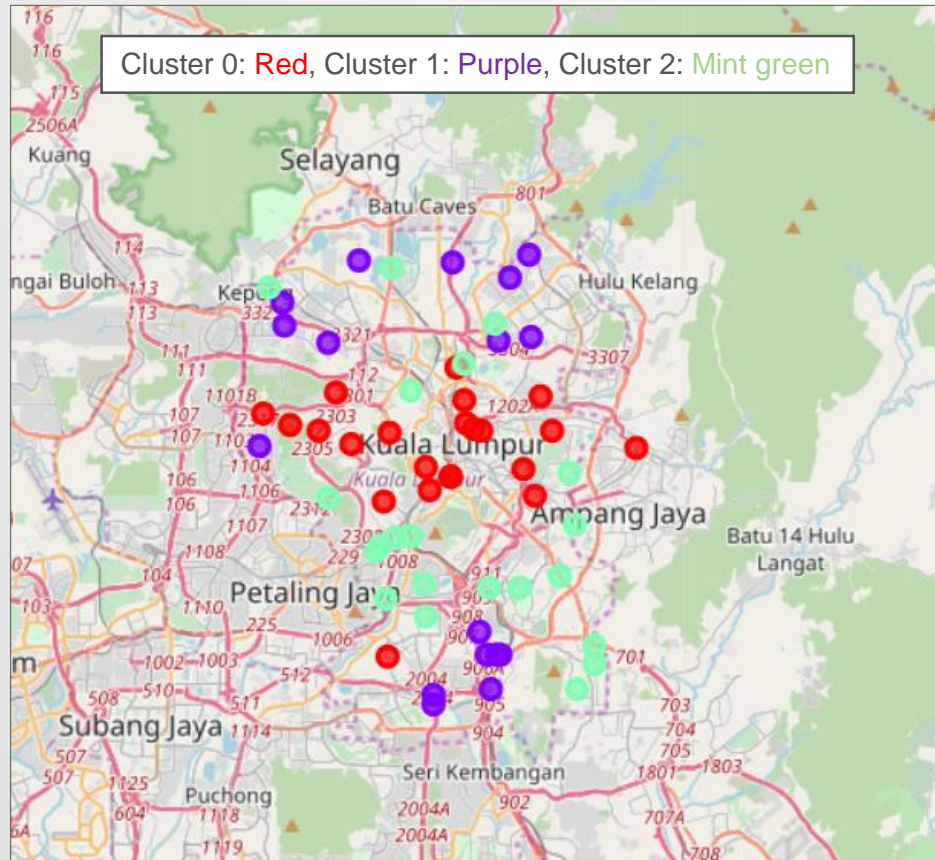
- Total number of bubble tea shops
- Total number of unique bubble tea shops

K-Means clustering

- Unsupervised machine learning algorithm
- Grouped neighbourhoods into clusters with distinct characteristics

|   | Neighborhood       | Bubble Tea Shop | Unique Shops |
|---|--------------------|-----------------|--------------|
| 0 | Alam Damai         | 6               | 4            |
| 1 | Ampang             | 6               | 2            |
| 2 | Bandar Baru Sentul | 7               | 4            |
| 3 | Bandar Malaysia    | 11              | 8            |
| 4 | Bandar Menjalara   | 10              | 6            |

# Data Visualization



- Each neighbourhood were assigned a cluster label (0, 1, or 2)
- Superimposed resulting clusters onto Kuala Lumpur's map using Folium
- Added markers and individual colours for each cluster

| Neighbourhood             | Bubble Tea Shops | Unique Shops | Cluster Label |
|---------------------------|------------------|--------------|---------------|
| Ampang                    | 6                | 2            | 0             |
| Bangsar                   | 6                | 2            | 0             |
| Brickfields               | 2                | 1            | 0             |
| Bukit Kiara               | 3                | 2            | 0             |
| Bukit Nanas               | 5                | 2            | 0             |
| Chow Kit                  | 5                | 2            | 0             |
| Damansara Heights         | 4                | 1            | 0             |
| Dang Wangi                | 4                | 2            | 0             |
| Federal Hill              | 2                | 1            | 0             |
| Jalan Cochrane            | 3                | 3            | 0             |
| Jalan Duta                | 5                | 1            | 0             |
| Kampung Datuk Keramat     | 2                | 2            | 0             |
| Kampung Sungai Penchala   | 4                | 2            | 0             |
| Kuala Lumpur City Centre  | 2                | 1            | 0             |
| Kuala Lumpur Sentral      | 3                | 2            | 0             |
| Medan Tuanku              | 4                | 1            | 0             |
| Mont Kiara                | 5                | 3            | 0             |
| Perdana Botanical Gardens | 3                | 1            | 0             |
| Sentul                    | 6                | 2            | 0             |
| Sri Hartamas              | 5                | 3            | 0             |
| Taman OUG                 | 5                | 3            | 0             |
| Taman U-Thant             | 3                | 3            | 0             |
| Tun Razak Exchange        | 4                | 3            | 0             |

## Neighbourhoods in **Cluster 0**

- 23 neighbourhoods
- Average bubble tea shops per neighbourhood: 4
- Average unique bubble tea shops per neighbourhood: 2

| Neighbourhood        | Bubble Tea Shops | Unique Shops | Cluster Label |
|----------------------|------------------|--------------|---------------|
| Bandar Malaysia      | 11               | 8            | 1             |
| Bandar Menjalara     | 10               | 6            | 1             |
| Bandar Tasik Selatan | 11               | 8            | 1             |
| Bukit Jalil          | 10               | 9            | 1             |
| Desa Petaling        | 8                | 7            | 1             |
| Jinjang              | 10               | 5            | 1             |
| Kampung Malaysia     | 10               | 8            | 1             |
| Padang Balang        | 8                | 7            | 1             |
| Semarak              | 12               | 6            | 1             |
| Setapak              | 9                | 6            | 1             |
| Sri Petaling         | 10               | 9            | 1             |
| Sungai Besi          | 9                | 8            | 1             |
| Taman Bukit Maluri   | 9                | 6            | 1             |
| Taman Ibukota        | 12               | 8            | 1             |
| Taman Melati         | 13               | 9            | 1             |
| Taman Sri Sinar      | 11               | 6            | 1             |
| Taman Tun Dr Ismail  | 10               | 6            | 1             |

## Neighbourhoods in **Cluster 1**

- 17 neighbourhoods
- Average bubble tea shops per neighbourhood: 10
- Average unique bubble tea shops per neighbourhood : 7



| Neighbourhood         | Bubble Tea Shops | Unique Shops | Cluster Label |
|-----------------------|------------------|--------------|---------------|
| Alam Damai            | 6                | 4            | 2             |
| Bandar Baru Sentul    | 7                | 4            | 2             |
| Bandar Sri Permaisuri | 6                | 5            | 2             |
| Bangsar South         | 9                | 4            | 2             |
| Bukit Tunku           | 8                | 3            | 2             |
| Damansara             | 8                | 5            | 2             |
| Damansara Town Centre | 6                | 3            | 2             |
| KL Eco City           | 8                | 4            | 2             |
| Kampung Pandan        | 5                | 4            | 2             |
| Kerinci               | 8                | 4            | 2             |
| Kuchai Lama           | 5                | 4            | 2             |
| Mid Valley City       | 8                | 4            | 2             |
| Pantai Dalam          | 7                | 5            | 2             |
| Salak South           | 5                | 5            | 2             |
| Shamelin Perkasa      | 6                | 5            | 2             |
| Taman Connaught       | 7                | 4            | 2             |
| Taman Desa            | 7                | 5            | 2             |
| Taman Len Seng        | 7                | 4            | 2             |
| Taman Midah           | 6                | 4            | 2             |
| Taman P. Ramlee       | 8                | 5            | 2             |
| Taman Wahyu           | 9                | 5            | 2             |

## Neighbourhoods in **Cluster 2**

- 21 neighbourhoods
- Average bubble tea shops per neighbourhood: 7
- Average unique bubble tea shops per neighbourhood: 4

# Conclusion

Which location would be ideal to open a bubble tea chain in Kuala Lumpur, Malaysia?

- Neighbourhoods in Cluster 0, would be recommended as it has minimal competition
- Cluster 1, should be avoided due to its nature of a highly saturated market
- Cluster 2, can be considered as the market is not at the point of saturation and if the brand positioned itself strategically, it could utilize the customer traffic provided by existing bubble tea shops in the area
- Limitations of the analysis would be the number of variables included
  - Only 2 variables: Number of bubble tea shops & Number of unique bubble tea shops
- To have an extensive analysis in the future, more variables can be considered
  - Accessibility (Nearby public transport & car parks)
  - Potential customer traffic in the area (Shopping malls & popular attractions)