**Comparative Analysis between Singapore and Hong Kong**

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1. Introduction
   1. Background

Singapore and Hong Kong have often been associated with one another due to their similarities and statuses as major financial and shipping hubs. Their economic success over the years attracted top talents to settle and work in the cities but also resulted in high standards of living - both cities are currently ranked among the most expensive cities in the world.

A sunset over a body of water with a city in the background

Description automatically generatedA view of a city at night

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Figure 1: Prominent skylines of Singapore (left) and Hong Kong (right)

|  |  |  |
| --- | --- | --- |
|  | Singapore | Hong Kong |
| **Flag** | A picture containing drawing, food  Description automatically generated | A picture containing drawing  Description automatically generated |
| **Official Languages** | English, Malay, Mandarin, Tamil | Mandarin, English |
| **Ethnic Groups** | 74.3% Chinese Singaporeans, 13.3% Malay Singaporeans, 9.1% Indian Singaporeans, 3.3% Others | 92.0% Han Chinese, 2.5% Filipino, 2.1% Indonesian, 0.8% White, 0.5% Indian, 0.3% Nepalese, 1.6% Others |
| **Area** | 725.1 km2 | 2,755 km2 |
| **Population (2018)** | Total: 5,638,700  Density: 7,804/km2 | Total: 7,482,500  Density: 6,777/km2 |
| **GDP (PPP) (2019)** | Total: $589.187 billion  Per capita: $103,717 | Total: $490.880 billion  Per capita: $64,928 |
| **Time Zone** | UTC+8 | UTC+8 |
| **Geographic Coordinates** | Latitude: 1.3, Longitude: 103.8 | Latitude: 22.3, Longitude: 114.2 |

Table 1: General Information of Singapore and Hong Kong (source: Wikipedia)

Business travellers and leisure seekers often compare the neighbourhoods, shopping belts and central business districts (CBDs) between the two cities. Depending on the individual’s real-world experience, travel inclinations, hobbies and interests, etc., the resulting comparisons can vary widely.

*“As both are overcrowded urban enclaves with no natural resources, they have to continue to pursue pro-growth economic policies, and their people have to constantly work hard and remain highly entrepreneurial in order to “earn” their economic growth.”*

Extracted quote from a book titled “Singapore and Hong Kong: Comparative Perspectives on the Occasion of the 20th Anniversary of the Handover” by Institute of Advanced Studies, Nanyang Technological University, Singapore.

*“The beauty of Hong Kong for me is that one could witness a dilapidated 4 storied building which looks to be on the verge of collapsing if one were to even sneeze in its proximity, right next to a sprawling skyscraper and there would be nothing incongruous about that set-up. It just blends into the Hong Kong feel. Singapore on the other hand has its homogenous looking HDBs well laid out maintaining a presentable image which further epitomizes the orderly nature of the city.”*

Extracted quote from an online post by Akshobh Giridharadas, Journalist, Business Desk at Channel NewsAsia.

* 1. Problem

The analysis done at the individual’s level can be subjective and influenced by the individual’s personal experience, opinions and length of stay in the city. It can also be limited in scope since it is atypical for an individual to travel to all areas in both cities, hence rendering a comprehensive analysis to be almost impossible.

This report aims to provide an objective and data-driven comparative analysis of both cities, by exploring the different districts within each city, finding clusters within each city and determining similarities/ uniqueness between the two cities.

* 1. Interested Parties

Readers who are interested to gain another perspective on how the two cities are similar (or dissimilar) may find the contents useful. This may include people who are planning to visit the cities in the near future, either for business or leisure purposes, or are finding districts with certain amenities and facilities to stay in for extended periods of time.

1. Data
   1. Data Sources

The following data sources are used for the analysis in this report.

A screenshot of a cell phone

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Figure 2: Singapore Postal Districts (source: Wikipedia)

A screenshot of a cell phone

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Figure 3: Hong Kong Districts (source: Wikipedia)

A screenshot of a cell phone

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Figure 4: OneMap REST API on Search (source: OneMap)

A screenshot of a social media post

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Figure 5: Foursquare Places API on Search (source: Foursquare)

* 1. Data Cleaning

For Singapore districts, the information provided by Wikipedia does not have corresponding information on geographic coordinates. The general locations listed for each district are used to determine the centroid for that district by invoking the OneMap REST API on Search and averaging their coordinates. It is assumed that simple averaging is acceptable since the general locations are close to each other within the district and hence the Earth can be treated as being relatively flat (i.e. negligible error when using planar coordinates, though it is more accurate to use complex calculation methods considering Earth’s spherical surface).

For Hong Kong districts, the coordinates for each district are obtained from its own Wikipedia’s page.

Separate CSV files are created to store the contents and coordinates of the districts.

* 1. Feature Selection

The Foursquare Places API on Search returns a list of venues in a district based on its coordinates, with details such as id, name, location and categories. One hot encoding is applied to “categories” and the results are used as features to find clusters within each city.

1. Methodology

<To be completed in next part of assignment>

<Course instruction: Methodology section which represents the main component of the report where you discuss and describe any exploratory data analysis that you did, any inferential statistical testing that you performed, if any, and what machine learnings were used and why.>

1. Results

<To be completed in next part of assignment>

<Course instruction: Results section where you discuss the results.>

1. Discussion

<To be completed in next part of assignment>

<Course instruction: Discussion section where you discuss any observations you noted and any recommendations you can make based on the results.>

1. Conclusion

<To be completed in next part of assignment>

<Course instruction: Conclusion section where you conclude the report.>