

CA1 Individual Assignment

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Objective of Analysis

- ▶ The objective of this analysis is to understand the factors affecting HDB resale prices in Singapore, with a specific focus on the proximity to MRT stations.
- ▶ By analyzing these factors, we can aim to provide data-driven insights that can help inform housing policies and recommendations for improvements in housing affordability and accessibility.

Data Wrangling Process

- ▶ HDB Resale Prices Dataset: This dataset contains information on HDB resale prices from 1990 to 2021, including details such as the flat type, location, resale price, and other relevant attributes.
- ▶ MRT Stations Dataset: This dataset provides information about MRT stations, including their names, addresses, and geocoded locations.
- ▶ Data Wrangled MRT station codes and their respective addresses using dictionary function
- ▶ Geocoded the addresses of schools and MRT stations to obtain latitude and longitude values.
- ▶ Saved the updated data frame to a new CSV file
- ▶ Calculating the distance to the nearest MRT station using calculated fields

KPI Chart

- ▶ When the MRT Distance Filter is set to "Within 1 km":
- ▶ Total Transactions: 788,783
- ▶ When the MRT Distance Filter is set to "More than 2 km":
- ▶ Total Transactions: 52,024
- ▶ This significant difference indicates that a majority of the HDB resale transactions occur within 1 km of an MRT station. The convenience and accessibility provided by proximity to MRT stations appear to be a major factor influencing the volume of resale transactions.
- ▶ When the MRT Distance Filter is set to "Within 1 km":
- ▶ Average Resale Price: 295,981.80
- ▶ When the MRT Distance Filter is set to "More than 2 km":
- ▶ Average Resale Price: 308,983.86
- ▶ The average resale price for properties more than 2 km away from an MRT station is slightly higher compared to those within 1 km. This could be due to various factors such as larger flat sizes or higher demand in specific areas not directly adjacent to MRT stations.

KPI Chart

MRT Distance Filter

Within 1 km

Total Transactions: 788783

Average Resale Price: 295981.80

KPI Chart

MRT Distance Filter

More than 2 km

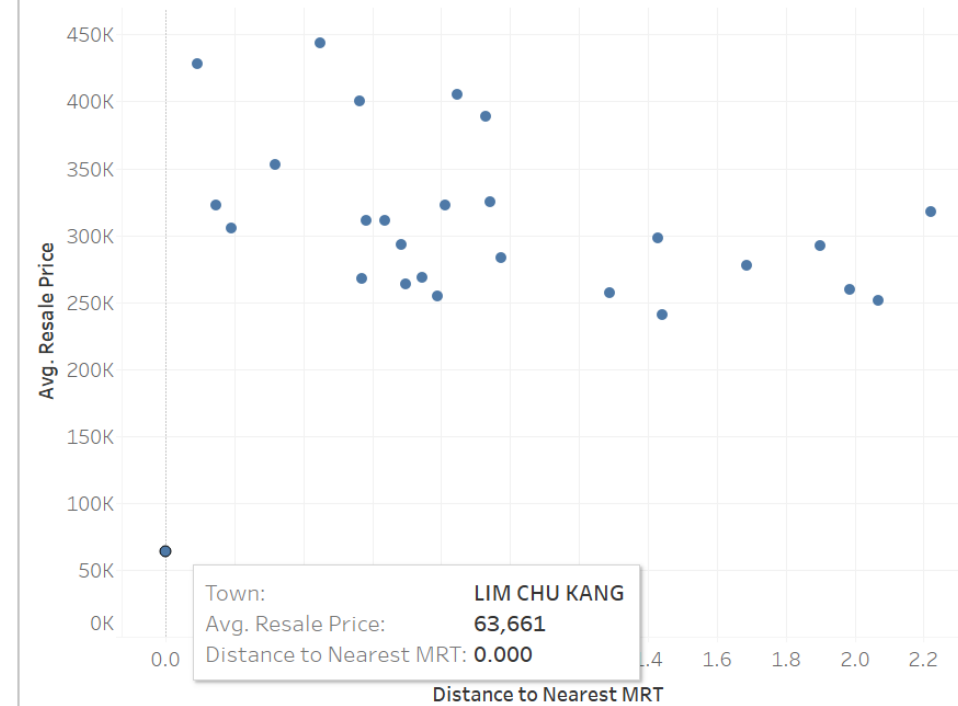
Total Transactions: 52024

Average Resale Price: 308983.86

Scatter Plot

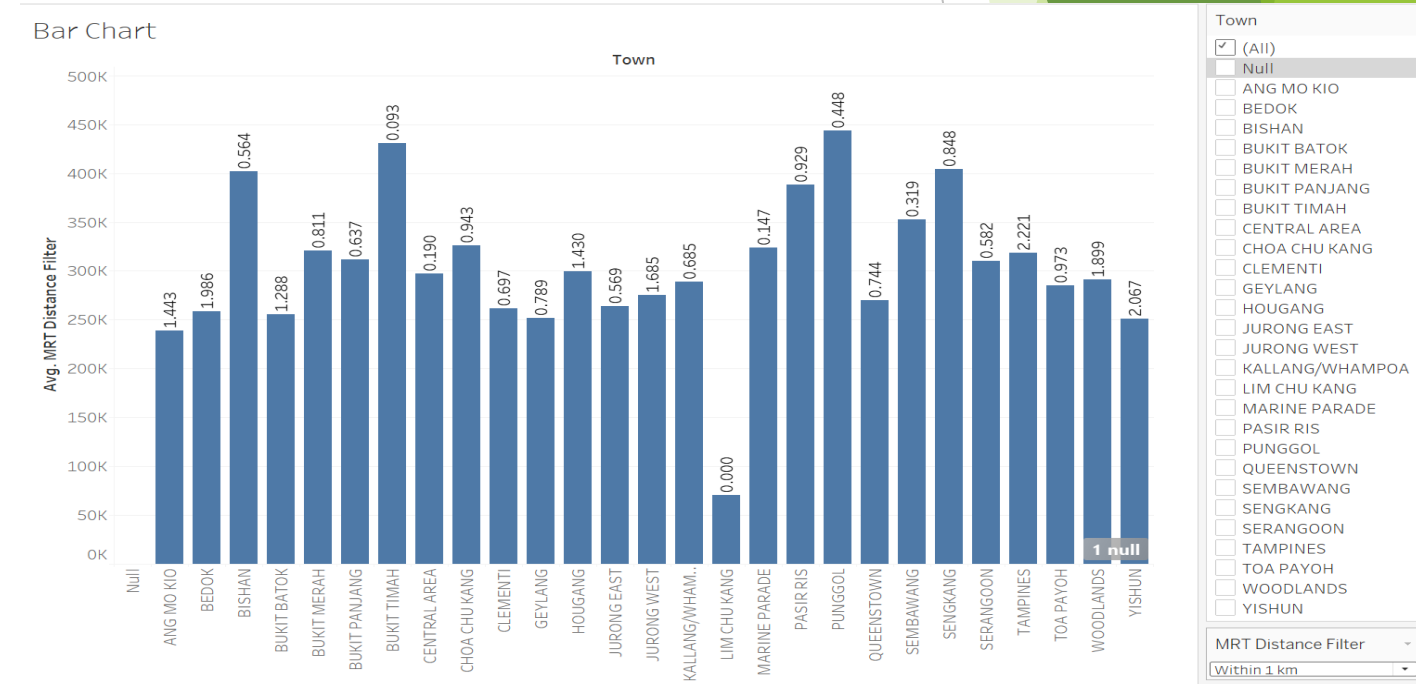
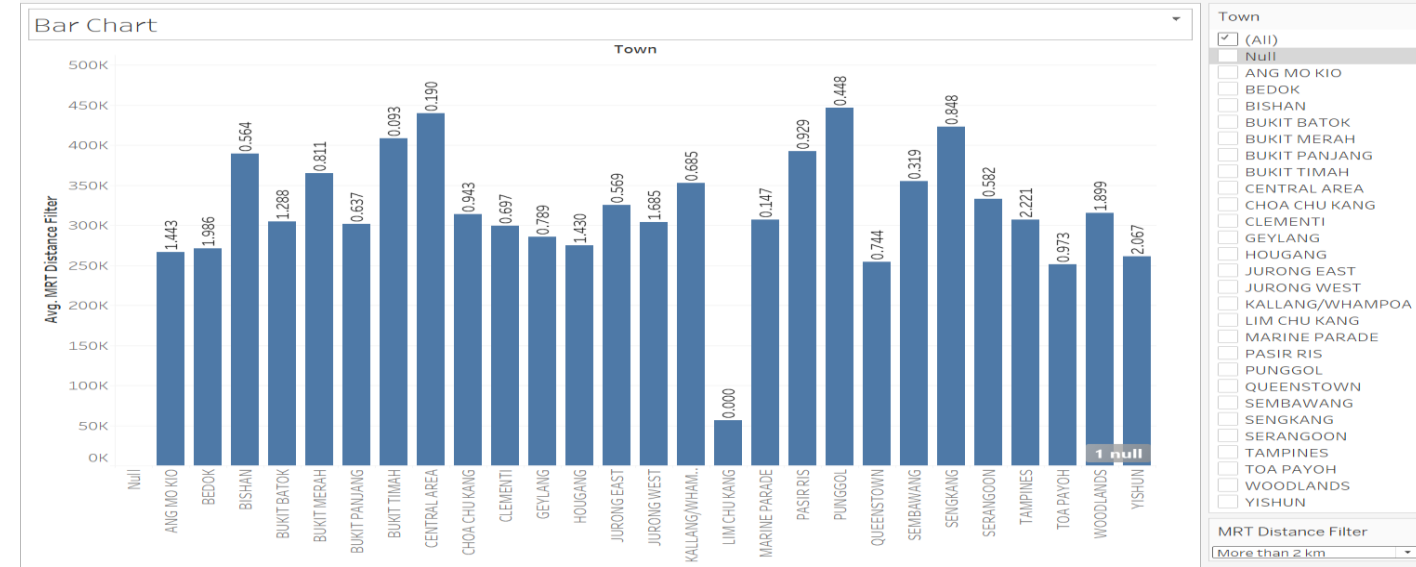
- ▶ Low Average Resale Price in Lim Chu Kang:
- ▶ The average resale price in Lim Chu Kang is significantly lower than other areas, at only \$63,661. This is an outlier compared to the majority of resale prices.
- ▶ Despite being at a distance of 0 km from the nearest MRT station (indicating it is very close to an MRT station), the low resale price suggests other factors are influencing the pricing in Lim Chu Kang. These could include:
- ▶ Limited amenities or infrastructure in the area.
- ▶ The government can focus on enhancing public transportation accessibility in areas with lower transaction volumes and ensure that these areas are also well-served by other amenities to balance the demand and pricing across different regions.

Scatter Plot



Bar Chart

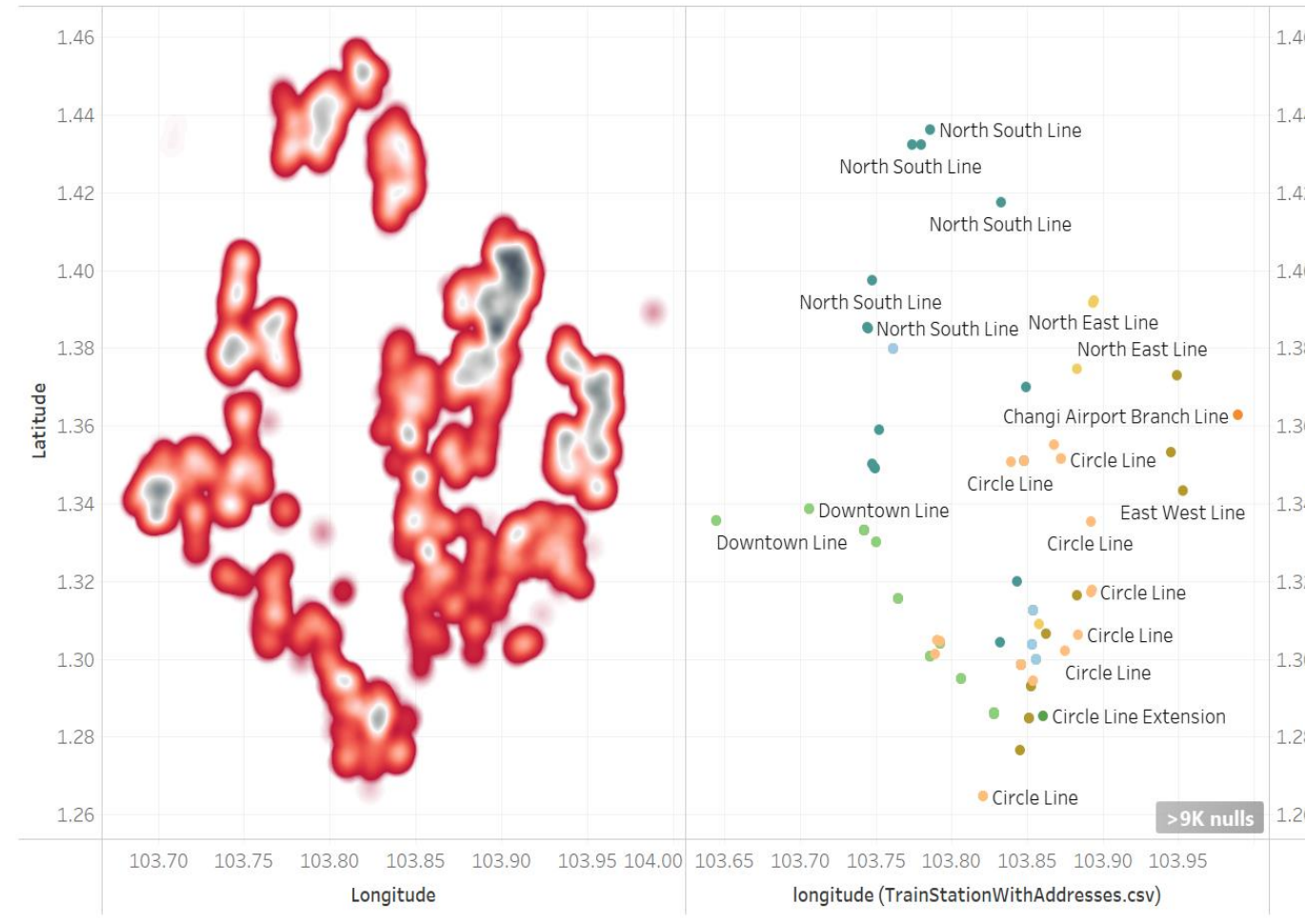
- Towns like Bukit Panjang and Jurong West consistently show lower average resale prices regardless of proximity to MRT stations. This could indicate broader economic or developmental factors affecting property values in these areas.



Heat Map

- ▶ MRT Line Proximity:
- ▶ The proximity of these high-density areas to MRT lines, such as the North South Line and Circle Line, suggests that access to MRT stations plays a significant role in determining property values.
- ▶ Stations on the North South Line and Circle Line are particularly close to high-density, high-value areas, highlighting the premium placed on accessibility to these lines.
- ▶ Govt. can focus on enhancing infrastructure and amenities in the high-density areas to maintain and further increase property values.

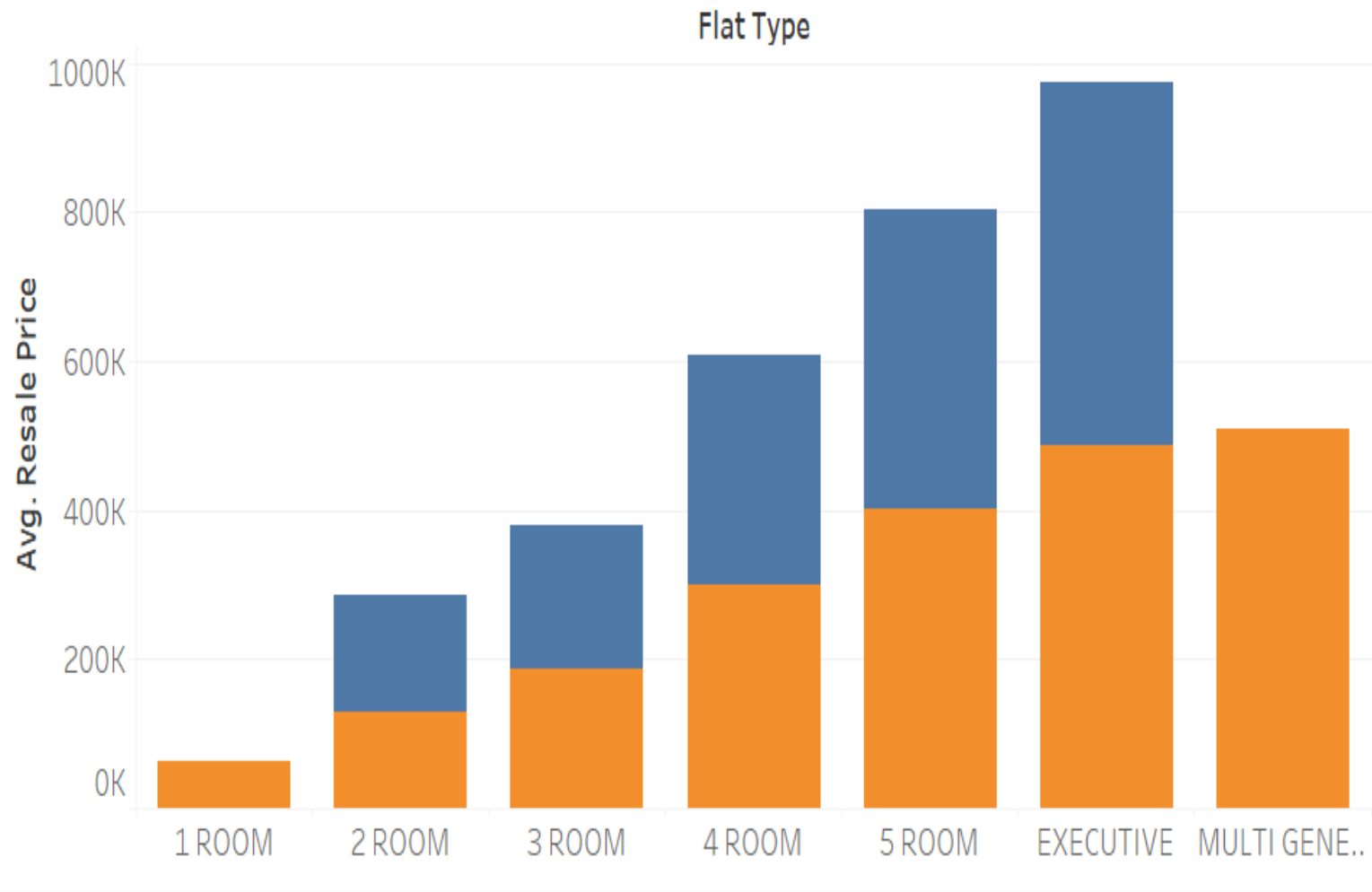
Heat Map



Stacked Bar Chart

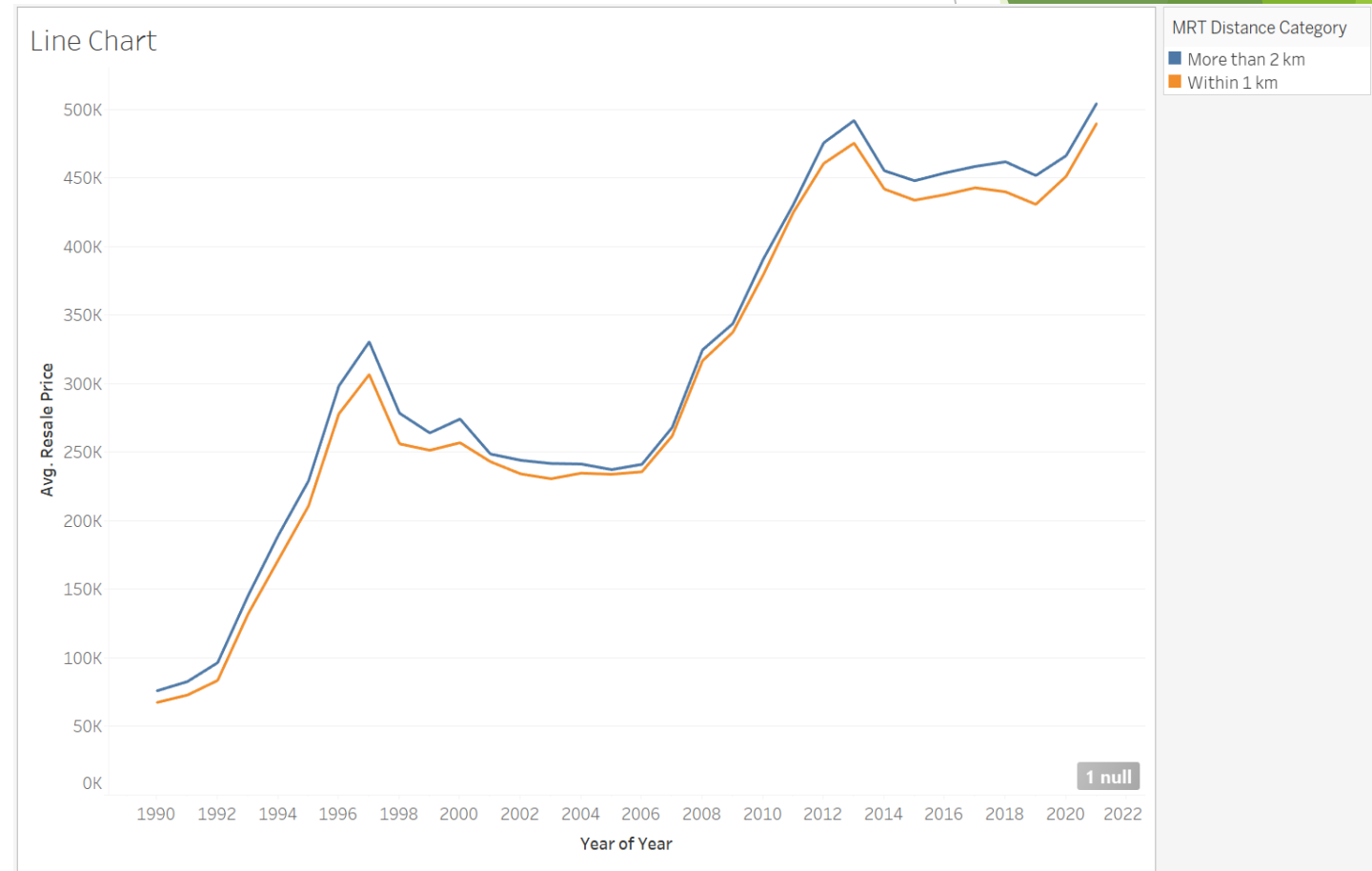
- ▶ Resale Price Variation by Flat Type:
- ▶ The chart shows a clear progression in average resale prices as the number of rooms increases.
- ▶ 1-room flats have the lowest average resale price, while executive flats have the highest.
- ▶ Multi-generational flats have relatively high resale prices, though not as high as executive flats.
- ▶ Govt. can Ensure a balanced mix of different flat types in various regions to cater to the diverse needs of the population. This can help in maintaining a stable and equitable housing market.

Stacked Bar Chart



Line chart

- ▶ The dips around the late 1990s and early 2000s correspond to economic downturns, such as the Asian Financial Crisis.
- ▶ The sharp rise post-2008 indicates recovery and increased demand, with properties near MRT stations seeing higher appreciation.



Conclusion

► Data Integration and Geocoding:

I learned how to integrate multiple datasets and use geocoding techniques to derive valuable insights. Specifically, combining HDB resale data with MRT station data in tableau and calculating the proximity to MRT stations provided a deeper understanding of how location influences property prices.

► Data Visualization and Analysis in Tableau:

The assignment enhanced my skills in using Tableau to create interactive and insightful visualizations. I learned to build various charts, such as scatter plots, heat maps, and line charts, to effectively communicate data-driven insights and support decision-making processes.