CAPSTONE PROJECT: REAL- ESTATE

ANALYSIS OF PRICE TRENDS, AFFORDABILITY, AND BENCHMARKING

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PROBLEM STATEMENT

- In the real estate industry, accurate property valuation plays a crucial role in making informed buying and selling decisions. Property owners, investors, and real estate professionals rely on accurate and reliable valuation estimates to determine fair market prices, negotiate deals, and assess investment opportunities.

RESEARCH OBJECTIVES

- To develop an intuitive and comprehensive dashboard for descriptive analytics in the real estate industry.
  - The dashboard will provide users with valuable insights and visualizations based on key factors such as location, property characteristics ,market trends, and comparable sales data.
- To create a user friendly and informative dashboard that enhances the understanding of real estate market dynamics

METHODOLOGY

⚙ Data & Methods

- Dataset: HDB Resale Transactions (2012–2023)
- Data Cleaning: Standardized dates, created Year-Month field, calculated Price per sqm, extracted Lease Years Remaining
- KPIs Derived:
  - Avg Price
  - Median Price per sqm
  - Total & Monthly Transactions
  - YoY Price Change %
- Tools: Power BI (visualizations, filters, trend & benchmark analysis)

DASHBOARD OVERVIEW

Page 1 – Overview (KPIs & Trends)

- High-level KPIs: Avg Price, Transactions, YoY Change.
- Monthly trend: shows market direction.

✅ *Covers overall market performance.*

Page 2 – Market Trends & Comparisons

- Avg Price & Transactions by Flat Type.
- Price per sqm distribution.
- Lease Remaining vs Price.

✅ *Explains differences by property type & lease effect.*

DASHBOARD OVERVIEW

Page 3 – Geographic Insights

- Map & bar charts by Town.
- Median Price per sqm by Town.

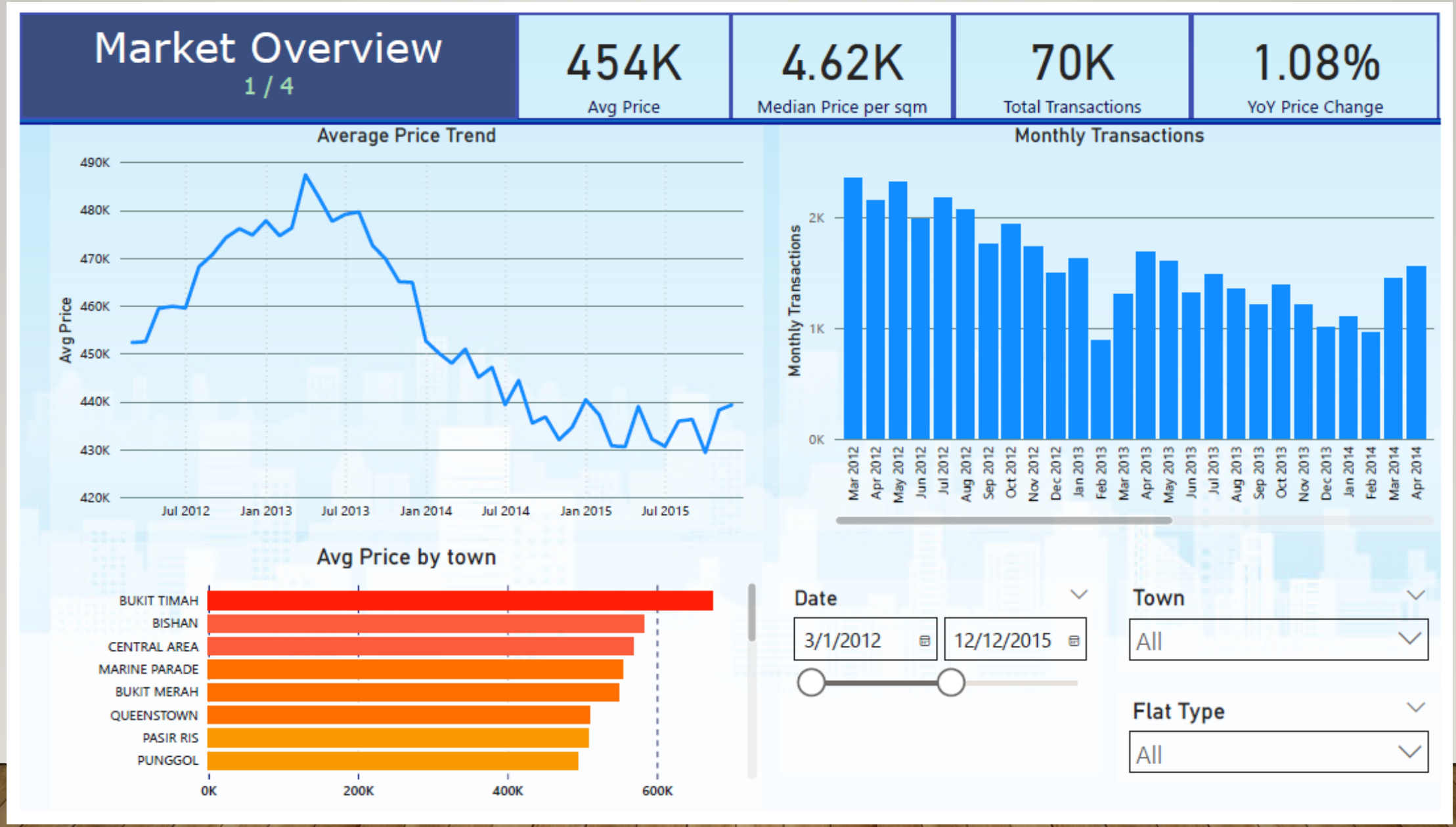
☑ *Covers location-based differences.*

Page 4 – Comparables & Benchmarking

- Towns vs benchmark.
- Flat types vs benchmark.
- Scatter plot (floor area vs price per sqm).
- Comparable sales table.

☑ *Provides benchmarking & detailed reference.*

PAGE 1: MARKET OVERVIEW



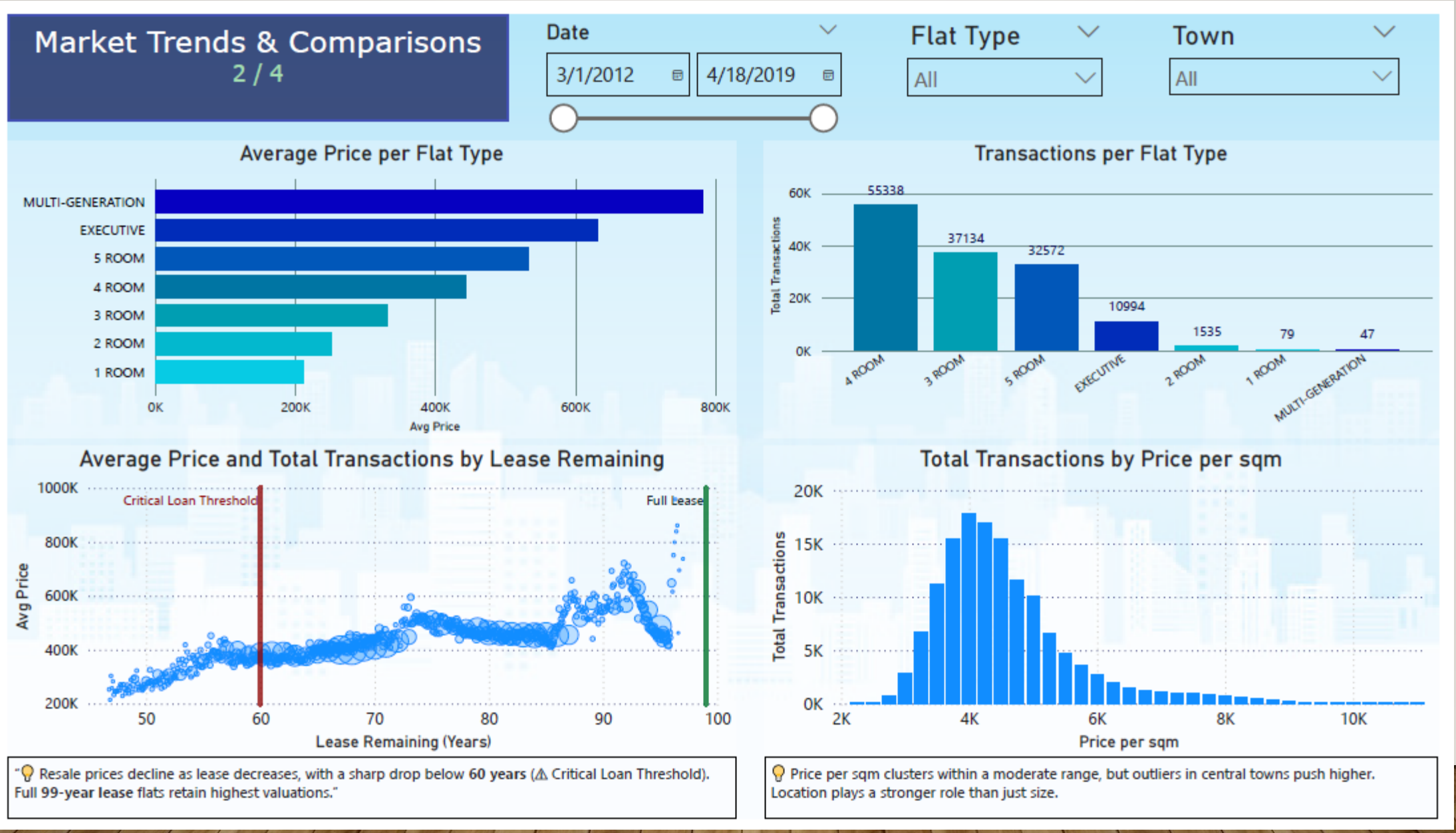
PAGE 1: MARKET OVERVIEW

📊 **KPIs & Trends**

- Avg Price, Median Price/sqm, Transactions, YoY Change
- Monthly transactions trend line

💡 ***Insight*:** Market shows steady growth with cyclical transaction volumes.

PAGE 2: MARKET TRENDS & COMPARISONS



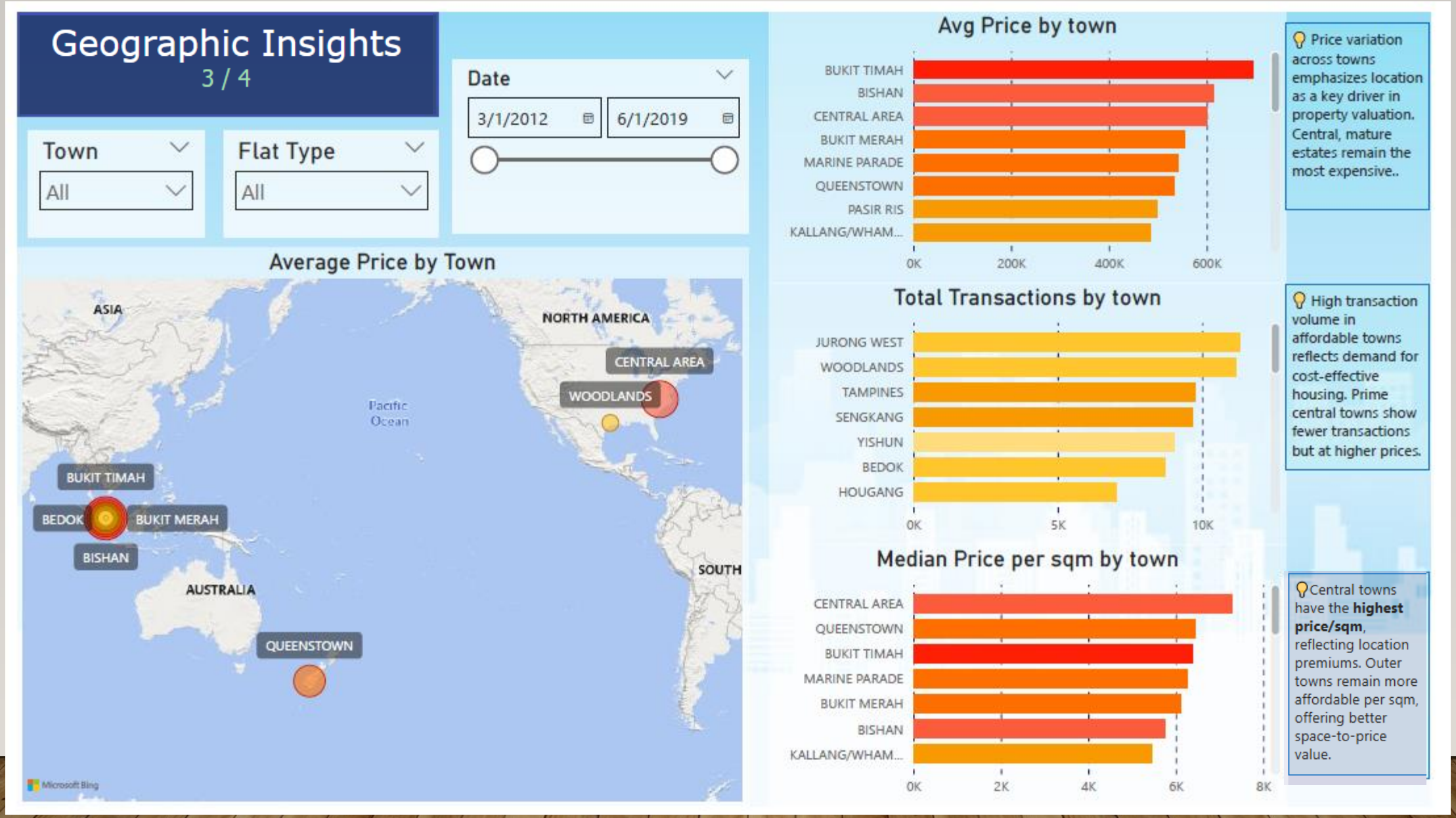
PAGE 2: MARKET TRENDS & COMPARISONS

📊 **Flat Type & Price Efficiency**

- Avg Price & Transactions by Flat Type
- Price per sqm distribution (histogram)
- Lease Years vs Avg Price scatter

💡 ***Insight*:** Lease length critically impacts pricing; smaller flats are affordable but less space-efficient.

PAGE 3: GEOGRAPHIC INSIGHTS



PAGE 3: GEOGRAPHIC INSIGHTS

🗺 **Town Comparisons**

- Map of Avg Price by Town (color = price, size = transactions)
- Median Price per sqm by Town
- Transactions by Town (bar chart)

💡 ***Insight*:** Central towns command premiums, outer towns remain value-for-money.

PAGE 4: COMPARABLES AND BENCHMARKING

Comparables & Benchmarking

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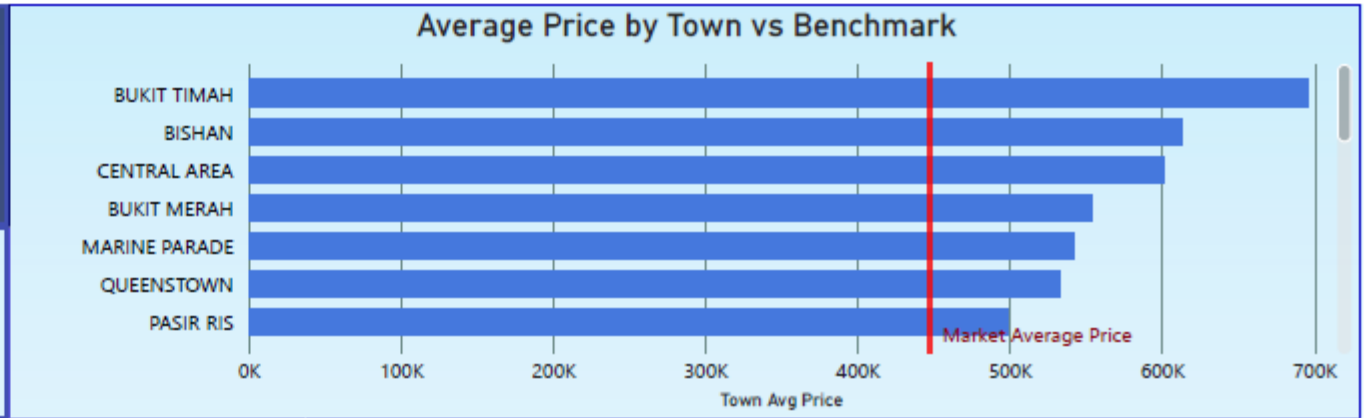
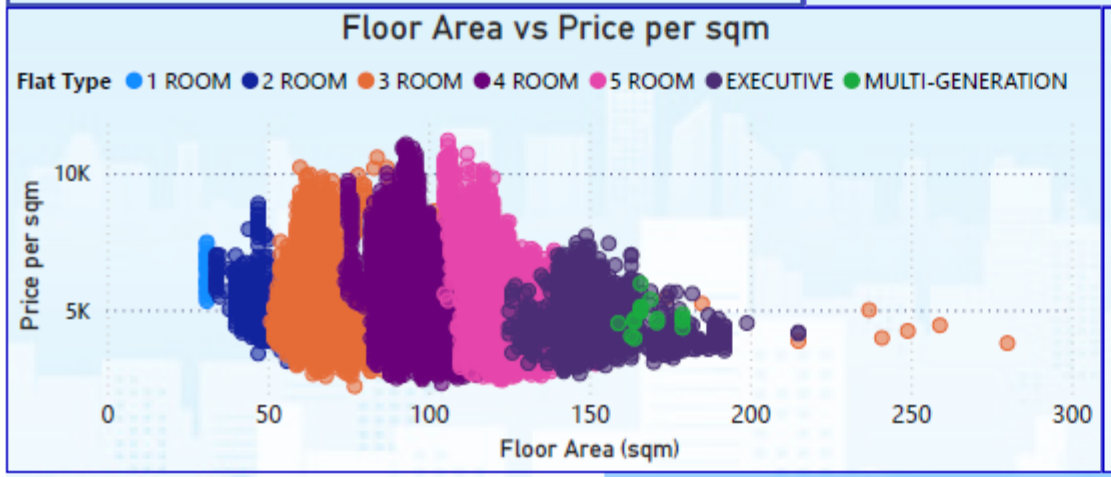
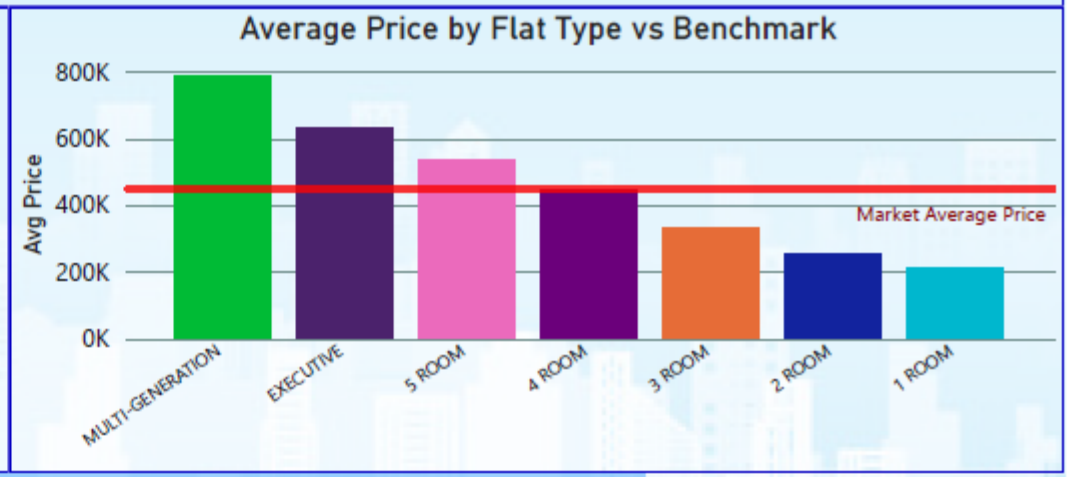
Market Avg Price







town	flat_type	floor_area_sqm	resale_price	LeaseRemainingDecimal	Price_per_sqm
BUKIT MERAH	1 ROOM	31	165000	55.00	5322.58
BUKIT MERAH	1 ROOM	31	168000	55.33	5419.35
BUKIT MERAH	1 ROOM	31	168000	55.58	5419.35
BUKIT MERAH	1 ROOM	31	172000	55.00	5548.39
BUKIT MERAH	1 ROOM	31	172000	55.17	5548.39
BUKIT MERAH	1 ROOM	31	173268	54.92	5589.29

PAGE 4: COMPARABLES & BENCHMARKING

📊 **Benchmarking Analysis**

- Avg Price vs Market Benchmark by Town
- Price per sqm vs Floor Area (scatter)
- Avg Price by Flat Type vs Benchmark
- Comparable Sales Table

💡 ***Insight:*** Benchmarks help spot premium vs undervalued towns and flat types.

CONCLUSION

☑ Key Takeaways

- Prices are rising steadily; affordability varies by location & flat type
- Lease length is a critical driver of value
- Central towns = premium, non-central = value buys
- Benchmarking tools allow fairer comparisons

RECOMMENDATIONS

📌 **For Buyers**

- Consider price/sqm efficiency in addition to total price
- Watch lease years closely (loan eligibility, future value risk)

📌 **For Policymakers**

- Monitor affordability gaps across towns
- Strengthen support for towns lagging in value retention

THANK YOU