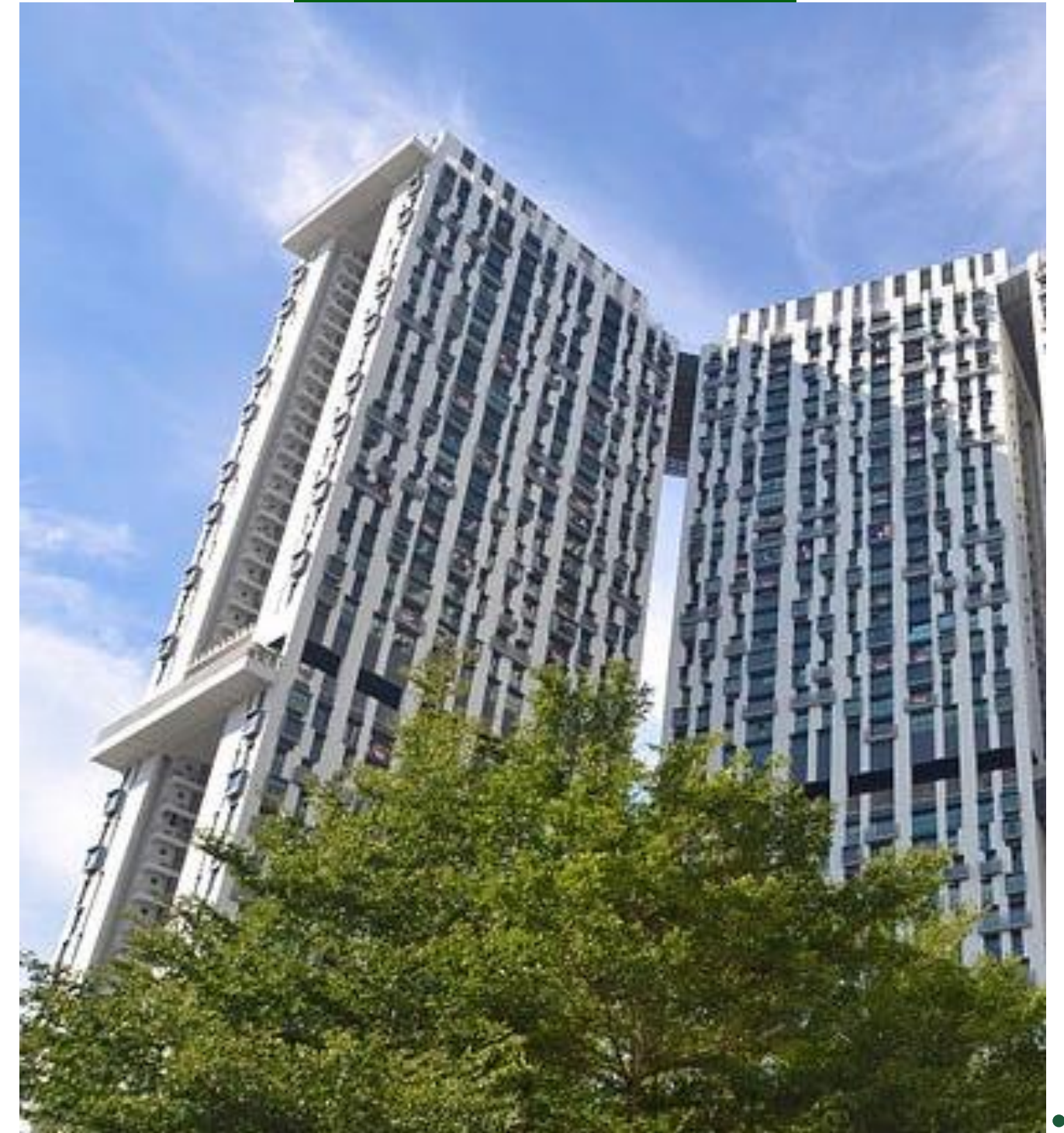


September 2024

# HDB Price Predictor

Presented By: DJ BAB



# Precision Insights for a Smarter HDB Market



Data Collection &  
Quality



Market Volatility &  
Trends



Feature Selection &  
Model Complexity



Model Accuracy &  
Reliability



Time Constraints



User-Friendly  
Implementation



Competitive  
Market Analysis



# Competitive & Volatile HDB Resale Market

## Problem Statement

Our agents struggle to close sales due to a time-consuming process that heavily relies on subjective opinions. This reliance leads to inaccurate predictions and inefficient decision-making, hindering their ability to effectively close deals

## Solutions

### Data-Driven Decision Making

Develop Models to determine true value of HDB & curb speculation

### Market Demand and Pricing Trends Analysis

Aim to provide our agents with unparalleled insights and accuracy

### Model Accuracy and Reliability

Ensuring accurate and reliable price predictions





Price Range

Year

All

Town

All

town	Total resale_price	No. of Transactions
SENGKANG	↑ 5070810154	11069
TAMPINES	↑ 4981625953	10506
JURONG WEST	↑ 4721029365	11451
Total	67658993577	150634

150.63K  
No. of Transactions

1M  
Highest Price

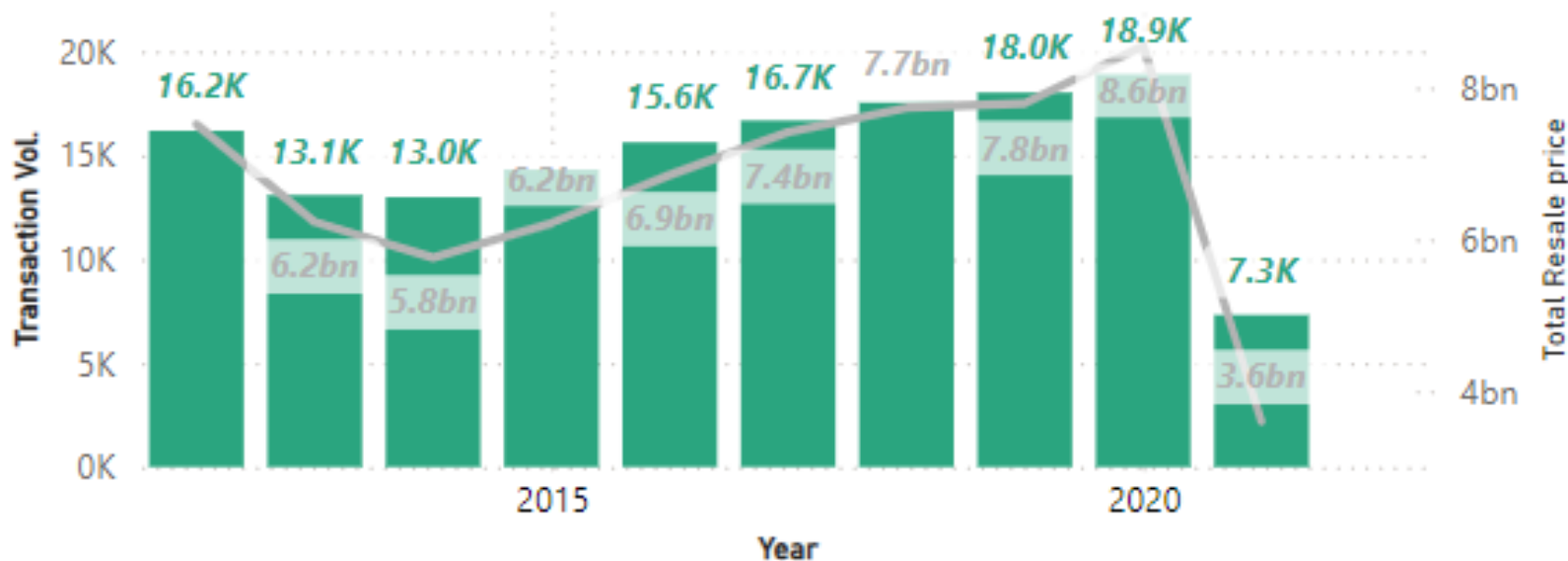
420K  
Median Price

Primary School

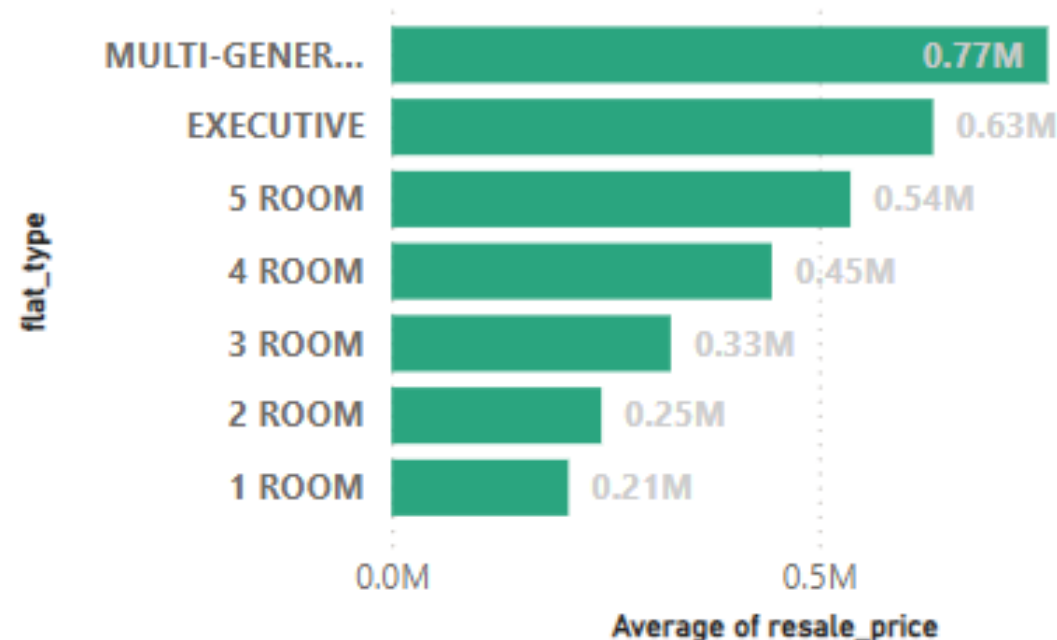
All

### Resale trend by period

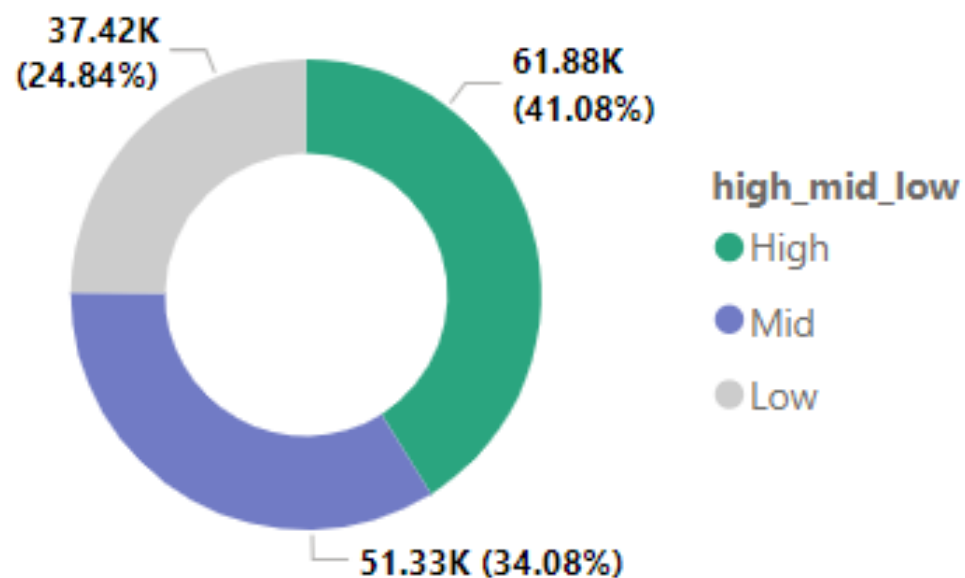
● Total Transactions ● Total Resale price



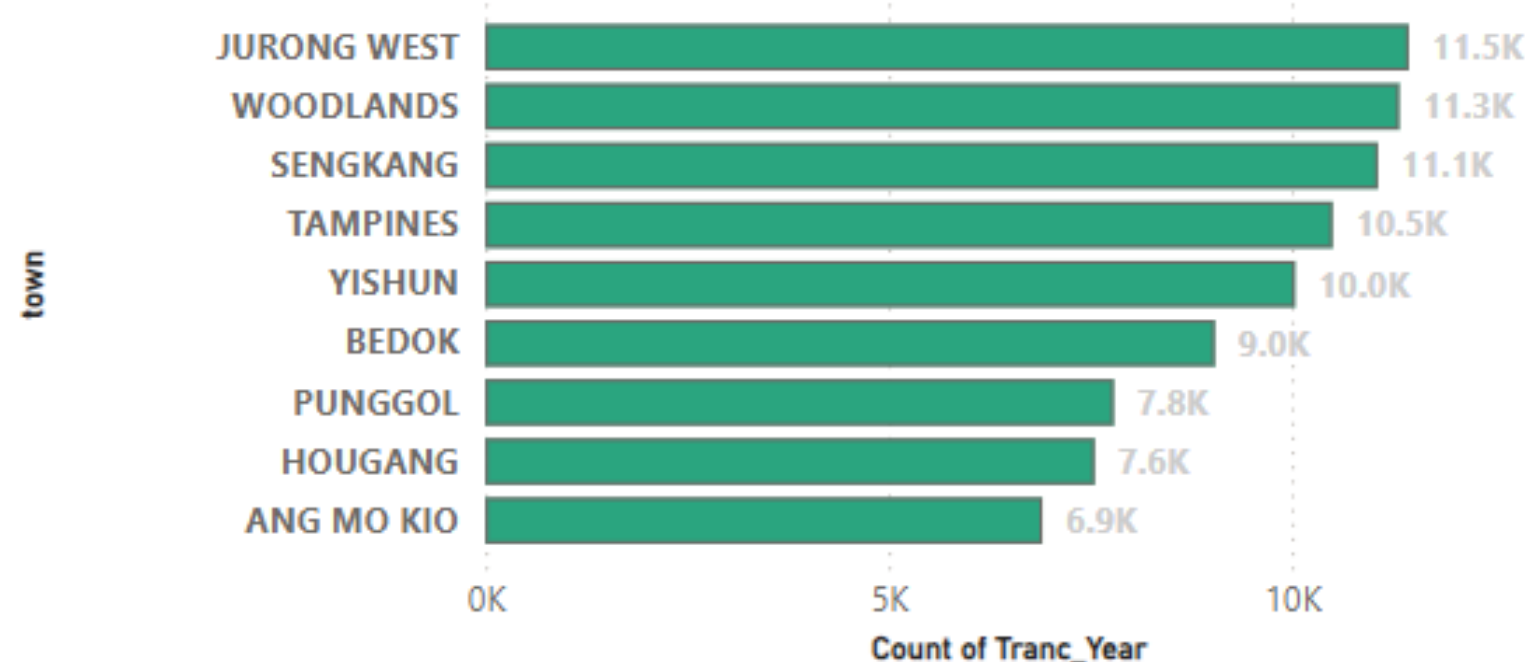
### Average Resale Price by flat\_type & Story range



### No. of Transactions by Story Category

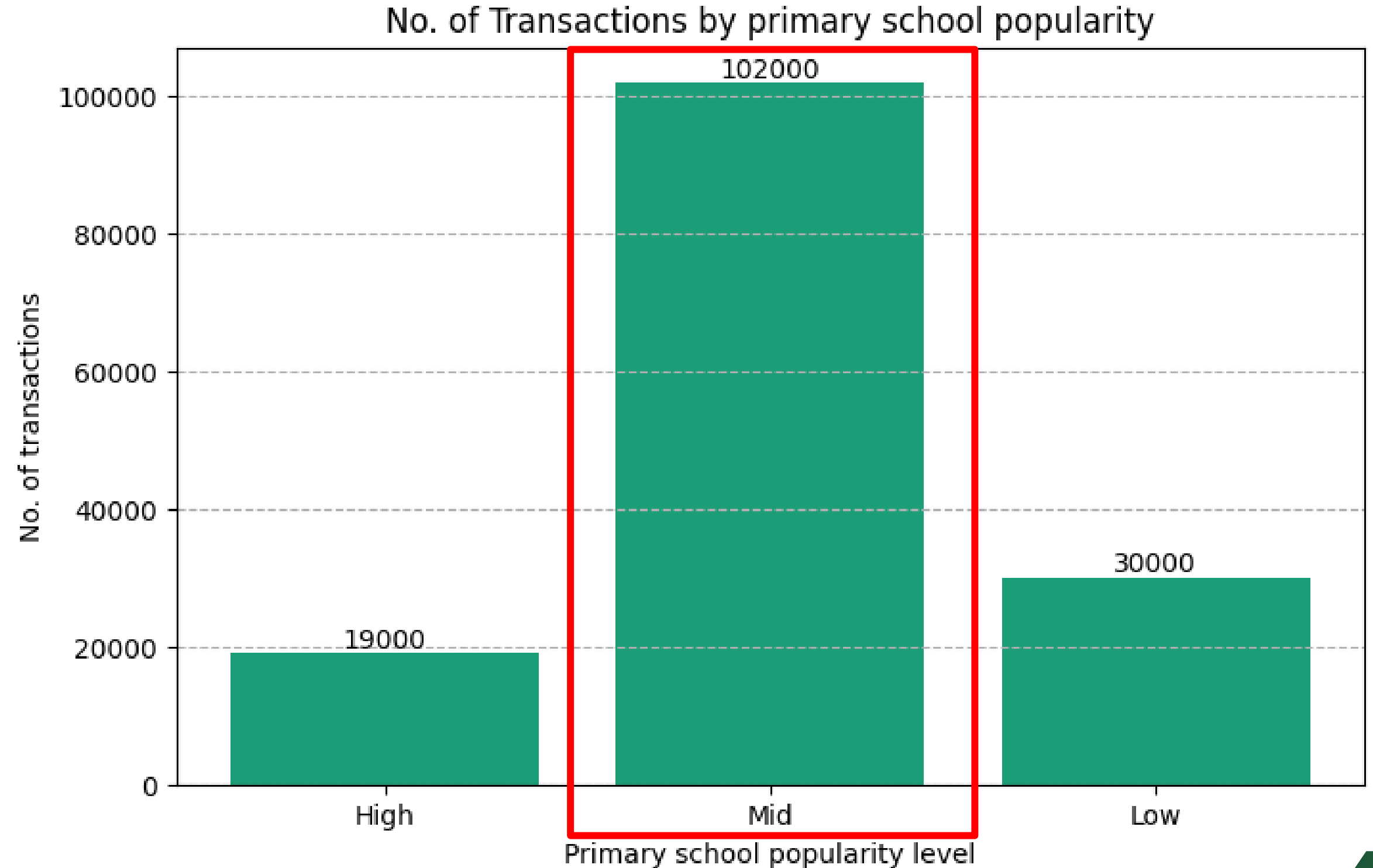


### No. of Transactions by Town, Floor lvl & Flat model



# Highest number of transactions for primary school with average popularity

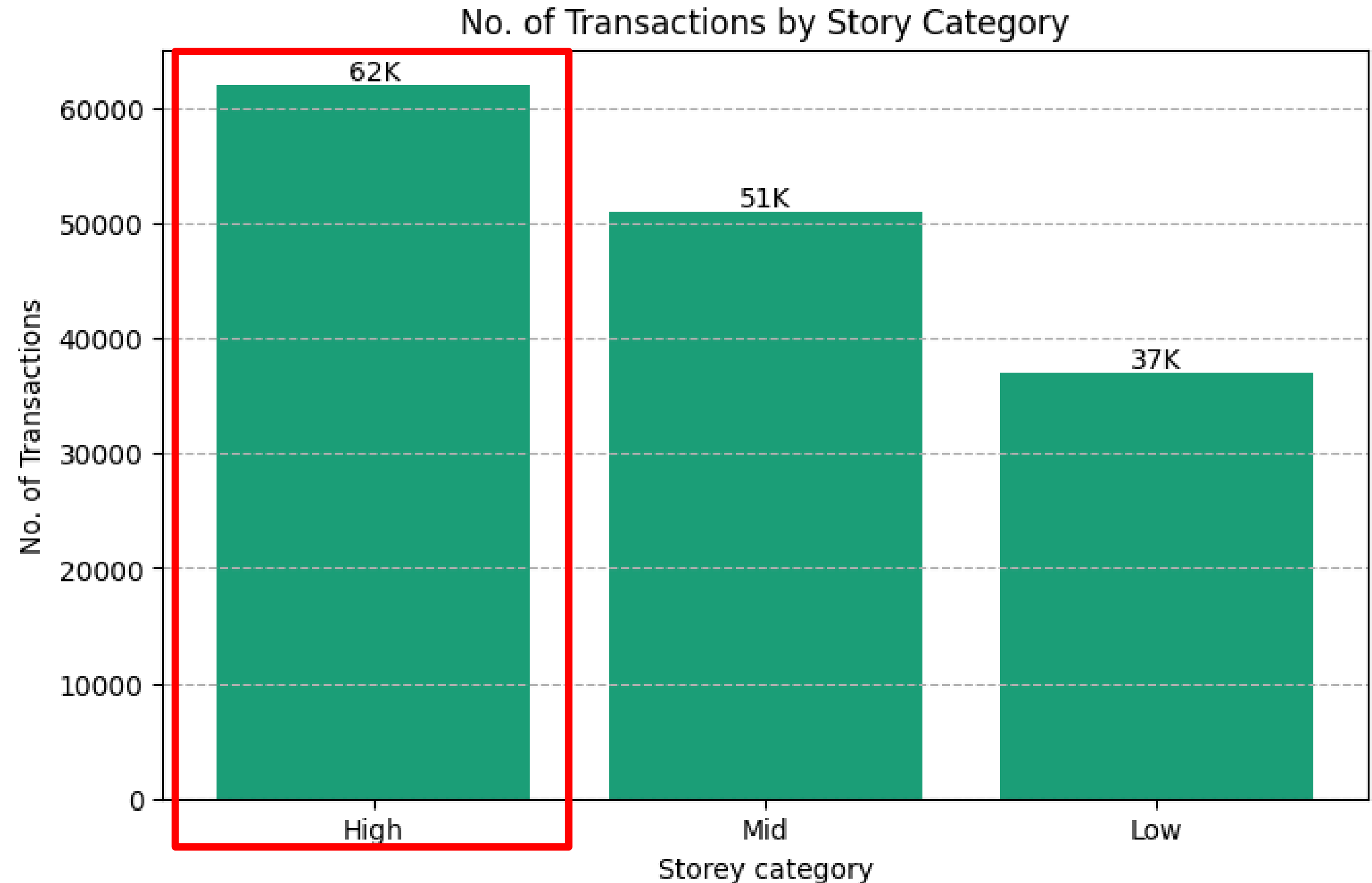
Example: Closing a transaction near to Gan Eng Seng Primary School will fetch you a sales commission of **est. \$12,769!**



# High Storey has the highest number of transactions

High storey demand  
average resale price of  
\$453,474.

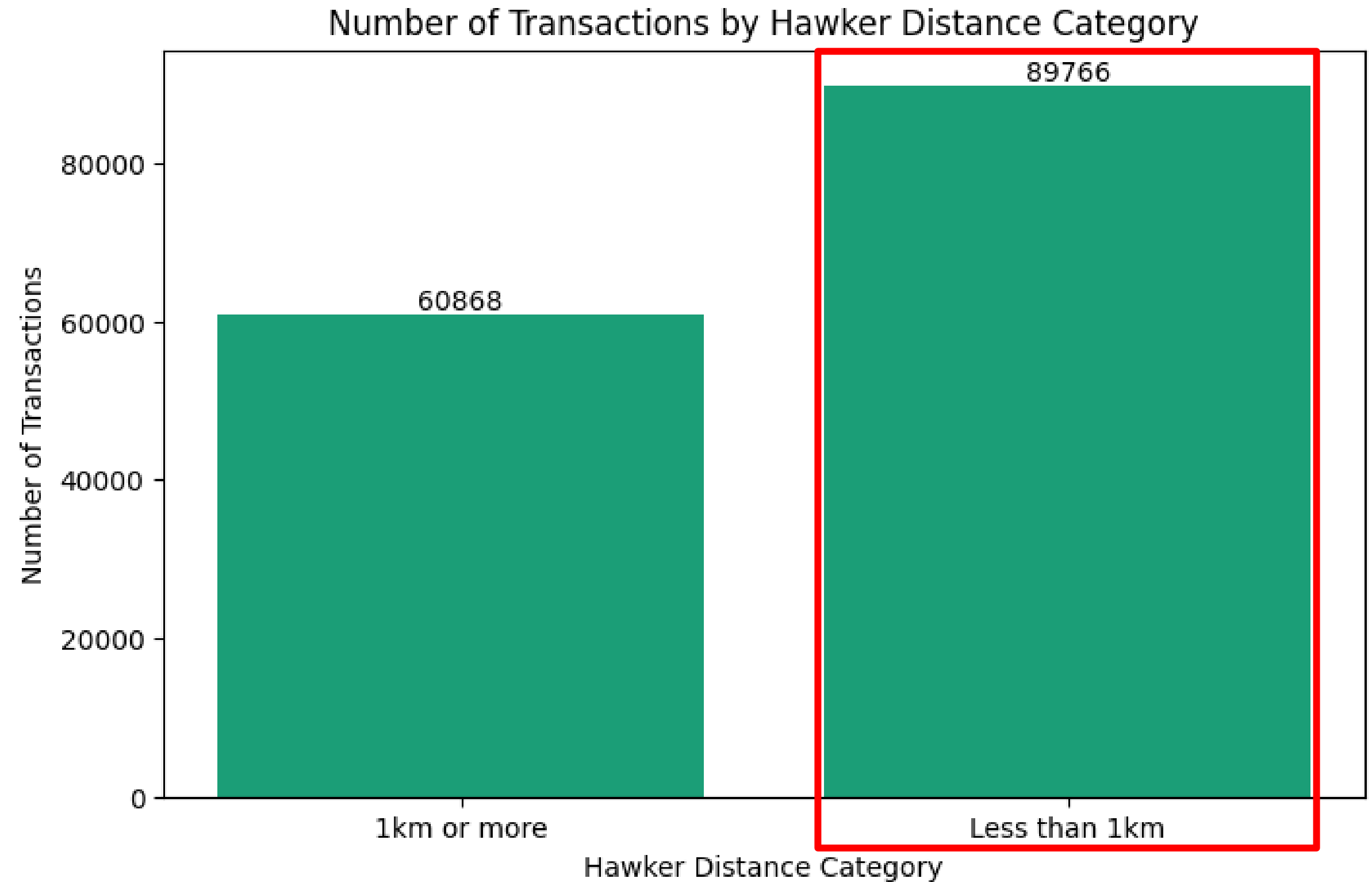
Sale commission of **est.**  
**\$9,069!**



# Flats nearer to hawker has higher number of transactions

Less than 1km demand average resale price of \$449,700.

Sale commission of **est. \$8,994!**



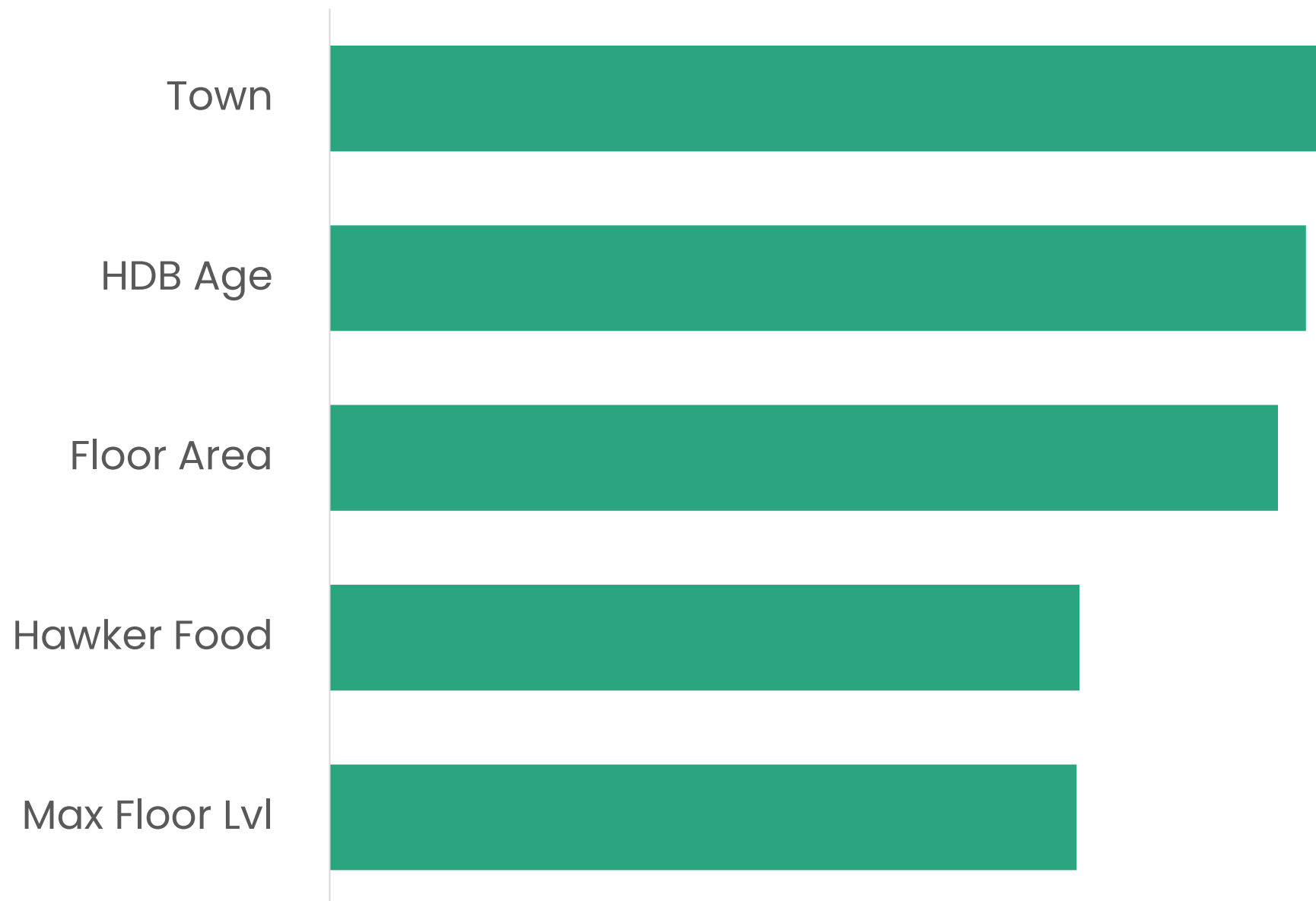
# Top 5 models

	Train RMSE	Test RMSE	Train R2	Test R2	Model Run Time (sec)
CatBoost	25,506	25,726	0.9684	0.9677	7.1940
Extra Trees Regressor	2,843	26,685	0.9996	0.9653	14.5840
Random Forest	9,796	25,954	0.9953	0.9672	19.1130
Light GBM	30,903	31,724	0.9535	0.9509	0.783
Decision Tree	2,842	35,901	0.9996	0.9372	1.5770

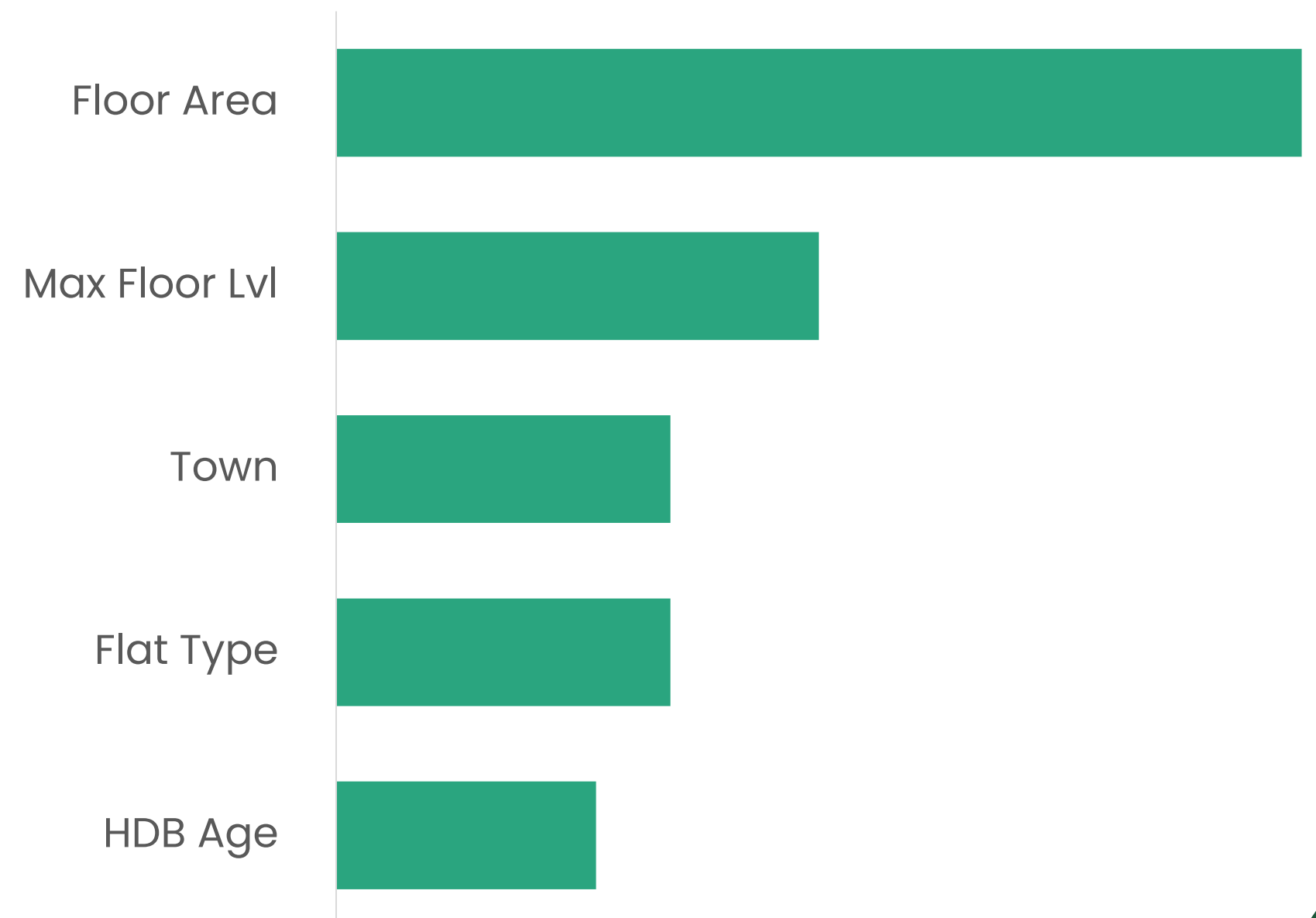


# Light GBM: Not heavily reliant on a particular variable

Light GBM Feature Importance



CatBoost Feature Importance



# Model of Choice: LightGBM

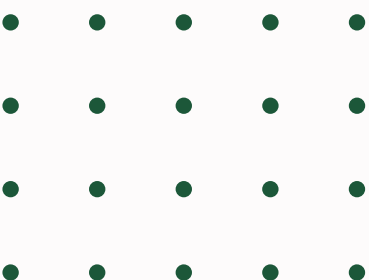


95%

Accuracy

RSME: 31,724  
Run time: 0.783

Increase Generalization  
Avoid Feature bias  
Lower Model Run-time  
Lower Noise Sensitivity





# Streamlit Demo

<https://dj-bab-hdb-sales-predictor.streamlit.app/>



# Revenue per agent dropped by 10%

## Increase Market Volatility

- Rise in HDB resale demand
- Increase in market volatility and million-dollars flats “outliers”

## Sales Cycle increased by 20%

- Higher price volatility leads to inaccurate price predictions
- Time-consuming process to evaluate trends
- Pricing relies on subjective opinion

## Increasingly Competitive Market

- Increasing number of real estate agents in Singapore: ~10% increase between 2022 to 2024
- Some agents are offering 1% commission fee instead of the usual 2%

**10%**  
**Dropped Revenue  
per agent**

# POC with WOW 50 real estate agents

WOW App has the potential  
to increase your company's  
bottom-line by \$3M per  
year.

## Forecast and Survey

**200%** Increase in agents'  
revenue

>20% reduction in sales cycle, with the  
potential to double monthly sales

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**2x** Buyers'  
Representative

With the app, >20% of buyers engaged our  
agents; up from 10%

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**3x** Sellers'  
Representative

With the app, 60% of sellers engaged our  
agents; up from 20%

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## Further Enhancements

Increase Loading Speed

Integration with WOW existing system

Map Features to identify nearby amenities

Any other enhancements required; per user feedback

Extend solution to condominiums

## Path to Commercialization

June'25

White label solution to other corporates  
Extend solution to condominium and other markets

Feb'25

Go Live  
Deployment to all agents

Dec'24

Soft Launch (Beta)  
Controlled roll out  
Integrate with our existing system

Now  
Sept'24

Product Development  
Testing



# Comprehensive Solution that delivers 6x return



90%

## Problem

90% of our agents have trouble closing sales.

Current process is time consuming and rely on subjective opinions, leading to inaccurate predictions.

\$0.5M

## Solution

Leverage cutting-edge machine learning algorithms, the app analyzes vast amounts of data to identify trends and patterns.

\$3M

## Impact

Increase agents' productivity by 125%

Increase company's revenue by 3m per annum.



# Thank You

