

PROJECT REPORT

SINGAPORE RESALE FLAT PRICE ESTIMATOR



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1. Introduction

The Singapore Resale Flat Price Estimator is a machine learning application designed to predict the resale prices of Housing Development Board (HDB) flats in Singapore. This tool aims to provide accurate price estimates to assist buyers and sellers in making informed decisions. This report outlines the data analysis, model development, application development, and deployment process involved in the project.

2. Data Analysis

Data Sources

The dataset was sourced from the Singapore government's open data portal, containing historical transaction data for HDB flats. Key features include town, flat type, floor area, storey range, and transaction prices.

Data Preprocessing

- Cleaning: Removed rows with missing or inconsistent values.
- Transformation: Added new features such as ``remaining_lease``, ``current_remaining_lease``, ``years_holding`` and ``price_per_sqm``

Exploratory Data Analysis:

The EDA process aimed to understand the distribution of resale prices and the relationships between various features in the dataset. This involved generating descriptive statistics, visualizations, and correlation analyses to gain insights into the factors influencing resale prices.

3. Model Development

Feature Engineering

- Converted categorical variables to numerical values.
- Created new features to capture the impact of lease remaining and the number of years the flat has been held.

Model Selection

- Evaluated regression models, including Linear Regression and Decision Tree Regression.

Model Training and Evaluation

- The dataset was split into training and testing sets.
- The Decision Tree was trained on the training set and evaluated on the testing set. The model achieved an R-squared value of 96% indicating a strong predictive capability.

4. Application Development

The web application was built using Streamlit, providing a user-friendly interface for inputting data and obtaining price predictions. The application features:

- **Home Tab:** General information about Singapore and HDB flats.
- **Application Tab:** Input form for users to provide flat details and receive predictions with Project summary and developer information.

5. Deployment

The application was deployed on the Streamlit Cloud, making it accessible online.

6. Conclusion

The Singapore Resale Flat Price Estimator effectively predicts HDB flat resale prices, offering valuable insights for potential buyers and sellers. The application is accessible online via Streamlit Cloud, providing a user-friendly interface for inputting flat details and receiving accurate price predictions. Future improvements could involve incorporating additional features and exploring advanced machine learning models to further enhance prediction accuracy.

<https://singapore-flat-resale-estimator-app.streamlit.app/>

Developer Information

This application was developed by Akshaya Muralidharan. Akshaya is a dedicated professional transitioning into Data Science, proficient in Python, data preprocessing, and visualization, with hands-on experience in machine learning algorithms. Connect with Akshaya on [LinkedIn](#)