Singapore Resale Flat Prices Prediction Application

This application provides predictions for the resale prices of flats in Singapore based on various input features such as floor area, lease remaining, and proximity to MRT stations. The application is built using Python with libraries such as pandas, scikit-learn, and Streamlit.

Introduction

The Singapore Resale Flat Prices Prediction application uses a machine learning model to predict the resale prices of flats based on their features. This application can be used by real estate professionals, buyers, and analysts to estimate the resale value of flats in Singapore.

Features

Data Processing: Loads and processes flat data, calculating distances to MRT stations and the CBD.
Model Prediction: Predicts resale prices based on input features using a trained machine learning model.
Interactive Web Interface: Provides a user-friendly interface for inputting data and viewing predictions.

Running the Application

Prerequisites: Ensure you have Python installed on your system along with the required libraries. You can install the necessary libraries using the requirements.txt file.

Run the following command in your terminal: pip install -r requirements.txt

Start the Application:

Navigate to the directory containing app.py (the Streamlit application file).

Run the following command in your terminal: streamlit run app.py

This command will start the Streamlit server and open the application in your default web browser.

Application Layout:

The application will load and display a form for inputting flat details.

Input Parameters
To use the application for predicting a resale price, input the following details in the provided form:

Street Name: Enter the street name where the flat is located.
Block Number: Enter the block number of the flat.
Floor Area (Per Square Meter): Input the total floor area of the flat in square meters.
Lease Commence Date: Enter the year when the lease of the flat commenced.
Storey Range: Provide the storey range (e.g., '1 TO 10').

Predictions

After entering the details, click the "PREDICT RESALE PRICE" button.

The application will process the input and use the trained machine learning model to predict the resale price of the flat.

The predicted resale price will be displayed on the screen.

Technical Details

Data Processing: The application processes the input data to calculate relevant features such as distances to MRT stations and the CBD using the geopy library.

Model: A Decision Tree Regressor model is used for predicting resale prices, trained on historical data of Singapore flats.

Deployment: The application is deployed as a Streamlit web application, utilizing custom CSS for styling and a responsive layout.

Troubleshooting

Issues with Model Loading: Ensure that the model and scaler files (model.pkl and scaler.pkl) are in the correct directory.

API Errors: If there are issues with fetching data from the OneMap API, ensure the API endpoint URLs are correct and accessible.

Performance Issues: The application may be slow with very large datasets. Consider optimizing data processing or using a more efficient model if performance is a concern.

Contact Information
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