

<b>Project Title</b>	<b>Singapore Resale Flat Prices Predicting</b>
<b>Skills take away From This Project</b>	<b>Data Wrangling, EDA, Model Building, Model Deployment</b>
<b>Domain</b>	<b>Real Estate</b>

### **Problem Statement:**

The objective of this project is to develop a machine learning model and deploy it as a user-friendly web application that predicts the resale prices of flats in Singapore. This predictive model will be based on historical data of resale flat transactions, and it aims to assist both potential buyers and sellers in estimating the resale value of a flat.

### **Motivation:**

The resale flat market in Singapore is highly competitive, and it can be challenging to accurately estimate the resale value of a flat. There are many factors that can affect resale prices, such as location, flat type, floor area, and lease duration. A predictive model can help to overcome these challenges by providing users with an estimated resale price based on these factors.

### **Scope:**

The project will involve the following tasks:

1. **Data Collection and Preprocessing:** Collect a dataset of resale flat transactions from the Singapore Housing and Development Board (HDB) for the years 1990 to Till Date. Preprocess the data to clean and structure it for machine learning.
2. **Feature Engineering:** Extract relevant features from the dataset, including town, flat type, storey range, floor area, flat model, and lease commence date. Create any additional features that may enhance prediction accuracy.
3. **Model Selection and Training:** Choose an appropriate machine learning model for regression (e.g., linear regression, decision trees, or random

forests). Train the model on the historical data, using a portion of the dataset for training.

4. **Model Evaluation:** Evaluate the model's predictive performance using regression metrics such as Mean Absolute Error (MAE), Mean Squared Error (MSE), or Root Mean Squared Error (RMSE) and R2 Score.
5. **Streamlit Web Application:** Develop a user-friendly web application using Streamlit that allows users to input details of a flat (town, flat type, storey range, etc.). Utilize the trained machine learning model to predict the resale price based on user inputs.
6. **Deployment on Render:** Deploy the Streamlit application on the Render platform to make it accessible to users over the internet.
7. **Testing and Validation:** Thoroughly test the deployed application to ensure it functions correctly and provides accurate predictions.

### **Deliverables:**

The project will deliver the following deliverables:

- A well-trained machine learning model for resale price prediction.
- A user-friendly web application (built with Streamlit/ Flask / Django) deployed on the [Render platform](#)/ Any Cloud Platform
- Documentation and instructions for using the application.
- A project report summarizing the data analysis, model development, and deployment process.

**Data Source :** <https://beta.data.gov.sg/collections/189/view>

## Results:

The project will benefit both potential buyers and sellers in the Singapore housing market. Buyers can use the application to estimate resale prices and make informed decisions, while sellers can get an idea of their flat's potential market value. Additionally, the project demonstrates the practical application of machine learning in real estate and web development.

## Project Evaluation metrics:

- You are supposed to write a code in a modular fashion (**in functional blocks**)
- Maintainable: It can be maintained, even as your codebase grows.
- Portable: It works the same in every environment (operating system)
- You have to maintain your code on **GitHub**. (Mandatory)
- You have to keep your **GitHub** repo public so that anyone can check your code. (Mandatory)
- Proper readme file you have to maintain for any project development (Mandatory)
- You should include basic workflow and execution of the entire project in the readme file on **GitHub**
- Follow the coding standards: <https://www.python.org/dev/peps/pep-0008/>
- You need to Create a Demo video of your working model and post in **LinkedIn** (Mandatory)

## PROJECT DOUBT CLARIFICATION SESSION ( PROJECT AND CLASS DOUBTS)

**About Session:** The Project Doubt Clarification Session is a helpful resource for resolving questions and concerns about projects and class topics. It provides support in understanding project requirements, addressing code issues, and clarifying class concepts. The session aims to enhance comprehension and provide guidance to overcome challenges effectively.

**Note:** Book the slot at least before 12:00 Pm on the same day

**Timing:** Tuesday, Thursday, Saturday (5:00PM to 7:00PM)

**Booking link :** <https://forms.gle/XC553oSbMJ2Gcfug9>

## LIVE EVALUATION SESSION (CAPSTONE AND FINAL PROJECT)

**About Session:** The Live Evaluation Session for Capstone and Final Projects allows participants to showcase their projects and receive real-time feedback for improvement. It assesses project quality and provides an opportunity for discussion and evaluation.

**Note:** This form will Open on Saturday and Sunday Only on Every Week

**Timing:** Monday-Saturday (12:00PM to 1:00PM)

**Booking link :** <https://forms.gle/1m2Gsro41fLtZurRA>