Project Report: House Price Prediction

Title:

House Price Prediction Web Application using Linear Regression and Flask

Objective:

To build a machine learning-powered web application that predicts house prices based on various input features such as area, number of bedrooms, bathrooms, etc., using a custom dataset.

Tools and Technologies Used:

- Programming Language: Python
- Web Framework: Flask
- Machine Learning Library: scikit-learn
- Data Handling: pandas, numpy
- Frontend: HTML, CSS, JavaScript
- Model Serialization: Pickle

Dataset Description:

- Source: Custom dataset (Housing.csv / house_data.csv)
- Features Used:
  - area, bedrooms, bathrooms, stories, parking, mainroad, guestroom, basement, hotwaterheating, airconditioning, prefarea, furnishingstatus
- Target Variable: price

Data Preprocessing:

- Categorical features encoded using Label Encoding or One-Hot Encoding
- Missing values handled and irrelevant columns removed
- Dataset split into features (X) and target (y)

Model Building:

- Algorithm Used: Linear Regression

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- Library: scikit-learn
- Process:
  - Model trained using the cleaned dataset
  - Model saved using pickle

Web Interface:

- Designed using HTML with inline CSS and JavaScript
- Users input house details through a beautiful and responsive form
- On form submission, Flask receives the data and returns the predicted price

Sample UI and Data Preview:

- Homepage contains input fields for all features
- Footer section shows a sample of the dataset
- Predicted price shown on a result page

Project Structure:

project/

??? app.py

??? train_model.py

??? house_data.csv

??? model/

?   ??? house_price_model.pkl

??? templates/

?   ??? index.html

?   ??? result.html

??? requirements.txt

Conclusion:

This project demonstrates how machine learning can be integrated into a web application to provide real-time price predictions.