Executive Summary: Commodity Price Predictor App

Introduction

The Commodity Price Predictor App leverages machine learning to provide price predictions for various commodities like cars, houses, laptops, and shoes. Users can input specific features related to each commodity, and the app returns an estimated price based on historical data and trained models.

Purpose of the App

The primary goal of the app is to:
- Provide accurate price predictions for key commodities.
- Help users make informed decisions in buying and selling these commodities.
- Offer an intuitive, user-friendly interface for easy interaction.

Why I Made This App

- Solving a Market Gap: Many users struggle to estimate fair prices when buying or selling cars, houses, laptops, or shoes. The app provides a reliable tool to assist with price forecasting.
- Learning Experience: Developing the app was a way to enhance my machine learning and software development skills.
- Convenience for Users: Instead of browsing multiple sources or relying on unreliable pricing information, users can get quick, accurate predictions with minimal effort.

How to Use the App

1. Launch the App:
   - Open the app in your web browser using streamlit run app.py.
2. Select a Commodity:
   - Choose between cars 🚗, houses 🏡, laptops 💻, or shoes 👟 from the sidebar.
3. Provide Details:
   - Enter commodity-specific information (e.g., car brand, house location, laptop specs, or shoe size).
4. Click 'Predict Price':
   - Hit the button to get a price estimate based on your input.
5. View Prediction:
   - The predicted price will be displayed on the screen.

How the App Was Made

Technologies Used

The Commodity Price Predictor App utilizes several key technologies. Streamlit is used to create the user-friendly web interface. For data manipulation, the app relies on Pandas and NumPy, which are essential for efficient data processing. The machine learning models are built using Scikit-learn, and Joblib is used to save and load these models for real-time predictions.

Machine Learning Models

For the Car Price Prediction, a Linear Regression model estimates used car prices based on features like company, year, kilometers driven, and fuel type. The House Price Prediction also uses a Linear Regression model, which predicts prices based on location, area, and number of bathrooms/bedrooms.

The Laptop Price Prediction model is based on a Random Forest Regressor, which predicts laptop prices based on features like brand, RAM, weight, and screen size. Similarly, the Shoe Price Prediction uses a Random Forest Regressor to predict resale prices of shoes based on factors like brand, size, release date, and retail price

Development Process

The development of the app began with creating the interface using Streamlit, ensuring it was intuitive and easy to use. The machine learning models were trained using the Kaggle datasets, tested, and optimized for accurate predictions. Once the models were ready, they were saved using Joblib, allowing the app to load and apply the models in real-time.
By following this process, the Commodity Price Predictor App was able to provide accurate price predictions for cars, houses, laptops, and shoes, making it a useful tool for users.

Data Sources

All the datasets used for training the models were sourced from Kaggle, a platform offering high-quality, real-world datasets.

Conclusion

The Commodity Price Predictor App provides a practical solution for estimating the value of key commodities based on specific input features. It is built using modern technologies and machine learning techniques, making it a powerful tool for anyone involved in buying, selling, or pricing commodities. With its easy-to-use interface, the app simplifies the process of price prediction and helps users make better-informed decisions.