#### ****Mobile Price Prediction System****

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### 1. ****Project Overview****

This project is a Streamlit-based web application that enables users to predict the price of a vehicle based on its specifications, compare multiple configurations, and analyze structured dataset entries. It integrates machine learning with interactive UI components to provide an intuitive and functional tool for vehicle price estimation and comparison.

1. **Objectives**

Predict vehicle prices based on user-defined specifications.

Compare multiple predicted vehicle entries (dataset-based and custom).

Format and display raw vehicle specs in a user-friendly format.

Maintain batch predictions and downloading of the results.

1. **Tech Stack**

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| **Layer** | **Tools/Framework** |
| Frontend | Streamlit |
| Backend | Python, scikit-learn, pandas |
| UI/UX | Streamlit widgets, session state |
| Deployment | Local machine (.bat supported) |

1. **Key Features**

**Vehicle Price Predictor**: Accepts inputs like brand, model, fuel type, mileage, engine power, and more to predict price using a trained ML model.

**Multiple Prediction Options**: The User can pick Basic, Advanced and Batch Prediction Modes.

**Comparison Tool**: Allows side-by-side price comparison between dataset vehicles and user-customized vehicles.

**Dataset Browser**: Explore structured dataset entries for reference and validation.

**Specification Formatter**: Converts raw data into a clean, human-readable vehicle specification sheet.

1. **Model Training**

* Model: XGBoost model trained using scikit-learn.
* Dataset: Mobile price/specification dataset with features like:

1. Vehicle Brand, Model, Year of Manufactor
2. Fuel Type, Transmission, Engine, Mileage etc.

* Output: Predicted price (formatted in currency with two decimal precision).

1. **Highlights**

* Interactive and clean UI using Streamlit.
* Modular design with separation of logic, UI, and helpers.
* Option to check Insights of the trained dataset and model.
* Supports running via .bat for quick local execution.

### ****Contact****

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