**Car Price Predictor**

# **The domain of the Project:**

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# **Machine Learning, Artificial Intelligence, Web Development, Cloud Deployment**

# **Team Mentors (and their designation):**

# **[Tarun Joseph], [ML ENGINEER]**

# **Period of the project**

# **August 2025 to September 2025**

**Declaration**

**The project titled “**Car Price Predictor**” has been mentored by Tarun Joseph, organised by SURE Trust, from April 2023 to August 2023, for the benefit of the educated unemployed rural youth for gaining hands-on experience in working on industry relevant projects that would take them closer to the prospective employer. I declare that to the best of my knowledge the members of the team mentioned below, have worked on it successfully and enhanced their practical knowledge in the domain.**

**Tarun Joseph**

**Designation — ML ENGINEER at TCS**

**Prof. Radhakumari**

**Executive Director & Founder**

**SURE Trust**

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**Executive Summary**

The **Car Price Predictor** project leverages **machine learning (Random Forest algorithm)** integrated into a **Django-powered web application** to estimate the resale value of cars. By inputting car-specific details such as brand, year of manufacture, fuel type, kilometers driven, and transmission type, users receive accurate price predictions. The model is deployed on **Render cloud platform** for global accessibility.

The system provides value to individuals and businesses by reducing guesswork in car valuation, empowering informed decisions, and bridging the gap between buyers and sellers.

**Introduction**

**Background and Context**

The automobile resale market often suffers from inaccurate or biased price evaluations. Buyers and sellers frequently rely on intuition or limited data sources, leading to mismatched expectations.

**Problem Statement**

To build an AI-powered system that accurately predicts the resale price of cars based on historical data and machine learning algorithms.

**Scope and Limitations**

* Scope: Used cars resale prediction using structured datasets and cloud deployment.
* Limitation: Prediction accuracy depends on dataset quality and parameters provided.

**Innovation Component**

* Real-time, user-friendly web interface via Django.
* Cloud deployment on Render ensures wide accessibility.
* Integration of Random Forest for robust prediction accuracy.

**Project Objectives**

* To design and train a machine learning model for car price prediction.
* To integrate the ML model into a Django web application.
* To deploy the system on the cloud for real-time user access.
* To provide a simple yet effective user interface for non-technical users.

**Methodology and Results**

**Methods / Technology Used**

* Machine Learning: **Random Forest Algorithm**
* Web Framework: **Django**
* Backend: Python
* Frontend: HTML, CSS
* Database: MYSQL
* Deployment: Render Cloud

**Tools / Software Used**

* Jupyter Notebook / Google Colab
* PyCharm / VS Code
* GitHub for version control
* Render for deployment

**Data Collection Approach**

A dataset of used cars (with attributes like brand, model, year, fuel type, kilometers driven, etc.) was used. Data preprocessing included cleaning, encoding categorical variables, and normalizing values.

**Project Architecture flow**

1. Data preprocessing
2. Training Random Forest model
3. Saving trained model as .pkl
4. Django app loads ML model
5. User inputs car details via form
6. Prediction displayed as output
7. Application hosted on Render

**Project GitHub Link**

<https://github.com/rajatrawal/car-price-predictor-2>

**Social / Industry Relevance**

* Helps **buyers** avoid overpriced deals.
* Helps **sellers** set competitive market-aligned prices.
* Can be extended into **used-car dealer platforms** (like Cars24, OLX, Spinny).
* Reduces fraud and misinformation in the used-car market.

**Learning and Reflection**

* Learned ML model deployment with Django and Render.
* Gained experience in managing project milestones and integrating ML with web technologies.
* Improved technical knowledge in preprocessing datasets, version control, and GitHub collaboration.

Overall, the project improved our **technical, problem-solving, and teamwork skills**.

**Conclusion and Future Scope**

**Conclusion**

The Car Price Predictor successfully integrates machine learning with a Django web app to deliver real-time predictions. The project meets its primary objective of helping users make informed decisions in car trading.

**Future Scope**

* Extend dataset to include more car brands and parameters.
* Build mobile app version for Android/iOS.
* Incorporate deep learning for improved accuracy.
* Integrate with e-commerce APIs for direct car listing and price recommendation.