📊 Used Cars Exploratory Data Analysis (EDA) Project – Summary

🔹 Project Overview

This project focuses on analyzing the **Indian used car market** by performing an end-to-end **Exploratory Data Analysis (EDA)** on a dataset containing **5,900+ automobile records with 15+ attributes**. The objective was to identify **key factors influencing used car prices** and build an **automated EDA system** to reduce manual analysis effort.

🔹 What I Built

- Developed an **end-to-end EDA application using Python and Streamlit**
- Implemented an **automated visualization engine** that dynamically selects:
    - **Count plots** for categorical variables
    - **Histograms & KDE plots** for numerical variables with skewness detection
- Designed the solution to **reduce manual analysis time by ~70%**

🔹 Key Insights & Findings

- **Kilometers Driven** has a **strong negative correlation (–0.63)** with car price
- **Engine capacity** shows a **positive correlation (0.66)** with price
- **Automatic transmission cars** are priced higher than manual ones
- **Diesel cars** show increasing demand due to rising petrol prices
- Location plays a role, with **Mumbai and Hyderabad** showing higher used-car activity
- Older car models depreciate significantly, impacting resale value

---

🔹 Business Value

- Enabled **data-driven pricing decisions** for used car valuation
- Helped identify **high-profit inventory segments** (automatic & diesel cars)
- Provided insights to improve **sales strategy**, customer offers, and inventory planning

- Highlighted opportunities for **future modeling and clustering by location and car type**

🔹 Tools & Technologies

Python, NumPy, Pandas, Matplotlib, Seaborn, Streamlit, Jupyter Notebook, VS Code

---

🔹 Why This Project Matters

The Indian used-car market is growing faster than the new-car market. This project demonstrates how **data analytics can support smarter buying, pricing, and selling strategies** in a competitive and high-demand market.