Practice 11 – Purchase and sale of Cars 

We work for one of the most popular car buying and selling platforms in the world. From the product team they want to introduce a price recommender for the user based on the qualities of the car they want to sell. They have asked the Data Science team to tackle the challenge including:

1. An exhaustive **analysis of the data** of the vehicles introduced in the platform in the past.
2. The development of a **predictive pricing model**.
3. The creation of a **streamlit app** that allows you to view the results of the analysis and interact with the model.
4. Adding an **explainability** tab to the app so that all users can understand why each price is recommended to them.

❖ **What do we know about the data?**

We have a dataset with **8,8K entries** of ads with car info. Among the features, we find:

- **car**: The brand or make of the car.
- **price**: The price of the car in the dataset's local currency.
- **body**: The body type of the car (e.g., crossover, sedan, van).
- **mileage**: The car's mileage, likely indicating how many kilometers or miles the car has been driven.
- **engV**: The engine volume or capacity, usually in liters.
- engType: The type of engine, indicating the fuel it uses (e.g., Gas, Petrol, Diesel).
- **registration**: Indicates whether the car is registered (yes or no).
- **year**: The year of manufacture or the model year of the car.
- **model**: The model name or designation of the car.
- **drive**: The type of drive system the car has (e.g., full, rear, front).

car	price	body	mileage	engV	engType	registration	year	model	drive
Ford	15500.0	crossover	68	2.5	Gas	yes	2010	Kuga	full
Mercedes-Benz	20500.0	sedan	173	1.8	Gas	yes	2011	E-Class	rear
Mercedes-Benz	35000.0	other	135	5.5	Petrol	yes	2008	CL 550	rear

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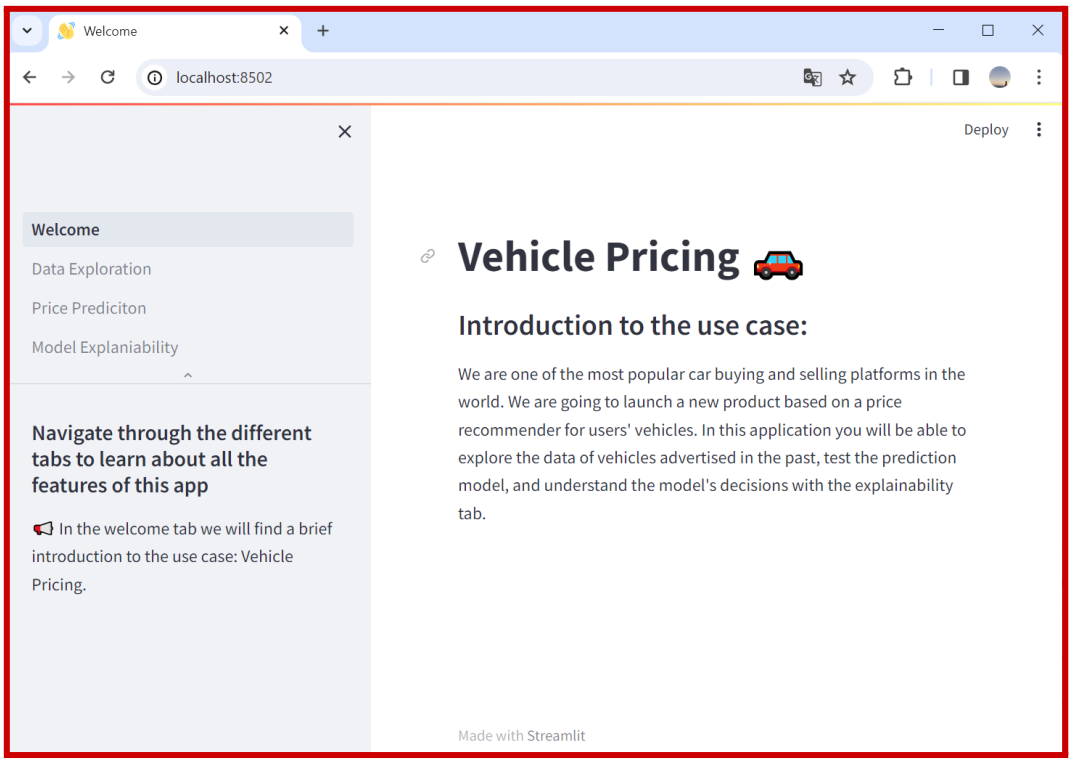
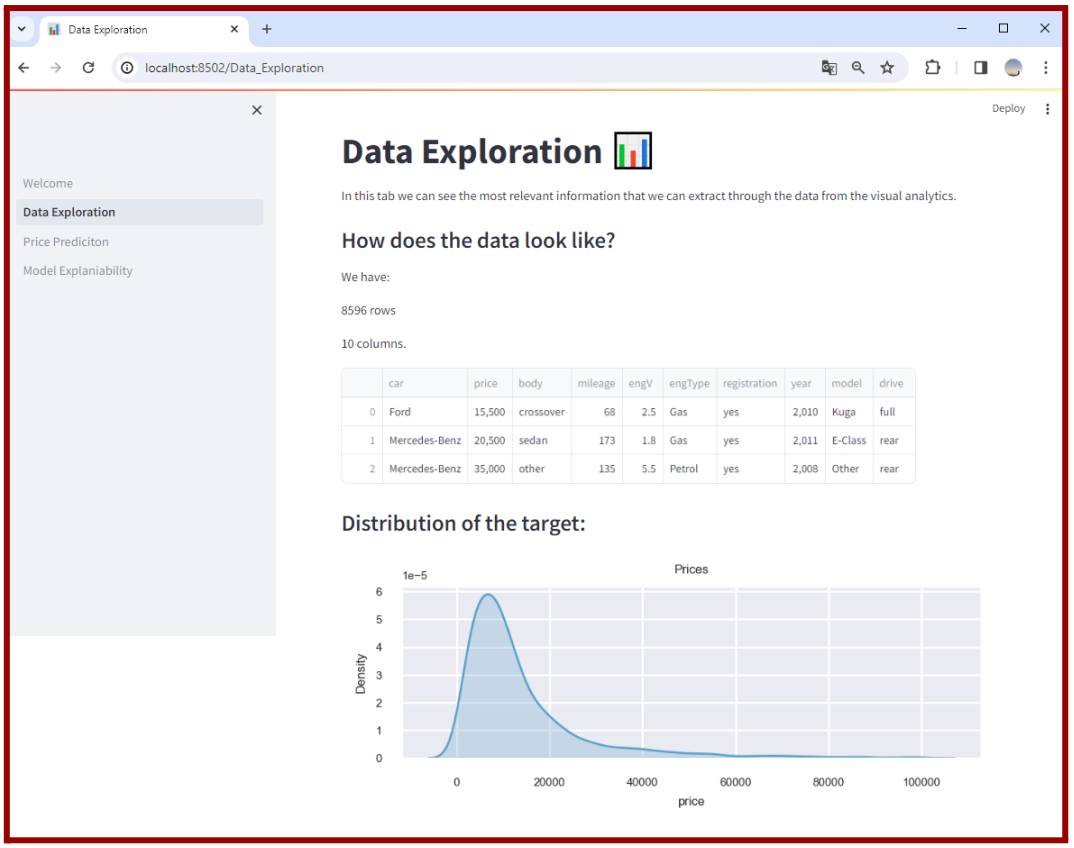
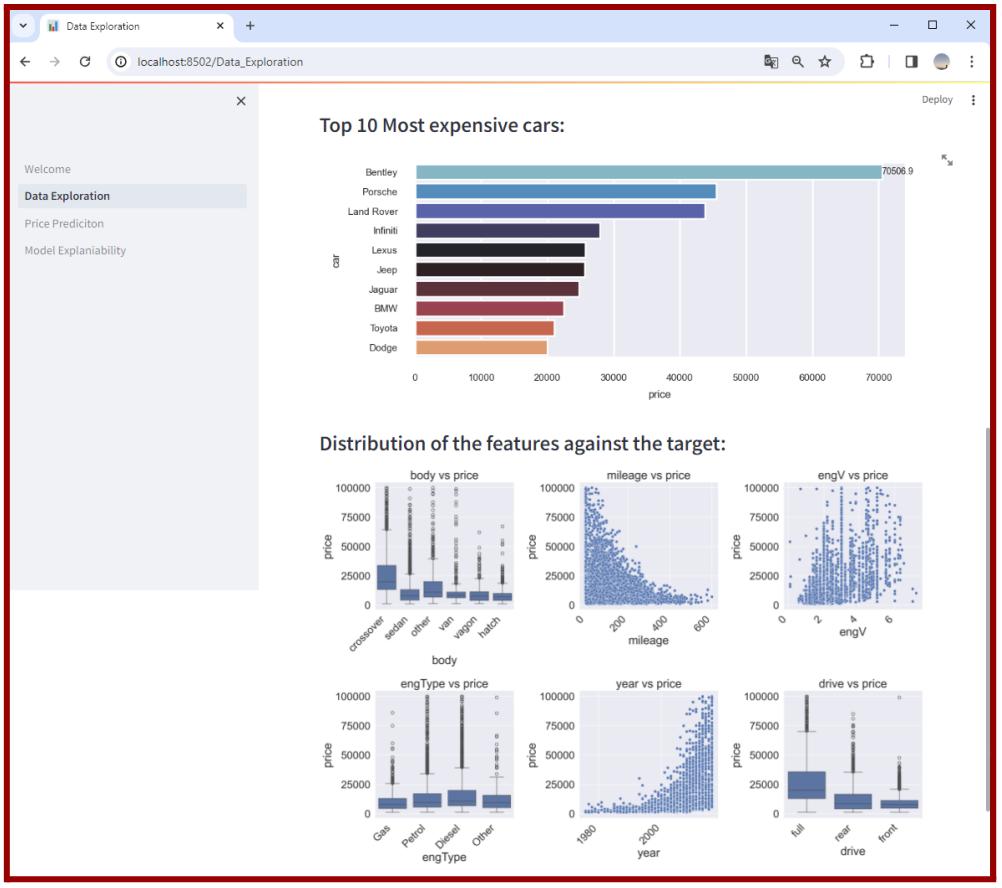
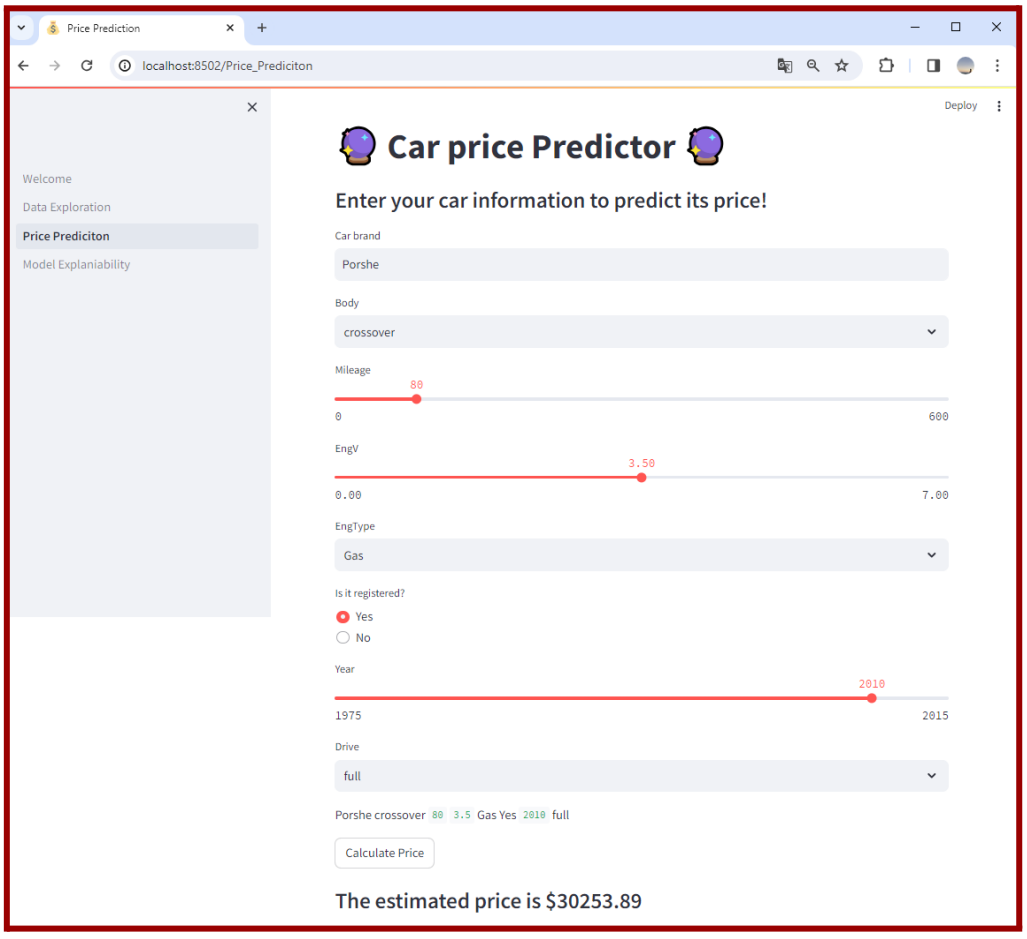
Example of a webapp with the minimum requirements (grade=5)






Data Exploration
localhost:8502/Data_Exploration
Deploy
Welcome
Data Exploration
Price Prediciton
Model Explaniability
Top 10 Most expensive cars:
Bentley
Porsche
Land Rover
Infiniti
Lexus
Jeep
Jaguar
BMW
Toyota
Dodge
70506.9
car
price
Distribution of the features against the target:
body vs price
mileage vs price
engV vs price
engType vs price
year vs price
drive vs price
crossover
sedan
other
van
vagon
hatch
body
mileage
engV
Gas
Petrol
Diesel
Other
engType
year
full
rear
front
drive


Price Prediction
localhost:8502/Price_Prediciton
Deploy
Welcome
Data Exploration
Price Prediciton
Model Explaniability
Car price Predictor
Enter your car information to predict its price!
Car brand
Porshe
Body
crossover
Mileage
80
0
600
EngV
3.50
0.00
7.00
EngType
Gas
Is it registered?
Yes
No
Year
2010
1975
2015
Drive
full
Porshe crossover 80 3.5 Gas Yes 2010 full
Calculate Price
The estimated price is $30253.89

Delivery:

Delivery Content: Zip_uXXXXXX with:

- ➔ Jupyter notebook (EDA + build & store model + Explainability visualizations+insights).
- ➔ Streamlit app zip (data exploration, predictive model and local and global explainability).

Delivery Date: 29/11/2023 at 23:55