EXPERINMENT-33

33. Scenario: You work as a data scientist for an automobile company that sells various car models. The company has collected data on different car attributes, such as engine size, horsepower, fuel efficiency, and more, along with their corresponding prices. The marketing team wants to build a predictive model to estimate the price of cars based on their features. Question: Your task is write a Python program that perform linear regression modeling to predict car prices based on a selected set of features from the dataset. Additionally, you need to evaluate the model's performance and provide insights

Code:

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_squared_error, r2_score
data = pd.read_csv("cars.csv")
X = data[["mileage", "age"]]
y = data["price”]
X_train, X_test, y_train, y_test = train_test_split(
    X, y, test_size=0.2, random_state=0
)
model = LinearRegression()
model.fit(X_train, y_train)
y_pred = model.predict(X_test)
print("MSE:", mean_squared_error(y_test, y_pred))
print("R² Score:", r2_score(y_test, y_pred))
m = float(input("Enter mileage: "))
a = float(input("Enter age: "))
new_car = pd.DataFrame([{
    "mileage": m,
    "age": a
}])
pred = model.predict(new_car)[0]
print("\nPredicted Car Price:", round(pred, 2))
```

Output:

```
Predicted Car Price: 269561.47
PS C:\Users\karan\OneDrive\Desktop\New folder (2)> python 33.py
MSE: 1483278361.816545
R² Score: 0.6135744741105614
Enter mileage: 45000
Enter age: 5

Predicted Car Price: 269561.47
```