**MLA0201-Fundamentals of Machine Learning**

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Experiment 13:

Implement the Car Price Prediction Model using Python.

**Code:**

import pandas as pd

import matplotlib.pyplot as plt

from sklearn.model\_selection import train\_test\_split

from sklearn.preprocessing import LabelEncoder, StandardScaler

from sklearn.linear\_model import LinearRegression

from sklearn.metrics import r2\_score, mean\_squared\_error

import numpy as np

data = pd.read\_csv("car\_price\_data.csv")

X = data.drop('Price', axis=1)

y = data['Price']

encoders = {}

for column in X.columns:

if X[column].dtype == 'object':

encoders[column] = LabelEncoder()

X[column] = encoders[column].fit\_transform(X[column])

scaler = StandardScaler()

X = scaler.fit\_transform(X)

X\_train, X\_test, y\_train, y\_test = train\_test\_split(

X, y, test\_size=0.3, random\_state=1

)

model = LinearRegression()

model.fit(X\_train, y\_train)

print("Car Price Prediction model trained successfully")

y\_pred = model.predict(X\_test)

r2 = r2\_score(y\_test, y\_pred)

rmse = np.sqrt(mean\_squared\_error(y\_test, y\_pred))

print("R² Score:", r2)

print("RMSE:", rmse)

new\_car = pd.DataFrame([{

'Brand': 'Toyota',

'Fuel': 'Petrol',

'Transmission': 'Automatic',

'EngineCC': 2000,

'Mileage': 15,

'Seats': 5

}])

for column in new\_car.columns:

if column in encoders:

new\_car[column] = encoders[column].transform(new\_car[column])

new\_car\_scaled = scaler.transform(new\_car)

predicted\_price = model.predict(new\_car\_scaled)

print("Predicted Car Price:", predicted\_price[0])

y\_all\_pred = model.predict(X)

plt.figure()

plt.scatter(y, y\_all\_pred)

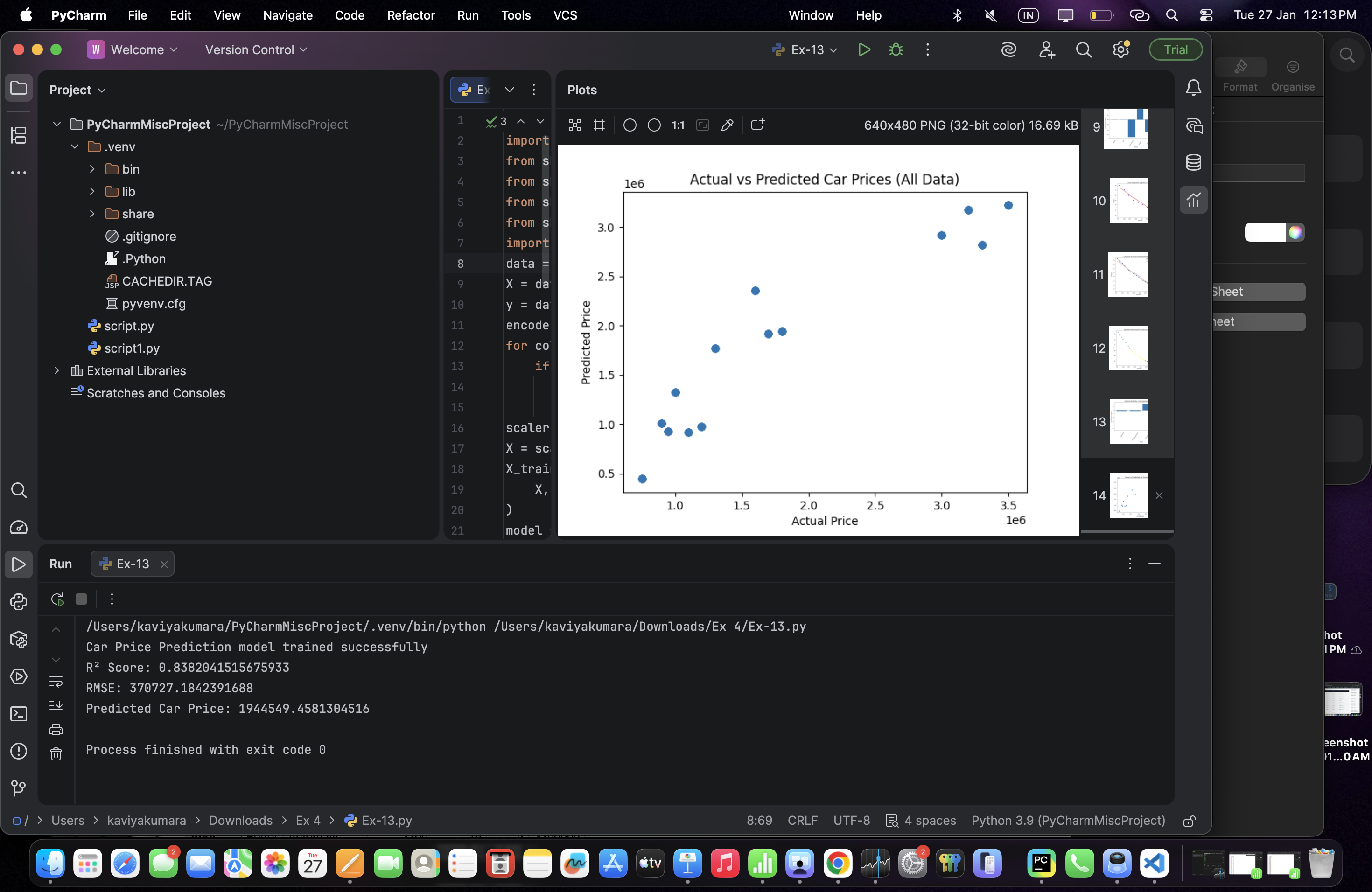
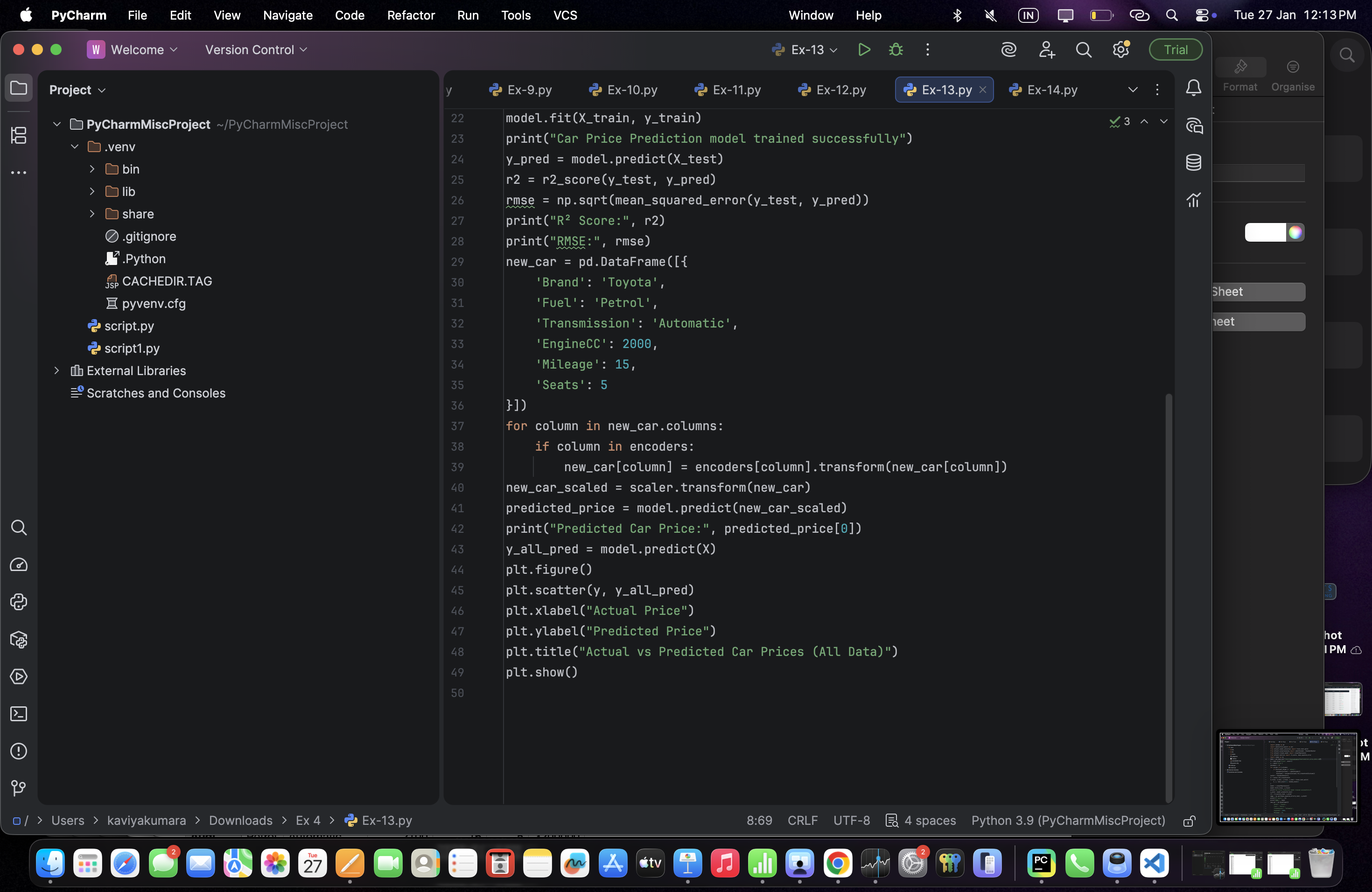
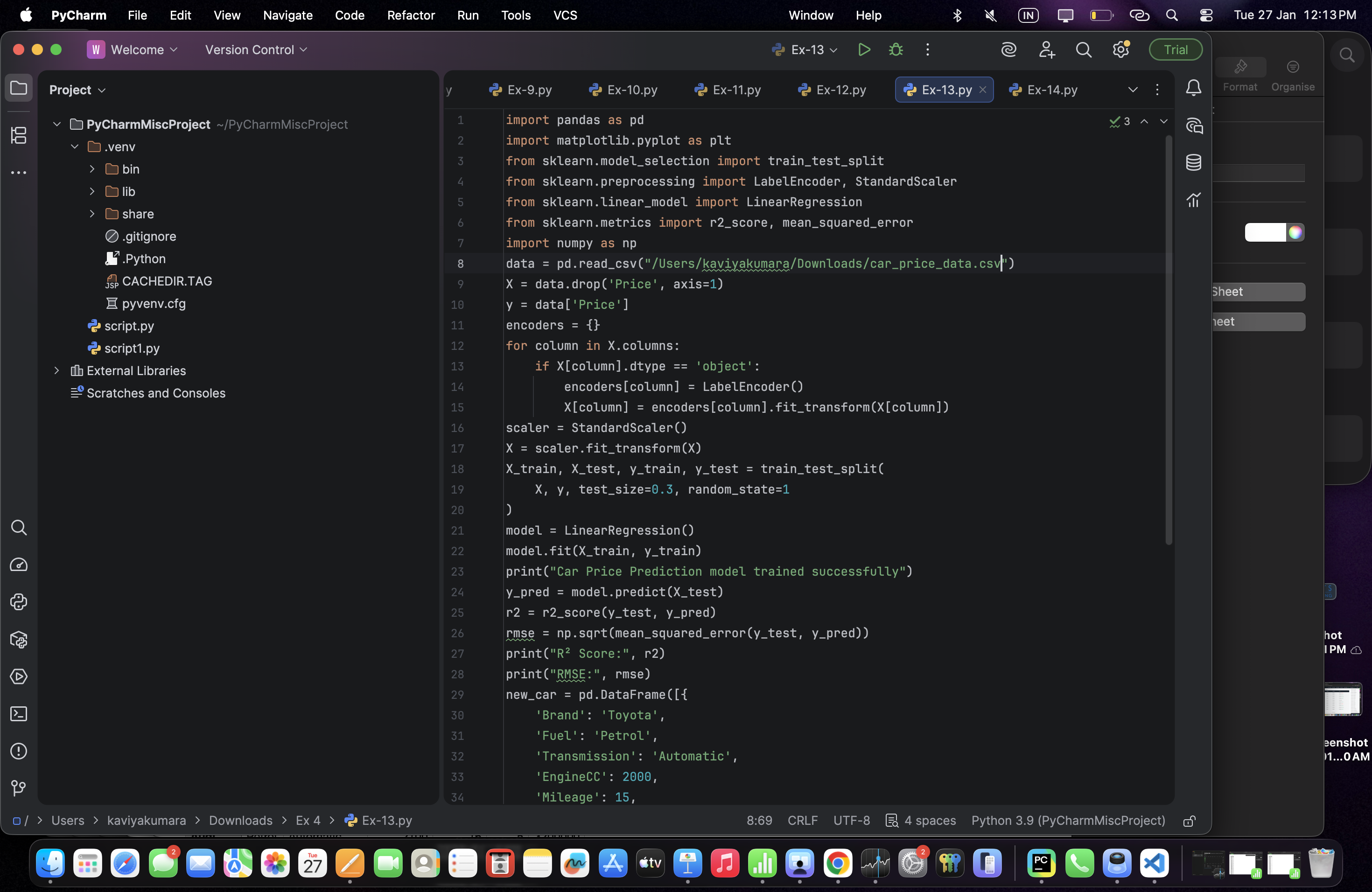
plt.xlabel("Actual Price")

plt.ylabel("Predicted Price")

plt.title("Actual vs Predicted Car Prices (All Data)")

plt.show()

**Output:**

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