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ENROLLMENT – 2020ITB007

GROUP – HX

Mobile Price Prediction

ASSIGNMENT-02

**Use the given csv dataset and develop a model that will take**

**mobile features as input from the user and give a predicted price as**

**output.**

**1. Allow user to give a prompt and from that give user a Price-range.**

import pandas as pd

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

from sklearn.tree import DecisionTreeRegressor

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

# Read the data from CSV file

data = pd.read\_csv('Mobile-price-prediction.csv')

data

# Split the data into X (features) and y (target)

X = data.iloc[:, :-1]

y = data.iloc[:, -1]

# Preprocess the data using One-Hot Encoding

X = pd.get\_dummies(X, drop\_first=True)

# Split the data into training and testing sets

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.2, random\_state=42)

# Train different machine learning models on the training set

models = {

'Decision Tree Regressor': DecisionTreeRegressor(random\_state=42),

}

for name, model in models.items():

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

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

mse = mean\_squared\_error(y\_test, y\_pred)

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

print(f'{name}: Mean Squared Error = {mse:.2f}, R^2 Score = {r2:.2f}')

**OUTPUT:**

Decision Tree Regressor: Mean Squared Error = 42066.67, R^2 Score = 0.64

**2. Given A price range suggest the user the configuration(features) the  
user should look for when buying a phone in the same price range.**

# Train the final model on the entire dataset

final\_model = DecisionTreeRegressor(random\_state=42)

final\_model.fit(X, y)

# Make a prediction for a new mobile phone

new\_mobile = {'Brand': 'Samsung', 'Model': 'Galaxy S21', 'Storage': '256 GB', 'RAM': '8 GB','Screen Size (inches)': 6.2, 'Camera (MP)': '64 + 12 + 12', 'Battery Capacity (mAh)': 4000}

new\_mobile = pd.DataFrame(new\_mobile, index=[0])

new\_mobile = pd.get\_dummies(new\_mobile, drop\_first=True)

predicted\_price = final\_model.predict(new\_mobile)

print(f'Predicted price: ${predicted\_price[0]:.2f}')

**OUTPUT:**

Predicted price: $845.44

Therefore, according to our model, a Samsung Galaxy S21 with 256 GB storage, 8.