# House Price Prediction using Linear Regression  
# Import required libraries  
import numpy as np  
import pandas as pd  
import matplotlib.pyplot as plt  
  
# Step 1: Create a dataset  
data = {  
 'House\_Size\_sqft': [**500, 700, 900, 1100, 1300, 1500, 1700, 1900, 2100, 2300**]**,** 'House\_Price': [**150000, 200000, 250000, 300000, 350000, 400000, 450000, 500000, 550000, 600000**]  
}  
  
# Step 2: Convert to DataFrame  
df = pd.DataFrame(data)  
print("Dataset:\n"**,** df)  
  
# Step 3: Visualize data  
plt.scatter(df['House\_Size\_sqft']**,** df['House\_Price']**,** color='blue')  
plt.title("House Size vs Price")  
plt.xlabel("House Size (sqft)")  
plt.ylabel("House Price (in ₹)")  
plt.show()  
  
# Step 4: Prepare data  
X = df['House\_Size\_sqft'].values  
Y = df['House\_Price'].values  
  
# Step 5: Calculate slope (m) and intercept (c)  
mean\_x = np.mean(X)  
mean\_y = np.mean(Y)  
  
numerator = np.sum((X - mean\_x) \* (Y - mean\_y))  
denominator = np.sum((X - mean\_x) \*\* **2**)  
m = numerator / denominator  
c = mean\_y - (m \* mean\_x)  
  
print(f"Slope (m): {m}")  
print(f"Intercept (c): {c}")  
  
# Step 6: Predict prices  
Y\_pred = m \* X + c  
  
# Step 7: Plot regression line  
plt.scatter(X**,** Y**,** color='blue'**,** label='Actual Prices')  
plt.plot(X**,** Y\_pred**,** color='red'**,** label='Predicted Line')  
plt.title("House Price Prediction")  
plt.xlabel("House Size (sqft)")  
plt.ylabel("House Price (in ₹)")  
plt.legend()  
plt.show()  
  
# Step 8: Predict new house price  
size = float(input("Enter the house size (in sqft): "))  
predicted\_price = m \* size + c  
print(f"Predicted price for {size} sqft house is ₹{predicted\_price:.2f}")