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pip install numpy scikit-learn
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Requirement already satisfied: numpy in /usr/local/lib/python3.11/dist-packages (2.0.2)
Requirement already satisfied: scikit-learn in /usr/local/lib/python3.11/dist-packages (1.6.1)
Requirement already satisfied: scipy>=1.6.0 in /usr/local/lib/python3.11/dist-packages (from scikit-learn) (1.11.0)
Requirement already satisfied: joblib>=1.2.0 in /usr/local/lib/python3.11/dist-packages (from scikit-learn) (1.3.2)
Requirement already satisfied: threadpoolctl>=3.1.0 in /usr/local/lib/python3.11/dist-packages (from scikit-learn) (3.2.0)

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from sklearn.linear_model import LinearRegression
import numpy as np
import pandas as pd

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df = pd.read_excel("HW 6 Data.xlsx")
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# Demand for Box Office Movies (Dependent Variable Y)
# Revenue = df['BoxOfficeRevenue'].tolist()

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# Input independent variables
# ProductionBudget (x1), GenrePopularity (x2), CastStarPower (x3)
X = df[['ProductionBudget', 'GenrePopularity', 'CastStarPower']].values

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# Create a linear regression model
model = LinearRegression()

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# Fit the model with our dataset
model.fit(X, Y)

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# Read the coefficient for each independent variable
coefficients = model.coef_

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# Read the intercept
intercept = model.intercept_

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print("Regression Coefficients:")
print(f"  Production Budget: {round(coefficients[0],4)}")
print(f"  Genre Popularity: {round(coefficients[1],4)}")
print(f"  Cast Star Power: {round(coefficients[2],4)}")
print(f"Intercept: {round(intercept,4)}")

print(f"\nLinear Regression Model: Box Office Revenue = {round(intercept,4)} + {round(coe

predicting revenue for a new movie with specific data
New_Movie = [[120, 8, 6]]
predicted_movie_revenue = model.predict(New_Movie)
print(f'The predicted revenue for the new movie is: {predicted_movie_revenue}')
```

➡ Regression Coefficients:

- Production Budget: 3.5993
- Genre Popularity: 9.8008
- Cast Star Power: 13.5596
- Intercept: -103.8581

Linear Regression Model: Box Office Revenue = -103.8581 + 3.5993 * Production Budget + 9.8008 * Genre Popularity
 The predicted revenue for the new movie is: [487.82329897]

