1. **Demonstration of Linear least regression.**

import numpy as np  
from sklearn.linear\_model import LinearRegression  
import matplotlib.pyplot as plt  
np.random.seed(42)  
X = 2 \* np.random.rand(100, 1)  
y = 4 + 3 \* X + np.random.randn(100, 1)  
  
model = LinearRegression()  
  
model.fit(X, y)  
  
X\_new = np.array([[0], [2]])  
y\_pred = model.predict(X\_new)  
  
plt.scatter(X, y, label='Original data')  
plt.plot(X\_new, y\_pred, 'r-', label='Regression line')  
plt.xlabel('X')  
plt.ylabel('y')  
plt.legend()  
plt.show()  
  
print('Intercept (beta\_0):', model.intercept\_[0])  
print('Slope (beta\_1):', model.coef\_[0][0])

* **Output: Represent Graphically.**

