

```

import numpy as np
import pandas as pd
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_squared_error, r2_score

np.random.seed(0)
fertilizer = np.random.uniform(50, 200, 100)
rainfall = np.random.uniform(200, 1000, 100)
temperature = np.random.uniform(10, 35, 100)
yield_ = 0.05 * fertilizer + 0.01 * rainfall - 0.1 * temperature + np.random.normal(0, 2, 100)

df_crop = pd.DataFrame({
    'Fertilizer': fertilizer,
    'Rainfall': rainfall,
    'Temperature': temperature,
    'Yield': yield_
})

X_crop = df_crop[['Fertilizer', 'Rainfall', 'Temperature']]
y_crop = df_crop['Yield']

X_train, X_test, y_train, y_test = train_test_split(X_crop, y_crop, test_size=0.2, random_state=42)

model_crop = LinearRegression()
model_crop.fit(X_train, y_train)

y_pred = model_crop.predict(X_test)

print("Crop Yield Prediction")
print("Coefficients:", model_crop.coef_)
print("Intercept:", model_crop.intercept_)
print("Mean Squared Error:", mean_squared_error(y_test, y_pred))
print("R2 Score:", r2_score(y_test, y_pred))

```

Crop Yield Prediction  
Coefficients: [ 0.04134566 0.00867322 -0.11424962]  
Intercept: 1.9476837598676813  
Mean Squared Error: 4.684931352071918  
R2 Score: 0.47460485295427646

```

import numpy as np
import pandas as pd
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_squared_error, r2_score

np.random.seed(0)
size = np.random.uniform(800, 3500, 100)
bedrooms = np.random.randint(1, 6, 100)
age = np.random.uniform(0, 30, 100)
price = 150 * size + 10000 * bedrooms - 3000 * age + np.random.normal(0, 50000, 100)

df_real_estate = pd.DataFrame({
    'Size': size,
    'Bedrooms': bedrooms,
    'Age': age,
    'Price': price
})

X_real = df_real_estate[['Size', 'Bedrooms', 'Age']]
y_real = df_real_estate['Price']

X_train_real, X_test_real, y_train_real, y_test_real = train_test_split(X_real, y_real, test_size=0.2, random_state=42)

model_real = LinearRegression()
model_real.fit(X_train_real, y_train_real)

y_pred_real = model_real.predict(X_test_real)

print("Real Estate Price Prediction")
print("Coefficients:", model_real.coef_)
print("Intercept:", model_real.intercept_)
print("Mean Squared Error:", mean_squared_error(y_test_real, y_pred_real))
print("R2 Score:", r2_score(y_test_real, y_pred_real))

```

Real Estate Price Prediction  
Coefficients: [ 145.26585738 6016.49477411 -4146.89585228]  
Intercept: 38766.20982898431

Mean Squared Error: 2766398586.2704372  
R2 Score: 0.8181142752645025