NAME: SOHAN KATAGERI

ROLL NO: 25

PRACTICAL: 4

```
import pandas as pd
from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_squared_error, r2_score
import matplotlib.pyplot as plt

# Load the Iris dataset
iris = load_iris()
X = pd.DataFrame(iris.data, columns=iris.feature_names)
y = iris.target

# Split the data into training and testing sets (80% training, 20%
testing)
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)

# Instantiate the Linear Regression model
model = LinearRegression()

# Train the model on the training set
model.fit(X_train, y_train)

# Make predictions on the testing set
y_pred = model.predict(X_test)

# Evaluate the model
mse = mean_squared_error(y_test, y_pred)
r2 = r2_score(y_test, y_pred)

# Display the evaluation metrics
print(f"Iris Dataset:")
print(f"Mean Squared Error (MSE): {mse:.4f}")
print(f"R-squared (R2): {r2:.4f}")

# Plotting predicted vs actual values
plt.scatter(y_test, y_pred)
plt.xlabel("Actual Values")
```

```
plt.ylabel("Predicted Values")
plt.title("Linear Regression: Actual vs Predicted Values (Iris
Dataset)")
plt.show()
```

```
Iris Dataset:
Mean Squared Error (MSE): 0.0371
R-squared (R2): 0.9469
```