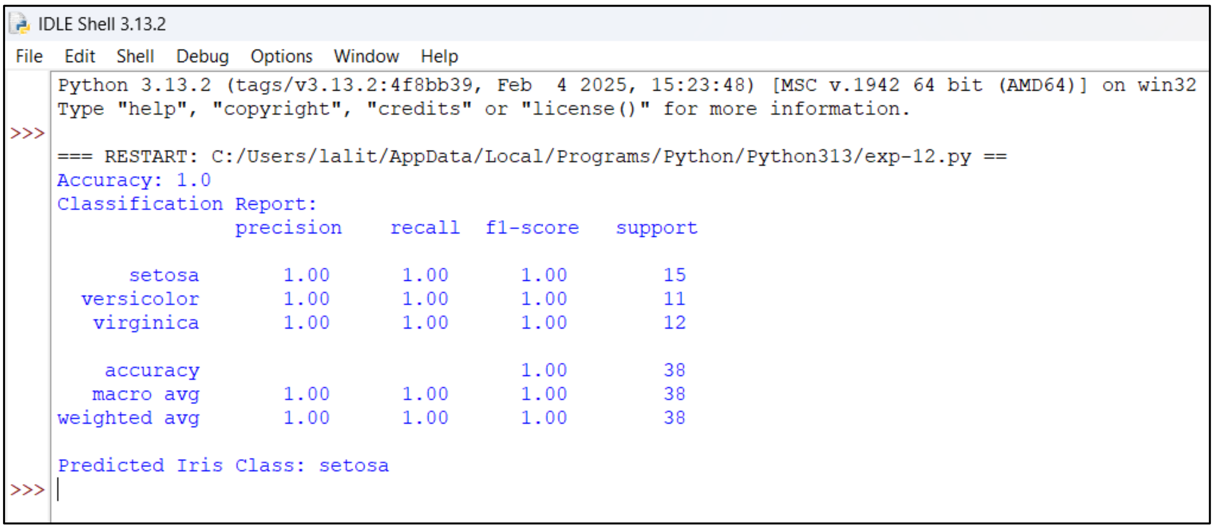
EXPERIMENT – 12

Implement Iris Flower Classification using KNN

CODE :

```
# Iris Flower Classification using K-Nearest Neighbors (KNN)

from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import accuracy_score, classification_report


# Load Iris dataset
iris = load_iris()
X = iris.data
y = iris.target


# Train-test split
X_train, X_test, y_train, y_test = train_test_split(
    X, y, test_size=0.25, random_state=42
)


# KNN model
knn = KNeighborsClassifier(n_neighbors=5)
knn.fit(X_train, y_train)


# Prediction
y_pred = knn.predict(X_test)


# Output
print("Accuracy:", accuracy_score(y_test, y_pred))
print("Classification Report:\n",
    classification_report(y_test, y_pred, target_names=iris.target_names))


# Predict for new flower

new_flower = [[5.1, 3.5, 1.4, 0.2]]

prediction = knn.predict(new_flower)

print("Predicted Iris Class:", iris.target_names[prediction[0]])
```

OUTPUT :



```
Python 3.13.2 (tags/v3.13.2:4f8bb39, Feb  4 2025, 15:23:48) [MSC v.1942 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=== RESTART: C:/Users/lalit/AppData/Local/Programs/Python/Python313/exp-12.py ==
Accuracy: 1.0
Classification Report:
               precision    recall  f1-score   support

      setosa       1.00      1.00      1.00        15
  versicolor       1.00      1.00      1.00        11
   virginica       1.00      1.00      1.00        12

    accuracy                           1.00        38
   macro avg       1.00      1.00      1.00        38
weighted avg       1.00      1.00      1.00        38

Predicted Iris Class: setosa
>>> |
```