

## PROGRAM-17

### DECISION TREE PROBLEM

#### AIM:-

To write and execute the python program for the Decision tree program.

#### PROCEDURE:-

##### Import Required Libraries:

- Import the necessary modules from scikit-learn.

##### Load the Dataset:

- Load the Iris dataset using load\_iris() function.

##### Split Dataset:

- Split the dataset into training and testing sets using train\_test\_split() function.

##### Initialize and Train the Classifier:

- Initialize the Decision Tree classifier using DecisionTreeClassifier() function.
- Train the classifier on the training data using fit() method.

##### Evaluate Model Performance:

- Calculate the accuracy of the classifier using accuracy\_score() function.

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#### CODING:-

```
from sklearn.datasets import load_iris
```

```
from sklearn.tree import DecisionTreeClassifier
```

```
from sklearn.model_selection import train_test_split
```

```
from sklearn.metrics import accuracy_score
```

```
iris = load_iris()
```

```
X, y = iris.data, iris.target
```

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=42)
```

```
clf = DecisionTreeClassifier()
```

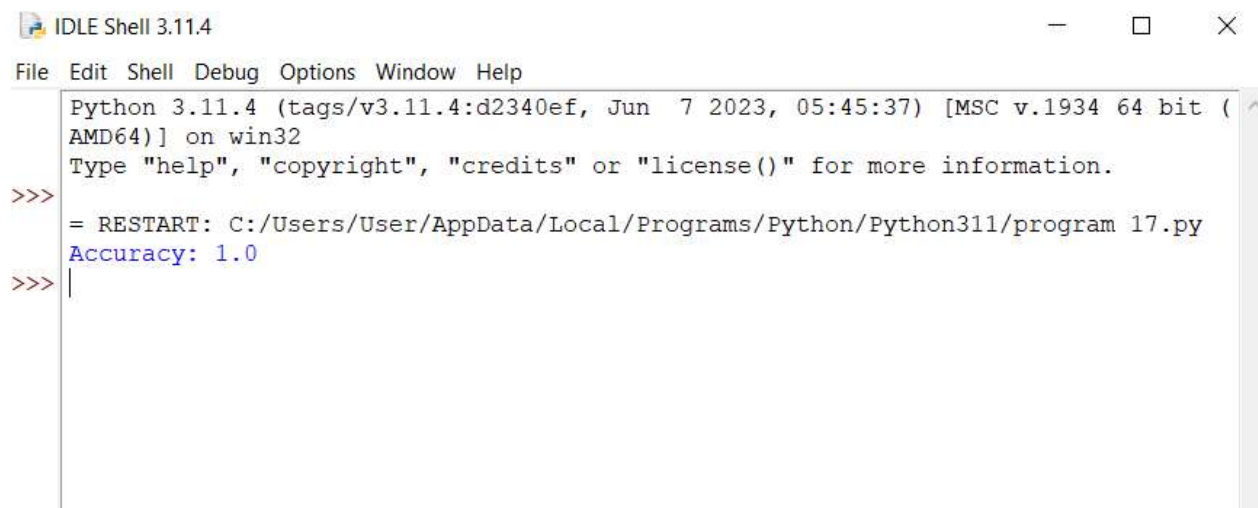
```
clf.fit(X_train, y_train)
```

```
y_pred = clf.predict(X_test)

accuracy = accuracy_score(y_test, y_pred)

print("Accuracy:", accuracy)
```

## OUTPUT:-



```
IDLE Shell 3.11.4
File Edit Shell Debug Options Window Help
Python 3.11.4 (tags/v3.11.4:d2340ef, Jun  7 2023, 05:45:37) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> = RESTART: C:/Users/User/AppData/Local/Programs/Python/Python311/program 17.py
Accuracy: 1.0
>>> |
```

## RESULT:-

Hence the program has been successfully executed and verified.