Code & OUTPUT

In [1]:
```
print("Experiment No 08 : To implement decision tree using C4.5 algorithm.")
```

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```

In [3]:
```
# Import necessary libraries
from sklearn.tree import DecisionTreeClassifier
from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score, classification_report

# Load a sample dataset (Iris dataset for this example)
data = load_iris()
X = data.data
y = data.target

# Split the dataset into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, rando

# Initialize the Decision Tree Classifier with C4.5-like settings
# criterion="entropy" for information gain (similar to C4.5)
model = DecisionTreeClassifier(criterion="entropy", random_state=42)

# Fit the model
model.fit(X_train, y_train)

# Predict on the test set
y_pred = model.predict(X_test)

print("OUTPUT:\n\n")

# Evaluate the model
accuracy = accuracy_score(y_test, y_pred)
report = classification_report(y_test, y_pred)

print("Accuracy:", accuracy)
print("Classification Report:\n", report)
```

```
OUTPUT:


Accuracy: 0.9777777777777777
Classification Report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        19
           1       0.93      1.00      0.96        13
           2       1.00      0.92      0.96        13

    accuracy                           0.98        45
   macro avg       0.98      0.97      0.97        45
weighted avg       0.98      0.98      0.98        45
```