



**Program Code: J620-002-4:2020**

**Program Name: FRONT-END SOFTWARE DEVELOPMENT**

**Title : Exe20 - Decision Tree Exercise 2**

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**Introduction : Learning more in-depth about Decision Tree**

**Conclusion : Managed to complete tasks relating to the topic.**

## Decision Tree

In [3]:

```
from sklearn.datasets import load_iris
from sklearn.tree import DecisionTreeClassifier

iris = load_iris()
X = iris.data[:, 2:] # petal length and width
y = iris.target
```

## DecisionTree Modeling

In [4]:

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=1)
```

# Build decision tree in both entropy and GINI

In [10]:

```
clf = DecisionTreeClassifier(criterion='gini')
clf_fit = clf.fit(X_train, y_train)
y_pred_clf = clf_fit.predict(X_test)

ent = DecisionTreeClassifier(criterion='entropy')
ent_fit = ent.fit(X_train, y_train)
y_pred_ent = ent_fit.predict(X_test)

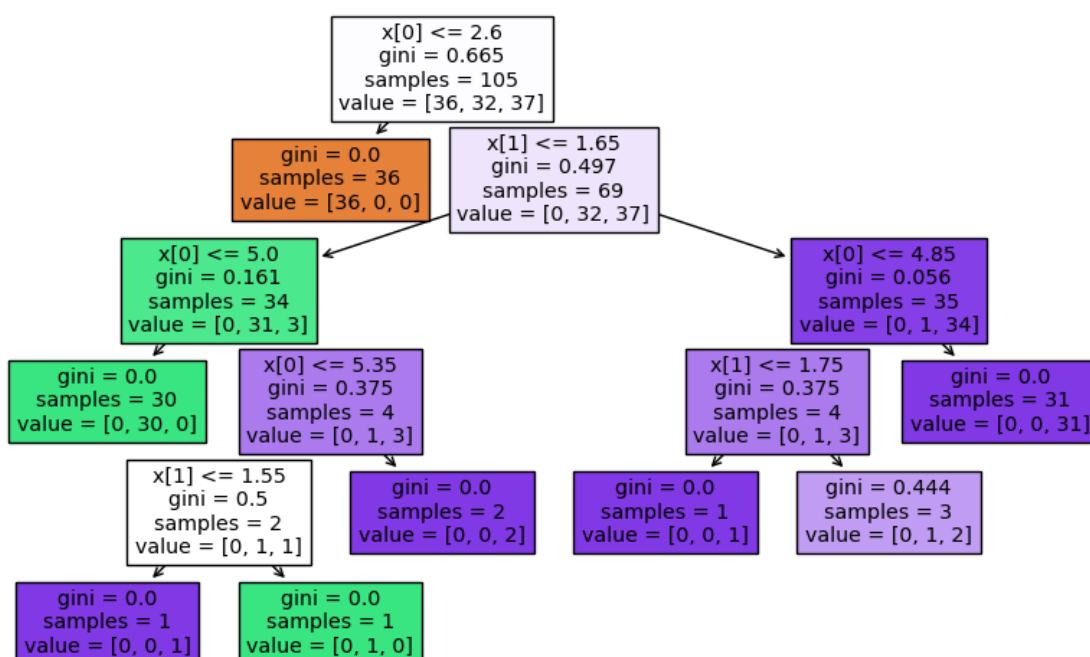
print("Gini:", y_pred_clf)
print("Entropy:", y_pred_ent)
```

```
Gini: [0 1 1 0 2 1 2 0 0 2 1 0 2 1 1 0 1 1 0 0 1 1 2 0 2 1 0 0 1 2 1 2 1 2
2 0 1
0 1 2 2 0 1 2 1]
Entropy: [0 1 1 0 2 1 2 0 0 2 1 0 2 1 1 0 1 1 0 0 1 1 2 0 2 1 0 0 1 2 1 2
1 2 2 0 1
0 1 2 2 0 1 2 1]
```

## Convert to Decision Tree Diagram

In [12]:

```
import matplotlib.pyplot as plt
from sklearn import metrics, tree
plt.figure(figsize=(10, 6))
tree.plot_tree(clf_fit, filled=True)
plt.show()
```



In [ ]: