Ex.No-9 **Decision Tree**

Aim:

To implement Decision tree machine learning algorithm.

Description:

1. Import Decision tree classifier through sklearn

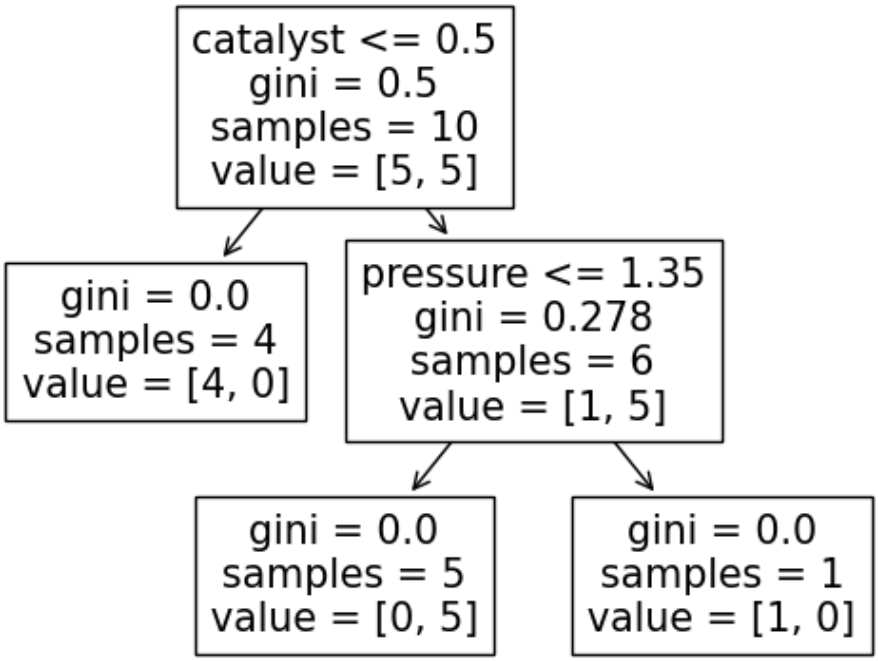
2. Provide the necessary dataset through CSV file

3. As per the trained dataset, decision tree can be obtained.

Program:

```
import pandas as pd
import matplotlib.pyplot as plt
from sklearn import tree
from sklearn.tree import DecisionTreeClassifier
# Load Data
df = pd.read_csv('DT1.csv')
print(df)
# Prepare Data
d = {"A":0,"B":1,"C":2}
df['catalyst'] = df['catalyst'].map(d)
d = {"yes":0,"no":1}
df['requirement'] = df['requirement'].map(d)
features = ['temperature','pressure','catalyst','reaction_time','yield']
x = df[features]
y = df['requirement']
dtree = DecisionTreeClassifier()
dtree = dtree.fit(x,y)
tree.plot_tree(dtree,feature_names=features)
plt.show()
```

Output:


catalyst <= 0.5
gini = 0.5
samples = 10
value = [5, 5]
gini = 0.0
samples = 4
value = [4, 0]
pressure <= 1.35
gini = 0.278
samples = 6
value = [1, 5]
gini = 0.0
samples = 5
value = [0, 5]
gini = 0.0
samples = 1
value = [1, 0]