

## ✓ Step 1 :- Import Libraries

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.tree import DecisionTreeClassifier, plot_tree
from sklearn.metrics import accuracy_score
from sklearn.preprocessing import LabelEncoder, StandardScaler
from sklearn.model_selection import train_test_split
```

## ✓ Step 2 :- Import the Dataset

```
df = pd.read_csv('Purchase_new.csv')
```

df



|    | Holiday | Discount | Free Delivery | Purchase |
|----|---------|----------|---------------|----------|
| 0  | No      | Yes      | Yes           | Yes      |
| 1  | No      | Yes      | Yes           | Yes      |
| 2  | No      | No       | No            | No       |
| 3  | yes     | Yes      | Yes           | Yes      |
| 4  | yes     | Yes      | Yes           | Yes      |
| 5  | yes     | No       | No            | No       |
| 6  | yes     | Yes      | No            | Yes      |
| 7  | No      | Yes      | Yes           | Yes      |
| 8  | yes     | Yes      | Yes           | Yes      |
| 9  | yes     | Yes      | Yes           | Yes      |
| 10 | yes     | No       | Yes           | Yes      |
| 11 | yes     | No       | No            | No       |
| 12 | yes     | Yes      | Yes           | Yes      |
| 13 | yes     | Yes      | Yes           | Yes      |
| 14 | yes     | Yes      | Yes           | Yes      |
| 15 | No      | Yes      | Yes           | Yes      |
| 16 | yes     | No       | Yes           | Yes      |
| 17 | No      | Yes      | No            | Yes      |
| 18 | yes     | No       | No            | Yes      |
| 19 | yes     | No       | Yes           | Yes      |
| 20 | No      | Yes      | Yes           | Yes      |
| 21 | yes     | Yes      | Yes           | No       |
| 22 | yes     | No       | Yes           | Yes      |
| 23 | No      | Yes      | Yes           | Yes      |
| 24 | yes     | No       | No            | No       |
| 25 | No      | No       | Yes           | No       |
| 26 | No      | Yes      | Yes           | Yes      |
| 27 | No      | Yes      | Yes           | Yes      |
| 28 | yes     | Yes      | Yes           | Yes      |
| 29 | yes     | Yes      | Yes           | Yes      |

## ✓ Step 4 :- Handling the Categorical Data

```
Encoder = LabelEncoder()
```

```
for col in ['Holiday', 'Discount', 'Free Delivery', 'Purchase']:
    df[col] = Encoder.fit_transform(df[col])
```

```
df
```



|    | Holiday | Discount | Free Delivery | Purchase |
|----|---------|----------|---------------|----------|
| 0  | 0       | 1        | 1             | 1        |
| 1  | 0       | 1        | 1             | 1        |
| 2  | 0       | 0        | 0             | 0        |
| 3  | 1       | 1        | 1             | 1        |
| 4  | 1       | 1        | 1             | 1        |
| 5  | 1       | 0        | 0             | 0        |
| 6  | 1       | 1        | 0             | 1        |
| 7  | 0       | 1        | 1             | 1        |
| 8  | 1       | 1        | 1             | 1        |
| 9  | 1       | 1        | 1             | 1        |
| 10 | 1       | 0        | 1             | 1        |
| 11 | 1       | 0        | 0             | 0        |
| 12 | 1       | 1        | 1             | 1        |
| 13 | 1       | 1        | 1             | 1        |
| 14 | 1       | 1        | 1             | 1        |
| 15 | 0       | 1        | 1             | 1        |
| 16 | 1       | 0        | 1             | 1        |
| 17 | 0       | 1        | 0             | 1        |
| 18 | 1       | 0        | 0             | 1        |
| 19 | 1       | 0        | 1             | 1        |
| 20 | 0       | 1        | 1             | 1        |
| 21 | 1       | 1        | 1             | 0        |
| 22 | 1       | 0        | 1             | 1        |
| 23 | 0       | 1        | 1             | 1        |
| 24 | 1       | 0        | 0             | 0        |
| 25 | 0       | 0        | 1             | 0        |
| 26 | 0       | 1        | 1             | 1        |
| 27 | 0       | 1        | 1             | 1        |
| 28 | 1       | 1        | 1             | 1        |
| 29 | 1       | 1        | 1             | 1        |

## ✓ Step 4 :- Identify the X and Y Variables

```
X = df[['Holiday', 'Discount', 'Free Delivery']]
```

```
y = df['Purchase']
```

## ✓ Step 5 :- Model Building

```
X_train,X_test,y_train,y_test = train_test_split(X,y,test_size=0.2,random_state=0)
```

```
Model = DecisionTreeClassifier()
```

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

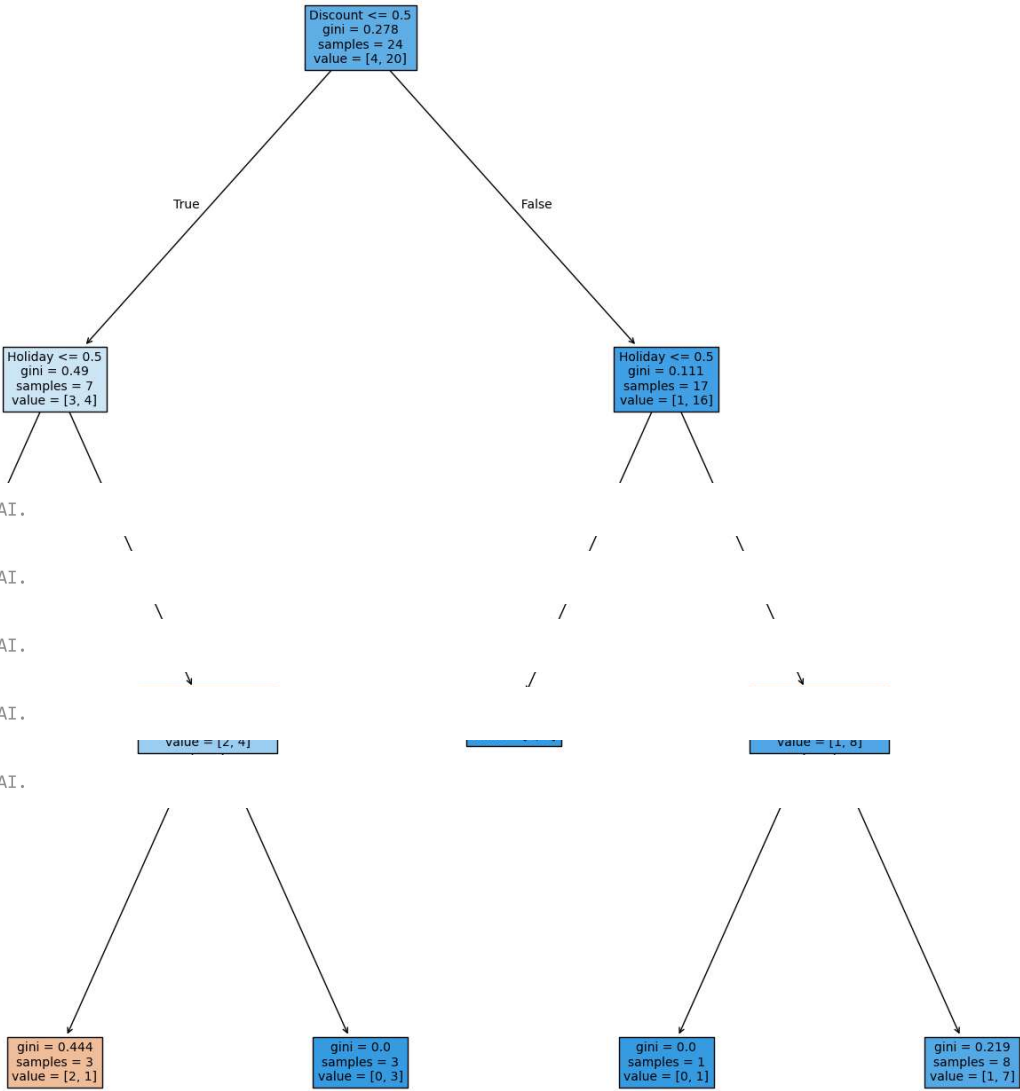
```
↻ ▾ DecisionTreeClassifier ⓘ ?  
DecisionTreeClassifier()
```

```
y_pred = Model.predict(X_test)
```

```
print(F"Accuracy Score :{accuracy_score(y_test,y_pred)*100:.2f}%")
```

```
↻ Accuracy Score :100.00%
```

```
ax = plt.subplots(figsize=(20,20))  
plot_tree(Model, fontsize=10,feature_names=X_train.columns,filled=True)  
plt.show()
```



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