```python
import numpy as np

import matplotlib.pyplot as plt

from sklearn.tree import DecisionTreeClassifier, plot_tree


# Step 1: Define the dataset
# Features: Age, Income, Student (Categorical)
# Age: 0=Young, 1=Middle-aged, 2=Senior
# Income: 0=Low, 1=Medium, 2=High
# Student: 0=No, 1=Yes
X = np.array([

    [2, 2, 1],  # Senior, High income, Student

    [0, 0, 0],  # Young, Low income, Not a student

    [1, 1, 1],  # Middle-aged, Medium income, Student

    [2, 0, 0],  # Senior, Low income, Not a student

    [1, 2, 1],  # Middle-aged, High income, Student

    [0, 1, 0],  # Young, Medium income, Not a student

    [1, 0, 1],  # Middle-aged, Low income, Student

    [2, 2, 0]   # Senior, High income, Not a student

])


# Labels: 1 = Will Buy, 0 = Will Not Buy
y = np.array([1, 0, 0, 1, 1, 0, 1, 1])


# Step 2: Train a Decision Tree Classifier
clf = DecisionTreeClassifier(criterion='entropy', max_depth=3)

clf.fit(X, y)


# Step 3: Visualize the Decision Tree
plt.figure(figsize=(12, 8))

plot_tree(

    clf,

    filled=True,

    rounded=True,

    feature_names=["Age", "Income", "Student"],

    class_names=["Not Buy", "Buy"],

    fontsize=12,

    proportion=True

)
```

```python
plt.title("Decision Tree for Buying Prediction", fontsize=14, fontweight="bold")

plt.show()


# Step 4: Predict a new customer's buying decision

new_customer = np.array([[1, 0, 1]])  # Middle-aged, Low income, Student

predicted_class = clf.predict(new_customer)[0]


# Step 5: Print the prediction result

print("\nPrediction for New Customer:")

print(" Age: Middle-aged (1)")

print(" Income: Low (0)")

print(" Student: Yes (1)")

print(f" Will they buy? {'YES' if predicted_class == 1 else 'NO'}")
```