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import pandas as pd
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier, plot_tree
from sklearn.metrics import accuracy_score

# Load the dataset
data = pd.read_csv('/content/drive/MyDrive/bank.csv')

# Preprocess the data
X = data.drop('deposit', axis=1)
y = data['deposit']
X = pd.get_dummies(X)
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Create the classifier
clf = DecisionTreeClassifier()

# Train the classifier
clf.fit(X_train, y_train)

# Make predictions
y_pred = clf.predict(X_test)

# Calculate accuracy
accuracy = accuracy_score(y_test, y_pred)
print("Accuracy:", accuracy)

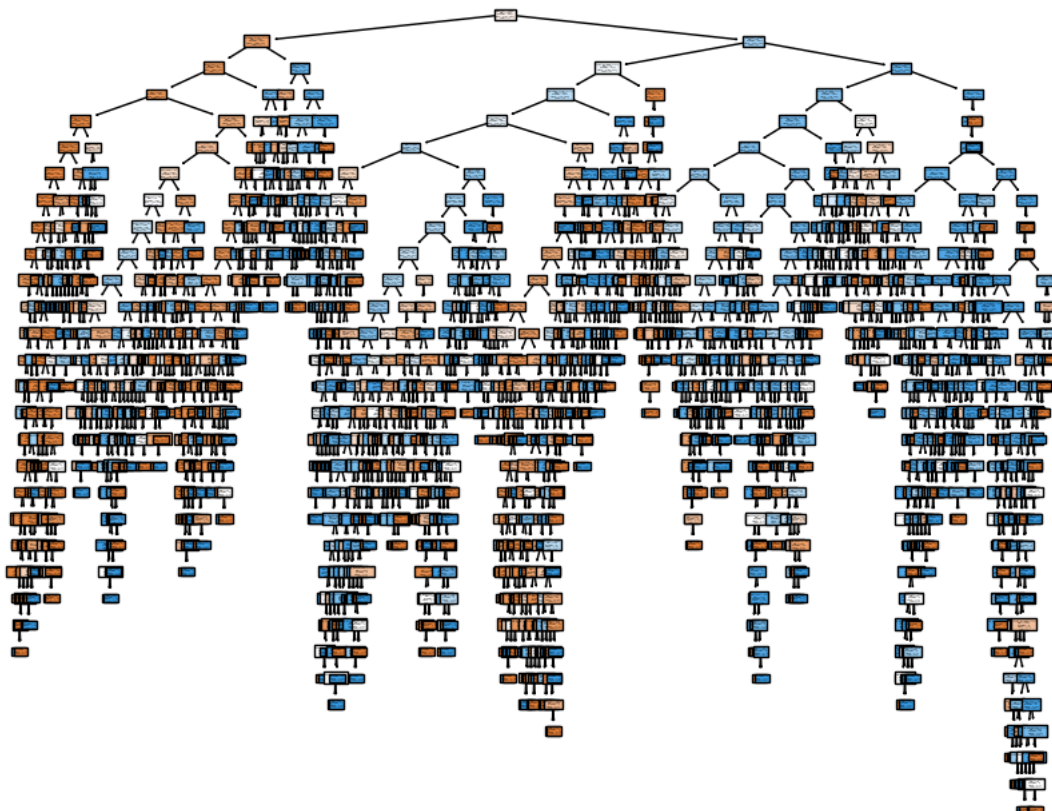
```

➡ Accuracy: 0.7863860277653381

```

# Visualize the decision tree
plt.figure(figsize=(10, 8))
plot_tree(clf, feature_names=X.columns, class_names=['no', 'yes'], filled=True)
plt.show()

```



```
# Create the classifier with pruning enabled
clf = DecisionTreeClassifier(ccp_alpha=0.01)
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```
# Train the classifier
clf.fit(X_train, y_train)
```

```
# Make predictions
y_pred = clf.predict(X_test)
```

```
# Calculate accuracy
accuracy = accuracy_score(y_test, y_pred)
print("Accuracy:", accuracy)
```

Accuracy: 0.7604120017913122

```
# Visualize the pruned decision tree
plt.figure(figsize=(10, 8))
plot_tree(clf, feature_names=X.columns, class_names=['no', 'yes'], filled=True)
plt.show()
```

