```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier
from sklearn.metrics import accuracy_score, classification_report
from sklearn.preprocessing import LabelEncoder
import requests
import zipfile
import io


url = 'https://archive.ics.uci.edu/ml/machine-learning-databases/00222/bank-additional.zip'
r = requests.get(url)
z = zipfile.ZipFile(io.BytesIO(r.content))
z.extractall()


df = pd.read_csv('bank-additional/bank-additional-full.csv', sep=';')


label_encoders = {}
for column in df.select_dtypes(include=['object']).columns:
    le = LabelEncoder()
    df[column] = le.fit_transform(df[column])
    label_encoders[column] = le


X = df.drop('y', axis=1)
y = df['y']


X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)


clf = DecisionTreeClassifier(random_state=42)
clf.fit(X_train, y_train)
```

```
DecisionTreeClassifier
DecisionTreeClassifier(random_state=42)
```

```
y_pred = clf.predict(X_test)
print("Accuracy:", accuracy_score(y_test, y_pred))
print("Classification Report:\n", classification_report(y_test, y_pred))
```

```
Accuracy: 0.8894149065307113
Classification Report:
                precision    recall  f1-score   support

           0       0.94      0.94      0.94      7303
           1       0.51      0.51      0.51       935

    accuracy                           0.89      8238
   macro avg       0.73      0.73      0.73      8238
weighted avg       0.89      0.89      0.89      8238
```

```
df.to_csv('processed_bank_marketing.csv', index=False)
```