```python
# 1: Import necessary libraries
import pandas as pd
import seaborn as sb
import numpy as np
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier
from sklearn.metrics import accuracy_score, confusion_matrix,
classification_report
from sklearn.tree import DecisionTreeClassifier, plot_tree

# 2: Load the dataset
data = pd.read_csv('/content/Admission_Predict.csv')

# 3: Data Preprocessing

print(data.isnull().sum())
```

```
Serial No.           0
GRE Score            0
TOEFL Score          0
University Rating    0
SOP                  0
LOR                  0
CGPA                 0
Research             0
Chance of Admit      0
dtype: int64
```

```python
# Convert 'Chance of Admit ' column to binary classification (0 or 1)
data['Chance of Admit '] = [1 if each >= 0.75 else 0 for each in
data['Chance of Admit ']]

x = data[['GRE Score', 'TOEFL Score', 'University Rating', 'SOP', 'LOR
', 'CGPA', 'Research']]
y = data['Chance of Admit ']

# 4: Split the data into train and test sets
x_train, x_test, y_train, y_test = train_test_split(x, y,
test_size=0.2, random_state=1)

# 5: Train the Decision Tree Classifier
clf = DecisionTreeClassifier()
clf.fit(x_train, y_train)
```

```
DecisionTreeClassifier()
```

```python
# 6: Make predictions
y_predict = clf.predict(x_test)

# 7: Evaluate the Model
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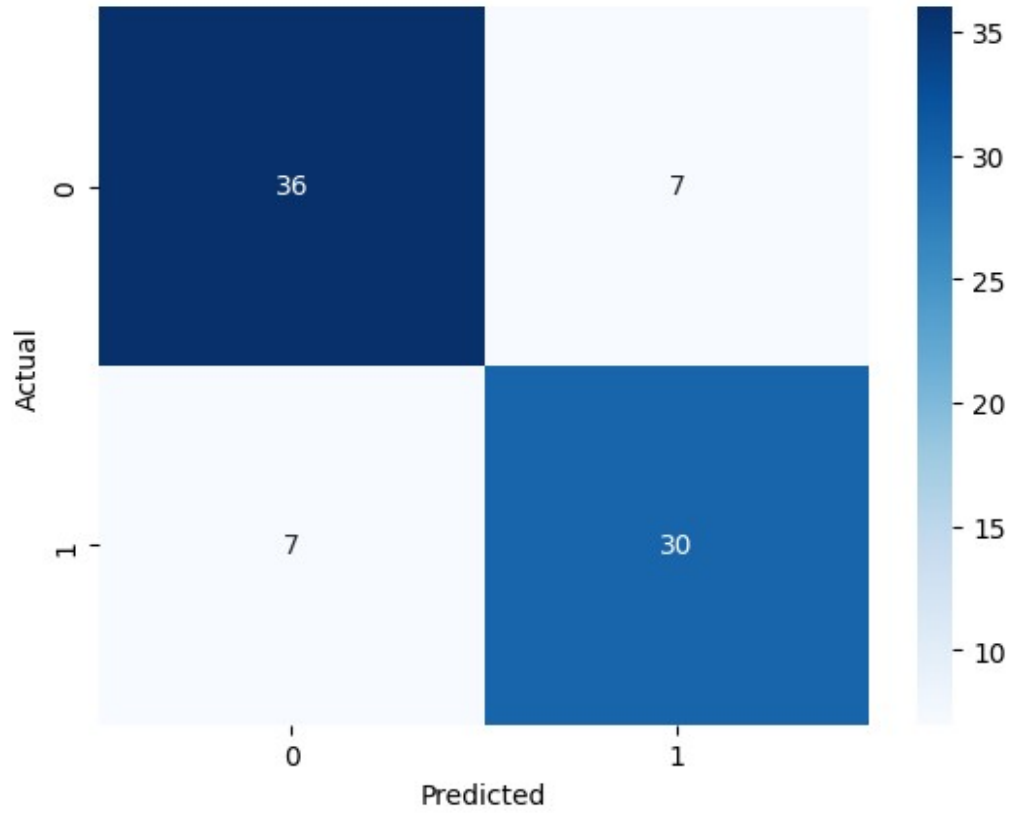
```
#  Accuracy Score
accuracy = accuracy_score(y_test, y_predict)
print(f'Accuracy: {accuracy}')
```

```
Accuracy: 0.825
```

```
# Confusion Matrix
matrix = confusion_matrix(y_test, y_predict)
print('Confusion Matrix:')
print(matrix)
```

```
Confusion Matrix:
[[36  7]
 [ 7 30]]
```

```
# Visualize the confusion matrix
sb.heatmap(matrix, annot=True, fmt='d', cmap='Blues')
plt.xlabel('Predicted')
plt.ylabel('Actual')
plt.show()
```




```
# Classification Report
report = classification_report(y_test, y_predict)
```

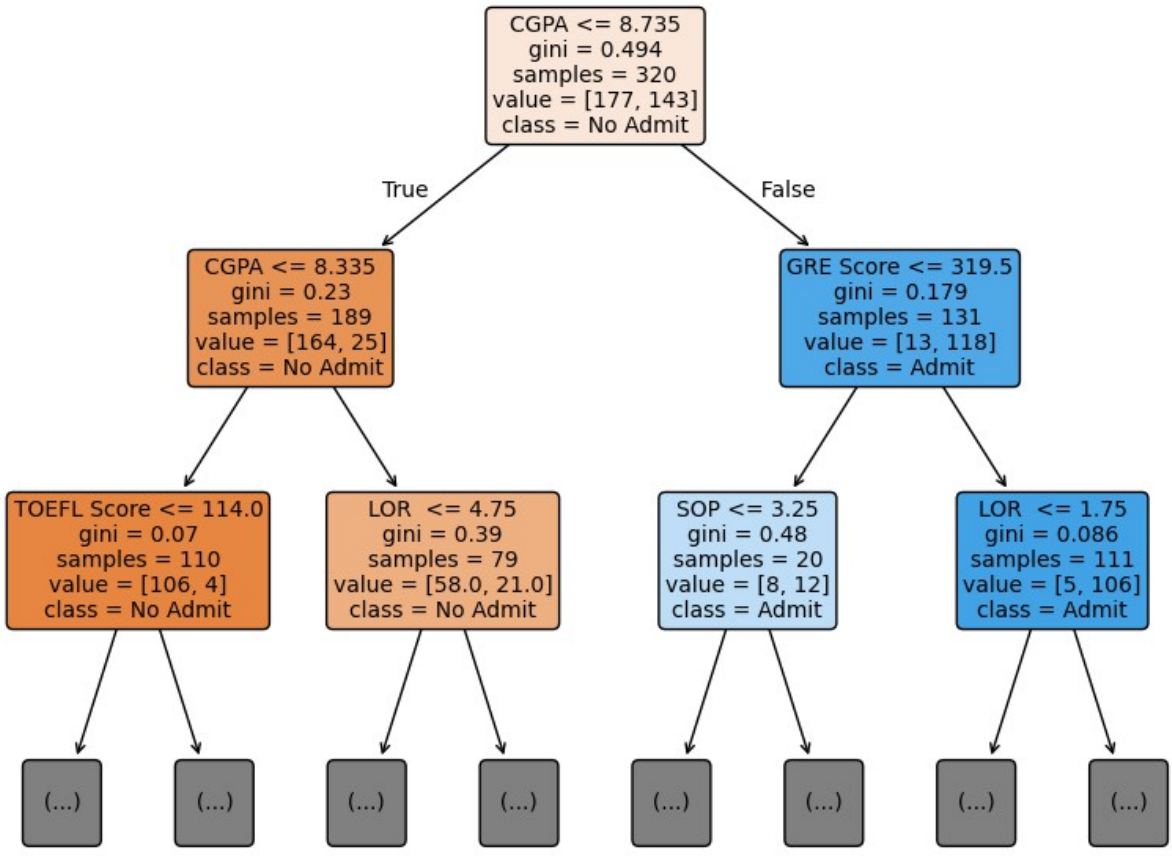
```
print('Classification Report:')
print(report)
```

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

           0       0.84      0.84      0.84        43
           1       0.81      0.81      0.81        37

    accuracy                           0.82        80
   macro avg       0.82      0.82      0.82        80
weighted avg       0.82      0.82      0.82        80
```

```
# 8: Visualize the Decision Tree
plt.figure(figsize=(10,8))  # Adjust figure size if needed
plot_tree(clf, filled=True, feature_names=x.columns,max_depth=2,
class_names=['No Admit', 'Admit'], rounded=True, fontsize=10)
plt.show()
```



```python
# 9: Making predictions for all students in the dataset
data['Predicted Admission Status'] = clf.predict(x)

# Convert predicted values to more readable format
data['Predicted Admission Status'] = data['Predicted Admission
Status'].apply(lambda x: 'Admitted' if x == 1 else 'Not Admitted')

# 10: Display the results
print(data[['GRE Score', 'TOEFL Score', 'University Rating', 'SOP',
'LOR ', 'CGPA', 'Research', 'Predicted Admission Status']])
```

```
     GRE Score  TOEFL Score  University Rating  SOP  LOR   CGPA
Research  \
0          337          118                  4  4.5   4.5  9.65
1
1          324          107                  4  4.0   4.5  8.87
1
2          316          104                  3  3.0   3.5  8.00
1
3          322          110                  3  3.5   2.5  8.67
1
4          314          103                  2  2.0   3.0  8.21
0
..         ...          ...                ...  ...   ...   ...
...
395        324          110                  3  3.5   3.5  9.04
1
396        325          107                  3  3.0   3.5  9.11
1
397        330          116                  4  5.0   4.5  9.45
1
398        312          103                  3  3.5   4.0  8.78
0
399        333          117                  4  5.0   4.0  9.66
1

    Predicted Admission Status
0                     Admitted
1                     Admitted
2                 Not Admitted
3                     Admitted
4                     Admitted
..                         ...
395                   Admitted
396                   Admitted
397                   Admitted
398                   Admitted
399                   Admitted

[400 rows x 8 columns]
```

```
data.columns
```

```
Index(['Serial No.', 'GRE Score', 'TOEFL Score', 'University Rating',
'SOP',
       'LOR ', 'CGPA', 'Research', 'Chance of Admit ',
       'Predicted Admission Status'],
      dtype='object')
```