```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

```
df = pd.read_csv('Admission_Predict_Ver1.1.csv')
df.head()
```

	Serial No.	GRE Score	TOEFL Score	University Rating	SOP	LOR	CGPA	Research	Chance of Admit
0	1	337	118	4	4.5	4.5	9.65	1	0.92
1	2	324	107	4	4.0	4.5	8.87	1	0.76
2	3	316	104	3	3.0	3.5	8.00	1	0.72
3	4	322	110	3	3.5	2.5	8.67	1	0.80
4	5	314	103	2	2.0	3.0	8.21	0	0.65

```
df.shape
```

```
(500, 9)
```

```
df = df.drop('Serial No.',axis=1)
```

```
df.shape
```

```
(500, 8)
```

```
df.head()
```

	GRE Score	TOEFL Score	University Rating	SOP	LOR	CGPA	Research	Chance of Admit
0	337	118	4	4.5	4.5	9.65	1	0.92
1	324	107	4	4.0	4.5	8.87	1	0.76
2	316	104	3	3.0	3.5	8.00	1	0.72
3	322	110	3	3.5	2.5	8.67	1	0.80
4	314	103	2	2.0	3.0	8.21	0	0.65

```
df['Chance of Admit '] = [1 if each > 0.75 else 0 for each in df['Chance of Admit ']]
df.head()
```

	GRE Score	TOEFL Score	University Rating	SOP	LOR	CGPA	Research	Chance of Admit
0	337	118	4	4.5	4.5	9.65	1	1
1	324	107	4	4.0	4.5	8.87	1	1
2	316	104	3	3.0	3.5	8.00	1	0
3	322	110	3	3.5	2.5	8.67	1	1
4	314	103	2	2.0	3.0	8.21	0	0

```
x = df[['GRE Score', 'TOEFL Score', 'University Rating', 'SOP', 'LOR ', 'CGPA',
       'Research']]
```

```
y = df['Chance of Admit ']
```

```
from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.25,random_state=1)
```

```
print(f"Size of splitted data")
print(f"x_train {x_train.shape}")
print(f"y_train {y_train.shape}")
print(f"y_train {x_test.shape}")
print(f"y_test {y_test.shape}")
```

```
Size of splitted data
x_train (375, 7)
y_train (375,)
y_train (125, 7)
y_test (125,)
```

```
from sklearn.tree import DecisionTreeRegressor
from sklearn.ensemble import RandomForestRegressor
from sklearn.linear_model import LogisticRegression
```

```
model_dt = DecisionTreeRegressor(random_state=1)
model_rf = RandomForestRegressor(random_state=1)
model_lr = LogisticRegression(random_state=1,solver='lbfgs',max_iter=1000)
```

```
model_dt.fit(x_train,y_train)
```

```
▾ DecisionTreeRegressor
DecisionTreeRegressor(random_state=1)
```

```
model_rf.fit(x_train,y_train)
```

```
▾ RandomForestRegressor
RandomForestRegressor(random_state=1)
```

```
model_lr.fit(x_train,y_train)
```

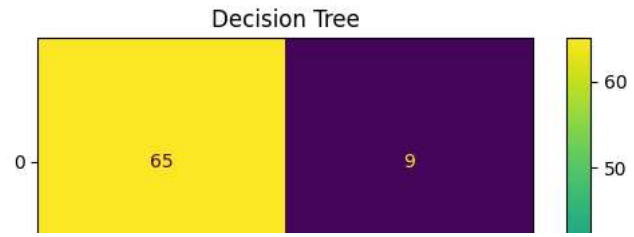
```
▾ LogisticRegression
LogisticRegression(max_iter=1000, random_state=1)
```

```
y_pred_dt = model_dt.predict(x_test)
y_pred_rf = model_rf.predict(x_test)
y_pred_lr = model_lr.predict(x_test)
```

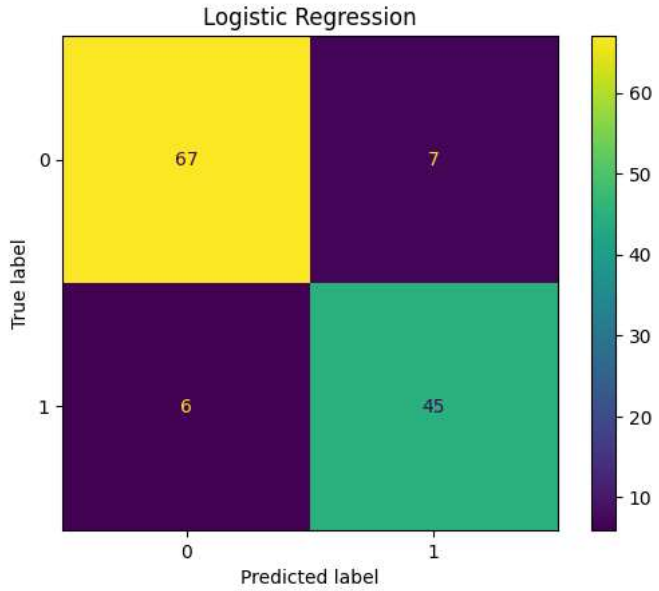
```
y_pred_rf = [1 if each > 0.75 else 0 for each in y_pred_rf]
```

```
from sklearn.metrics import ConfusionMatrixDisplay, accuracy_score
from sklearn.metrics import classification_report
```

```
ConfusionMatrixDisplay.from_predictions(y_test,y_pred_dt)
plt.title('Decision Tree')
plt.show()
print(f" Accuracy is {accuracy_score(y_test,y_pred_dt)}")
print(classification_report(y_test,y_pred_dt))
```




```
ConfusionMatrixDisplay.from_predictions(y_test,y_pred_lr)
plt.title('Logistic Regression')
plt.show()
print(f" Accuracy is {accuracy_score(y_test,y_pred_lr)}")
print(classification_report(y_test,y_pred_lr))
```

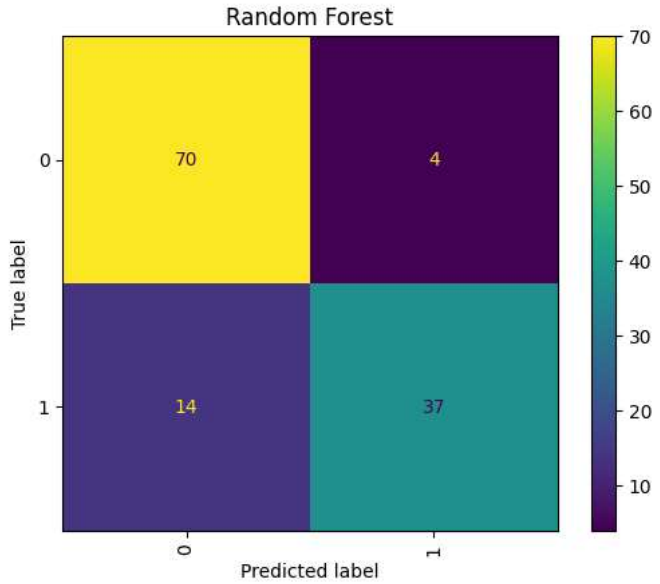



```
Accuracy is 0.896
              precision    recall  f1-score   support

           0       0.92      0.91      0.91        74
           1       0.87      0.88      0.87        51

    accuracy                           0.90       125
   macro avg       0.89      0.89      0.89       125
weighted avg       0.90      0.90      0.90       125
```

```
ConfusionMatrixDisplay.from_predictions(y_test,y_pred_rf,xticks_rotation='vertical')
plt.title('Random Forest')
plt.show()
print(f" Accuracy is {accuracy_score(y_test,y_pred_rf)}")
print(classification_report(y_test,y_pred_rf))
```




```
Accuracy is 0.856
              precision    recall  f1-score   support

           0       0.83      0.95      0.89        74
           1       0.90      0.73      0.80        51

    accuracy                           0.86       125
   macro avg       0.87      0.84      0.85       125
weighted avg       0.86      0.86      0.85       125
```