```
In [1]: import numpy as np
        import pandas as pd
        import matplotlib.pyplot as plt
```

```
In [2]: df = pd.read_csv("./heart.csv");
        df.head()
```

Out[2]:

	age	sex	cp	trestbps	chol	fbs	restecg	thalach	exang	oldpeak	slope	ca	thal	target
0	63	1	3	145	233	1	0	150	0	2.3	0	0	1	1
1	37	1	2	130	250	0	1	187	0	3.5	0	0	2	1
2	41	0	1	130	204	0	0	172	0	1.4	2	0	2	1
3	56	1	1	120	236	0	1	178	0	0.8	2	0	2	1
4	57	0	0	120	354	0	1	163	1	0.6	2	0	2	1

```
In [3]: df.tail()
```

Out[3]:

	age	sex	cp	trestbps	chol	fbs	restecg	thalach	exang	oldpeak	slope	ca	thal	target
298	57	0	0	140	241	0	1	123	1	0.2	1	0	3	0
299	45	1	3	110	264	0	1	132	0	1.2	1	0	3	0
300	68	1	0	144	193	1	1	141	0	3.4	1	2	3	0
301	57	1	0	130	131	0	1	115	1	1.2	1	1	3	0
302	57	0	1	130	236	0	0	174	0	0.0	1	1	2	0

```
In [4]: x=df.drop("target",axis=1);
        y=df['target'];
```

```
In [5]: x.head()
```

Out[5]:

	age	sex	cp	trestbps	chol	fbs	restecg	thalach	exang	oldpeak	slope	ca	thal
0	63	1	3	145	233	1	0	150	0	2.3	0	0	1
1	37	1	2	130	250	0	1	187	0	3.5	0	0	2
2	41	0	1	130	204	0	0	172	0	1.4	2	0	2
3	56	1	1	120	236	0	1	178	0	0.8	2	0	2
4	57	0	0	120	354	0	1	163	1	0.6	2	0	2

```
In [6]: y.head()

Out[6]: 0    1
        1    1
        2    1
        3    1
        4    1
        Name: target, dtype: int64
```

```python
In [7]: from sklearn.model_selection import train_test_split
        x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.2)
```

```python
In [8]: from sklearn.tree import DecisionTreeClassifier
```

```python
In [9]: model = DecisionTreeClassifier()
```

```
In [10]: model.fit(x_train, y_train)

Out[10]: DecisionTreeClassifier()
```

```python
In [11]: y_preds = model.predict(x_test)
```

```
In [12]: model.score(x_test,y_test)

Out[12]: 0.6065573770491803
```

```python
In [13]: from sklearn.metrics import recall_score, f1_score, accuracy_score, precision_score
```

```
In [14]: accuracy_score(y_test, y_preds)

Out[14]: 0.6065573770491803
```

```
In [15]: recall_score(y_test, y_preds)

Out[15]: 0.6666666666666666
```

```
In [16]: precision_score(y_test,y_preds)

Out[16]: 0.5454545454545454
```
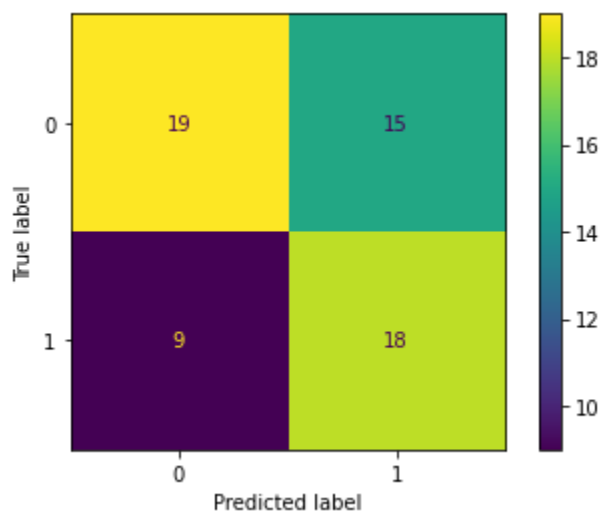
```python
In [17]: from sklearn.metrics import confusion_matrix, plot_confusion_matrix
```

```
In [18]: confusion_matrix(y_test, y_preds)

Out[18]: array([[19, 15],
               [ 9, 18]], dtype=int64)
```

In [19]: `plot_confusion_matrix(model,x_test,y_test);`

In [ ]: