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In [20]: import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
import seaborn as sns
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier
from sklearn.metrics import confusion_matrix
```

```
In [2]: df=pd.read_csv('Downloads/kyphosis.csv')
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In [3]: df
```

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Out[3]:
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| | Kyphosis | Age | Number | Start |
|-----|----------|-----|--------|-------|
| 0 | absent | 71 | 3 | 5 |
| 1 | absent | 158 | 3 | 14 |
| 2 | present | 128 | 4 | 5 |
| 3 | absent | 2 | 5 | 1 |
| 4 | absent | 1 | 4 | 15 |
| ... | ... | ... | ... | ... |
| 76 | present | 157 | 3 | 13 |
| 77 | absent | 26 | 7 | 13 |
| 78 | absent | 120 | 2 | 13 |
| 79 | present | 42 | 7 | 6 |
| 80 | absent | 36 | 4 | 13 |

81 rows × 4 columns

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

```
In [5]: x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.3)
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In [6]: dtree=DecisionTreeClassifier()
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In [7]: dtree.fit(x_train,y_train)
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Out[7]: ▾ DecisionTreeClassifier
DecisionTreeClassifier()
```

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In [8]: pred = dtree.predict(x_test)
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In [9]: pred
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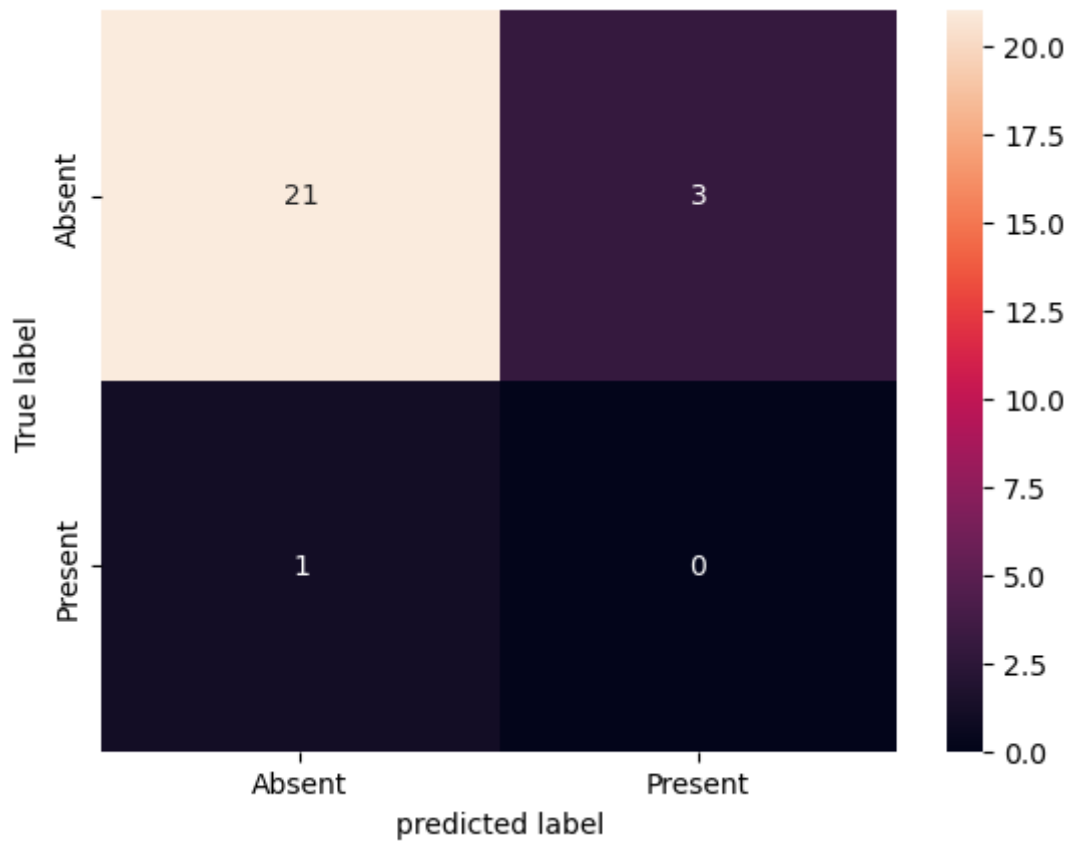
```
Out[9]: array(['absent', 'absent', 'absent', 'absent', 'absent', 'absent',
'absent', 'absent', 'absent', 'absent', 'present', 'absent',
'absent', 'absent', 'absent', 'absent', 'present', 'absent',
'absent', 'absent', 'present', 'absent', 'absent', 'absent',
'absent'], dtype=object)
```

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In [15]: confusion_matrix(y_test,pred)
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Out[15]: array([[21,  3],
               [ 1,  0]], dtype=int64)
```

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In [26]: plt.figure()
sns.heatmap(confusion_matrix(y_test,pred),xticklabels = ['Absent','Present'],yticklabels = ['Absent','Present'],cmap=cm.magma)
plt.xlabel('predicted label')
plt.ylabel('True label')
```

```
Out[26]: Text(50.72222222222214, 0.5, 'True label')
```



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In [ ]:
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