In [20]:
```
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# Python code to implement K-Nearest Neighbour classifier.
import pandas as pd
from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.metrics import confusion_matrix
from sklearn.neighbors import KNeighborsClassifier
import matplotlib.pyplot as plt
import seaborn as sn
from sklearn.metrics import classification_report
```

In [21]:
```
iris=load_iris()
dir(iris)
iris.frame
iris.feature_names
```

Out[21]:
```
['sepal length (cm)',
 'sepal width (cm)',
 'petal length (cm)',
 'petal width (cm)']
```

In [22]:
```
df=pd.DataFrame(iris.data,columns=iris.feature_names)
df.head()
```

Out[22]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)
0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2

In [23]:
```
df['target']=iris.target
df[df.target==2].head()
df['flowername']=df.target.apply(lambda x: iris.target_names[x])
df.head()
```

Out[23]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target	flowername
0	5.1	3.5	1.4	0.2	0	setosa
1	4.9	3.0	1.4	0.2	0	setosa
2	4.7	3.2	1.3	0.2	0	setosa
3	4.6	3.1	1.5	0.2	0	setosa
4	5.0	3.6	1.4	0.2	0	setosa

In [24]:
```
x=df.drop(['target','flowername'],axis='columns')
y=df.target
```

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2)
len(x_test)
```

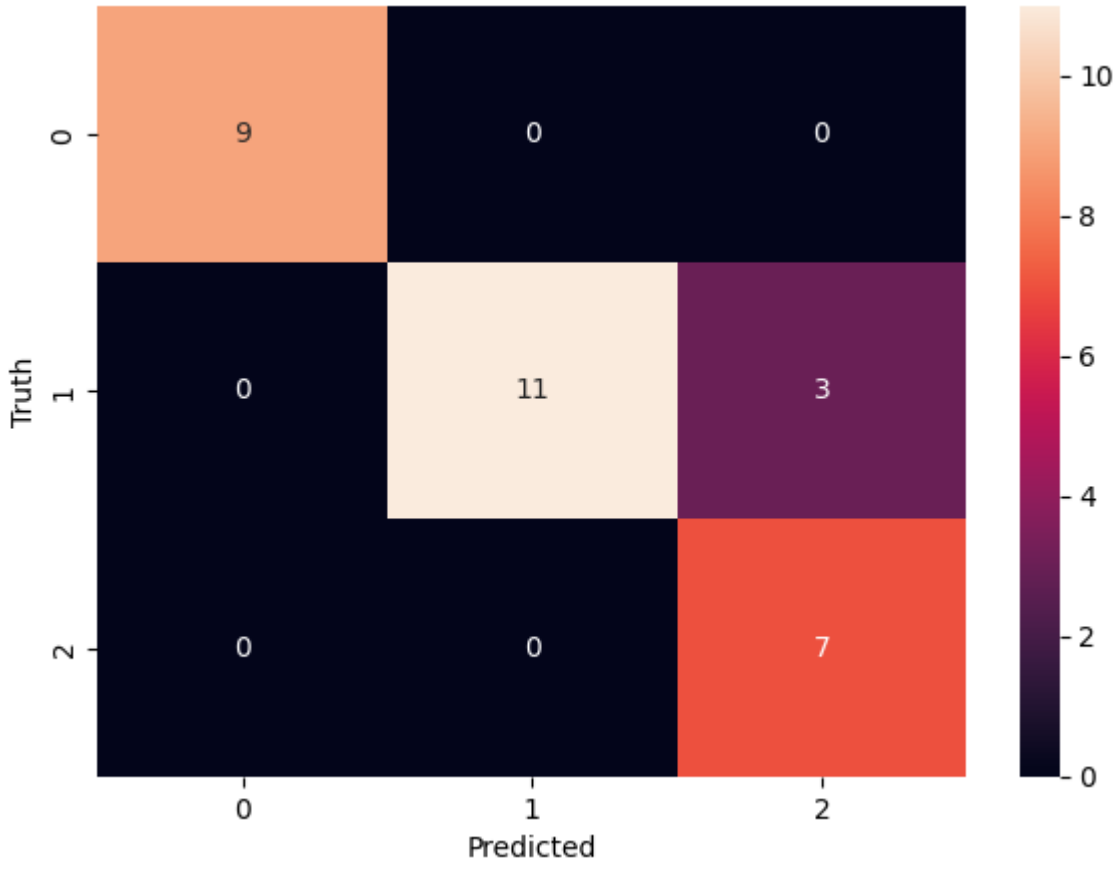
Out[24]: 30

In [25]:
```
model = KNeighborsClassifier(n_neighbors=20)
model.fit(x_train, y_train)
model.score(x_test, y_test)
```

Out[25]: 0.9

In [26]:
```
y_pred = model.predict(x_test)
cm = confusion_matrix(y_test, y_pred)
plt.figure(figsize=(7,5))
sn.heatmap(cm, annot=True)
plt.xlabel('Predicted')
plt.ylabel('Truth')
```

Out[26]: Text(58.222222222222214, 0.5, 'Truth')



In [27]:
```
print(classification_report(y_test, y_pred))
```

	precision	recall	f1-score	support
0	1.00	1.00	1.00	9
1	1.00	0.79	0.88	14
2	0.70	1.00	0.82	7
accuracy			0.90	30
macro avg	0.90	0.93	0.90	30
weighted avg	0.93	0.90	0.90	30