In [6]:

```python
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
```

In [8]:

```python
df=pd.read_csv("/home/iignis/Downloads/zoo (1).csv")
df.head()
```

Out[8]:

	animal_name	hair	feathers	eggs	milk	airborne	aquatic	predator	toothed	backbone	b
0	aardvark	1	0	0	1	0	0	1	1	1	
1	antelope	1	0	0	1	0	0	0	1	1	
2	bass	0	0	1	0	0	1	1	1	1	
3	bear	1	0	0	1	0	0	1	1	1	
4	boar	1	0	0	1	0	0	1	1	1	

In [9]:

```
class_type_output=df["class_type"]
df=df.drop("class_type", axis=1).drop("animal_name", axis=1)
print(df)
```

```
     hair  feathers  eggs  milk  airborne  aquatic  predator  toothed
\
0       1         0     0     1         0        0         1        1
1       1         0     0     1         0        0         0        1
2       0         0     1     0         0        1         1        1
3       1         0     0     1         0        0         1        1
4       1         0     0     1         0        0         1        1
..    ...       ...   ...   ...       ...      ...       ...      ...
96      1         0     0     1         0        0         0        1
97      1         0     1     0         1        0         0        0
98      1         0     0     1         0        0         1        1
99      0         0     1     0         0        0         0        0
100     0         1     1     0         1        0         0        0

     backbone  breathes  venomous  fins  legs  tail  domestic  catsize
0           1         1         0     0     4     0         0        1
1           1         1         0     0     4     1         0        1
2           1         0         0     1     0     1         0        0
3           1         1         0     0     4     0         0        1
4           1         1         0     0     4     1         0        1
..        ...       ...       ...   ...   ...   ...       ...      ...
96          1         1         0     0     2     1         0        1
97          0         1         1     0     6     0         0        0
98          1         1         0     0     4     1         0        1
99          0         1         0     0     0     0         0        0
100         1         1         0     0     2     1         0        0

[101 rows x 16 columns]
```

In [10]:

```
x_train,x_test,y_train,y_test=train_test_split(df, class_type_output,test_size=0.20
```

In [14]:

```
from sklearn.tree import DecisionTreeClassifier
classifier = DecisionTreeClassifier()
classifier.fit(x_train, y_train)
```

Out[14]:

```
▼ DecisionTreeClassifier
DecisionTreeClassifier()
```

In [12]:

```
y_prediction = classifier.predict(x_test)
y_prediction
```

Out[12]:

```
array([3, 1, 7, 7, 1, 2, 3, 5, 6, 1, 1, 1, 7, 2, 1, 1, 7, 1, 1, 2, 1])
```

In [13]:

```
from sklearn.metrics import classification_report, confusion_matrix, accuracy_score
confusion_matrix(y_test,y_prediction)


print(classification_report(y_test, y_prediction))


print(accuracy_score(y_test, y_prediction))


predicted_class = list(y_prediction)
actual_class = list(y_test)
for i in range(len(predicted_class)):
    print("Predicted class =", predicted_class[i],"\tActual class =",actual_class[i
```

```
              precision    recall  f1-score   support

           1       1.00      1.00      1.00        10
           2       1.00      1.00      1.00         3
           3       0.50      1.00      0.67         1
           5       1.00      0.50      0.67         2
           6       1.00      0.33      0.50         3
           7       0.50      1.00      0.67         2

    accuracy                           0.86        21
   macro avg       0.83      0.81      0.75        21
weighted avg       0.93      0.86      0.85        21

0.8571428571428571
Predicted class = 3     Actual class = 5
Predicted class = 1     Actual class = 1
Predicted class = 7     Actual class = 7
Predicted class = 7     Actual class = 6
Predicted class = 1     Actual class = 1
Predicted class = 2     Actual class = 2
Predicted class = 3     Actual class = 3
Predicted class = 5     Actual class = 5
Predicted class = 6     Actual class = 6
Predicted class = 1     Actual class = 1
Predicted class = 1     Actual class = 1
Predicted class = 1     Actual class = 1
Predicted class = 7     Actual class = 6
Predicted class = 2     Actual class = 2
Predicted class = 1     Actual class = 1
Predicted class = 1     Actual class = 1
Predicted class = 7     Actual class = 7
Predicted class = 1     Actual class = 1
Predicted class = 1     Actual class = 1
Predicted class = 2     Actual class = 2
Predicted class = 1     Actual class = 1
```

In [ ]: