52. Logistic regression [using Fish prediction dataset]

```python
import pandas as p
import seaborn as s
import matplotlib.pyplot as m

da=p.read_csv("Fish.csv")
print(da.isna().sum())

x=da.iloc[:,1:]
y=da.loc[:,'Species']

#Scaling
from sklearn.preprocessing import MinMaxScaler
sca=MinMaxScaler()
sca.fit(x)
x_sca=sca.transform(x)

#Transformation of Y
from sklearn.preprocessing import LabelEncoder
lb=LabelEncoder()
y=lb.fit_transform(y)

from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x_sca,y,test_size=0.2,random_state=42)

from sklearn.linear_model import LogisticRegression
mod=LogisticRegression()
mod.fit(x_train,y_train)
y_pred=mod.predict(x_test)

from sklearn.metrics import accuracy_score
print("\nAccuracy:",accuracy_score(y_test,y_pred))

from sklearn.metrics import confusion_matrix
cm=confusion_matrix(y_test,y_pred)
s.heatmap(cm,annot=True)
m.xlabel("Prediction"); m.ylabel('Target')
m.title('Confusion Matrix'); m.show()
```
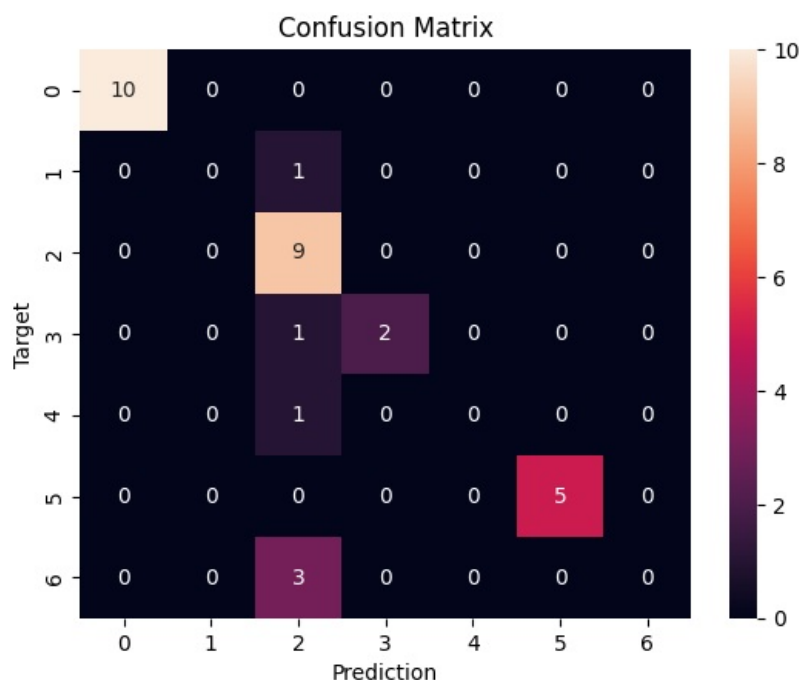
```
Species     0
Weight      0
V_length    0
D_length    0
C_length    0
Height      0
Width       0
dtype: int64

Accuracy: 0.8125
```


53. SVM Model [Using Fish prediction dataset]

```python
import pandas as p
import seaborn as s
import matplotlib.pyplot as m

da=p.read_csv("Fish.csv")
s.pairplot(data=da,hue='Species')
m.show()

x=da.iloc[:,1:]
y=da.loc[:,'Species']

#Transformation of Y
from sklearn.preprocessing import LabelEncoder
lb=LabelEncoder()
y=lb.fit_transform(y)

from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x_sca,y,test_size=0.2,random_state=42)

from sklearn.svm import SVC
mod=SVC(kernel='rbf',random_state=1,gamma='auto')
mod.fit(x_train,y_train)
y_pred=mod.predict(x_test)

from sklearn.metrics import accuracy_score
print("\nAccuracy:",accuracy_score(y_test,y_pred)*100)

from sklearn.metrics import confusion_matrix
cm=confusion_matrix(y_test,y_pred)
s.heatmap(cm,annot=True)
m.xlabel("Prediction"); m.ylabel('Target')
m.title('Confusion Matrix'); m.show()
```
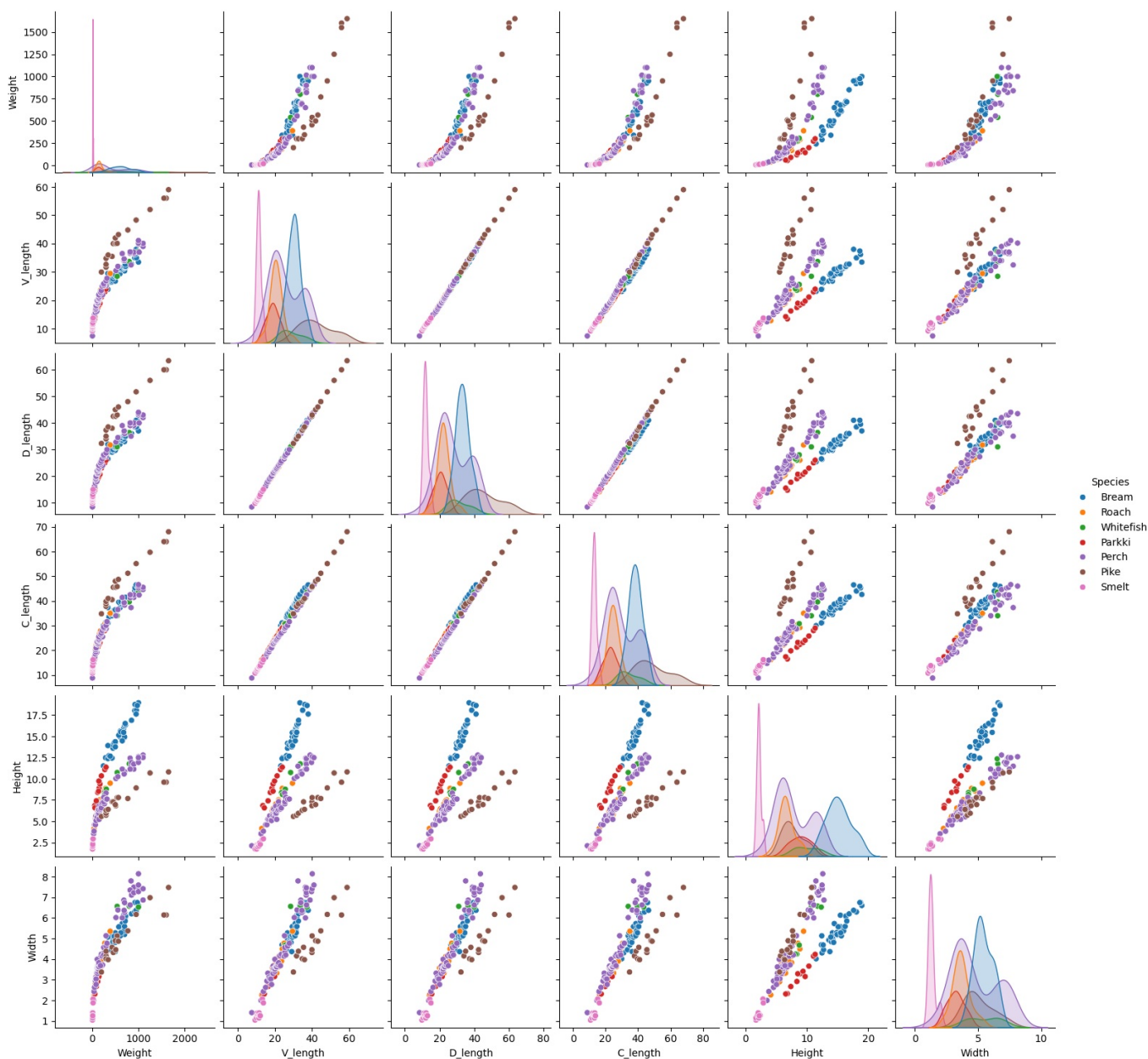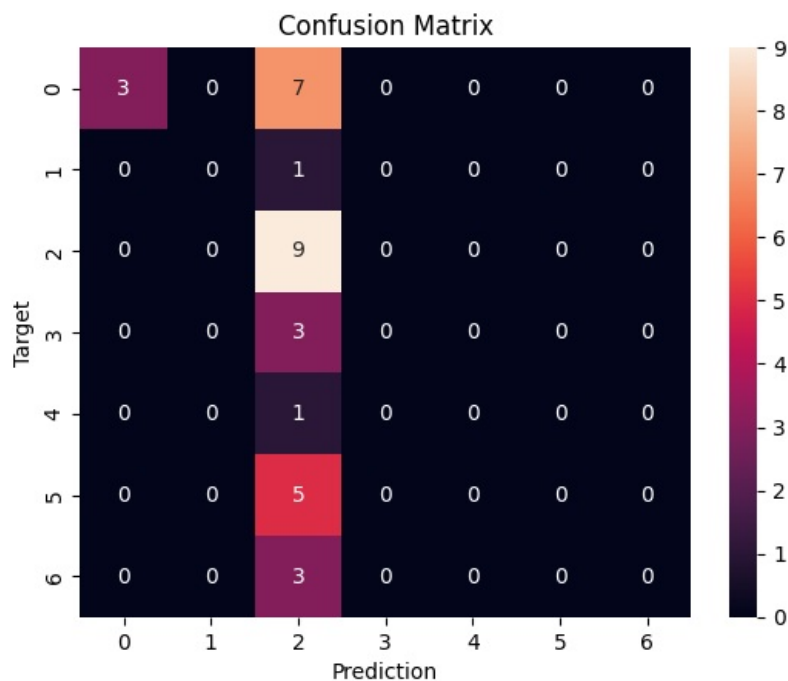

Accuracy: 37.5

Confusion Matrix

54. Random Forest Classifier model [Using Breast Cancer dataset]

In [32]:
```python
import pandas as p
import seaborn as s
import matplotlib.pyplot as m
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import accuracy_score, confusion_matrix

da=p.read_csv("breast-cancer.csv")
da.drop(['id'],axis=1,inplace=True)
da.diagnosis=[1 if i=='M' else 0 for i in da.diagnosis]

x=da.drop(['diagnosis'],axis=1)
y=da.diagnosis.values

x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2,random_state=30)
model1=RandomForestClassifier()
model1.fit(x_train,y_train)
y_pred1=model1.predict(x_test)

print("\nAccuracy of the model using Random Forest Regression alogorithm is",accuracy_score(y_test,y_pred1))

cm=confusion_matrix(y_test,y_pred1)
s.heatmap(cm,annot=True)
m.show()
```
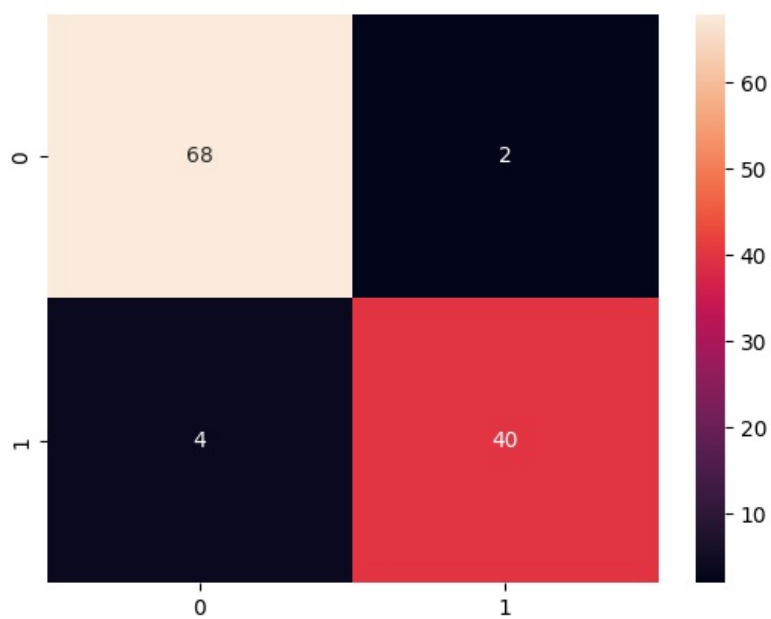
Accuracy of the model using Random Forest Regression alogorithm is 0.9473684210526315

In [ ]: