In [ ]:
```
import numpy as np
import pandas as pd
from sklearn.linear_model import LogisticRegression
import matplotlib.pyplot as plt
import seaborn as sns
```

In [ ]:
```
data_call = pd.read_excel('./QF_Sheet.xlsx', sheet_name='Call', na_values='-')
```

In [ ]:
```
greeks_call = data_call[['DELTA', 'GAMMA', 'THETA', 'VEGA', 'RHO', 'TREND']]
```

In [ ]:
```
X_call = greeks_call.drop(columns=['TREND']).values
y_call = greeks_call['TREND'].values
```

In [ ]:
```
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score, recall_score, confusion_matrix, Conf


xtrain, xtest, ytrain, ytest = train_test_split(X_call, y_call, test_size=0.25,
```

In [ ]:
```
logregCall = LogisticRegression().fit(xtrain, ytrain)
```

In [ ]:
```
ypredTest_call = logregCall.predict(xtest)
```

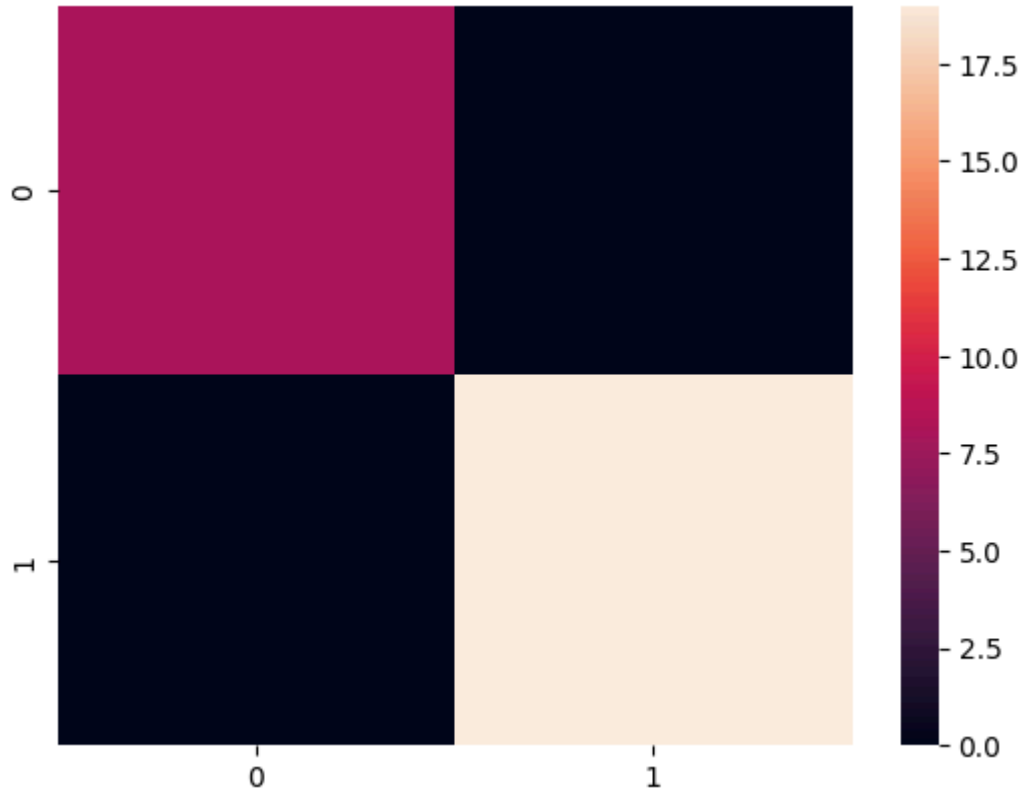
In [ ]:
```
accuracy_score(ytest, ypredTest_call)
```

Out[ ]:
```
1.0
```

In [ ]:
```
cf_call = confusion_matrix(ytest, ypredTest_call)
```

In [ ]:
```
sns.heatmap(cf_call, cmap='rocket')
```

Out[ ]:
```
<Axes: >
```




In [ ]:
```
data_put = pd.read_excel('./QF_Sheet.xlsx', sheet_name='Put', na_values='-')
greeks_put = data_put[['DELTA', 'GAMMA', 'THETA', 'VEGA', 'RHO', 'TREND']]
```

In [ ]:
```
X_put = greeks_put.drop(columns=['TREND']).values
y_put = greeks_put['TREND'].values
```

In [ ]:
```
from sklearn.model_selection import train_test_split

xtrain, xtest, ytrain, ytest = train_test_split(X_put, y_put, test_size=0.25, ra
```

In [ ]:
```
logregPut = LogisticRegression().fit(xtrain, ytrain)
```

In [ ]:
```
ypredTest_put = logregPut.predict(xtest)
```

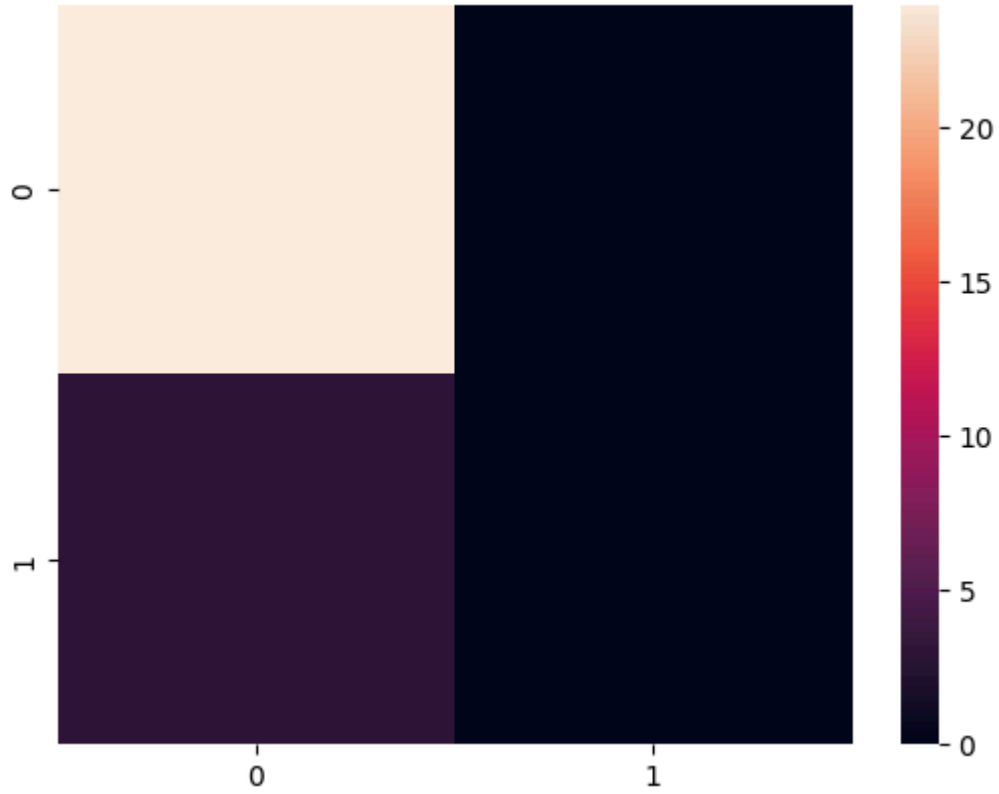
In [ ]:
```
accuracy_score(ytest, ypredTest_put)
```

Out[ ]:
```
0.8888888888888888
```

In [ ]:
```
cf_put = confusion_matrix(ytest, ypredTest_put)
```

In [ ]:
```
sns.heatmap(cf_put, cmap='rocket')
```

Out[ ]:
```
<Axes: >
```




In [ ]: