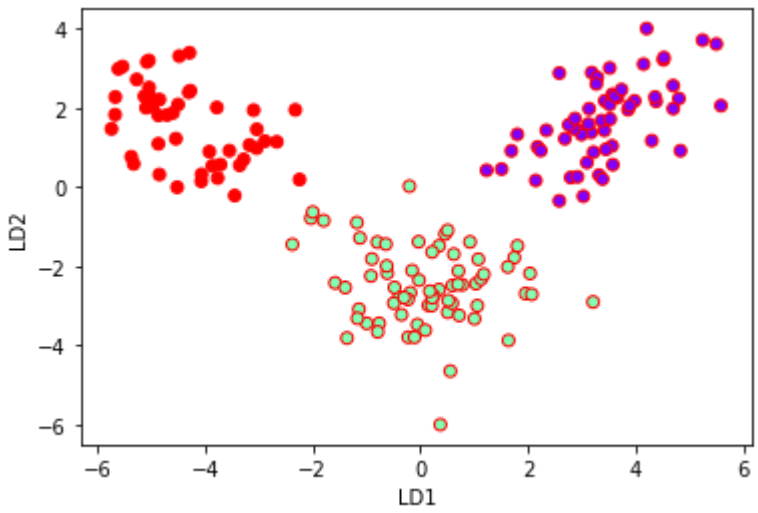
In [53]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.discriminant_analysis import LinearDiscriminantAnalysis
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score
from sklearn.metrics import confusion_matrix
```

In [54]:
```
from sklearn.datasets import load_wine
dt = load_wine()
X = dt.data
y = dt.target
```

In [68]:
```
#Fitting LDA to wine dataset:
lda = LinearDiscriminantAnalysis(n_components=2)
lda_t = lda.fit_transform(X,y)
#Number of components (<= min(n_classes - 1, n_features)) for dimensionality reduction.
```

In [69]:
```
plt.xlabel('LD1')
plt.ylabel('LD2')
plt.scatter(lda_t[:,0],lda_t[:,1],c=y,cmap='rainbow',edgecolors='r')
```

Out[69]:
```
<matplotlib.collections.PathCollection at 0x1fb7574bd90>
```



In [58]:
```
#LDA for classification:
X_train,X_test,y_train,y_test = train_test_split(X,y,test_size=0.3)
lda.fit(X_train,y_train)
y_pred = lda.predict(X_test)
print(accuracy_score(y_test,y_pred))
```

```
0.9629629629629629
```

In [59]:
```
confusion_matrix(y_test,y_pred)
```

Out[59]:
```
array([[19,  0,  0],
       [ 0, 21,  1],
```

```
       [ 0,  1, 12]], dtype=int64)
```

In [ ]:

In [ ]: