In [41]:

```python
#Import scikit-learn dataset library

import sklearn
from sklearn import datasets
#from sklearn.model_selection import cross_validation
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_validate
from sklearn.model_selection import train_test_split

#Load dataset
wine = datasets.load_wine()
```

In [42]:

```python
# print the names of the 13 features
print('Features: ', wine.feature_names)

# print the label type of wine(class_0, class_1, class_2)
print('Labels: ', wine.target_names)
```

```
Features:  ['alcohol', 'malic_acid', 'ash', 'alcalinity_of_ash', 'magnesiu
m', 'total_phenols', 'flavanoids', 'nonflavanoid_phenols', 'proanthocyanin
s', 'color_intensity', 'hue', 'od280/od315_of_diluted_wines', 'proline']
Labels:  ['class_0' 'class_1' 'class_2']
```

In [43]:

```python
# print data(feature)shape
wine.data.shape
```

Out[43]:

```
(178, 13)
```

In [44]:

```python
# print the wine data features (top 5 records)
print(wine.data[0:5])
```

```
[[1.423e+01 1.710e+00 2.430e+00 1.560e+01 1.270e+02 2.800e+00 3.060e+00
  2.800e-01 2.290e+00 5.640e+00 1.040e+00 3.920e+00 1.065e+03]
 [1.320e+01 1.780e+00 2.140e+00 1.120e+01 1.000e+02 2.650e+00 2.760e+00
  2.600e-01 1.280e+00 4.380e+00 1.050e+00 3.400e+00 1.050e+03]
 [1.316e+01 2.360e+00 2.670e+00 1.860e+01 1.010e+02 2.800e+00 3.240e+00
  3.000e-01 2.810e+00 5.680e+00 1.030e+00 3.170e+00 1.185e+03]
 [1.437e+01 1.950e+00 2.500e+00 1.680e+01 1.130e+02 3.850e+00 3.490e+00
  2.400e-01 2.180e+00 7.800e+00 8.600e-01 3.450e+00 1.480e+03]
 [1.324e+01 2.590e+00 2.870e+00 2.100e+01 1.180e+02 2.800e+00 2.690e+00
  3.900e-01 1.820e+00 4.320e+00 1.040e+00 2.930e+00 7.350e+02]]
```

In [45]:

```python
# print the wine labels (0:Class_0, 1:class_2, 2:class_2)
print(wine.target)
```

```
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2]
```

In [48]:

```python
# Split dataset into training set and test set

# 70% training and 30% test
X_train, X_test, y_train, y_test = train_test_split(wine.data, wine.target, test_size=0.3,r
```

In [49]:

```python
#Import Gaussian Naive Bayes model
from sklearn.naive_bayes import GaussianNB

#Create a Gaussian Classifier
gnb = GaussianNB()

#Train the model using the training sets
gnb.fit(X_train, y_train)

#Predict the response for test dataset
y_pred = gnb.predict(X_test)
```

In [50]:

```python
#Import scikit-learn metrics module for accuracy calculation
from sklearn import metrics

# Model Accuracy, how often is the classifier correct?
print("Accuracy:",metrics.accuracy_score(y_test, y_pred))
```

```
Accuracy: 0.9074074074074074
```

In [ ]:

```python
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn import datasets
from sklearn import svm
```