Q11

In [ ]:
```
from sklearn.datasets import load_wine
from sklearn.naive_bayes import GaussianNB
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score,confusion_matrix
from sklearn.decomposition import PCA
import numpy as np
import pandas as pd
```

In [ ]:
```
wine = load_wine()
X = wine["data"]
y = wine["target"]
```

In [ ]:
```
p = PCA(n_components=5)
p.fit(X)
X = p.transform(X)
```

In [ ]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.33, random_
```

In [ ]:
```
gauss = GaussianNB()
gauss.fit(X_test, y_test)


# train Accuracy
preds_train = gauss.predict(X_train)
print(f"Training Accuracy : {accuracy_score(y_train, preds_train)}")

# Testing Accuracy
preds_test = gauss.predict(X_test)
print(f"Testing Accuracy : {accuracy_score(y_test, preds_test)}")
```

```
Training Accuracy : 0.8739495798319328
Testing Accuracy : 0.9661016949152542
```