In [ ]:
```
# Name : PHULE PRATHAMESH DNYANDEV
```

In [ ]:
```
# Roll No : COTB42
```

In [4]:
```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

In [5]:
```
iris = pd.read_csv("Iris.csv")
```

In [6]:
```
iris.head()
```

Out[6]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [7]:
```
iris.dtypes
```

Out[7]:
```
Id                int64
SepalLengthCm    float64
SepalWidthCm     float64
PetalLengthCm    float64
PetalWidthCm     float64
Species           object
dtype: object
```

In [8]:
```
from sklearn import preprocessing
```

In [9]:
```
enc = preprocessing.OneHotEncoder()
enc_iris = pd.DataFrame(enc.fit_transform(iris[['SepalLengthCm']]).toarray())
enc_iris
```

Out[9]:

	0	1	2	3
0	0.0	1.0	0.0	0.0
1	1.0	0.0	0.0	0.0
2	1.0	0.0	0.0	0.0
3	1.0	0.0	0.0	0.0
4	0.0	1.0	0.0	0.0
5	0.0	1.0	0.0	0.0
6	1.0	0.0	0.0	0.0
7	0.0	1.0	0.0	0.0
8	1.0	0.0	0.0	0.0
9	1.0	0.0	0.0	0.0
10	0.0	1.0	0.0	0.0
11	1.0	0.0	0.0	0.0
12	1.0	0.0	0.0	0.0
13	1.0	0.0	0.0	0.0
14	0.0	1.0	0.0	0.0
15	0.0	1.0	0.0	0.0
16	0.0	1.0	0.0	0.0
17	0.0	1.0	0.0	0.0
18	0.0	1.0	0.0	0.0
19	0.0	1.0	0.0	0.0
20	0.0	1.0	0.0	0.0
21	0.0	1.0	0.0	0.0
22	1.0	0.0	0.0	0.0
23	0.0	1.0	0.0	0.0
24	1.0	0.0	0.0	0.0
25	0.0	1.0	0.0	0.0
26	0.0	1.0	0.0	0.0
27	0.0	1.0	0.0	0.0
28	0.0	1.0	0.0	0.0
29	1.0	0.0	0.0	0.0
...	...	...	...	...
120	0.0	0.0	1.0	0.0

	0	1	2	3
121	0.0	1.0	0.0	0.0
122	0.0	0.0	0.0	1.0
123	0.0	0.0	1.0	0.0
124	0.0	0.0	1.0	0.0
125	0.0	0.0	0.0	1.0
126	0.0	0.0	1.0	0.0
127	0.0	0.0	1.0	0.0
128	0.0	0.0	1.0	0.0
129	0.0	0.0	0.0	1.0
130	0.0	0.0	0.0	1.0
131	0.0	0.0	0.0	1.0
132	0.0	0.0	1.0	0.0
133	0.0	0.0	1.0	0.0
134	0.0	0.0	1.0	0.0
135	0.0	0.0	0.0	1.0
136	0.0	0.0	1.0	0.0
137	0.0	0.0	1.0	0.0
138	0.0	0.0	1.0	0.0
139	0.0	0.0	1.0	0.0
140	0.0	0.0	1.0	0.0
141	0.0	0.0	1.0	0.0
142	0.0	1.0	0.0	0.0
143	0.0	0.0	1.0	0.0
144	0.0	0.0	1.0	0.0
145	0.0	0.0	1.0	0.0
146	0.0	0.0	1.0	0.0
147	0.0	0.0	1.0	0.0
148	0.0	0.0	1.0	0.0
149	0.0	1.0	0.0	0.0

150 rows × 4 columns

In [10]:
```
from sklearn import preprocessing
le = preprocessing.LabelEncoder()
iris['Species'] = le.fit_transform(iris['Species'])
newiris=iris
iris.head()
```

Out[10]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	0
1	2	4.9	3.0	1.4	0.2	0
2	3	4.7	3.2	1.3	0.2	0
3	4	4.6	3.1	1.5	0.2	0
4	5	5.0	3.6	1.4	0.2	0

In [11]:
```
iris.isnull().head(5)
```

Out[11]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	False	False	False	False	False	False
1	False	False	False	False	False	False
2	False	False	False	False	False	False
3	False	False	False	False	False	False
4	False	False	False	False	False	False

In [12]:
```
x = iris.iloc[:,:-1].values
```

In [13]:
```
print(x)
```

```
[[  1.00000000e+00   5.10000000e+00   3.50000000e+00   1.40000000e+00
    2.00000000e-01]
 [  2.00000000e+00   4.90000000e+00   3.00000000e+00   1.40000000e+00
    2.00000000e-01]
 [  3.00000000e+00   4.70000000e+00   3.20000000e+00   1.30000000e+00
    2.00000000e-01]
 [  4.00000000e+00   4.60000000e+00   3.10000000e+00   1.50000000e+00
    2.00000000e-01]
 [  5.00000000e+00   5.00000000e+00   3.60000000e+00   1.40000000e+00
    2.00000000e-01]
 [  6.00000000e+00   5.40000000e+00   3.90000000e+00   1.70000000e+00
    4.00000000e-01]
 [  7.00000000e+00   4.60000000e+00   3.40000000e+00   1.40000000e+00
    3.00000000e-01]
 [  8.00000000e+00   5.00000000e+00   3.40000000e+00   1.50000000e+00
    2.00000000e-01]
 [  9.00000000e+00   4.40000000e+00   2.90000000e+00   1.40000000e+00
    2.00000000e-01]
 [  1.00000000e+01   4.90000000e+00   3.10000000e+00   1.50000000e+00
    1.00000000e-01]
 [  1.10000000e+01   5.40000000e+00   3.70000000e+00   1.50000000e+00
    2.00000000e-01]
 [  1.20000000e+01   4.80000000e+00   3.40000000e+00   1.60000000e+00
    2.00000000e-01]
 [  1.30000000e+01   4.80000000e+00   3.00000000e+00   1.40000000e+00
    1.00000000e-01]
 [  1.40000000e+01   4.30000000e+00   3.00000000e+00   1.10000000e+00
    1.00000000e-01]
 [  1.50000000e+01   5.80000000e+00   4.00000000e+00   1.20000000e+00
    2.00000000e-01]
 [  1.60000000e+01   5.70000000e+00   4.40000000e+00   1.50000000e+00
    4.00000000e-01]
 [  1.70000000e+01   5.40000000e+00   3.90000000e+00   1.30000000e+00
    4.00000000e-01]
 [  1.80000000e+01   5.10000000e+00   3.50000000e+00   1.40000000e+00
    3.00000000e-01]
 [  1.90000000e+01   5.70000000e+00   3.80000000e+00   1.70000000e+00
    3.00000000e-01]
 [  2.00000000e+01   5.10000000e+00   3.80000000e+00   1.50000000e+00
    3.00000000e-01]
 [  2.10000000e+01   5.40000000e+00   3.40000000e+00   1.70000000e+00
    2.00000000e-01]
 [  2.20000000e+01   5.10000000e+00   3.70000000e+00   1.50000000e+00
    4.00000000e-01]
 [  2.30000000e+01   4.60000000e+00   3.60000000e+00   1.00000000e+00
    2.00000000e-01]
 [  2.40000000e+01   5.10000000e+00   3.30000000e+00   1.70000000e+00
    5.00000000e-01]
 [  2.50000000e+01   4.80000000e+00   3.40000000e+00   1.90000000e+00
    2.00000000e-01]
 [  2.60000000e+01   5.00000000e+00   3.00000000e+00   1.60000000e+00
    2.00000000e-01]
 [  2.70000000e+01   5.00000000e+00   3.40000000e+00   1.60000000e+00
    4.00000000e-01]
 [  2.80000000e+01   5.20000000e+00   3.50000000e+00   1.50000000e+00
    2.00000000e-01]
 [  2.90000000e+01   5.20000000e+00   3.40000000e+00   1.40000000e+00
```

```
   2.00000000e-01]
[  3.00000000e+01   4.70000000e+00   3.20000000e+00   1.60000000e+00
   2.00000000e-01]
[  3.10000000e+01   4.80000000e+00   3.10000000e+00   1.60000000e+00
   2.00000000e-01]
[  3.20000000e+01   5.40000000e+00   3.40000000e+00   1.50000000e+00
   4.00000000e-01]
[  3.30000000e+01   5.20000000e+00   4.10000000e+00   1.50000000e+00
   1.00000000e-01]
[  3.40000000e+01   5.50000000e+00   4.20000000e+00   1.40000000e+00
   2.00000000e-01]
[  3.50000000e+01   4.90000000e+00   3.10000000e+00   1.50000000e+00
   1.00000000e-01]
[  3.60000000e+01   5.00000000e+00   3.20000000e+00   1.20000000e+00
   2.00000000e-01]
[  3.70000000e+01   5.50000000e+00   3.50000000e+00   1.30000000e+00
   2.00000000e-01]
[  3.80000000e+01   4.90000000e+00   3.10000000e+00   1.50000000e+00
   1.00000000e-01]
[  3.90000000e+01   4.40000000e+00   3.00000000e+00   1.30000000e+00
   2.00000000e-01]
[  4.00000000e+01   5.10000000e+00   3.40000000e+00   1.50000000e+00
   2.00000000e-01]
[  4.10000000e+01   5.00000000e+00   3.50000000e+00   1.30000000e+00
   3.00000000e-01]
[  4.20000000e+01   4.50000000e+00   2.30000000e+00   1.30000000e+00
   3.00000000e-01]
[  4.30000000e+01   4.40000000e+00   3.20000000e+00   1.30000000e+00
   2.00000000e-01]
[  4.40000000e+01   5.00000000e+00   3.50000000e+00   1.60000000e+00
   6.00000000e-01]
[  4.50000000e+01   5.10000000e+00   3.80000000e+00   1.90000000e+00
   4.00000000e-01]
[  4.60000000e+01   4.80000000e+00   3.00000000e+00   1.40000000e+00
   3.00000000e-01]
[  4.70000000e+01   5.10000000e+00   3.80000000e+00   1.60000000e+00
   2.00000000e-01]
[  4.80000000e+01   4.60000000e+00   3.20000000e+00   1.40000000e+00
   2.00000000e-01]
[  4.90000000e+01   5.30000000e+00   3.70000000e+00   1.50000000e+00
   2.00000000e-01]
[  5.00000000e+01   5.00000000e+00   3.30000000e+00   1.40000000e+00
   2.00000000e-01]
[  5.10000000e+01   7.00000000e+00   3.20000000e+00   4.70000000e+00
   1.40000000e+00]
[  5.20000000e+01   6.40000000e+00   3.20000000e+00   4.50000000e+00
   1.50000000e+00]
[  5.30000000e+01   6.90000000e+00   3.10000000e+00   4.90000000e+00
   1.50000000e+00]
[  5.40000000e+01   5.50000000e+00   2.30000000e+00   4.00000000e+00
   1.30000000e+00]
[  5.50000000e+01   6.50000000e+00   2.80000000e+00   4.60000000e+00
   1.50000000e+00]
[  5.60000000e+01   5.70000000e+00   2.80000000e+00   4.50000000e+00
   1.30000000e+00]
[  5.70000000e+01   6.30000000e+00   3.30000000e+00   4.70000000e+00
   1.60000000e+00]
```

```
[  5.80000000e+01   4.90000000e+00   2.40000000e+00   3.30000000e+00
   1.00000000e+00]
[  5.90000000e+01   6.60000000e+00   2.90000000e+00   4.60000000e+00
   1.30000000e+00]
[  6.00000000e+01   5.20000000e+00   2.70000000e+00   3.90000000e+00
   1.40000000e+00]
[  6.10000000e+01   5.00000000e+00   2.00000000e+00   3.50000000e+00
   1.00000000e+00]
[  6.20000000e+01   5.90000000e+00   3.00000000e+00   4.20000000e+00
   1.50000000e+00]
[  6.30000000e+01   6.00000000e+00   2.20000000e+00   4.00000000e+00
   1.00000000e+00]
[  6.40000000e+01   6.10000000e+00   2.90000000e+00   4.70000000e+00
   1.40000000e+00]
[  6.50000000e+01   5.60000000e+00   2.90000000e+00   3.60000000e+00
   1.30000000e+00]
[  6.60000000e+01   6.70000000e+00   3.10000000e+00   4.40000000e+00
   1.40000000e+00]
[  6.70000000e+01   5.60000000e+00   3.00000000e+00   4.50000000e+00
   1.50000000e+00]
[  6.80000000e+01   5.80000000e+00   2.70000000e+00   4.10000000e+00
   1.00000000e+00]
[  6.90000000e+01   6.20000000e+00   2.20000000e+00   4.50000000e+00
   1.50000000e+00]
[  7.00000000e+01   5.60000000e+00   2.50000000e+00   3.90000000e+00
   1.10000000e+00]
[  7.10000000e+01   5.90000000e+00   3.20000000e+00   4.80000000e+00
   1.80000000e+00]
[  7.20000000e+01   6.10000000e+00   2.80000000e+00   4.00000000e+00
   1.30000000e+00]
[  7.30000000e+01   6.30000000e+00   2.50000000e+00   4.90000000e+00
   1.50000000e+00]
[  7.40000000e+01   6.10000000e+00   2.80000000e+00   4.70000000e+00
   1.20000000e+00]
[  7.50000000e+01   6.40000000e+00   2.90000000e+00   4.30000000e+00
   1.30000000e+00]
[  7.60000000e+01   6.60000000e+00   3.00000000e+00   4.40000000e+00
   1.40000000e+00]
[  7.70000000e+01   6.80000000e+00   2.80000000e+00   4.80000000e+00
   1.40000000e+00]
[  7.80000000e+01   6.70000000e+00   3.00000000e+00   5.00000000e+00
   1.70000000e+00]
[  7.90000000e+01   6.00000000e+00   2.90000000e+00   4.50000000e+00
   1.50000000e+00]
[  8.00000000e+01   5.70000000e+00   2.60000000e+00   3.50000000e+00
   1.00000000e+00]
[  8.10000000e+01   5.50000000e+00   2.40000000e+00   3.80000000e+00
   1.10000000e+00]
[  8.20000000e+01   5.50000000e+00   2.40000000e+00   3.70000000e+00
   1.00000000e+00]
[  8.30000000e+01   5.80000000e+00   2.70000000e+00   3.90000000e+00
   1.20000000e+00]
[  8.40000000e+01   6.00000000e+00   2.70000000e+00   5.10000000e+00
   1.60000000e+00]
[  8.50000000e+01   5.40000000e+00   3.00000000e+00   4.50000000e+00
   1.50000000e+00]
[  8.60000000e+01   6.00000000e+00   3.40000000e+00   4.50000000e+00
```

```
   1.60000000e+00]
[  8.70000000e+01   6.70000000e+00   3.10000000e+00   4.70000000e+00
   1.50000000e+00]
[  8.80000000e+01   6.30000000e+00   2.30000000e+00   4.40000000e+00
   1.30000000e+00]
[  8.90000000e+01   5.60000000e+00   3.00000000e+00   4.10000000e+00
   1.30000000e+00]
[  9.00000000e+01   5.50000000e+00   2.50000000e+00   4.00000000e+00
   1.30000000e+00]
[  9.10000000e+01   5.50000000e+00   2.60000000e+00   4.40000000e+00
   1.20000000e+00]
[  9.20000000e+01   6.10000000e+00   3.00000000e+00   4.60000000e+00
   1.40000000e+00]
[  9.30000000e+01   5.80000000e+00   2.60000000e+00   4.00000000e+00
   1.20000000e+00]
[  9.40000000e+01   5.00000000e+00   2.30000000e+00   3.30000000e+00
   1.00000000e+00]
[  9.50000000e+01   5.60000000e+00   2.70000000e+00   4.20000000e+00
   1.30000000e+00]
[  9.60000000e+01   5.70000000e+00   3.00000000e+00   4.20000000e+00
   1.20000000e+00]
[  9.70000000e+01   5.70000000e+00   2.90000000e+00   4.20000000e+00
   1.30000000e+00]
[  9.80000000e+01   6.20000000e+00   2.90000000e+00   4.30000000e+00
   1.30000000e+00]
[  9.90000000e+01   5.10000000e+00   2.50000000e+00   3.00000000e+00
   1.10000000e+00]
[  1.00000000e+02   5.70000000e+00   2.80000000e+00   4.10000000e+00
   1.30000000e+00]
[  1.01000000e+02   6.30000000e+00   3.30000000e+00   6.00000000e+00
   2.50000000e+00]
[  1.02000000e+02   5.80000000e+00   2.70000000e+00   5.10000000e+00
   1.90000000e+00]
[  1.03000000e+02   7.10000000e+00   3.00000000e+00   5.90000000e+00
   2.10000000e+00]
[  1.04000000e+02   6.30000000e+00   2.90000000e+00   5.60000000e+00
   1.80000000e+00]
[  1.05000000e+02   6.50000000e+00   3.00000000e+00   5.80000000e+00
   2.20000000e+00]
[  1.06000000e+02   7.60000000e+00   3.00000000e+00   6.60000000e+00
   2.10000000e+00]
[  1.07000000e+02   4.90000000e+00   2.50000000e+00   4.50000000e+00
   1.70000000e+00]
[  1.08000000e+02   7.30000000e+00   2.90000000e+00   6.30000000e+00
   1.80000000e+00]
[  1.09000000e+02   6.70000000e+00   2.50000000e+00   5.80000000e+00
   1.80000000e+00]
[  1.10000000e+02   7.20000000e+00   3.60000000e+00   6.10000000e+00
   2.50000000e+00]
[  1.11000000e+02   6.50000000e+00   3.20000000e+00   5.10000000e+00
   2.00000000e+00]
[  1.12000000e+02   6.40000000e+00   2.70000000e+00   5.30000000e+00
   1.90000000e+00]
[  1.13000000e+02   6.80000000e+00   3.00000000e+00   5.50000000e+00
   2.10000000e+00]
[  1.14000000e+02   5.70000000e+00   2.50000000e+00   5.00000000e+00
   2.00000000e+00]
```

```
[  1.15000000e+02   5.80000000e+00   2.80000000e+00   5.10000000e+00
   2.40000000e+00]
[  1.16000000e+02   6.40000000e+00   3.20000000e+00   5.30000000e+00
   2.30000000e+00]
[  1.17000000e+02   6.50000000e+00   3.00000000e+00   5.50000000e+00
   1.80000000e+00]
[  1.18000000e+02   7.70000000e+00   3.80000000e+00   6.70000000e+00
   2.20000000e+00]
[  1.19000000e+02   7.70000000e+00   2.60000000e+00   6.90000000e+00
   2.30000000e+00]
[  1.20000000e+02   6.00000000e+00   2.20000000e+00   5.00000000e+00
   1.50000000e+00]
[  1.21000000e+02   6.90000000e+00   3.20000000e+00   5.70000000e+00
   2.30000000e+00]
[  1.22000000e+02   5.60000000e+00   2.80000000e+00   4.90000000e+00
   2.00000000e+00]
[  1.23000000e+02   7.70000000e+00   2.80000000e+00   6.70000000e+00
   2.00000000e+00]
[  1.24000000e+02   6.30000000e+00   2.70000000e+00   4.90000000e+00
   1.80000000e+00]
[  1.25000000e+02   6.70000000e+00   3.30000000e+00   5.70000000e+00
   2.10000000e+00]
[  1.26000000e+02   7.20000000e+00   3.20000000e+00   6.00000000e+00
   1.80000000e+00]
[  1.27000000e+02   6.20000000e+00   2.80000000e+00   4.80000000e+00
   1.80000000e+00]
[  1.28000000e+02   6.10000000e+00   3.00000000e+00   4.90000000e+00
   1.80000000e+00]
[  1.29000000e+02   6.40000000e+00   2.80000000e+00   5.60000000e+00
   2.10000000e+00]
[  1.30000000e+02   7.20000000e+00   3.00000000e+00   5.80000000e+00
   1.60000000e+00]
[  1.31000000e+02   7.40000000e+00   2.80000000e+00   6.10000000e+00
   1.90000000e+00]
[  1.32000000e+02   7.90000000e+00   3.80000000e+00   6.40000000e+00
   2.00000000e+00]
[  1.33000000e+02   6.40000000e+00   2.80000000e+00   5.60000000e+00
   2.20000000e+00]
[  1.34000000e+02   6.30000000e+00   2.80000000e+00   5.10000000e+00
   1.50000000e+00]
[  1.35000000e+02   6.10000000e+00   2.60000000e+00   5.60000000e+00
   1.40000000e+00]
[  1.36000000e+02   7.70000000e+00   3.00000000e+00   6.10000000e+00
   2.30000000e+00]
[  1.37000000e+02   6.30000000e+00   3.40000000e+00   5.60000000e+00
   2.40000000e+00]
[  1.38000000e+02   6.40000000e+00   3.10000000e+00   5.50000000e+00
   1.80000000e+00]
[  1.39000000e+02   6.00000000e+00   3.00000000e+00   4.80000000e+00
   1.80000000e+00]
[  1.40000000e+02   6.90000000e+00   3.10000000e+00   5.40000000e+00
   2.10000000e+00]
[  1.41000000e+02   6.70000000e+00   3.10000000e+00   5.60000000e+00
   2.40000000e+00]
[  1.42000000e+02   6.90000000e+00   3.10000000e+00   5.10000000e+00
   2.30000000e+00]
[  1.43000000e+02   5.80000000e+00   2.70000000e+00   5.10000000e+00
```

```
   1.90000000e+00]
 [  1.44000000e+02   6.80000000e+00   3.20000000e+00   5.90000000e+00
   2.30000000e+00]
 [  1.45000000e+02   6.70000000e+00   3.30000000e+00   5.70000000e+00
   2.50000000e+00]
 [  1.46000000e+02   6.70000000e+00   3.00000000e+00   5.20000000e+00
   2.30000000e+00]
 [  1.47000000e+02   6.30000000e+00   2.50000000e+00   5.00000000e+00
   1.90000000e+00]
 [  1.48000000e+02   6.50000000e+00   3.00000000e+00   5.20000000e+00
   2.00000000e+00]
 [  1.49000000e+02   6.20000000e+00   3.40000000e+00   5.40000000e+00
   2.30000000e+00]
 [  1.50000000e+02   5.90000000e+00   3.00000000e+00   5.10000000e+00
   1.80000000e+00]]
```

In [14]:
```
y = iris.iloc[:,-1].values
print(y)
```

```
[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 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 2 2
 2 2]
```

In [15]:
```
x = iris.drop(['SepalLengthCm'],axis = 1)
y = iris['SepalLengthCm']
```

In [16]:
```
from sklearn.model_selection import train_test_split
from sklearn import metrics
from sklearn.metrics import accuracy_score
```

In [26]:
```
def train_test_rmse(x,y):
    x = iris_data[x]
    y = iris_data[y]
    x_train,X_test,y_train,y_test= train_test_split(x,y,test_size=0.2,random_s
tate=4)
    linreg = LinearRegression()
    linreg.fit(x_train,y_train)
    y_pred = linreg.predict(x_test)
    print(accuracy_score(y_test,y_pred))
    return np.sqrt(metrics.mean_squared_error(y_test,y_pred))
```

In [30]:
```
import numpy as np
from sklearn.model_selection import train_test_split
X_train,X_test,y_train,y_test = train_test_split(x,y,test_size=0.33, random_st
ate=4)
```

In [31]:
```
X = np.array([[-1,-1],[-2,-1],[-3,-2],[1,1],[2,1],[3,2]])
Y = np.array([1,1,1,2,2,2])
```

In [46]:
```
from sklearn.naive_bayes import GaussianNB
gaussian = GaussianNB()
gaussian.fit(X,Y)
```

Out[46]:
```
GaussianNB(priors=None)
```

In [47]:
```
Y_pred = gaussian.predict(X_test)
```

In [48]:
```
from sklearn.metrics import confusion_matrix,accuracy_score,precision_score,re
call_score
y_true = [2,0,2,2,0,1]
y_pred = [0,0,2,2,0,2]
confusion_matrix(y_true,y_pred)
```

Out[48]:
```
array([[2, 0, 0],
       [0, 0, 1],
       [1, 0, 2]])
```

In [49]:
```
ac = accuracy_score(y_test,Y_pred)
print(ac)
```

```
1.0
```

In [50]:
```
precision = precision_score(y_test,Y_pred,average='micro')
print(precision)
```

```
1.0
```

In [45]:
```
recall = recall_score(y_test, Y_pred, average='micro')
print(recall)
```

```
1.0
```