```python
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df=pd.read_csv("C:/Users/91997/Downloads/Iris.csv")
df
```

```
       Id  SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm  \
0       1            5.1           3.5            1.4           0.2
1       2            4.9           3.0            1.4           0.2
2       3            4.7           3.2            1.3           0.2
3       4            4.6           3.1            1.5           0.2
4       5            5.0           3.6            1.4           0.2
..    ...            ...           ...            ...           ...
145   146            6.7           3.0            5.2           2.3
146   147            6.3           2.5            5.0           1.9
147   148            6.5           3.0            5.2           2.0
148   149            6.2           3.4            5.4           2.3
149   150            5.9           3.0            5.1           1.8

            Species
0       Iris-setosa
1       Iris-setosa
2       Iris-setosa
3       Iris-setosa
4       Iris-setosa
..              ...
145   Iris-virginica
146   Iris-virginica
147   Iris-virginica
148   Iris-virginica
149   Iris-virginica

[150 rows x 6 columns]
```

```python
df['Species'].replace({"Iris-setosa":0,"Iris-versicolor":1,"Iris-
virginica":2},inplace=True)
df
```

```
       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
..      ...         ...         ...         ...         ...
...
145     146         6.7         3.0         5.2         2.3
2
146     147         6.3         2.5         5.0         1.9
2
147     148         6.5         3.0         5.2         2.0
2
148     149         6.2         3.4         5.4         2.3
2
149     150         5.9         3.0         5.1         1.8
2

[150 rows x 6 columns]
```

```python
df.isnull().sum()
```

```
Id                  0
SepalLengthCm       0
SepalWidthCm        0
PetalLengthCm       0
PetalWidthCm        0
Species             0
dtype: int64
```

```python
df.shape
```

```
(150, 6)
```

```python
df.columns
```

```
Index(['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm',
'PetalWidthCm',
        'Species'],
      dtype='object')
```

```python
x=df[['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm',
'PetalWidthCm']]
y=df['Species']
```

```python
from sklearn.model_selection import train_test_split
```

```python
X_train,x_test,y_train,y_test=
train_test_split(x,y,test_size=0.25,random_state=0)
```

```python
from sklearn.naive_bayes import GaussianNB
model = GaussianNB()
model.fit(X_train, y_train)

GaussianNB()

y_pred = model.predict(x_test)

from sklearn.metrics import
precision_score,confusion_matrix,accuracy_score,recall_score


cm= confusion_matrix(y_test, y_pred)
cm

array([[13,  0,  0],
       [ 0, 16,  0],
       [ 0,  0,  9]], dtype=int64)

accuracy = accuracy_score(y_test, y_pred)
print("Accuracy:",accuracy)

Accuracy: 1.0

precision =precision_score(y_test, y_pred,average='micro')
print("Precision:",precision)

Precision: 1.0

recall = recall_score(y_test, y_pred,average='micro')
print("Recall:",recall)

Recall: 1.0

error_rate = 1 - accuracy
print("Error Rate:",error_rate)

Error Rate: 0.0

sns.heatmap(x.corr(),annot=True)
plt.show

<function matplotlib.pyplot.show(close=None, block=None)>
```