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

a = pd.read_csv("/home/mmcoe/Documents/Iris.csv")

a
```

```
      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
a.isnull().sum()
```

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

```python
x=a.iloc[:,:4].values
y = a['Species'].values

a.head()
```

```
     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
```

```python
from sklearn.model_selection import train_test_split

x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.2)

from sklearn.preprocessing import StandardScaler

sc = StandardScaler()
x_train =  sc.fit_transform(x_train)
x_test = sc.transform(x_test)

from sklearn.naive_bayes import GaussianNB
classifier = GaussianNB()
classifier.fit(x_train, y_train)

GaussianNB()

y_pred = classifier.predict(x_test)
y_pred
```

```
array(['Iris-setosa', 'Iris-virginica', 'Iris-setosa', 'Iris-
virginica',
       'Iris-setosa', 'Iris-setosa', 'Iris-setosa', 'Iris-versicolor',
       'Iris-virginica', 'Iris-setosa', 'Iris-setosa', 'Iris-
virginica',
       'Iris-versicolor', 'Iris-virginica', 'Iris-virginica',
       'Iris-setosa', 'Iris-versicolor', 'Iris-versicolor', 'Iris-
setosa',
       'Iris-setosa', 'Iris-versicolor', 'Iris-setosa', 'Iris-setosa',
       'Iris-virginica', 'Iris-versicolor', 'Iris-versicolor',
       'Iris-virginica', 'Iris-virginica', 'Iris-virginica',
       'Iris-virginica'], dtype='<U15')
```

```python
from sklearn.metrics import confusion_matrix
cm = confusion_matrix(y_test, y_pred)
print(cm)
```

```
[[12  0  0]
 [ 0  7  0]
 [ 0  0 11]]
```

```python
y1=classifier.predict([[5.1,3.5,1.4,0.2]])
y1
```
```
array(['Iris-setosa'], dtype='<U15')
```