


## Experiment Title: 2.2

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<b>Semester:</b> 5	<b>Date of Performance:</b> Oct. 11, 2022
<b>Subject Name:</b> Machine Learning Lab	<b>Subject Code:</b> 20CSP-317

❖ **Aim/Overview of the practical:** Implement Naïve Bayes on any dataset.

❖ **Code & Output:**

 **jupyter** EXP\_5\_ml Last Checkpoint: an hour ago (autosaved)

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```
In [1]: from sklearn.datasets import load_iris
iris = load_iris()

In [2]: print("data: ",iris.data)

data: [[5.1 3.5 1.4 0.2]
[4.9 3. 1.4 0.2]
[4.7 3.2 1.3 0.2]
[4.6 3.1 1.5 0.2]
[5. 3.6 1.4 0.2]
[5.4 3.9 1.7 0.4]
[4.6 3.4 1.4 0.3]
[5. 3.4 1.5 0.2]
[4.4 2.9 1.4 0.2]
[4.9 3.1 1.5 0.1]
[5.4 3.7 1.5 0.2]
[4.8 3.4 1.6 0.2]]
```

```
[5.5 2.4 3.8 1.1]
[5.5 2.4 3.7 1. ]
```

```
In [3]: print("target: ",iris.target_names)

target: ['setosa' 'versicolor' 'virginica']
```

```
In [4]: iris.data.shape
```

```
Out[4]: (150, 4)
```

```
In [5]: X = iris.data
        y = iris.target
```

```
In [6]: from sklearn.model_selection import train_test_split
        X_train, X_test, y_train, y_test = train_test_split(X,y, test_size = 0.65, random_state = 1)
```

```
In [7]: from sklearn.naive_bayes import GaussianNB
        gnb = GaussianNB()
        gnb.fit(X_train, y_train)
```

```
Out[7]: GaussianNB()
```

```
In [8]: y_pred = gnb.predict(X_test)
```

```
In [9]: from sklearn import metrics
        print("Gaussian Naïve Bayes Model Accuracy (in %): ", metrics.accuracy_score(y_test, y_pred))

Gaussian Naïve Bayes Model Accuracy (in %): 0.9693877551020408
```

```
In [ ]:
```

### ❖ Learning outcomes (What I have learnt):

1. We learned about data analysis and data handling in python.
2. We learned about various basic functions and libraries required for data analysis using python.
3. We learned to implement Naïve Bayes on any dataset in python.
4. We learned to verify accuracy of the Naïve Bayes model.



**Evaluation Grid :**

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Student Performance (Conduct of experiment) objectives/Outcomes.		12
2.	Viva Voce		10
3.	Submission of Work Sheet (Record)		8
	Total		30