sk_naiveBayes

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1 Naive Bayes

Naive Bayes uses Bayes Theorem to model the conditional relationship of each attribute to the class variable.

```
In [1]: from sklearn import datasets
        from sklearn import metrics
        from sklearn.naive_bayes import GaussianNB
```

2 Iris flowe Dataset

```
In [2]: dataset = datasets.load_iris()
        dataset.feature_names
```

```
Out[2]: ['sepal length (cm)',
         'sepal width (cm)',
         'petal length (cm)',
         'petal width (cm)']
```

3 Model

```
In [3]: model = GaussianNB()
        model.fit(dataset.data, dataset.target)
```

```
Out[3]: GaussianNB(priors=None, var_smoothing=1e-09)
```

4 Prediction/Classification

```
In [4]: expected = dataset.target
        predicted = model.predict(dataset.data)
        print(metrics.classification_report(expected, predicted))
        print(metrics.confusion_matrix(expected, predicted))
```

```
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        50
```

```
           1       0.94      0.94      0.94        50
           2       0.94      0.94      0.94        50

   micro avg       0.96      0.96      0.96       150
   macro avg       0.96      0.96      0.96       150
weighted avg       0.96      0.96      0.96       150

[[50  0  0]
 [ 0 47  3]
 [ 0  3 47]]
```

4.1 References

1. https://machinelearningmastery.com/get-your-hands-dirty-with-scikit-learn-now/