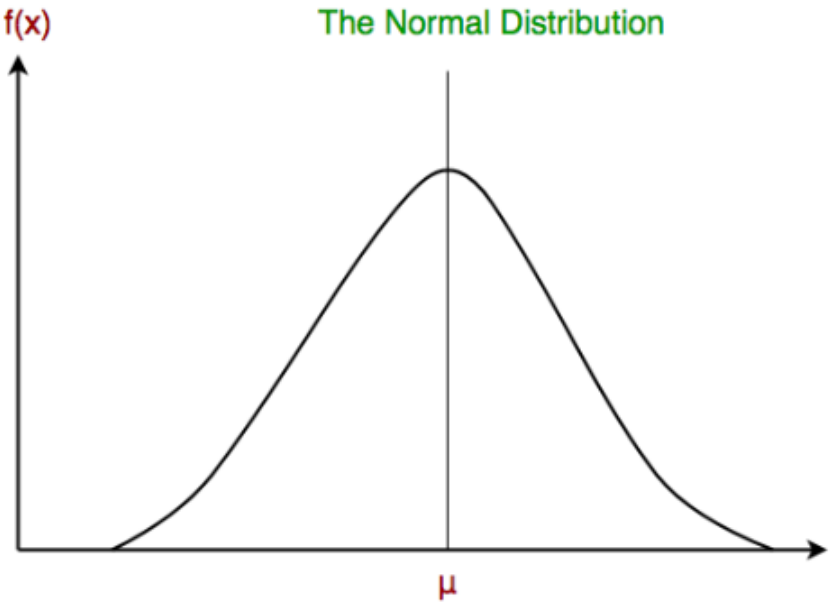
Gaussian Naïve Bayes Classifier in Sleep Stage Prediction Model

Architecture

The Gaussian Naïve Bayes Classifier uses probability for doing its predicative analysis. With numeric values, the Gaussian Naïve Bayes Classifier classifies the numeric data into classes based on the following data/formulas :-



$$P(x_i|y) = \frac{1}{\sqrt{2\pi\sigma_y^2}} exp\left(-\frac{(x_i-\mu_y)^2}{2\sigma_y^2}\right)$$

The default parameters offered by the Gaussian Naïve Bayes Classifier by scikit-learn of python are as follows :-

Parameters:

priors : *array-like of shape (n_classes,), default=None*
Prior probabilities of the classes. If specified, the priors are not adjusted according to the data.

var_smoothing : *float, default=1e-9*
Portion of the largest variance of all features that is added to variances for calculation stability.

New in version 0.20.

Since, not much variation is offered in the parameters, we stick with the default parameters in the Gaussian naïve bayes classifier.

```
In [38]: gnb = GaussianNB()
```

Classification Report

	precision	recall	f1-score	support
0	0.91	0.75	0.82	7621
1	0.18	0.13	0.15	444
2	0.30	0.45	0.36	1834
3	0.54	0.52	0.53	1632
4	0.19	0.32	0.24	969
accuracy			0.62	12500
macro avg	0.43	0.43	0.42	12500
weighted avg	0.69	0.62	0.65	12500

Github Repository

https://github.com/Jibitesh-Chakraborty2811/Sleep-Stage-Naive-Bayes-Classifier