**ANALYSIS:**

* + Naive Bayesian classification:
    - We use the iris dataset to perform the classification.
    - This method of classification is also probabilistic in nature and uses the Bayes theorem to find out the probability of the data point instance given the set of features as functions of calculatable probabilities upon the assumption that every feature is independent of each other.
    - Given a class variable y and a dependent feature vector x1 through xn, Bayes’ theorem states the following relationship:

*P*(*y*∣*x*1,…,*xn*)=*P*(*y*)*P*(*x*1,…*xn*∣*y*)/*P*(*x*1,…,*xn*)

Using the naive independence assumption that

*P*(*xi*|*y*,*x*1,…,*xi*−1,*xi*+1,…,*xn*)=*P*(*xi*|*y*)

for all i, this relationship is simplified to:

*P*(*y*∣*x*1,…,*xn*)=*P*(*y*)∏*ni*=1*P*(*xi*∣*y*)*P*(*x*1,…,*xn*)

* For continuous data distribution of features for a given class, a Gaussian normal distribution probability density function is used. This method is called the Gaussian naive Bayes.
* Other variations of naive Bayes includes Bernoulli naive Bayes, multinomial naive Bayes which are very popular in spam detection.
* Using this probabilistic model as a classifier is implicitly implemented in the ‘sklearn.naive\_bayes’ module in the form of ‘GaussianNB’.
* Using the Gaussian NB as the model, the same split-train-test algorithm is done using the ‘train\_test\_split’,’fit’,’predict’ and ‘score’ methods.