Output predicted for [3.5, 3.5, 3.5, 3.5] in the case of:

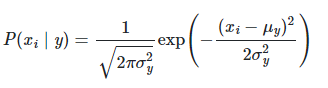
1) Gaussian Naive Bayes is 'virginica'

2) Multinomial Naive Bayes is 'virginica'

3) Bernoulli Naive Bayes is 'Setosa'

Gaussian Naive Bayes Classifier:

* Gaussian Naive Bayes supports continuous valued features.
* A Gaussian distribution is also called Normal distribution. When plotted, it gives a bell-shaped curve.
* class sklearn.naive\_bayes.GaussianNB(\*, priors=None, var\_smoothing=1e-09)



Bernoulli Naive Bayes Classifier:

* In the Bernoulli event model, features are independent binary variables.
* There will be 2 outcomes: - An event may occur or not occur.
* The event occurs and the Bernoulli random variable ‘x’ takes the value 1 with probability ‘p’ and the non-occurrence of the event has probability (1-p) denoted by ‘x’ taking value 0.
* class sklearn.naive\_bayes.BernoulliNB(\*, alpha=1.0, binarize=0.0, fit\_prior=True, class\_prior=None)

P(x) = where x

Multinomial Naive Bayes Classifier:

* It is the generalization of Bernoulli where instead of 2 states, the outcomes of a random event are one of the ‘K’ mutually exclusive and exhaustive state.
* Multinomial classification suits best for the discrete values like word counts.
* This is used for document classification.
* class sklearn.naive\_bayes.MultinomialNB(\*, alpha=1.0, fit\_prior=True, class\_prior=None)
* The output for Gaussian and Multinomial Naïve Bayes Classifier is the same (virginica) and for the Bernoulli Naïve Bayes Classifier output is (setosa). This is because Bernoulli NB classifier checks the count of a single feature that occur and doesn’t occur. Multinomial NB can focus on more than one keywords but Bernoulli NB can focus on only one keyword. Gaussian NB classifier is having higher accuracy. For multiple feature Gaussian and Multinomial NB classifier provides better accuracy.