Variants of Naive Bayes

1. Bernoulli Naive Bayes
2. Multinomial Naive Bayes
3. Gaussian Naive Bayes

Bernoulli Naive Bayes

Whenever your feature are following Bernoulli distribution, then we need to use Bernoulli Naive Bayes algorithm

Bernoulli → 0, 1

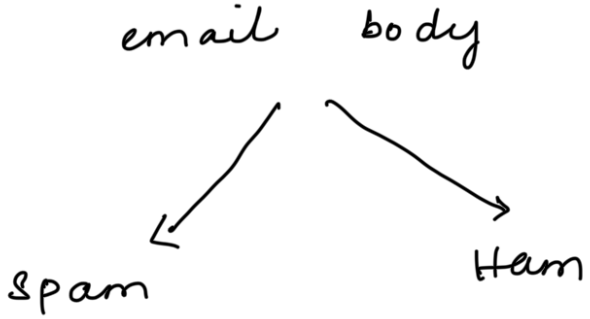
⇓

there will be only two outcome

Multinomial Naive Byaes

Whenever the input is in the form of text.

Data set : Spam classification



Email Body | o/p

you have won $$ Lottery | Spam

you have done a good job | Ham

⇓

convert them into numerical values ⇒ Natural Language Processing.

⇓ ⇓

vectors ⟹ { ① BoW, ② TF-IDF, ③ Word2Vec }

Gaussian Navie Byaes

If the features are following gaussian distribution (Bell curve)

example: Iris Data set

here the data set will be continues.

Note:

If the maximum feature is having Bernulli distribution, we will have to choose Bernulli Naive Bayes, where as if the maximum feature is continous, then we will have to go with Gaussian distribution.