**Naïve Bayes Classifier**

Prerequisite: Conditional Probability

Conditional Probability is the probability of event A occurring given that event B has already occurred

P(A|B) = P(B|A) \* P(A)

P(B)

For the titanic dataset, we aim to predict the probability of survival depending on (given that… already defined) different features like Sex, Age, Class, Cabin, Fare, etc

P ( survived )

Male & Class & Age & Cabin & Fare

Here we make *a naïve assumption that the features are independen*t of each other. But in reality, some of the features may be dependent (like fare and cabin, class)

Naïve Bayes is also used in Email Spam detection, Character or letter or number recognition, Weather prediction, Face Detection, News Article Categorization, etc

**Bernoulli Naïve Bayes:** It assumes that all our features are binary such that they take only 2 values i.e. 0 or 1

**Multinomial Naïve Bayes:** When we have discrete Data (eg. movie ratings from 1 to 5 such that each rating will have a certain frequency). In text learning we have the count of each word to predict class label

**Gaussian Naïve Bayes:** Assumption that data is Normally distributed and is used when all features are continuous