**Assignment 3 - PART B**

**Question 1 -**

* **Multinomial Naive Bayes**:It is based on the Bayes theorem and predicts the tag of a text such as a piece of email or newspaper article. It calculates the probability of each tag for a given sample and then gives the tag with the highest probability as output.
* **Bernoulli Naive Bayes**: This is used for discrete data and it works on Bernoulli distribution. The main feature of Bernoulli Naive Bayes is that it accepts features only as binary values like true or false, yes or no, success or failure, 0 or 1 and so on. So when the feature values are binary we know that we have to use Bernoulli Naive Bayes classifier.
* [**Gaussian Naive Bayes**](https://iq.opengenus.org/gaussian-naive-bayes/)- is a variant of Naive Bayes that follows Gaussian normal distribution and supports continuous data.When working with continuous data, an assumption often taken is that the continuous values associated with each class are distributed according to a normal (or Gaussian) distribution.
* **Complement Naive Bayes** is particularly suited to deal with data that is imbalanced. In Complement Naive Bayes, instead of calculating the probability of an item belonging to a specific class, we calculate the probability of an item being part of all classes.
* **Categorical Naive Bayes** - It is suitable for classification with discrete features which assumes categorically distribution for each feature. The features should to encoded using label encoding techniques such that each category would be mapped to a unique number.

## **Question 2 -**

## **Jaccard Similarity:-**

Jaccard similarity index is also called as jaccard similarity coefficient. It measures the similarity between two sets. The range is 0 to 100%. The more percentage then more similar two word.

## **Cosine Similarity:-**

The cosine similarity is measure the cosine angle between the two vectors. For cosien we have to convert all sentences to vectors. For converting to vector we can use TF-IDF, Word2Vec.