**Improve the performance of deep neural model (Part-I) :**

In this article we will discuss the following question and try to find the answer for them.

* What id the problem with deep neural networks?
* What is confusion matrix?
* What is precision and recall?
* Accuracy vs F1 score?
* What is ROC and AOC stands for?
* How to implement these things in python?

**What is the article’s topic means?**

In machine learning, after training the model with training dataset we have to now evaluate the trained model with the test data. In regression models we have different metrics like R squared score, Mean Squared Error etc. Metrics In a regression problem, the accuracy is generally measured in terms of the difference in the actual values and the predicted values. In a classification problem, the credibility of the model is measured using the confusion matrix generated, i.e., how accurately the true positives and true negatives were predicted. So, now let’s understand the confusion matrix.

What is confusion matrix?

It is a matrix which is used to evaluate the performance of any classifier. In other words A confusion matrix visualizes and summarizes the performance of a classification algorithm. Let us take a simple binary classification, then the confusion matrix will look like the below picture.

Where,

**True Positive(TP):** A result that was predicted as positive by the classification model and also is positive

 **True Negative(TN):** A result that was predicted as negative by the classification model and also is negative

 **False Positive(FP):** A result that was predicted as positive by the classification model but actually is negative

 **False Negative(FN):** A result that was predicted as negative by the classification model but actually is positive.

**What is precision and recall?**

Precision:

Precision is a measure of amongst all the positive predictions, how many of them were actually positive.

Precision=𝑇𝑃/(𝑇𝑃+𝐹𝑃)



