As I have explained previously that we are using the log-loss function in our report and log-loss function can be any value between 0 and infinity.

So, it is very difficult to say that which log-loss is better or which is worse. For ex- in our model we get log loss value of 1.5. How could we tell that this 1.5 represents the better model or the worst?

Hence, for comparison I am going to create a random model which also would be the worst model which is completely created by the random numbers. So that we can compare our model with this worst model.

Now, I am going to explain how am I going to generate the random model?

To generate this random model, I’d have to find out probability for each row and please note that in the end sum of that probability could not exceed to 1. It should be equal to 1.

Now, simply I have created the random model by generating the random probabilities and ensuring that sum would be equal to 1.

What I have observed from my random model?

I simply run for the cross-validated data and test data and got the following log-loss value:

Cross-validated data: log-loss= **2.465**

Test data: log-loss= **2.436**

Now, these values represent the worst model. And if some model gives more value than these values above then it is the worst one and do not use that model.

There is one more question arises here is that how am I going to evaluate this random model, of course it is a worst model so the results it is going to provided are not going to be good. But this evaluation we can do by using the confusion matrix and the precision matrix.

There will be 9×9 matrix where there are 9 classes and on x-axis there would be a predicted class and on y-axis there would be an original class.

Numbers inside the confusion matrix tells us that this much of data values in the class are lies. Obviously, here we will consider the diagonal elements only because it will give us the actual values lies in the class rest is considered as the error values.

Similarly, from confusion matrix we can create the precision matrix which will tell us that that this much percent of the values lies in the particular class.

Precision matrix values are simply calculated as the value upon the sum of the values in a row.