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Cohort – B

Assignment 6

The churn dataset had many missing values, so we had to do preprocessing inorder to treat the missing values. I also removed the phone column from the dataset.

So I did the preprocessing in excel itself and then used the dataset to compute the model and get the scores.

Classifiers Used :-

Decision Tree

A screenshot of a cell phone

Description automatically generated

From this we can say that hyperparameter 2 has high scores compared to all other.

Also the default tree performed good but still the accuracy score is less

Random Forest

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Description automatically generated

From the above table we can see that their was not much difference in the scores of either the default one or the hyper parameterized one. In such case, we should use the default one.

**Linear SVM**

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Description automatically generated

For Linear SVM also all the scores are similar so it is advisable to use the default one.

**MLP Classifier**

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Description automatically generated

By looking at the table we can say that, the default is the most efficient among all the models.

**Stacking Models**: -

Models used: - 1) Decision Tree 2) Random Forest 3) SVM

And after doing stacking I constructed Random Forest Classifier and found out the accuracy on that stacked model. The output of which is:

A screenshot of a cell phone

Description automatically generated

The accuracy after doing stacking is 0.91. From this we can see that there is not much difference in the accuracy score.

As we have used SVM, Decision Tree, Random Forest we got the accuracy of 0.91. This is because the accuracy of Linear SVM was low as a result the final result is low.

However, the accuracy scores for the decision tree and random forests are 0.91 and 0.89, which are pretty high compared to all the models.

If the stacking was done on these two models then there might be the chance that the overall accuracy score will be high compared to the individual models.