**Chitra Ensembling Model report**

Data is loaded as df\_chitra.

There are only numeric and floating types of data. No categorical columns. The panda data frame has 8 Rows and 9 Columns.

No missing values, so need for imputation.

A screenshot of a computer

Description automatically generated with medium confidence

The class column has imbalanced instances with 0 and 1 values.

There are 500 “0” class instances and 268 “1” class instances.

A screenshot of a computer

Description automatically generated with medium confidence

In the data preprocessing phase I have used a column transformer with a standard scaler for all 8 columns on the feature side.

Have separated the target “Class” (“Y”) from features (“X’’) and also split both X and Y into test and training data as 30: 70.

I have declared all the classifiers and ensembled them to vote as Hard voting where the predicted mode has been used.

Below is the result of the hard voting type with each estimator for the first 3 instances.

A screenshot of a computer

Description automatically generated with medium confidence

For the soft voting type, we have to set the SVC probability = True.

Below is a soft voting prediction with 5 different types of classifiers for the first 3 instances.

Graphical user interface

Description automatically generated with medium confidence

Next, I have created 2 different types of pipelines

1. pipeline1\_chitra with extra tree classifier
2. pipeline2\_chitra with decision tree classifier

one can see the accuracy score which is better with an extra tree classifier ( 0.763)

A screenshot of a computer

Description automatically generated with medium confidence

Below are accuracy reports from both pipelines’ predicted values.

Text

Description automatically generated

With Randomized Search we are fine-tuning our extra tree classifier with sets of parameters.

coGraphical user interface, text

Description automatically generated

This is the report from a randomized search of the extra tree classifier (accuracy score 0.771) Graphical user interface

Description automatically generated