

PREDICTIVE MODEL FOR CUSTOMER CHURN.

SYRIATEL COMPANY

OVERVIEW, BUSINESS AND DATA UNDERSTANDING.

- The project is aimed at coming up with a predictive model that will help the company predict which customer is about to discontinue their subscription with the company ahead of time.
- The data used was provided by the company from their database.
- It contained 3,333 rows and 21 columns. There were no missing values, we dropped some few columns, the outliers detected seemed reasonable thus retained then did a univariate, bivariate and multivariate analysis of the variables.
- Since the target variable(churn) was a categorical variable, we decided to use classification models.

MODELLING AAND EVALUATION

The classification models used in this study include:

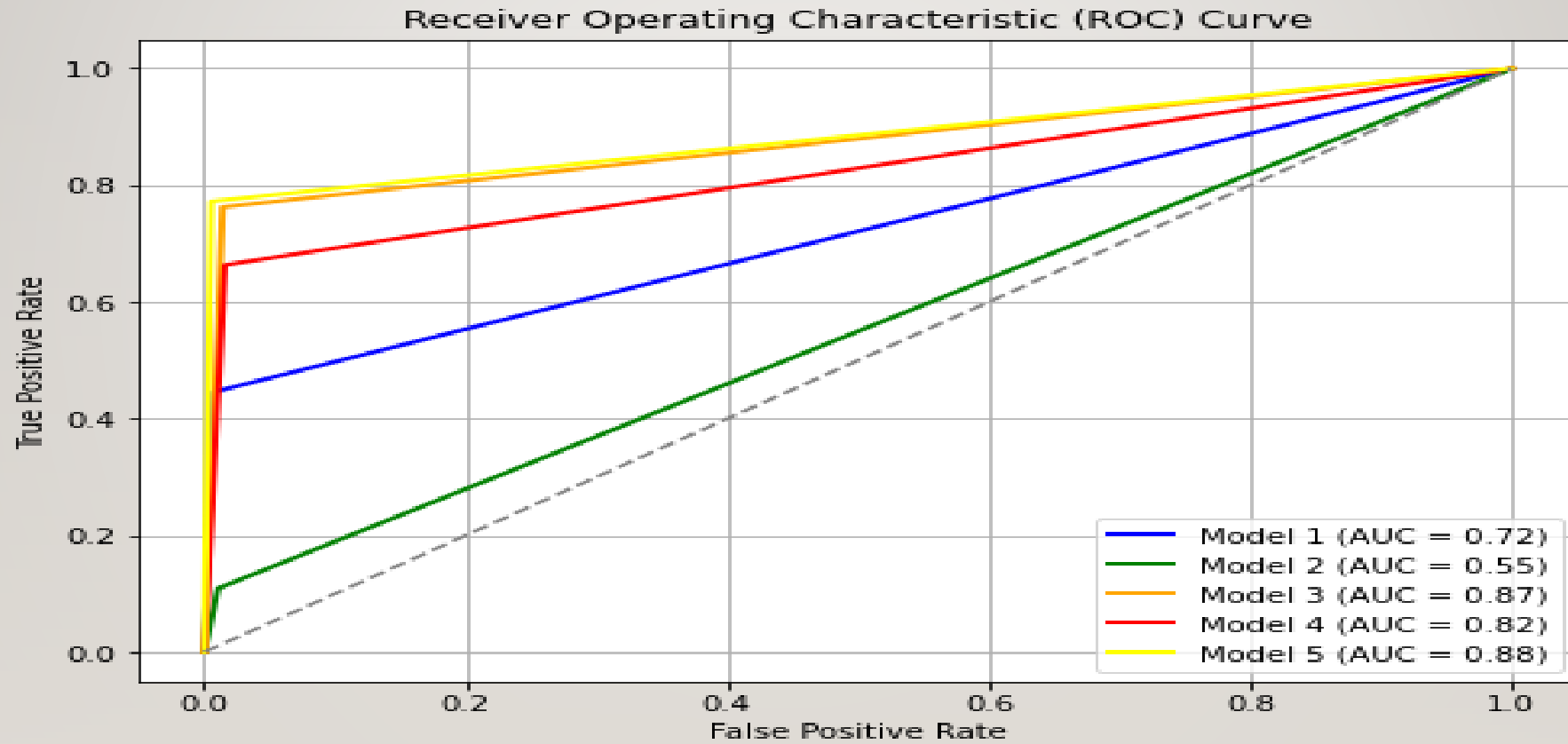
1. Logistic regression – made for our base model. Had an accuracy score of 86%training, 85%test.

We then conducted hyper parameter tuning on the following models. Hyperparameter tuning is used when you want to improve a model.

- K Nearest Neighbour
- Logistic Regression
- Gradient Boosting Classifier.
- Support Vector Classifier.
- XGB Classifier.

Model	Accuracy
Logistic Regression(base model)	85%
Logistic Regression(Hyper parameter tuning)	86%
K Nearest Neighbor	91%
Support Vector Classifier	94%
Gradient Boosting Classifier	95%
XGB Classifier	96%

ROC CURVE



ROC CURVE

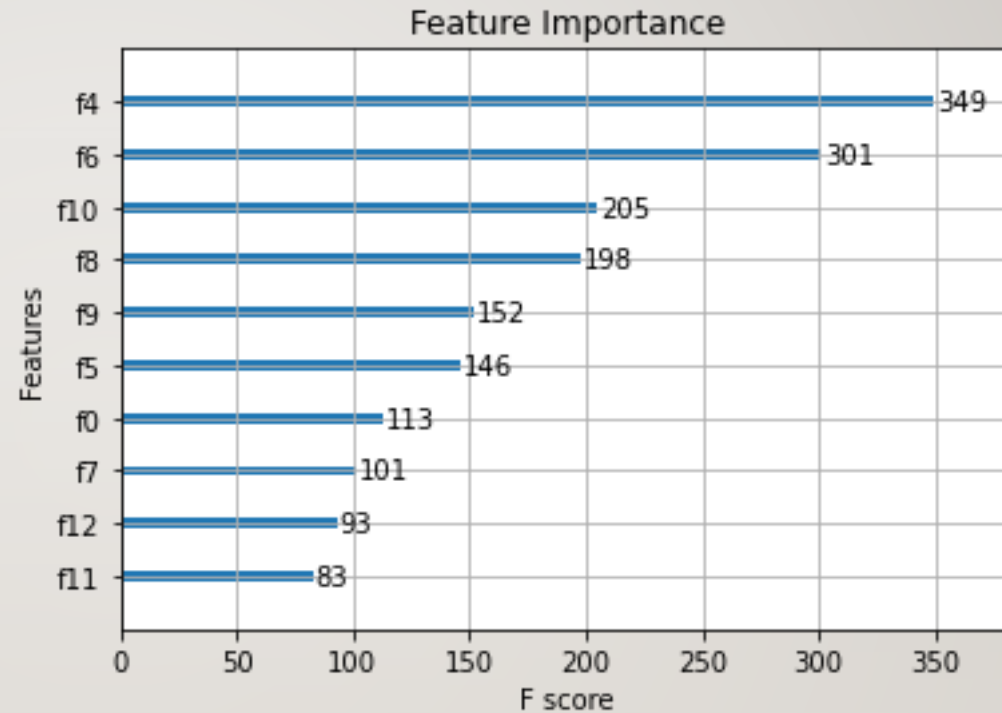
- The ROC (Receiver Operating Characteristic) curve is a graphical representation used to evaluate the performance of a binary classification model.
- From the previous slide, we see that the best model was model 5(AUC = 0.88), which was the XGB Classifier model.
- This means that it has the best ability to distinguish between positive and negative classes among the models listed. It performs exceptionally well and can be considered the strongest model.

FEATURE IMPORTANCE

Feature importance refers to techniques that assign scores to input features based on how useful they are at predicting a target variable.

From the analysis, the following features had the highest importance.

- Voice mail plan
- International plan
- Total night call and night charge
- Total day call and day charge.



RECOMMENDATIONS

- The company should look into the voice mail plan and international plan packages, make sure that the people who use these services are well taken care of as they have the highest rate of churn.
- The company could try to either lower its charges per minute for clients, which have many call minutes or it could offer flat rates for calls.
- The company should look for an awarding system or give special offers to their longest serving customers to up their spirits.

THANK YOU!