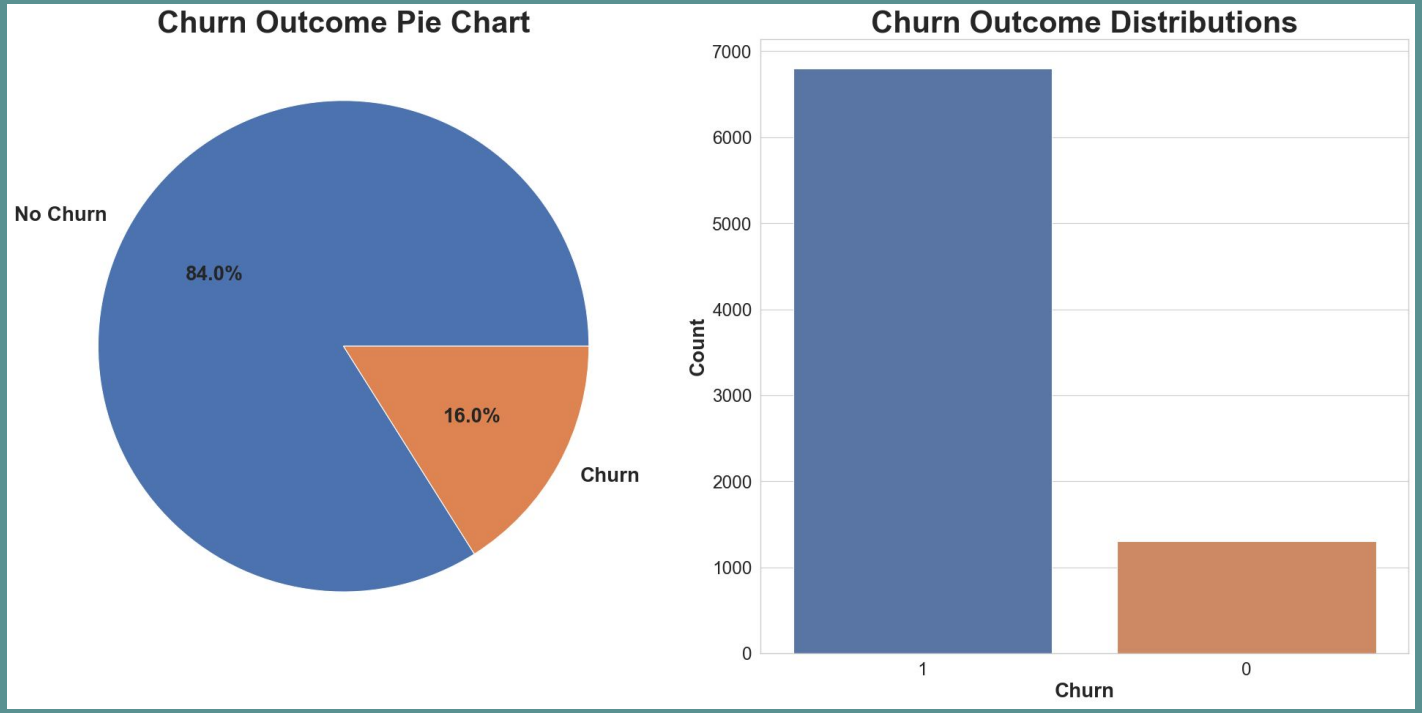
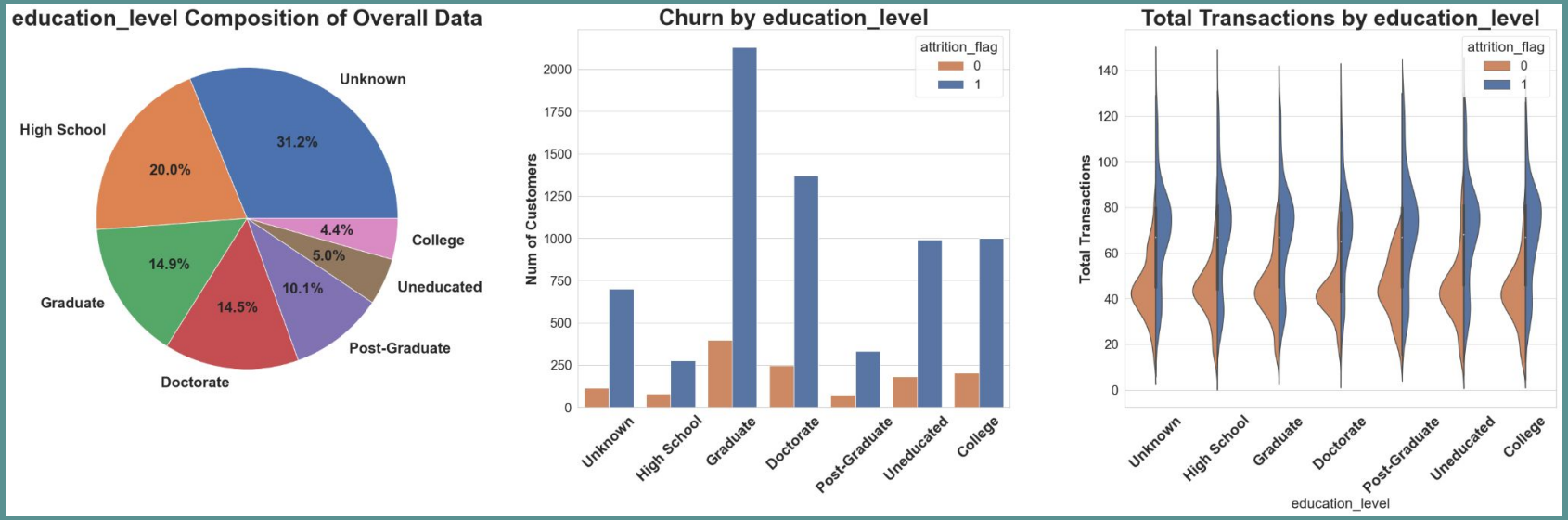
Bank Customer Churn

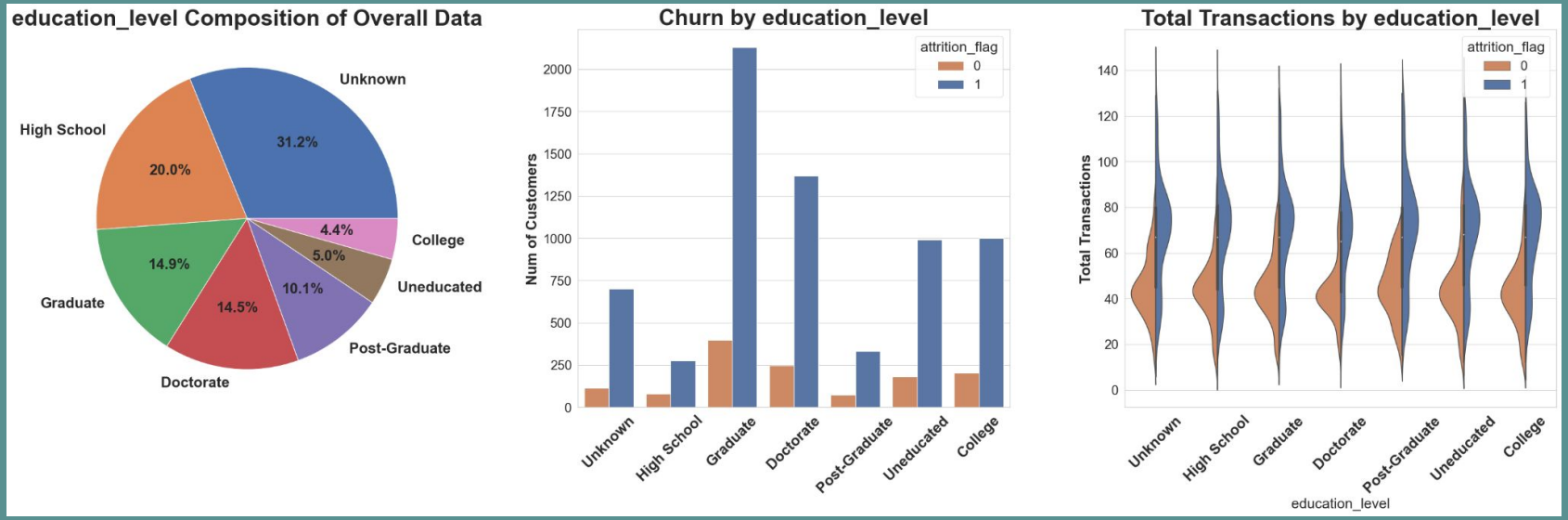
EDA



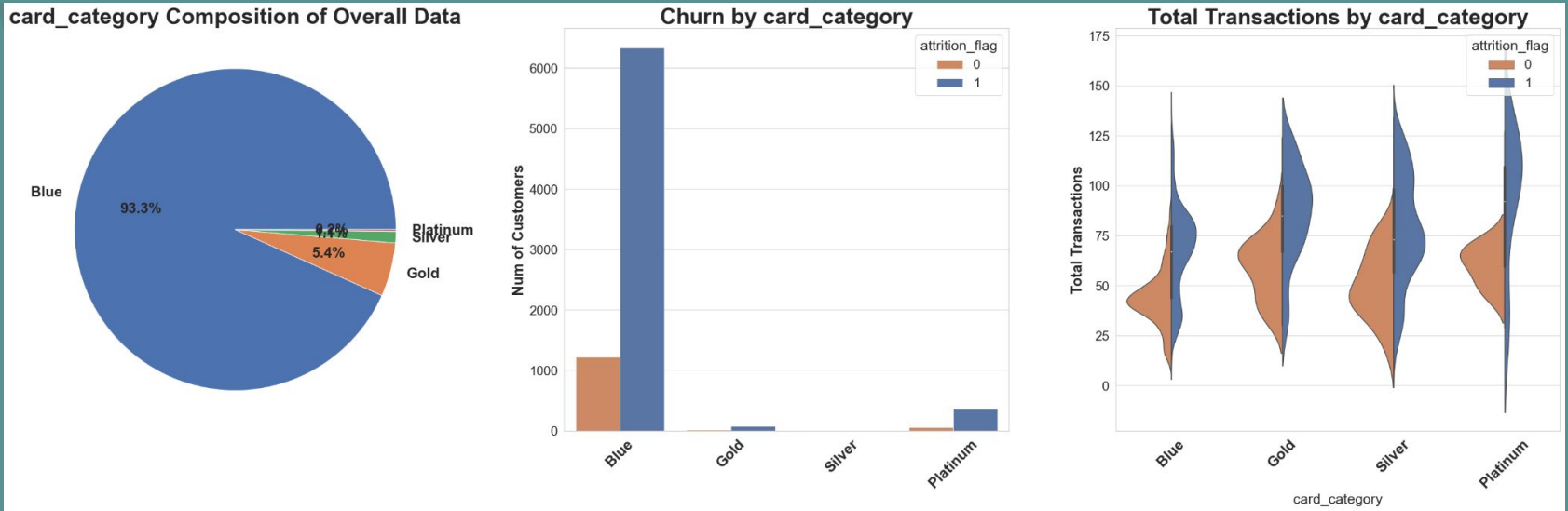
Churn distribution



Education Composition



Education Composition



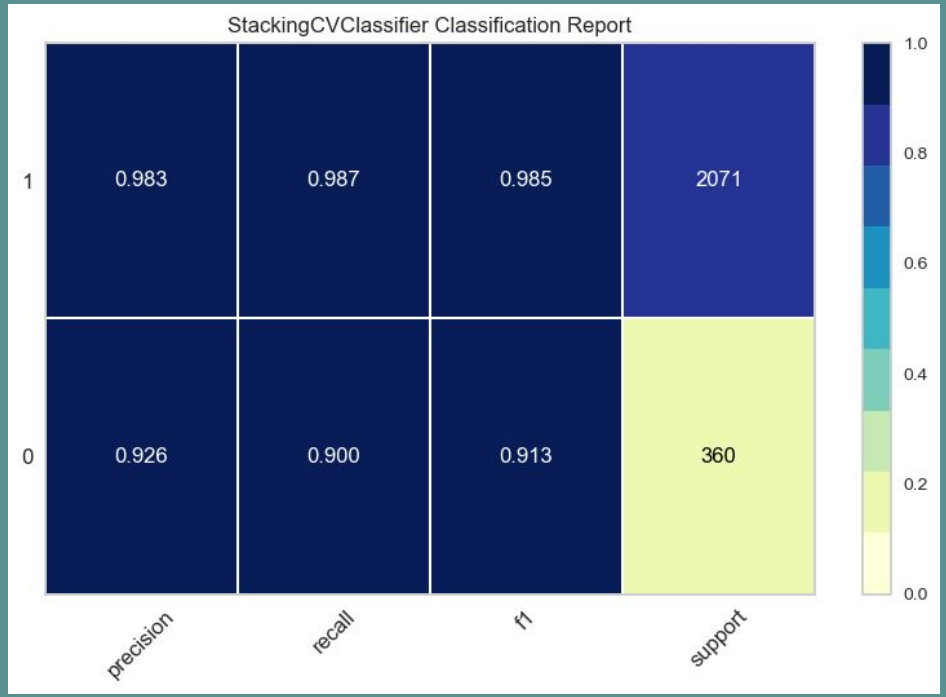
Cards Composition

Conclusions

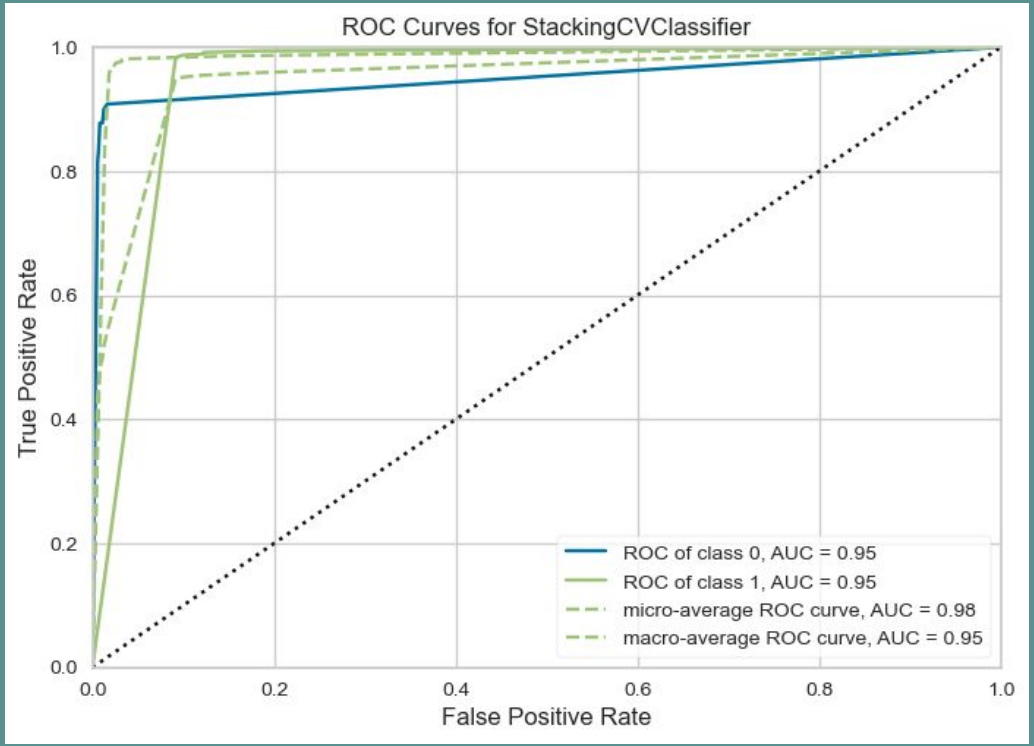
- Customers have a higher probability of churning when:
  - Months_Inactive_12_mon is less than 3
  - Contacts_Count_12_mon is less than 3
  - Credit_Limit less than 10000 or over 35000
  - Total_Revolving_Bal is less than 50
  - Avg_Open_To_Buy less than 10000
  - Total_Amt_Chng_Q4_Q1 is 0.75
  - Total_Trans_Amt is less than 2500
  - Total_Trans_Ct is 40
  - Total_Ct_Chng_Q4_Q1 is 0.5
  - Avg_Utilization_Ratio is 0.01

- Our dataset has significantly customer with unknown education. This is a limitation to financial advertising. Education does not appear to be an indicator of Churn.
- Customers with gold and platinum cards tend to churn more.

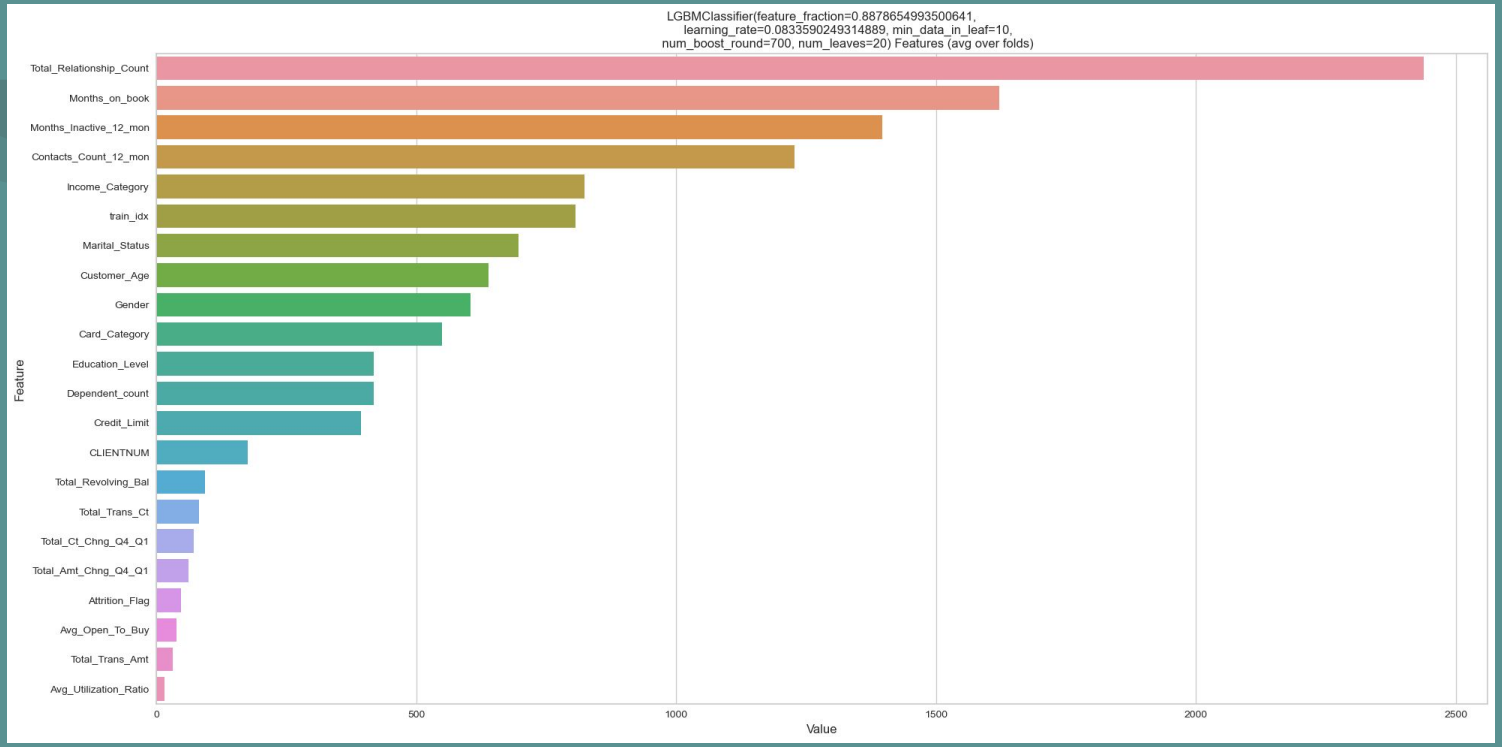
ML Explanation



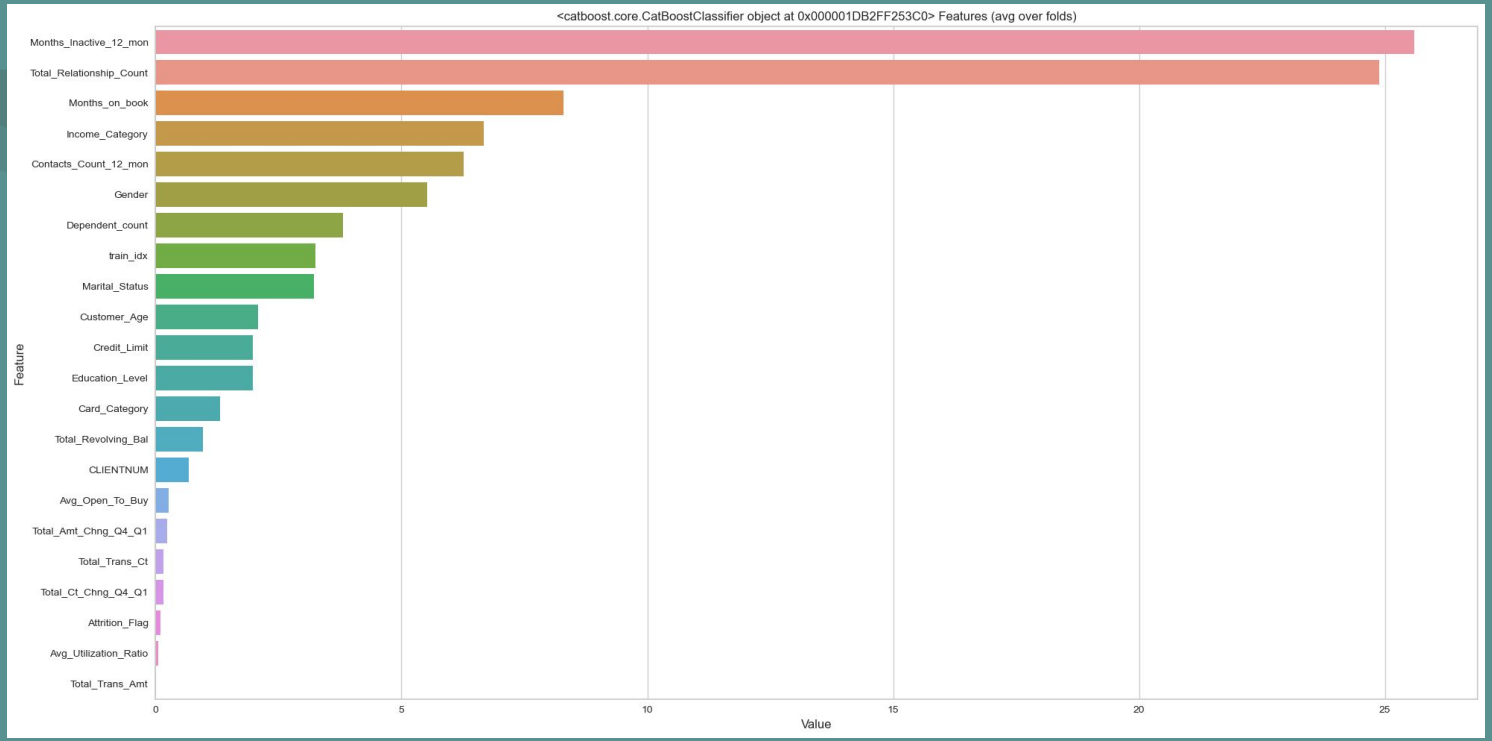
Stacking Classifier Report


ROC Curves for StackingCVClassifier
True Positive Rate
False Positive Rate
0.0
0.2
0.4
0.6
0.8
1.0
ROC of class 0, AUC = 0.95
ROC of class 1, AUC = 0.95
micro-average ROC curve, AUC = 0.98
macro-average ROC curve, AUC = 0.95

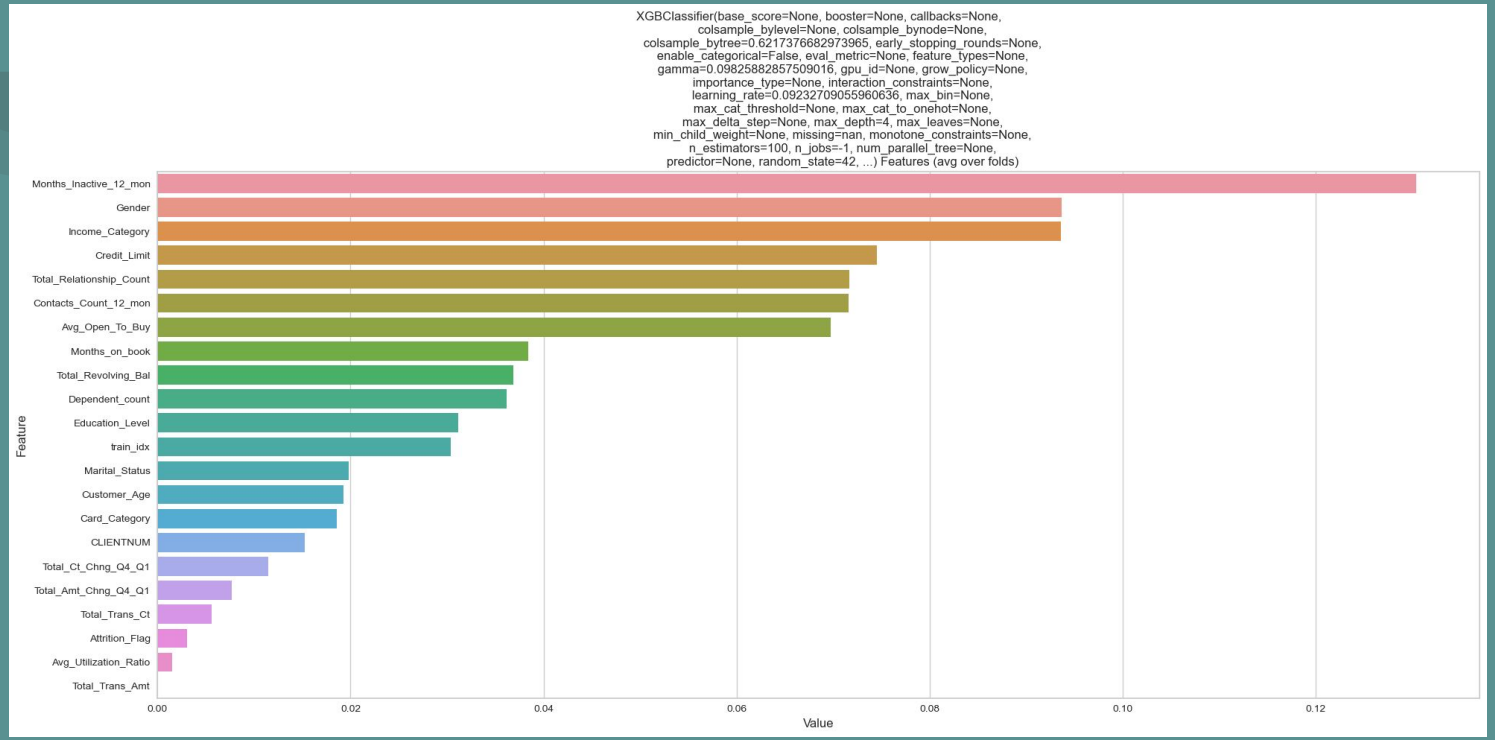
Roc Curve



LGBM feature importance



CatBoost feature importance



XGB feature importance