

**TVS  
CREDIT**

# **CROSS SELL CAMPAIGN**

**DATA SCIENCE PROJECT**

***Cross-selling is customer centric  
relationship strategy.***

Presented by: Luv Saxena



## PRODUCT PORTFOLIO



**Two-Wheeler Loans**  
TVS Motor financier  
has a market share of  
49.7%



**Used Car Loans**  
Among the top 3 players  
in the market



**Tractor Loans**  
Key financier for New Tractors, Used  
Tractors & Agri-implements



**Consumer Durable Loans**  
9000 dealer points touch  
1200 towns.



**Commercial Vehicle Loans**  
Rs.1000 crore with  
+ channel partners.



**Business Loans**  
Launched in 2018 with  
focus on Tier2 and Tier3  
customers.



**Retailer Loans**  
Launched in 2020 with focus  
on small retailers.

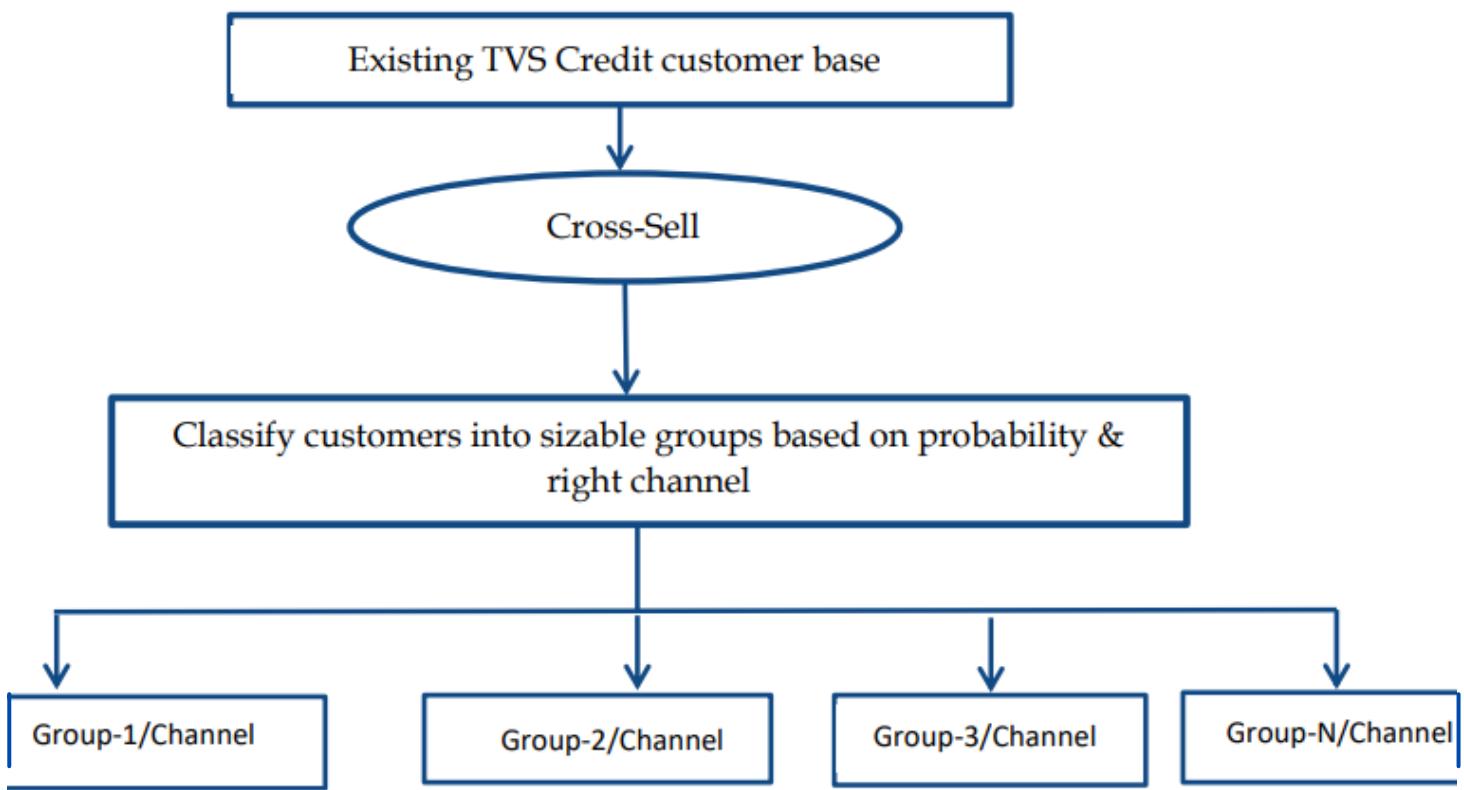


**InstaCard Program**  
Launched in 2020, it offers  
continuous credit line to over  
lakh+ customers

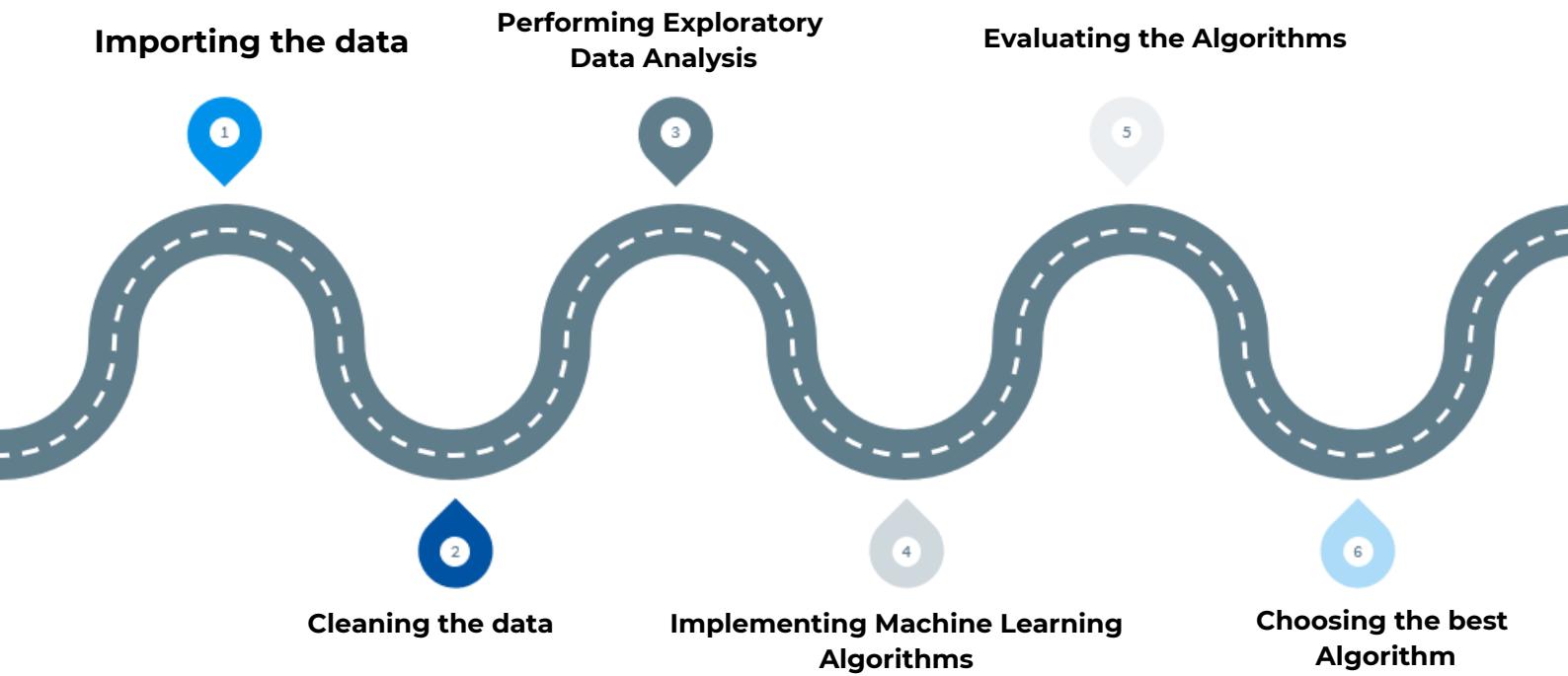
## **PROBLEM STATEMENT**

**The objective of this exercise is to identify the segment of customers, who have a higher probability of taking a personal loan from TVS Credit. This would help the company in identifying the right set of customers and ensuring maximum conversion with minimum campaign cost and effort**

# APPROACH



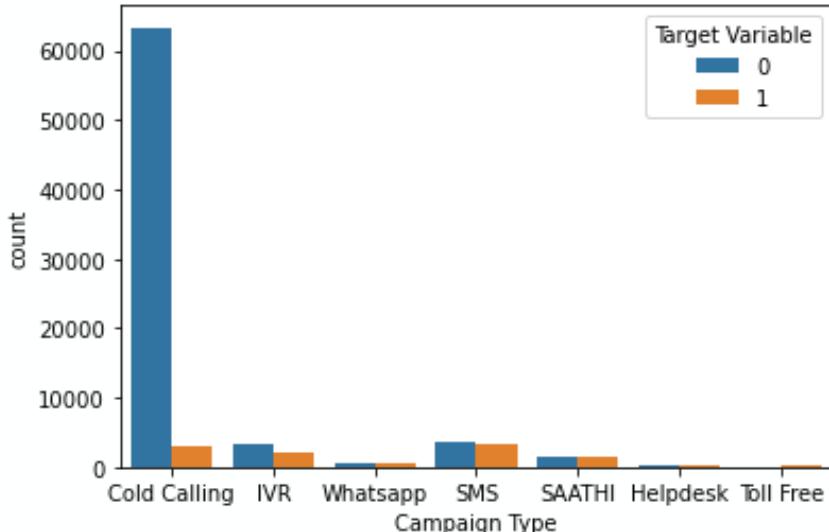
# PROJECT STRUCTURE



## DATASET INFORMATION

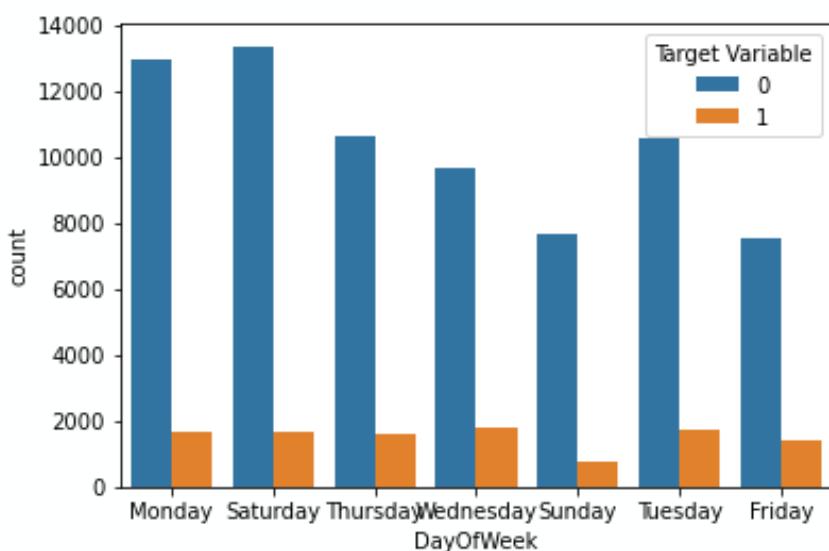
***The dataset has 52 attributes with 83060 rows of information***

## Analysis with respect to Target Variable



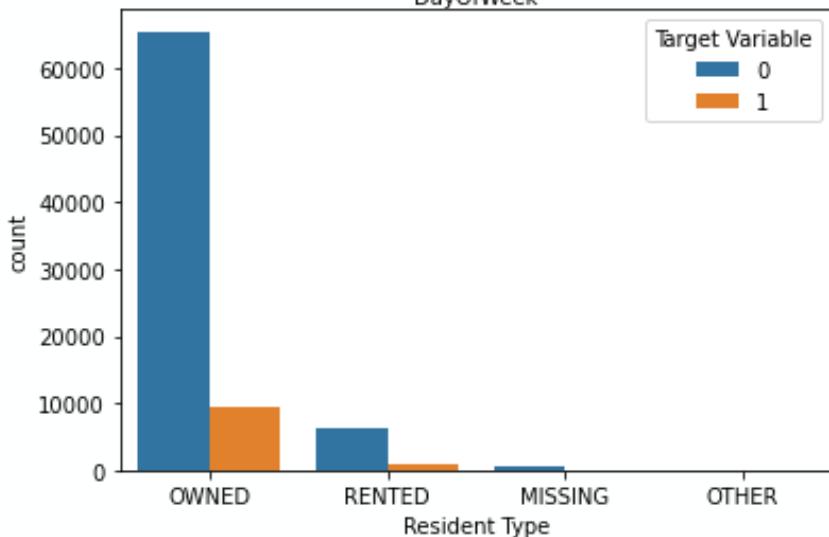
### Compaign Type

Compaign Type done with **SMS** is on first and done by **Cold Calling** is on second



### Day of Week

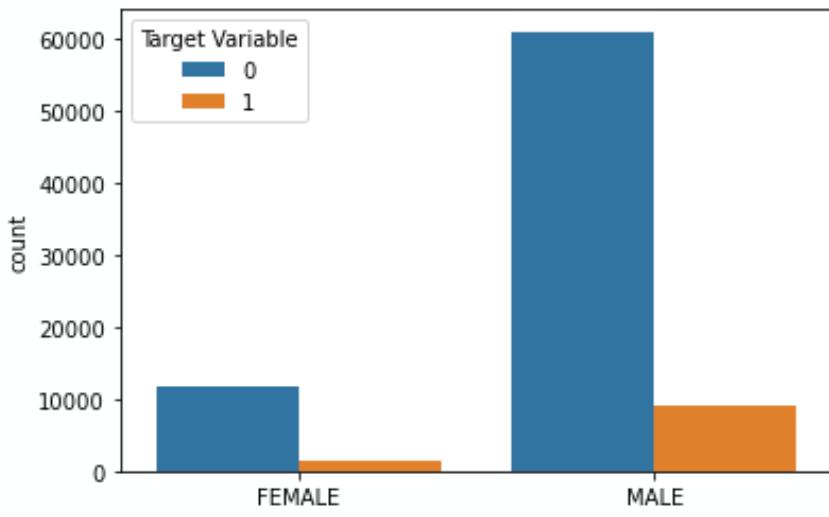
**Monday** and **Saturday** are the days of maximum conversion



### Resident Type

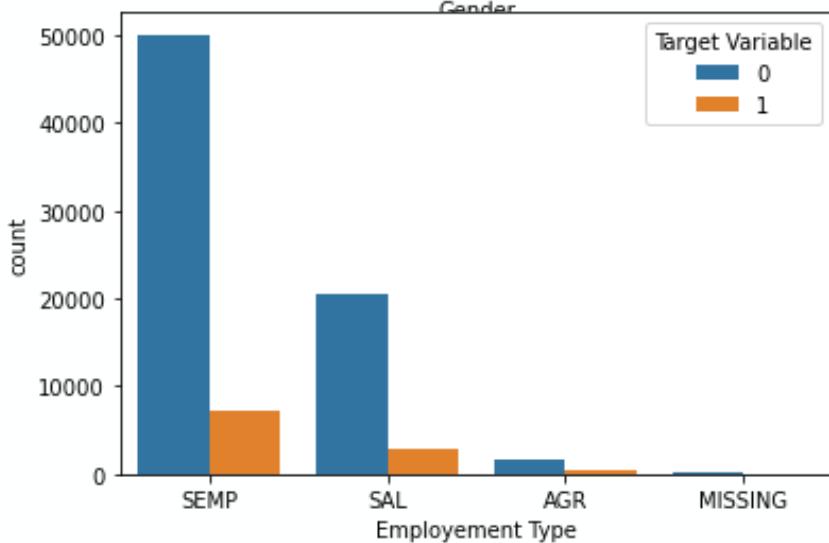
People living in their own houses have better chance to get a personal loan

## Analysis with respect to Target Variable



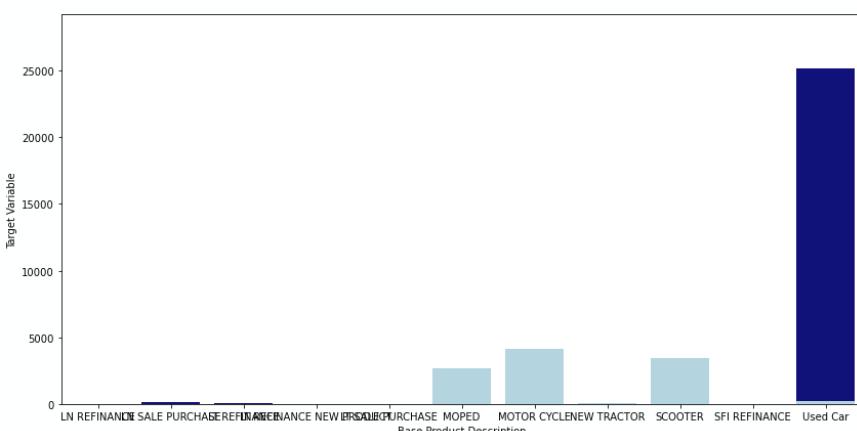
### Gender

Male employees are getting good conversion rate for getting a personal loan



### Employement Type

Salaried employees have a greater chance to get their personal loan approved

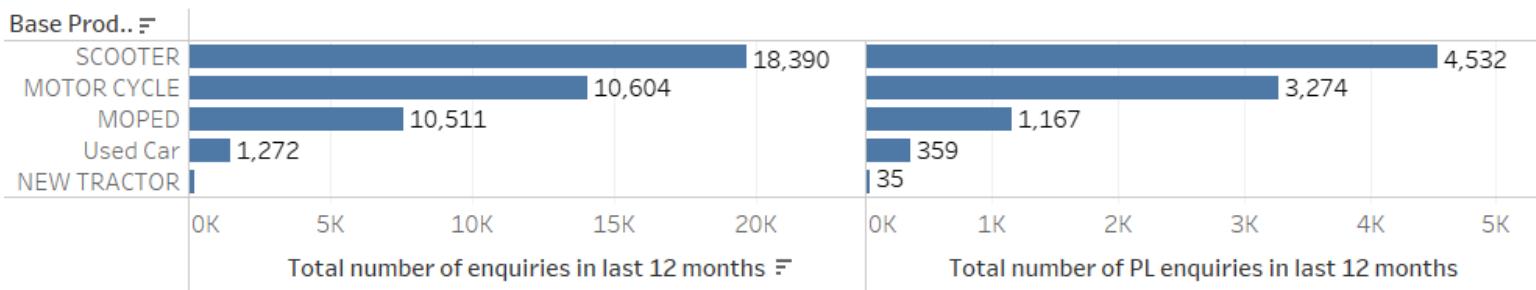


### Base Product

The Used Cars section has a great emphasis on TVS Credit.

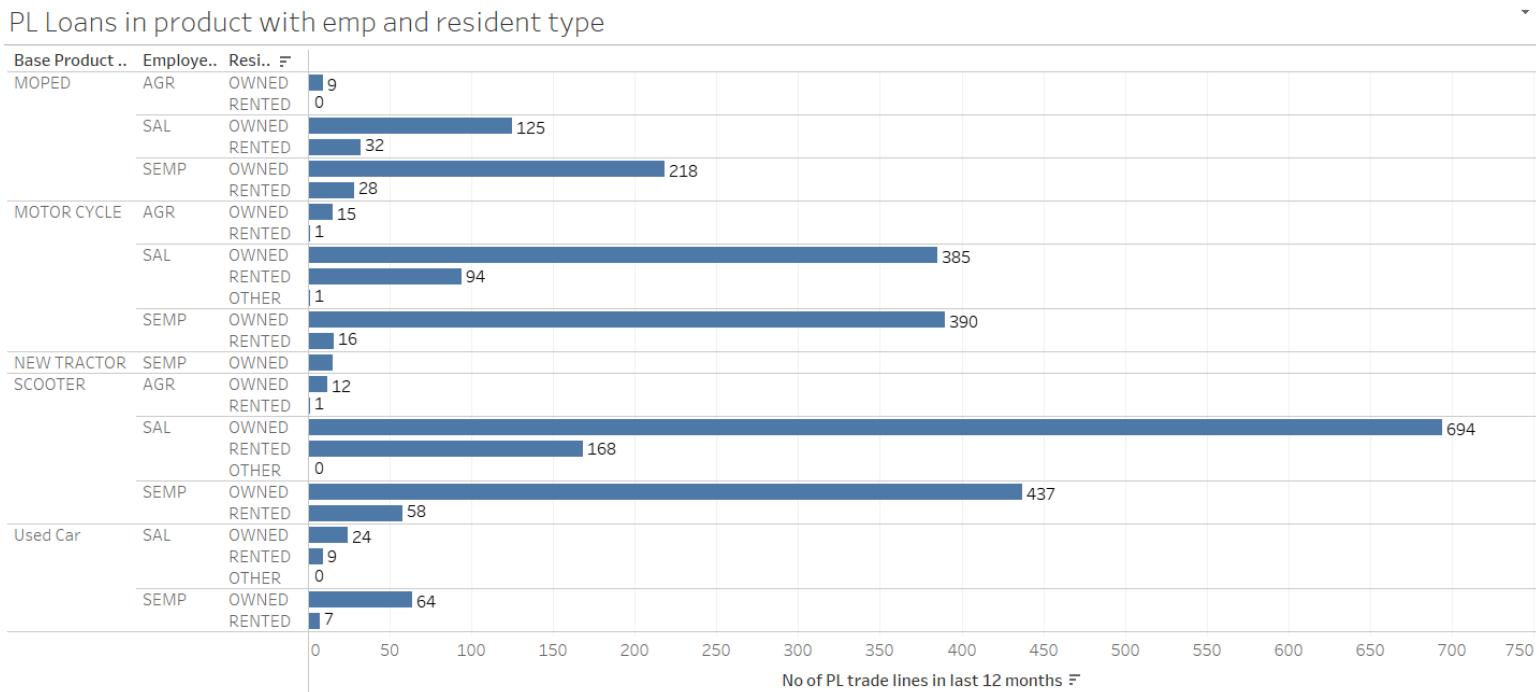
## Analysis with respect to Target Variable

Total PL Enquiries of scooter is 4532 out of 18390 total enquiries in last 12 months.



PL Loans for salaried employee which have their own houses have taken loans for Scooter. The count is 694.

Rented employees have a greater weightage for PL loan for Scooter





# MODEL IMPLEMENTATION



## Feature Selection

Out of 52 attributes I have selected the attributes which show an inclination towards PL inquiries, campaign type, type of employees etc

## Class Imbalance

There was an imbalance within the data set

## Model Selection

Logistic Regression  
Decision Trees  
Random Forest

# FEATURE SELECTION

- Total 52 attributes
- Model creation on 26 attributes
- Created Dummy Variables

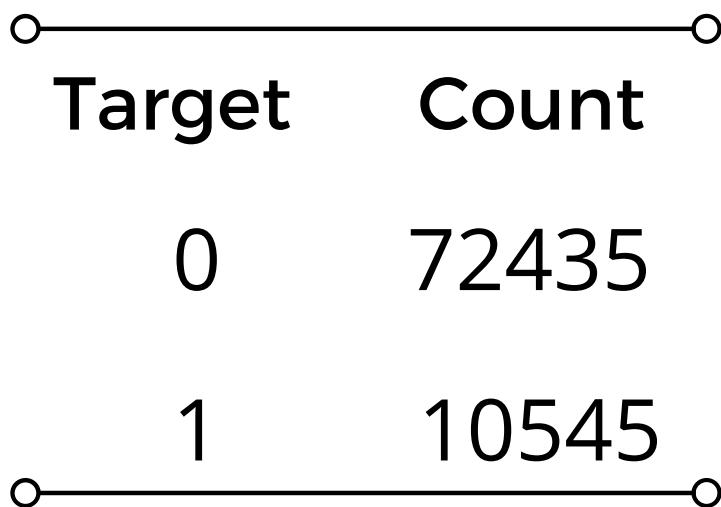


- **Number of Loans secured**
- **Total Number of enquiries**
- **Total Number of PL enquiries**
- **Customer Age**
- **Customer Vintage**
- **Base Product**
- **Gender**
- **Employment type**
- **Day of week**
- **Time of day**

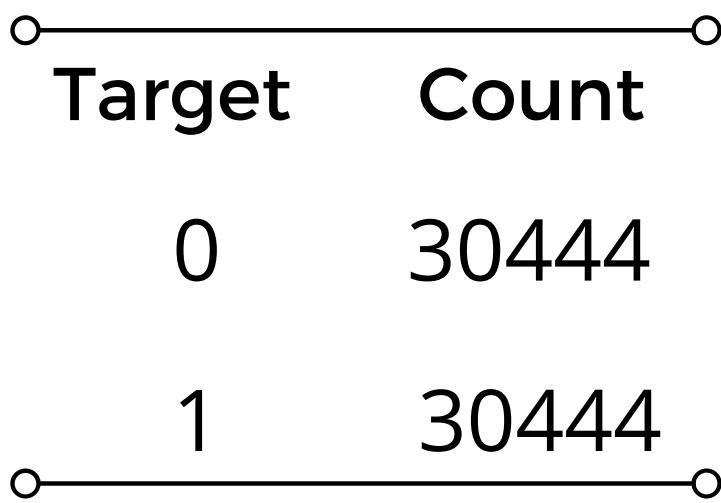


# CLASS IMBALANCE

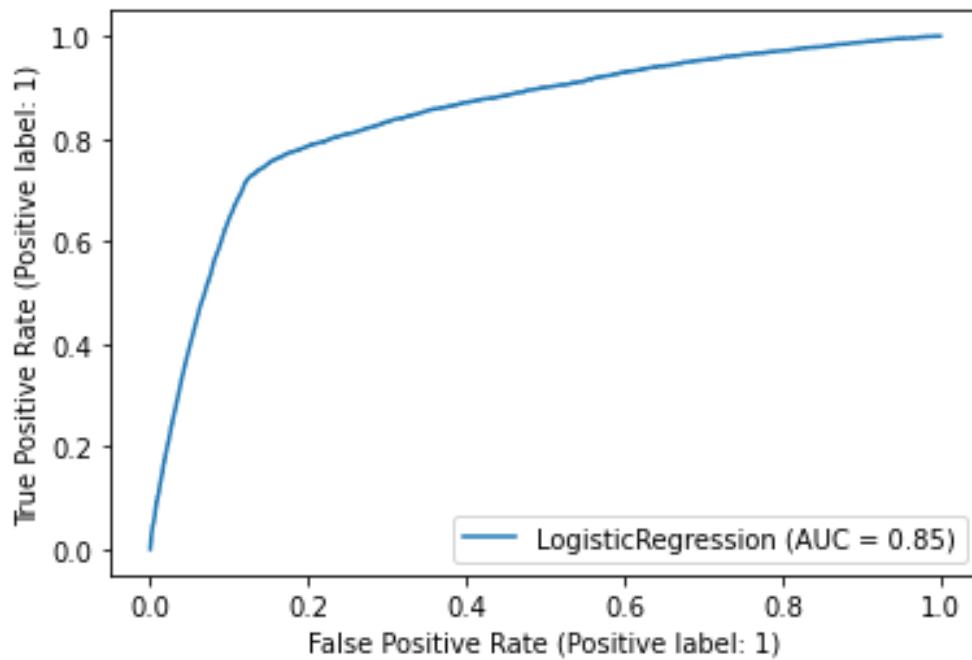
**ACHIEVED OUR GOAL, BUT DID WE DO IT EFFICIENTLY?**



**USING OVERSAMPLING & UNDERSAMPLING**



# LOGISTIC REGRESSION ROC CURVE



AUC  
0.85

# LOGISTIC REGRESSION REPORT

Using 0.5 as threshold:

Accuracy = 0.87921

Precision = 0.55747

Recall = 0.29250

F1 score = 0.38369

Classification Report

	precision	recall	f1-score	support
0	0.90	0.97	0.93	21694
1	0.56	0.29	0.38	3200
accuracy			0.88	24894
macro avg	0.73	0.63	0.66	24894
weighted avg	0.86	0.88	0.86	24894

# DECISION TREE - REPORT

Accuracy = 0.83048

Precision = 0.34830

Recall = 0.36594

F1 score = 0.35690

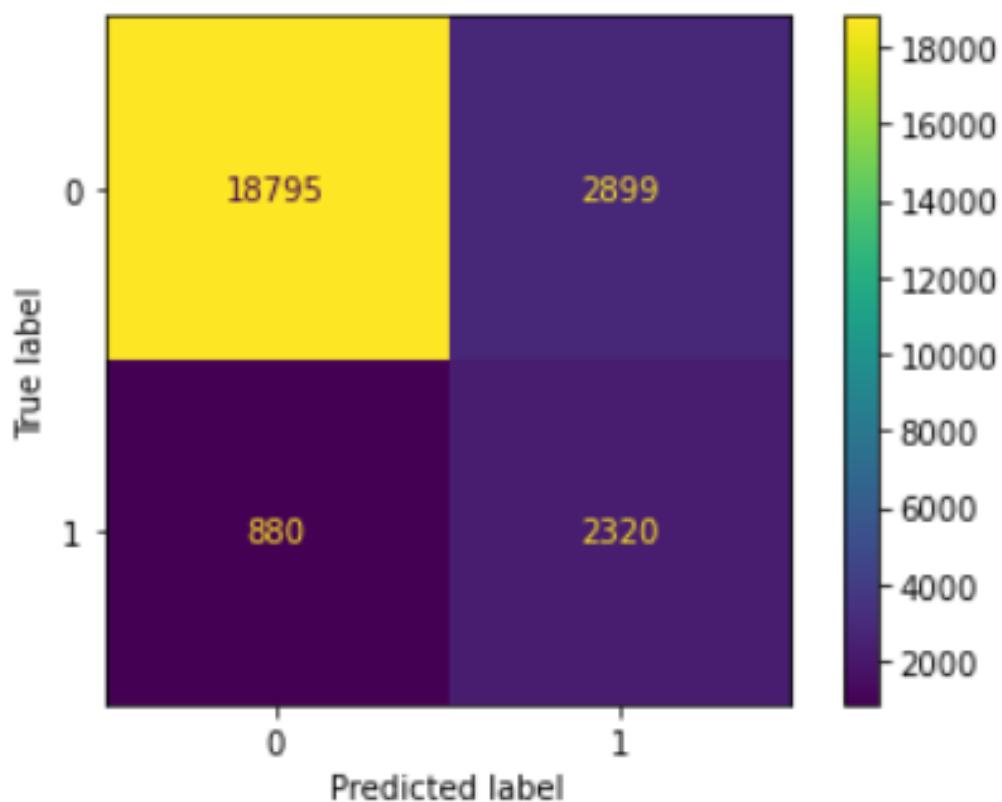
[[19503 2191]

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FPR 0.10099566700470176

Specificity 0.8990043329952982

## CONFUSION MATRIX





**Student**

**PGDM - Big Data Analytics**

Goa Institute of Management

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## **ABOUT ME**

I'm a PGDM student currently working on Data Visualization and predictive models.

**BELIEF**

**DATA-DRIVEN APPROACH**

# THANK YOU!

ANY QUESTIONS?

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