16% credit card customers of TYB Bank are churning
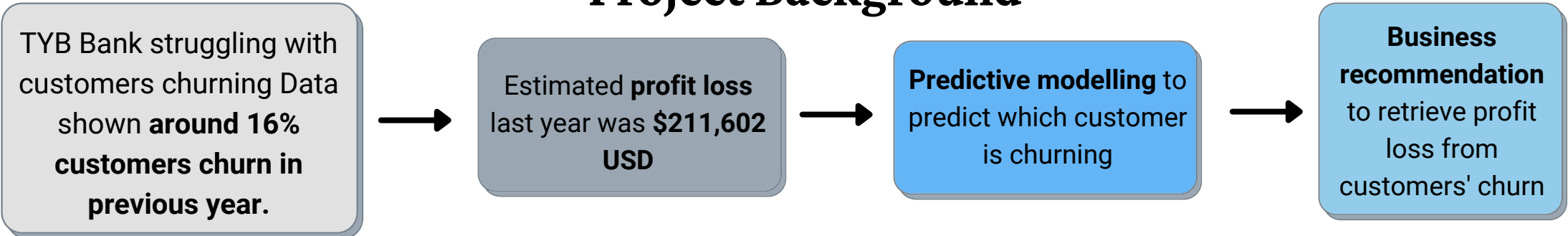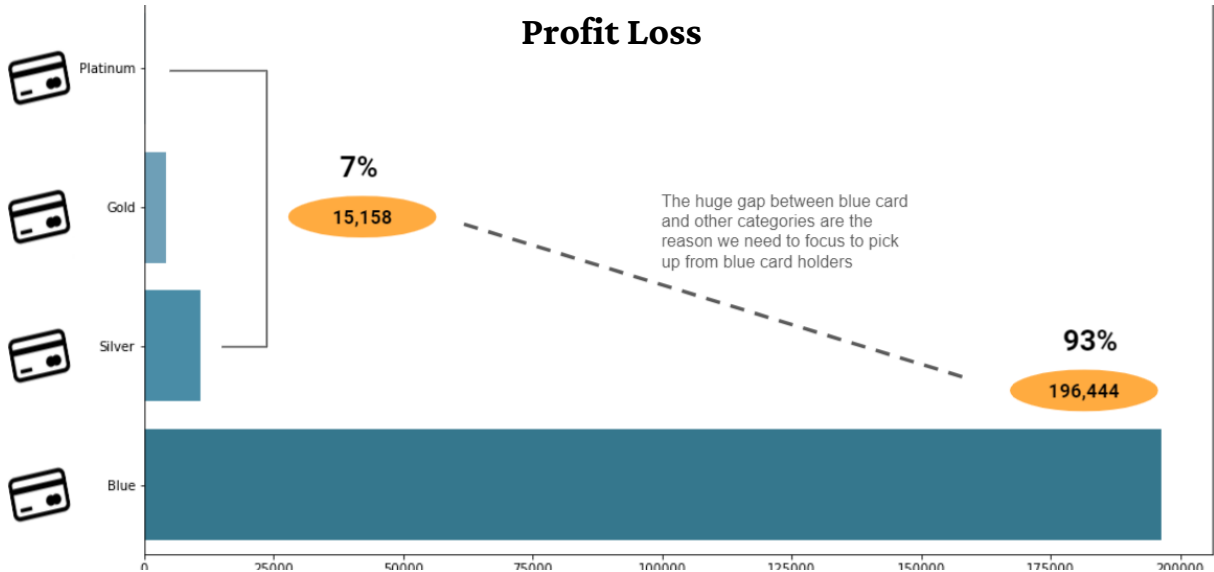
TYB Bank have lost $211,602 in the previous year, they need predictive modeling to prevent more profit loss
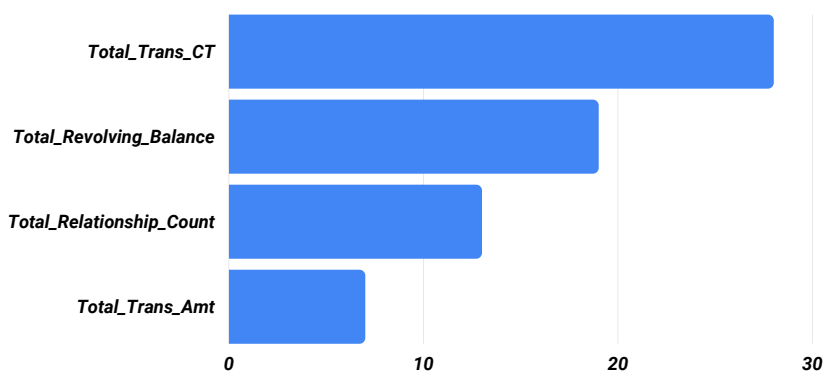
GGS Business Consultant

Project Background

TYB Bank struggling with customers churning Data shown **around 16% customers churn in previous year.**

→

Estimated **profit loss** last year was **$211,602 USD**

→

Predictive modelling to predict which customer is churning

→

Business recommendation to retrieve profit loss from customers' churn

Insight

Profit Loss

Platinum

Gold — 7% — 15,158

Silver

Blue — 93% — 196,444

The huge gap between blue card and other categories are the reason we need to focus to pick up from blue card holders

- Despite having the largest user, **93% of customer churning happened in blue card customer** rather than any other cards
- The **huge gap between blue card and other categories** are the reason we need to **focus** to pick up from **blue cardholders**

Total_Trans_CT

Total_Revolving_Balance

Total_Relationship_Count

Total_Trans_Amt

0   10   20   30

Feature Importance

The **numbers of transactions made by customers** are the most contributing features to **churn** (>25%)
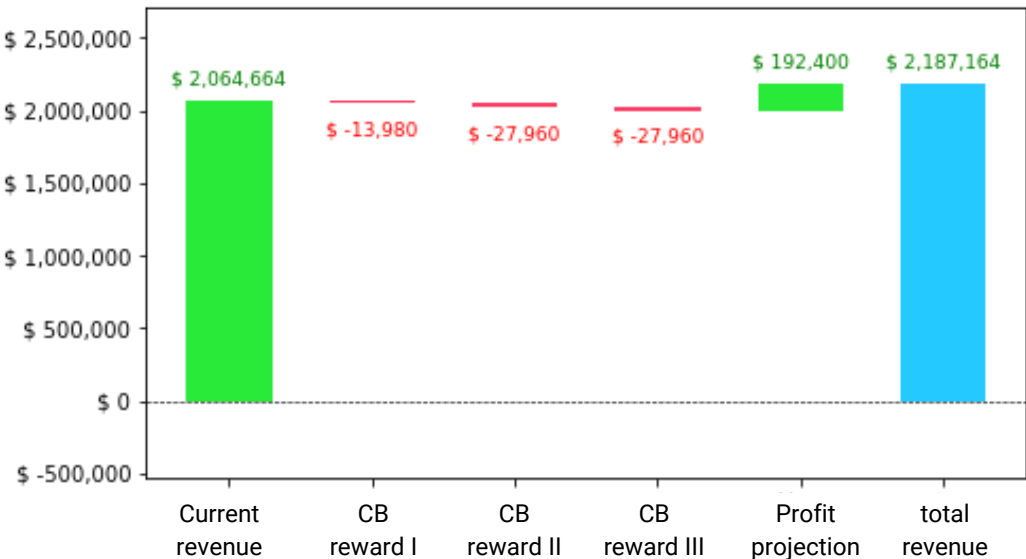
Predictive Modelling

Cleansing The Data

The "Unknown" values are replaced with the mode of the feature. One-hot encoding is applied for nominal data type, while label encoding is applied for ordinal data type.

- The recall is used to **prevent incorrectly predicting 'churn'-ed customers as' not churn'**.
- It also could engage with those who are mistakenly tagged as 'not churned'. It could potentially make them even happier.
- XGBoost is chosen as the best recall evaluation and no indication of underfitting/overfitting

	Decision Tree	Random Forest	XGBoost	AdaBoost
Accuracy	92%	95%	97%	95%
Precision	79%	94%	90%	87%
Recall	77%	77%	91%	83%
F1-Score	78%	85%	90%	85%
AUC	86%	88%	95%	90%
Train Score			98%	
Test Score			91%	

Business Recommendation

Cashback Rewards

Attracting more transactions and also prevent customers from inactivity, some of the rewards also addressed for the female customers to decrease the churning process overall.

Customer Relationship Improvement

Improvement in this area will decrease customer inactivity by staying connected to the customer and give them personalized treatment

$ 2,500,000

$ 2,000,000 — $ 2,064,664 (Current revenue)

$ -13,980 (CB reward I) $ -27,960 (CB reward II) $ -27,960 (CB reward III)

$ 1,500,000

$ 1,000,000

$ 500,000

$ 0

$ -500,000

$ 192,400 (Profit projection) $ 2,187,164 (total revenue)

Current revenue | CB reward I | CB reward II | CB reward III | Profit projection | total revenue

- **Re-engagement strategy only spend 36% of the actual gain from preventing profit loss**
- **~$211,000 profit loss turned into ~192,000 profit gain from predicting customers churn and re-engagement approach**

Date: 10 June 2021