# TELECOM CHURN GROUP CASE STUDY PRESENTATION

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# AGENDA

- Introduction To Problem Statement
- Objective of the Project
- Approach to solve this business problem
- Summery
- Business Recommendations

# INTRODUCTION TO PROBLEM STATEMENT

**Short Description :**

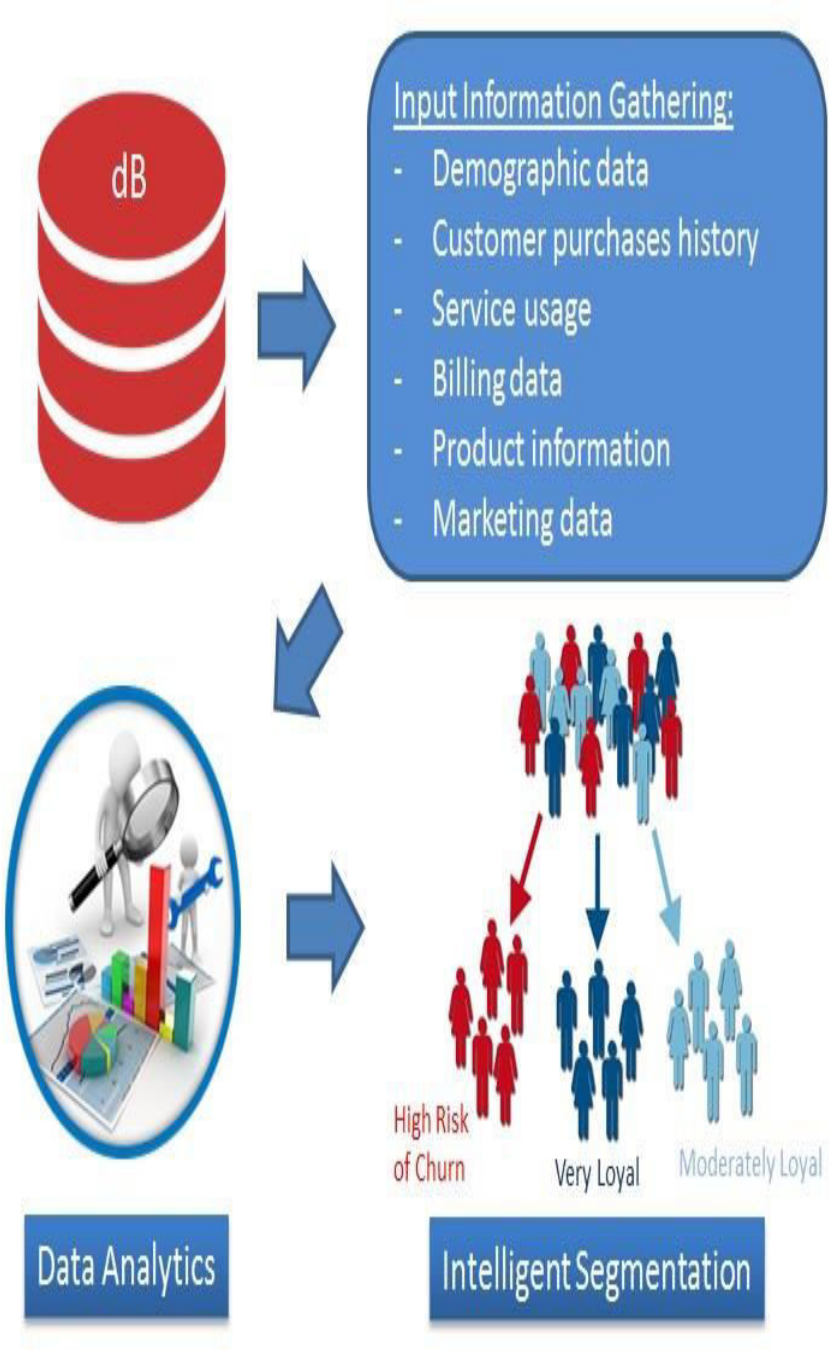
- ML Model to predict churn for a lending telecom operator in Southeast Asia

**Business Description :**

- In the telecom industry, customers are able to choose from multiple service providers and actively switch from one operator to another.

**Problem Statement :**

- In the telecommunication industry, customers tend to change operators if not provided with attractive schemes and offers.
- It is very important for any telecom operator to prevent the present customers from churning to other operators.
- In this highly competitive market, the telecommunications industry experiences an average of 15-25% annual churn rate.
- Given the fact that it costs 5-10 times more to acquire a new customer than to retain an existing one, customer retention has now become even more important than customer acquisition to reduce customer churn, telecom companies need to predict which customers are at high risk of churn.




# OBJECTIVE OF THE PROJECT

- The main goal of the case study is to build ML models to predict churn. The predictive model that you're going to build will the following purposes:
  - To predict whether a high-value customer will churn or not, in near future (i.e. churn phase). By knowing this, the company can take action steps such as providing special plans, discounts on recharge etc.
  - To identify important variables that are strong predictors of churn. These variables may also indicate why customers choose to switch to other networks.
  - Recommend strategies to manage customer churn based on your observations.
  - Use a dimensionality reduction technique such as PCA to handle large number of attributes and then build a predictive model

# APPROACH TO SOLVE THIS BUSINESS PROBLEM

- Step 1 : Introduction - Business Description,

  Problem Statement and Objective of the Project
- Step 2 : Data Understanding and Data Preparation
- Step 3 : Exploratory data analysis (EDA)
- Step 4 : Training the model
- Step 5 : Model Prediction and Evaluation
- Step 6 : Recommendation's

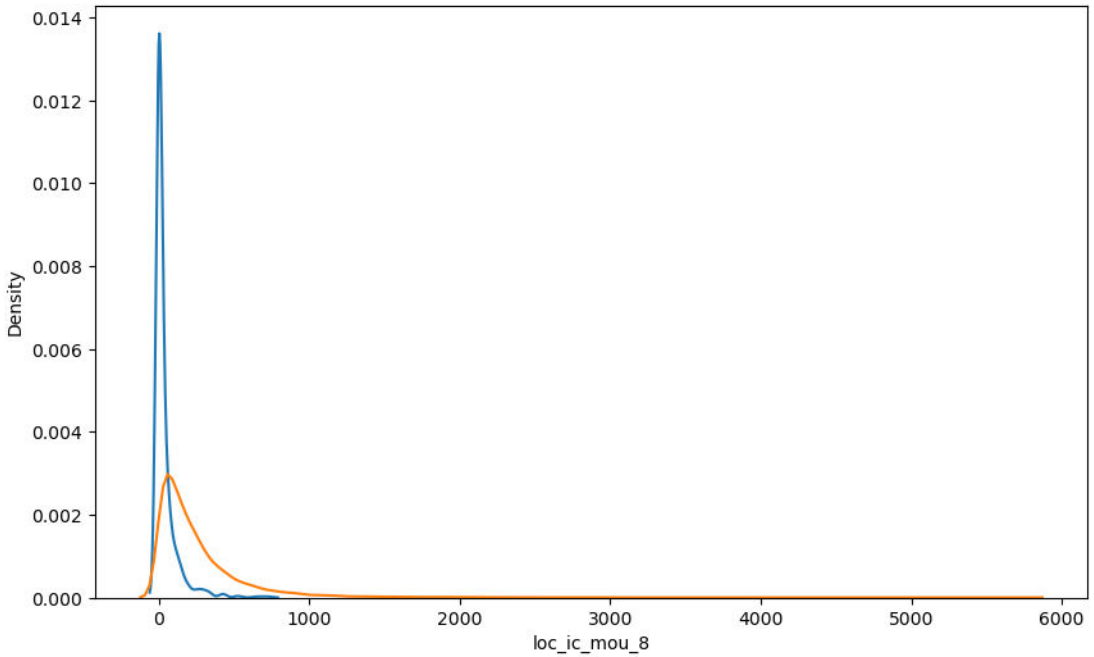
# SUMMERY

❑ **Model Evaluation & Selection**

- **Models Tested:**
  - Logistic Regression (with RFE & hyperparameter tuning)
  - PCA with Logistic Regression
  - Decision Tree, Random Forest, Adaboost, and XGBoost (with hyperparameter tuning & PCA)
- **Key Findings:**
  - **Logistic Regression with PCA** consistently shows the **highest sensitivity** in both train & validation sets.
  - Other models, despite high training accuracy, **overfit** and perform poorly on the test set.
- **Final Model Selection:**
  - **Sensitivity is crucial** for telecom churn prediction to minimize customer loss.
  - **Logistic Regression with PCA** is the most suitable model based on sensitivity.

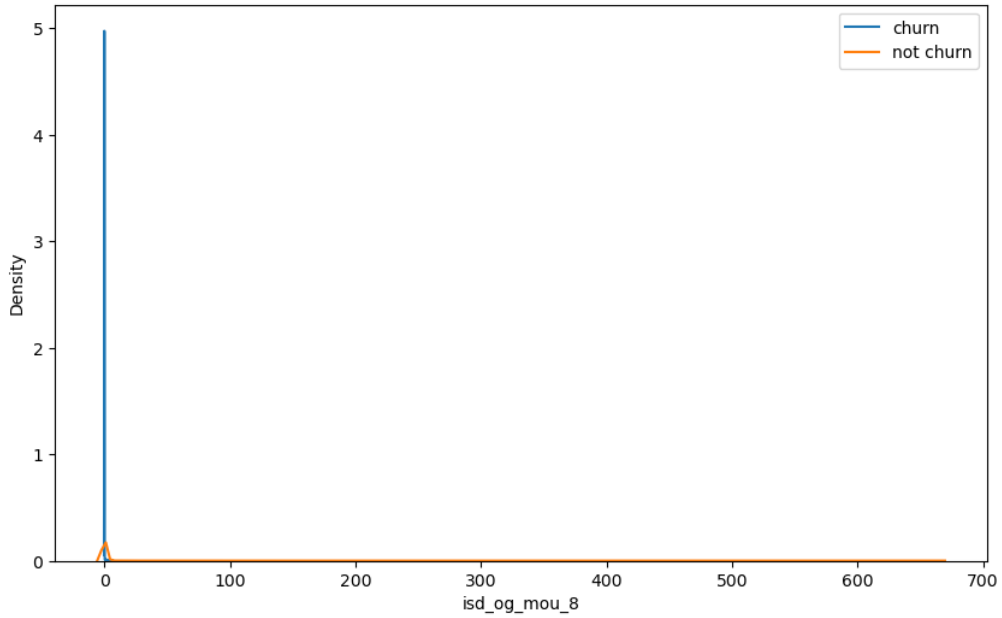
# PLOTS OF IMPORTANT PREDICTORS FOR CHURN AND NON CHURN CUSTOMERS

Plotting loc_ic_mou_8 predictor for churn and not churn customers




We can see that for the churn customers the minutes of usage for the month of August is mostly populated on the lower side than the non churn customers

Plotting isd_og_mou_8 predictor for churn and not churn customers



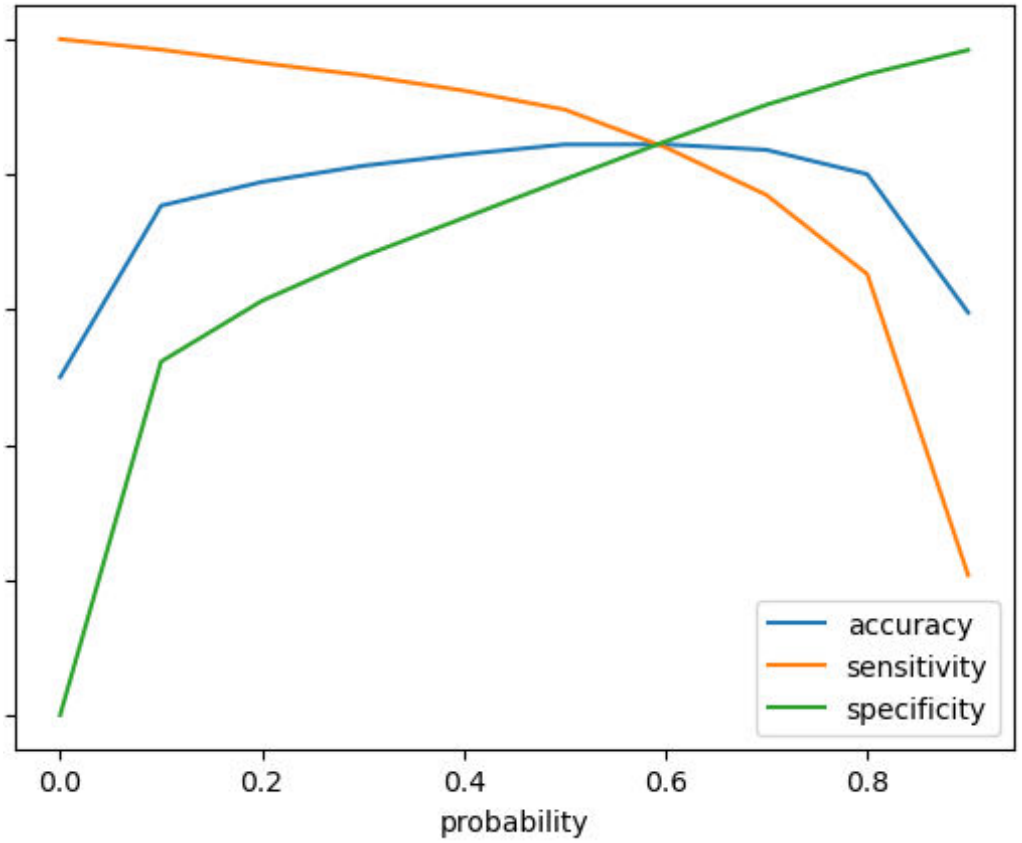

We can see that the ISD outgoing minutes of usage for the month of August for churn customers is dense approximately to zero. On the other hand, for the non churn customers, it is little more than the churn customers.

# RESULTS

**Model summary**

- Train set
  - Accuracy = 0.84
  - Sensitivity = 0.81
  - Specificity = 0.83
- Test set
  - Accuracy = 0.78
  - Sensitivity = 0.82
  - Specificity = 0.78

- Overall, the model is performing well in the test set, what it had learnt from the train set.



# Business Recomendation

- Target the customers, whose minutes of usage of the incoming local calls and outgoing ISD calls are less in the action phase (mostly in the month of August).
- Target the customers, whose outgoing others charge in July and incoming others value-based August are less.
- Also, the customers having value based cost in the action phase increased are more likely to churn than the other customers. Hence, these customers may be a good target to provide offer.
- Customer's, whose monthly 3G recharge in August is more, are likely to be churned.
- Customers having decreasing STD incoming minutes of usage for operators T to fixed lines of T for the month of August are more likely to churn.
- Customer’s decreasing monthly 2g usage for August are most probable to churn.
- Customers having decreasing incoming minutes of usage for operators T to fixed lines of T for August are more likely to churn.
- Roam_og_mou_8 variables have positive coefficients (0.7135). That means for the customers, whose roaming outgoing minutes of usage is increasing are more likely to churn.

# Business Recommendation Continues…

Based on the analysis of our logistic regression model with RFE, here are some business ideas to improve churn rate:

1. **Roaming Offers**: Provide personalized roaming packages to frequent roamers.

2. **Local Call Promotions**: Offer competitive rates and bonuses for local calls.

3. **Data Recharge Strategies**: Promote data packs with targeted marketing campaigns.

4. **High-Value Recharge Incentives**: Offer discounts for high-value recharges to retain customers.

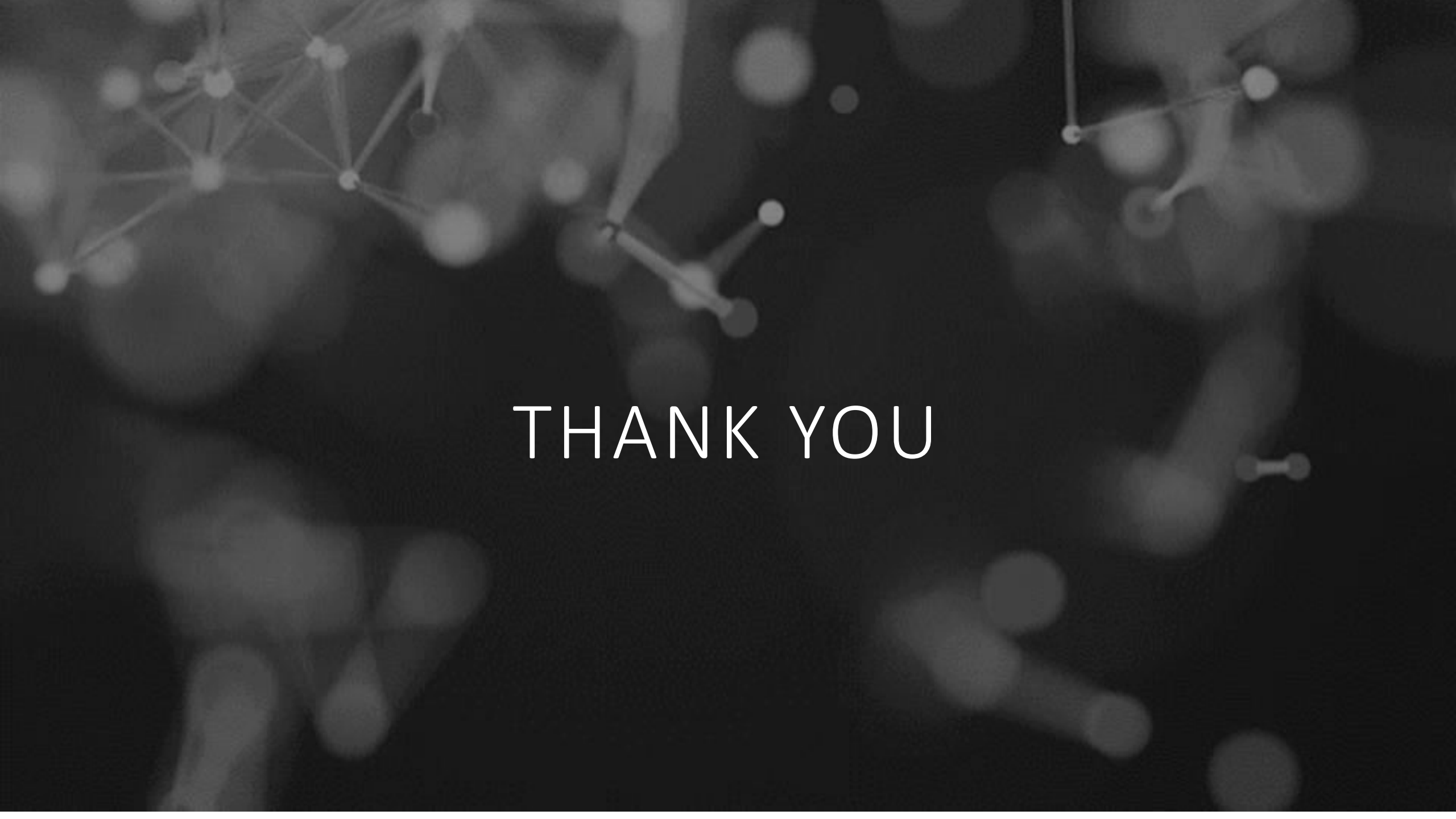
5. **Service Engagement Initiatives**: Enhance engagement through loyalty programs and personalized offers.

6. **Retention Campaigns**: Target customers with low recharge activity with special offers.

7. **Non-Data User Promotions**: Encourage non-data users to try data services with bundle offers.

8. **Night Pack Revival**: Revive night pack usage through attractive offers and incentives.

Implementing these strategies can effectively reduce churn and improve customer retention in your telecom business.


THANK YOU