

# Business Recommendations Report

## Customer Segmentation & Prediction Project

### Executive Summary

This project segmented customers into three distinct groups using clustering algorithms and built separate Random Forest prediction models for each segment. The goal was to create segment-specific strategies to reduce churn and increase business value.

### Segment-Wise Strategic Recommendations

#### 1. Loyal & Stable Customers

##### Strategy: Retention & Upselling

- Offer loyalty rewards programs
- Provide premium service upgrades
- Exclusive offers for long-term users
- Early access to new features

##### Expected Impact:

- Increased lifetime value
- Higher brand advocacy
- Stable revenue growth

#### 2. At-Risk Customers

##### Strategy: Immediate Retention Campaign

- Personalized retention emails
- Discount or limited-time offers
- Customer satisfaction surveys
- Dedicated customer support follow-ups

##### Expected Impact:

- Reduced churn rate
- Improved customer satisfaction
- Recovery of potential lost revenue

### 3. Growth Opportunity Customers

#### Strategy: Engagement & Conversion

- Targeted marketing campaigns
- Cross-selling related services
- Educational content about features
- Subscription upgrade incentives

#### Expected Impact:

- Increased engagement
- Higher conversion to premium plan
- Revenue expansion

### Model Insights

- Separate Random Forest models improved predictive accuracy within each segment
- Hyperparameter tuning optimized model performance.
- Evaluation metrics (Accuracy, Precision, Recall, F1-score, ROC-AUC) confirmed strong predictive capability.

### Business Impact Estimation

By implementing segment-specific strategies:

- Churn reduction estimated between 10–20%
- Increased customer lifetime value
- More efficient marketing budget allocation
- Data-driven decision-making framework

### Conclusion

Segment-based predictive modeling enables targeted business strategies rather than one-size-fits-all approaches. This leads to improved retention, better resource allocation, and measurable revenue growth.