Nova Edge - Executive Summary

Project Objective:
The primary objective of this project was to analyze customer data to understand the factors driving churn, identify customers at high risk of churning, and recommend actionable strategies to improve customer retention.

Methodology
The analysis followed a structured approach:

1. **Data Exploration:** Examined and cleaned data (missing values, outliers).
2. **Exploratory Data Analysis (EDA):** Studied churn distribution and feature relationships.
3. **Modeling:** Trained and validated various machine learning models (Random Forest, LightGBM, Neural Network, etc.).
4. **Key Factor Identification:** Determined the most predictive variables for churn.
5. **Recommendations:** Developed targeted retention strategies based on findings.

Key Findings

- **Churn Distribution:** The dataset shows a balanced churn rate (approx. 44.3%).
- **Most Predictive Variables:** Digital engagement metrics (monthly transaction volume, average active days, number of services used) and categorized customer notes (Engagement Status, Financial/Payment) were the strongest predictors. Recent complaints and mobile app usage were also significant.
- **Model Performance:** Random Forest and LightGBM models offered the best balance of metrics, though the Neural Network achieved higher Recall for identifying churners.

Recommended Retention Actions

Focus retention efforts on customers with low usage, recent complaints, or notes indicating engagement/financial problems. Specific actions include:

- Targeted incentives for low usage customers.
- Addressing service usage gaps.
- Swift resolution of customer complaints.
- Personalized outreach based on customer note categories.
- Considering the role of mobile app usage in retention.
- Developing segment-specific retention tactics.

Future Exploration involves implementing targeted campaigns, building automated alerts, and measuring impact via A/B testing. We will enhance predictive models with granular data and deepen understanding of high-risk groups. This data-driven approach aims for effective retention and churn prediction.