**Case Study: Enhancing Customer Strategy through RFM Segmentation**

**About the Project**

**This project focused on improving customer engagement and retention strategies for NovaPay, a digital-first consumer finance platform. Despite steady growth in user base and transaction volume, the company lacked clear visibility into customer behavior — particularly, who their most valuable users were and how best to engage them.**

**To address this, we applied RFM (Recency, Frequency, Monetary) analysis using Python to segment customers based on their transaction patterns. This helped uncover actionable insights and laid the groundwork for more personalized and effective marketing strategies.**

**Business Challenge**

**NovaPay faced three core challenges:**

* **Customer Retention Risk: Many customers were becoming inactive, and churn was rising. Without clarity on which users were likely to leave, retention efforts were unfocused and reactive.**
* **Lack of Personalization: Campaigns were one-size-fits-all. There was no behavioral segmentation to guide targeting based on customer value or engagement level.**
* **Inefficient Resource Allocation: Marketing and support efforts were spread evenly across the customer base, without insights into where the highest returns would come from.**

**Project Objectives**

**The goal of the project was to:**

* **Analyze customer transaction data and compute RFM scores**
* **Segment customers into meaningful behavioral groups**
* **Identify high-value, at-risk, and new customer segments**
* **Support targeted campaign planning and customer engagement strategies**

**Data Description**

**We used anonymized transaction data from NovaPay’s platform, including both behavioral and demographic fields.**

**Key fields included:**

* **TransactionID: Unique transaction reference**
* **CustomerID: Unique customer identifier**
* **TransactionDate: Date of transaction**
* **TransactionAmount: Amount spent per transaction**
* **TransactionTime: Unix timestamp**
* **CustomerDOB, Gender, Location: Demographic attributes**
* **CustAccountBalance: Customer's current account balance**

**Tech Stack**

* **Language: Python**
* **Libraries Used:**
  + **pandas, numpy: Data manipulation and feature engineering**
  + **matplotlib, seaborn: Visualizations**

**Project Approach**

1. **Exploratory Data Analysis (EDA)**
   * **Cleaned and explored the dataset to identify missing values, outliers, and behavioral patterns.**
2. **RFM Scoring**
   * **For each customer, we calculated:**
     + **Recency: How recently they transacted**
     + **Frequency: How often they transacted**
     + **Monetary: How much they spent**
   * **Each metric was ranked and scored on a scale from 1 to 5.**
3. **Segmentation & Interpretation**
   * **Grouped customers based on their RFM profiles (e.g., 5-5-5 = Champions)**
   * **Interpreted each segment to understand behavioral traits and strategic opportunities.**
4. **Visualization & Insight Generation**
   * **Created visual summaries (e.g., heatmaps, bar charts, pie charts) to reveal patterns in customer engagement and value.**

**Key Learning Outcomes**

* **Learned how to engineer and apply RFM metrics for segmentation**
* **Developed skills in turning raw transaction data into meaningful business actions**
* **Understood how behavioral data supports smarter, personalized marketing strategies**
* **Reinforced the importance of combining customer value and engagement insights to drive business growth**