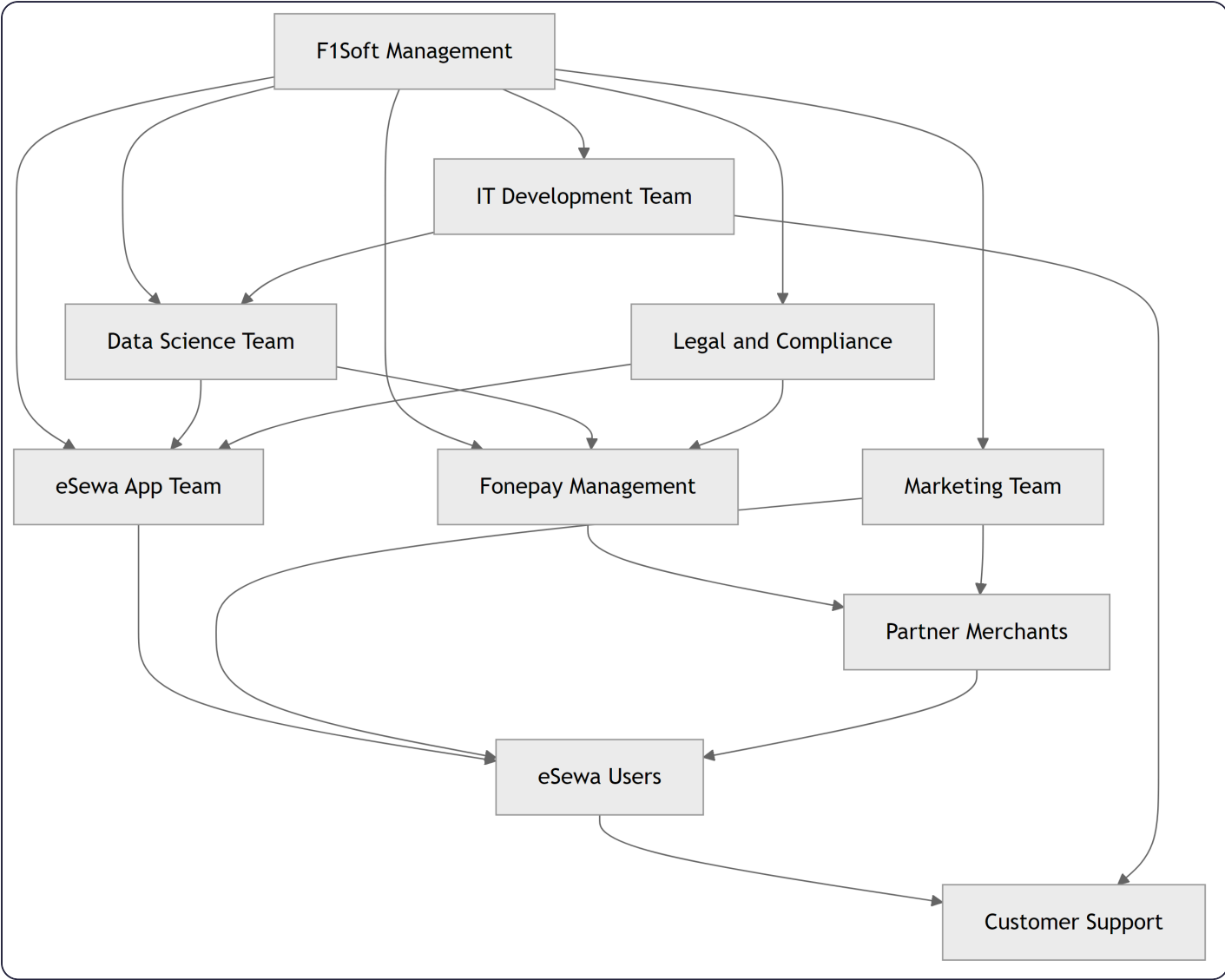# Business Analysis Report: Fonepoints Engagement & Redemption Enhancement
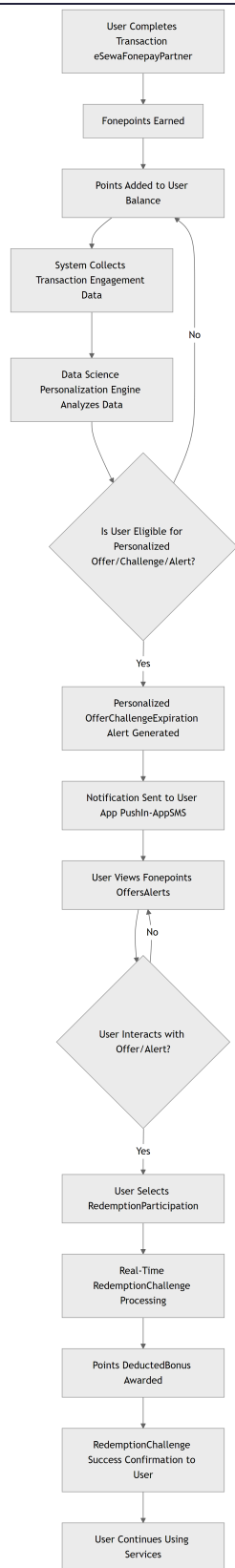
01. Stakeholder Map

This map outlines the key stakeholders involved in the Fonepoints engagement and redemption enhancement initiative, illustrating their primary relationships and influence.

02. Process Flow for Fonepoints Earning, Notification, and Redemption

This flow details the enhanced user journey for Fonepoints, incorporating data-driven personalization.

```
                    ┌─────────────────┐
                    │  User Completes │
                    │   Transaction   │
                    │ eSewaFonepayPartner │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │ Fonepoints Earned │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │ Points Added to User │
                    │     Balance     │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │ System Collects │
                    │ Transaction Engagement │
                    │      Data       │                 No
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │  Data Science   │
                    │ Personalization Engine │
                    │  Analyzes Data  │
                    └─────────────────┘
                            │
                         ◇ Is User Eligible for
                           Personalized
                           Offer/Challenge/Alert? ◇
                            │
                           Yes
                            │
                    ┌─────────────────┐
                    │  Personalized   │
                    │ OfferChallengeExpiration │
                    │ Alert Generated │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │ Notification Sent to User │
                    │ App PushIn-AppSMS │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │ User Views Fonepoints │
                    │  OffersAlerts   │           No
                    └─────────────────┘
                            │
                         ◇ User Interacts with
                           Offer/Alert? ◇
                            │
                           Yes
                            │
                    ┌─────────────────┐
                    │  User Selects   │
                    │ RedemptionParticipation │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │   Real-Time     │
                    │ RedemptionChallenge │
                    │   Processing    │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │ Points DeductedBonus │
                    │    Awarded      │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │ RedemptionChallenge │
                    │ Success Confirmation to │
                    │      User       │
                    └─────────────────┘
                            │
                    ┌─────────────────┐
                    │ User Continues Using │
                    │    Services     │
                    └─────────────────┘
```

03. Business Requirement Document (BRD)

Project Title: Fonepoints Loyalty Engagement & Redemption Enhancement

Date: October 26, 2023

Version: 1.0

1. Introduction F1Soft aims to significantly improve the engagement and redemption rates of its Fonepoints loyalty program, which currently suffers from low user awareness and utilization despite a large active user base. This document outlines the business requirements for designing and implementing a data-driven loyalty solution that leverages user transaction behavior, app engagement, and demographic data to deliver personalized loyalty experiences.

2. Business Problem Despite widespread Fonepoints earning through eSewa and Fonepay partner merchant transactions, redemption rates are low, and many users are unaware of their accumulated points or how to use them. This leads to inactive loyalty behavior and missed opportunities for increased customer lifetime value.

3. Business Objectives The primary objectives are to: * Increase Fonepoints redemption rates by X% within 6 months. * Improve user engagement with the Fonepoints program (e.g., offer views, challenge participation) by Y% within 6 months. * Boost partner-driven campaign uptake by Z% within 6 months. * Enhance overall user satisfaction and loyalty towards eSewa/Fonepay.

4. Scope The solution will focus on enhancing the Fonepoints loyalty program within the eSewa and Fonepay ecosystems, specifically concerning personalization, notification, and redemption processes. It will integrate with existing transaction systems but will not overhaul the core transaction processing engine or merchant billing/settlement.

5. High-Level Business Requirements

- **BR1: Personalized Loyalty Experiences:** The system must deliver personalized Fonepoints recommendations, offers, and challenges to users based on their historical transaction data, merchant preferences, and app engagement patterns.
- **BR2: Dynamic Campaign Management:** The system must support the dynamic creation and deployment of various campaign types, including flash sales, time-bound offers, and gamified challenges.
- **BR3: Proactive User Notifications:** The system must proactively notify users about their Fonepoints balance, points nearing expiration, and new personalized offers to drive awareness and action.
- **BR4: Seamless Redemption Process:** The system must provide a clear, intuitive, and real-time process for users to redeem their Fonepoints for rewards.
- **BR5: Analytics & Reporting:** The system must provide F1Soft with comprehensive analytics and reporting capabilities to monitor campaign performance, user engagement, and redemption trends.

6. Business Rules * Fonepoints earning rules remain as per existing policy. * Points expiration rules must be configurable and adhere to existing policy. * Personalized offers must be relevant and non-discriminatory. * All user data handling must comply with relevant data privacy regulations (e.g., Nepal Rastra Bank guidelines).

7. Success Metrics (High-Level) * Increase in Fonepoints redemption volume and value. * Higher user participation in loyalty campaigns and challenges. * Improved app engagement related to loyalty features. * Positive feedback from user surveys regarding loyalty program enhancements.

04. Functional Requirement Specification (FRS)

1. Functional Requirements

- **FR1: Personalized Reward Recommendation Engine**
  - **FR1.1:** The system shall analyze user transaction history (e.g., merchant type, transaction frequency, average spend).
  - **FR1.2:** The system shall analyze user app engagement data (e.g., features used, click behavior, time spent).
  - **FR1.3:** The system shall analyze user demographic data (if available and permissible).

- **FR1.4:** The system shall generate personalized Fonepoints reward recommendations (e.g., discounts, specific merchant vouchers, bonus points for categories) based on analysis from FR1.1-FR1.3.
- **FR1.5:** The system shall present personalized recommendations to the user within the eSewa/Fonepay app interface.

- **FR2: Dynamic Campaign Management System**

  - **FR2.1:** The system shall allow administrators to define and configure flash sales with specific start/end times, point/discount values, and target user segments.
  - **FR2.2:** The system shall allow administrators to define and configure time-bound offers (e.g., 24-hour deals) for specific rewards or merchants.
  - **FR2.3:** The system shall allow administrators to create gamified challenges (e.g., "Spend with 3 merchants this week to unlock bonus points," "Complete 5 bill payments to earn X Fonepoints").
  - **FR2.4:** The system shall dynamically push these campaigns to relevant user segments based on personalization rules.

- **FR3: Real-Time Notification System**

  - **FR3.1:** The system shall send real-time notifications to users when their Fonepoints are nearing expiration (e.g., 30, 15, 7 days prior).
  - **FR3.2:** The system shall send real-time notifications for new personalized reward recommendations (FR1.5).
  - **FR3.3:** The system shall send real-time notifications for new flash sales and time-bound offers (FR2.1, FR2.2).
  - **FR3.4:** The system shall send real-time notifications for gamified challenges, including progress updates and completion alerts (FR2.3).
  - **FR3.5:** Notifications shall be delivered via in-app alerts, push notifications, and optionally SMS/email based on user preference and urgency.

- **FR4: Fonepoints Redemption Processing**

  - **FR4.1:** The system shall allow users to view their current Fonepoints balance in real-time.
  - **FR4.2:** The system shall allow users to select and redeem available personalized rewards or participate in challenges.
  - **FR4.3:** The system shall deduct the required Fonepoints from the user's balance upon successful redemption.
  - **FR4.4:** The system shall provide immediate confirmation of successful redemption or challenge completion.
  - **FR4.5:** The system shall integrate with partner merchant systems for voucher/discount generation and validation where applicable.

## 2. Non-Functional Requirements (NFRs)

- **NFR1: Performance & Scalability**

  - **NFR1.1:** The system shall be able to handle millions of transactions and loyalty events per month without degradation in performance.
  - **NFR1.2:** Redemption processing (from user initiation to confirmation) shall complete within 2 seconds for 95% of transactions.
  - **NFR1.3:** Personalized recommendation generation shall complete within 5 seconds for individual user requests.
  - **NFR1.4:** The notification system shall deliver notifications to target users within 1 minute of a trigger event.

- **NFR2: Security & Compliance**

  - **NFR2.1:** The system shall comply with all applicable banking regulations (e.g., Nepal Rastra Bank guidelines) and data privacy laws.

- **NFR2.2:** All sensitive user data shall be encrypted both in transit and at rest.
- **NFR2.3:** Access to the campaign management system and analytics dashboard shall be restricted to authorized F1Soft personnel with role-based access control (RBAC).
- **NFR2.4:** The system shall be resilient to common cybersecurity threats (e.g., XSS, SQL Injection).

- **NFR3: Usability**

  - **NFR3.1:** The Fonepoints section within the eSewa/Fonepay app shall be intuitive and easy to navigate for all user segments.
  - **NFR3.2:** Reward redemption steps shall be minimal and clearly guided.

- **NFR4: Reliability & Availability**

  - **NFR4.1:** The system shall have an uptime of 99.9% (excluding planned maintenance windows).
  - **NFR4.2:** The system shall have robust error handling and logging mechanisms.

05. Use Case Diagrams and Detailed Scenarios

Use Case 1: Receive Personalized Reward Recommendation

Diagram:
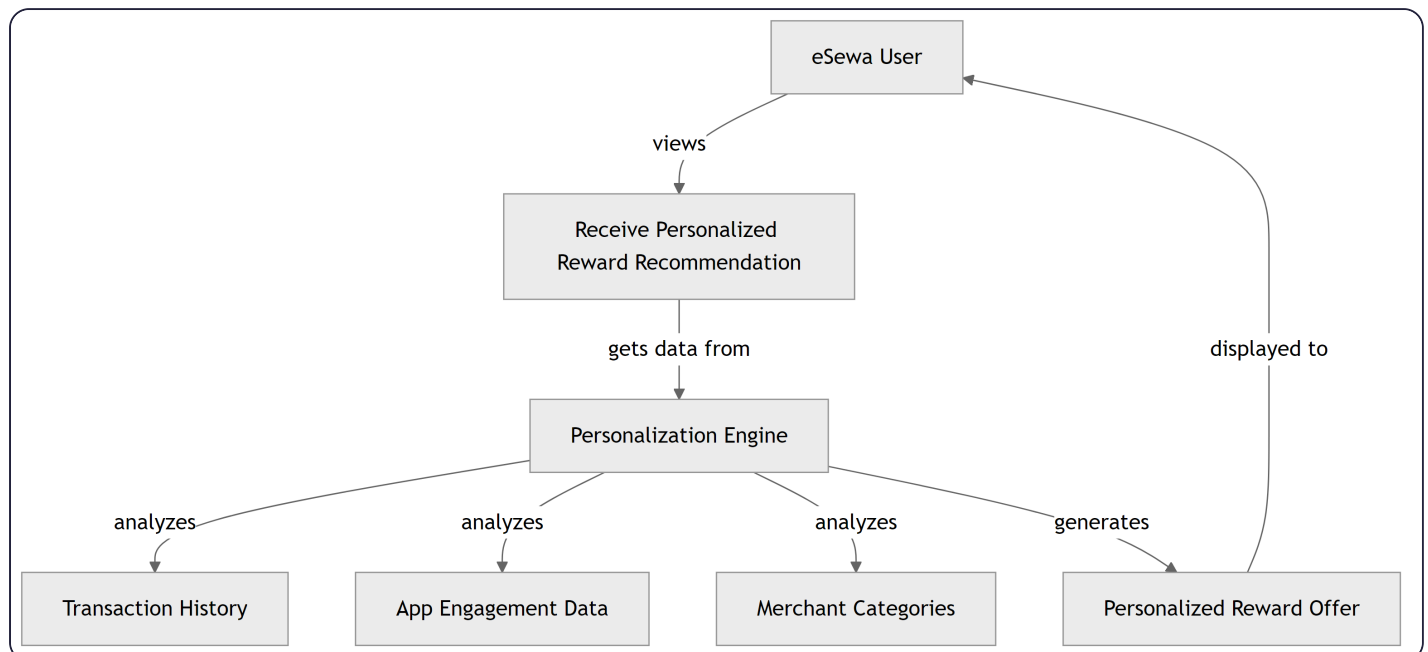
Scenario Description: * **Use Case Name:** Receive Personalized Reward Recommendation * **Actors:** eSewa User, Personalization Engine * **Preconditions:** * User has an active eSewa/Fonepay account. * User has performed transactions via eSewa/Fonepay. * Personalization Engine has access to user's transaction and engagement data. * **Main Flow:** 1. The eSewa User opens the eSewa or Fonepay app. 2. The Personalization Engine automatically fetches and analyzes the User's transaction history, app engagement data, and preferred merchant categories. 3. Based on the analysis, the Personalization Engine generates a personalized reward recommendation (e.g., "Get 10% off on your next grocery bill at Big Mart, a store you frequently visit!"). 4. The personalized reward offer is displayed prominently to the User within the Fonepoints section of the app, or via a push notification. 5. The User views the recommendation. * **Postconditions:** * User is aware of a personalized reward recommendation. * **Alternative Flow (No Relevant Offers):** * If the Personalization Engine finds no highly relevant personalized offers, it displays general, popular Fonepoints offers or a message indicating no new personalized offers are available.

Use Case 2: Participate in Gamified Challenge

Diagram:
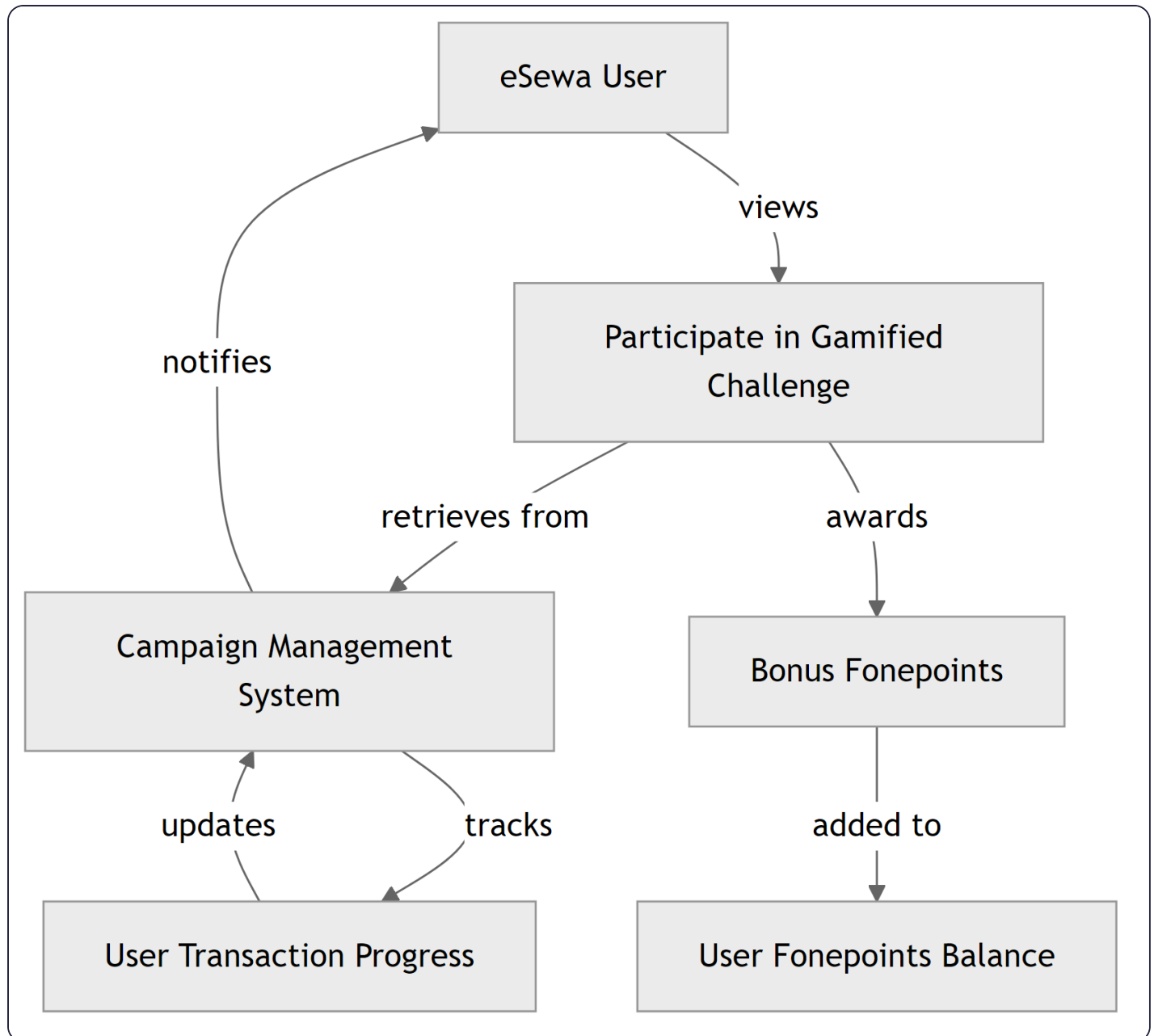
Scenario Description: * **Use Case Name:** Participate in Gamified Challenge * **Actors:** eSewa User, Campaign Management System * **Preconditions:** * User has an active eSewa/Fonepay account. * A gamified challenge (e.g., "Spend with 3 merchants this week") is active and applicable to the user. * **Main Flow:** 1. The eSewa User opens the eSewa app and navigates to the Fonepoints section. 2. The User sees an active gamified challenge (e.g., "Spend at 3 unique QR merchants this week and earn 100 bonus Fonepoints"). 3. The User opts to participate or implicitly participates by completing required actions. 4. The User performs transactions that contribute to the challenge (e.g., completes QR payments at three different merchants). 5. The Campaign Management System tracks the User's transaction progress in real-time. 6. Upon successful completion of the challenge criteria, the Campaign Management System automatically awards the bonus Fonepoints to the User's Fonepoints balance. 7. A notification is sent to the User confirming challenge completion and bonus points awarded. * **Postconditions:** * User has participated in a gamified challenge. * User has potentially earned bonus Fonepoints. * **Alternative Flow (Challenge Not Completed):** * If the User fails to meet the challenge criteria within the specified timeframe, the challenge expires without awarding bonus points. A notification may be sent indicating the challenge outcome.

Use Case 3: Redeem Fonepoints

Diagram:
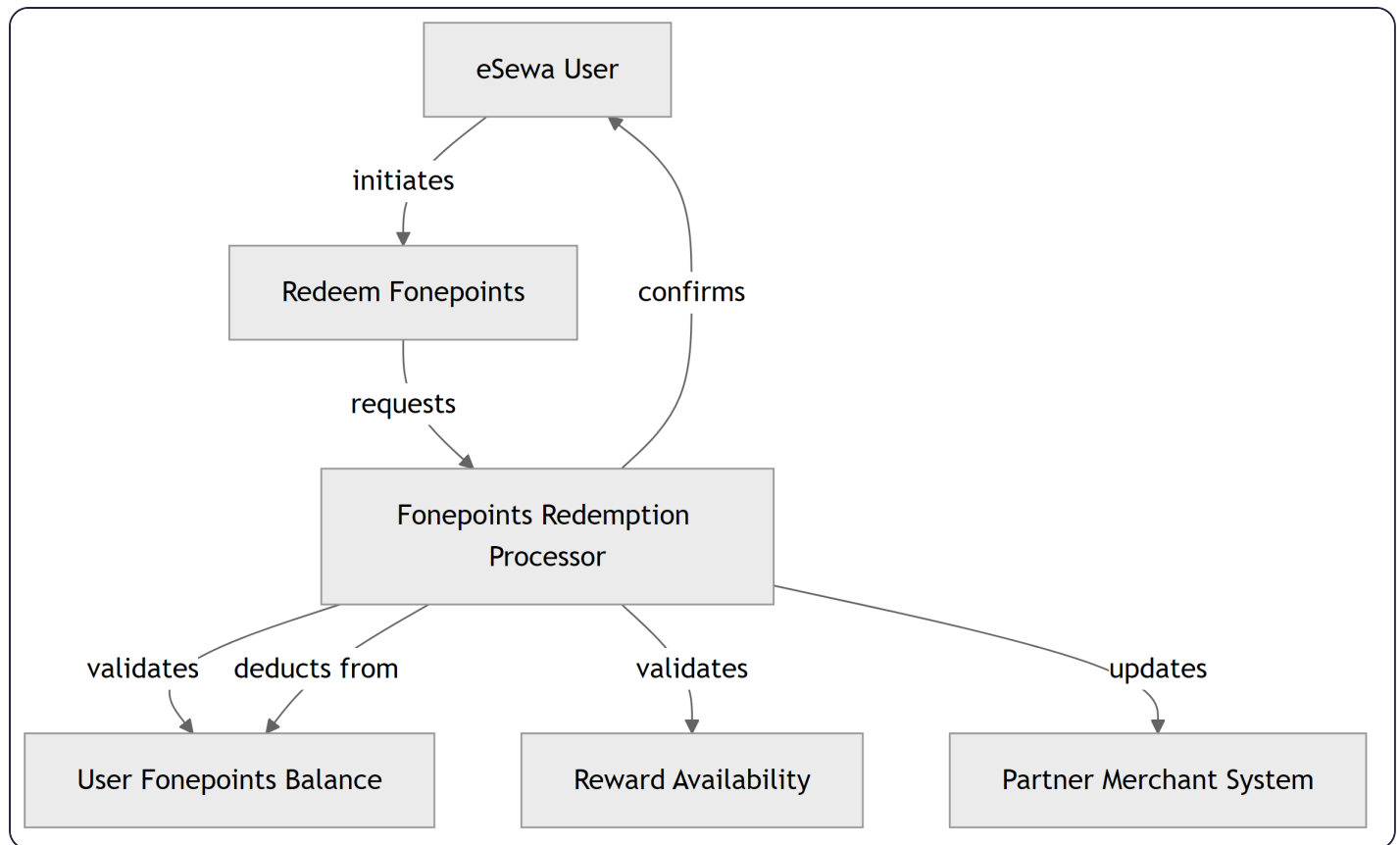
Scenario Description: * **Use Case Name:** Redeem Fonepoints * **Actors:** eSewa User, Fonepoints Redemption Processor, Partner Merchant System (Optional) * **Preconditions:** * User has an active eSewa/Fonepay account with sufficient Fonepoints balance. * User has identified a desired reward for redemption. * **Main Flow:** 1. The eSewa User navigates to the Fonepoints redemption section in the eSewa/Fonepay app. 2. The User browses available rewards (e.g., discounts, vouchers, bill payment credits). 3. The User selects a reward and initiates the redemption process. 4. The Fonepoints Redemption Processor validates the User's Fonepoints balance and the availability of the selected reward. 5. If validation is successful, the required Fonepoints are immediately deducted from the User's balance. 6. If the reward is a partner merchant voucher, the Fonepoints Redemption Processor communicates with the Partner Merchant System to generate and provide the voucher code/details to the User. 7. A real-time confirmation of successful redemption is displayed to the User within the app and sent via notification. * **Postconditions:** * User has successfully redeemed Fonepoints for a reward. * User's Fonepoints balance is updated. * **Alternative Flow (Insufficient Points):** * If the User has insufficient Fonepoints, the system displays an error message indicating the required points and current balance. * **Alternative Flow (Reward Unavailable):** * If the selected reward is no longer available (e.g., flash sale expired, limited stock redeemed), the system displays an error message and prompts the user to select another reward.

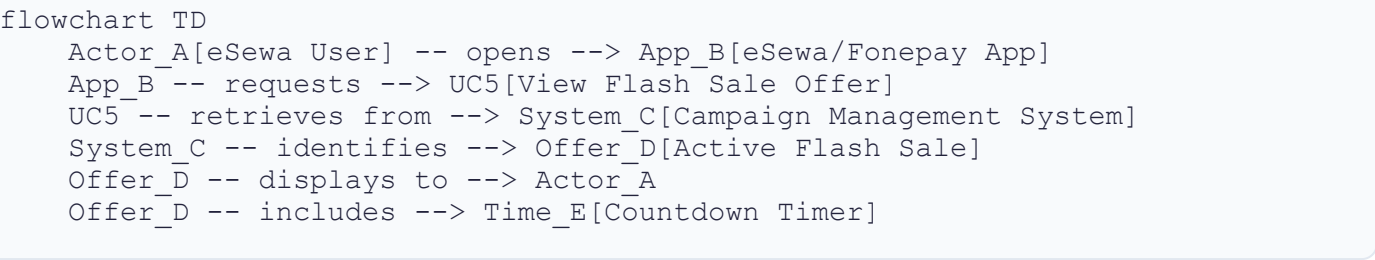## Use Case 4: Receive Points Expiration Notification

Diagram:
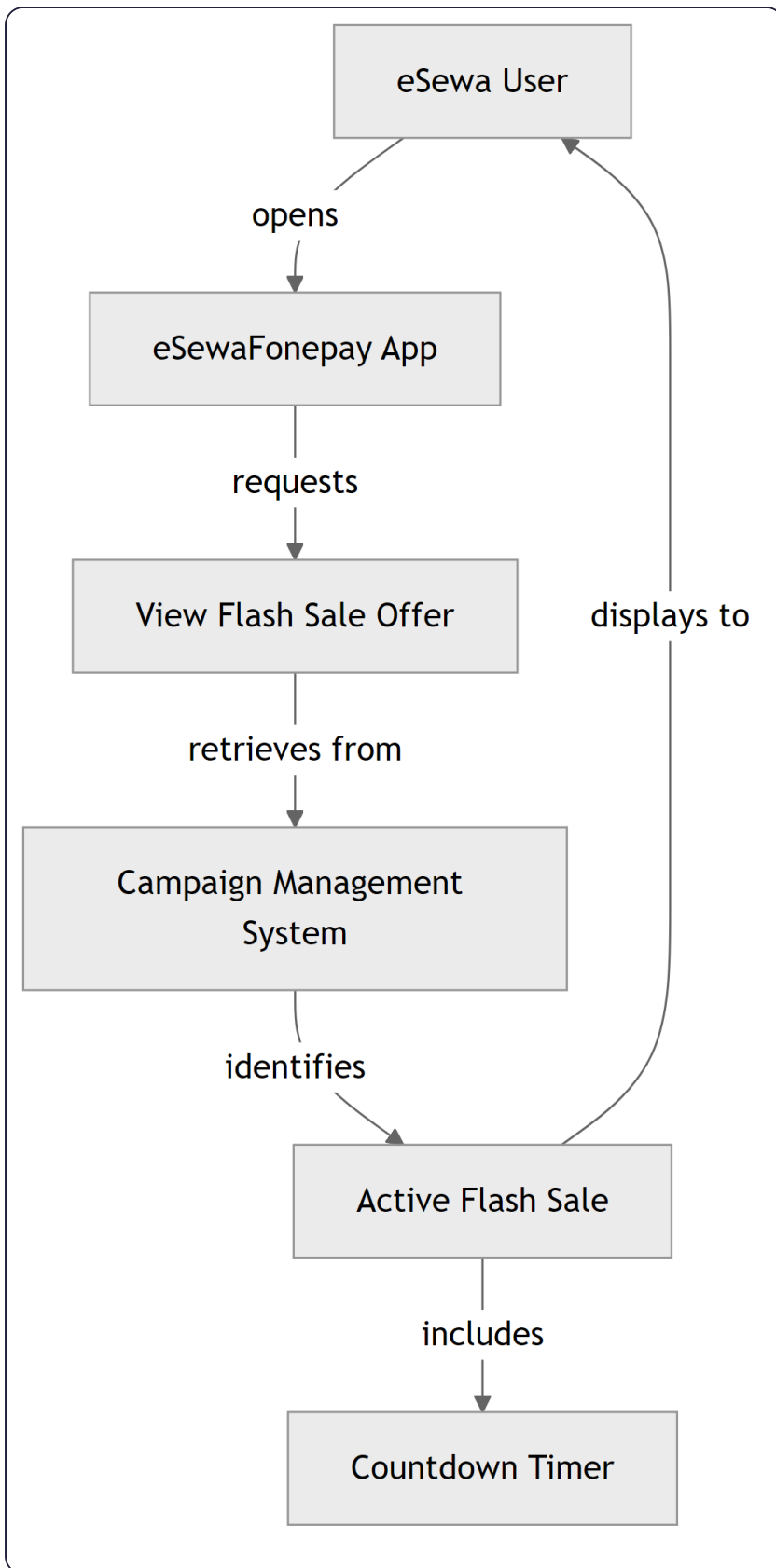
Scenario Description: * **Use Case Name:** Receive Points Expiration Notification * **Actors:** eSewa User, Notification Engine * **Preconditions:** * User has Fonepoints with an upcoming expiration date. * Notification Engine is configured to monitor expiration dates. * **Main Flow:** 1. The Notification Engine continuously monitors Fonepoints expiration dates for all users. 2. When a User's Fonepoints are detected to be nearing expiration (e.g., within 30, 15, or 7 days), the Notification Engine identifies the User. 3. The Notification Engine generates an expiration alert message (e.g., "X Fonepoints are expiring on YYYY-MM-DD. Redeem them now!"). 4. The expiration notification is sent to the User via their preferred channel (e.g., push notification, in-app message, SMS). 5. The User receives and views the notification. * **Postconditions:** * User is aware of points nearing expiration. * **Alternative Flow (Points Already Expired):** * If the points have already expired, no expiration notification is sent.

Use Case 5: View Flash Sale Offer

Diagram:

```
flowchart TD
    Actor_A[eSewa User] -- opens --> App_B[eSewa/Fonepay App]
    App_B -- requests --> UC5[View Flash Sale Offer]
    UC5 -- retrieves from --> System_C[Campaign Management System]
    System_C -- identifies --> Offer_D[Active Flash Sale]
    Offer_D -- displays to --> Actor_A
    Offer_D -- includes --> Time_E[Countdown Timer]
```

Scenario Description: * **Use Case Name:** View Flash Sale Offer * **Actors:** eSewa User, Campaign Management System * **Preconditions:** * An active flash sale offer is available and configured in the Campaign Management System. * The flash sale offer is targeted at or accessible by the eSewa User. * **Main Flow:** 1. The eSewa User opens the eSewa or Fonepay app. 2. A prominent banner, pop-up, or dedicated section displays an active flash sale offer (e.g., "50% off on specific merchant vouchers for the next 2 hours!"). 3. The Campaign Management System provides the details of the flash sale, including the discounted value, target items, and a visible countdown timer. 4. The User views the flash sale offer and its limited-time nature. * **Postconditions:** * User is aware of the flash sale offer. * **Alternative Flow (Flash Sale Expired):** * If the User attempts to view an expired flash sale, the system displays a message indicating that the offer has ended. * **Alternative Flow (No Active Flash Sale):** * If there are no active flash sales, the relevant section of the app will display a message indicating no current flash sales.

06. Data Mapping Sheet and Data Requirements Analysis

This table outlines key data elements required for the Fonepoints personalization and engagement solution.

Data Element	Source System(s)	Data Type	Frequency/Freshness	Purpose for Personalization	Availability (Y/N)	PII/Sensitivity (PII, Sensitive, Public)	Data Owner	Transformation/Processing	Remarks/Privacy Concerns
User ID	eSewa/Fonepay Core	String	Real-time	User identification for all data linkage	Y	PII	F1Soft	N/A	Essential for personalized targeting
Fonepoints Balance	Fonepoints Loyalty System	Integer	Real-time	Display current balance, validate redemption	Y	Sensitive	F1Soft	N/A	Direct impact on user action
Transaction ID	eSewa/Fonepay Core	String	Real-time	Link points earned	Y	Sensitive	F1Soft	N/A	Audit trail for

Data Element	Source System(s)	Data Type	Frequency/Freshness	Purpose for Personalization	Availability (Y/N)	PII/Sensitivity (PII, Sensitive, Public)	Data Owner	Transformation/Processing	Remarks/Privacy Concerns
				to specific transactions					points earning
Transaction Type	eSewa/Fonepay Core	Enum	Real-time	Understand user spending habits (e.g., Wallet Top-up, QR Payment, Bill Payment)	Y	Public	F1Soft	Categorization	Helps in segmenting users
Transaction Amount	eSewa/Fonepay Core	Decimal	Real-time	Analyze spend patterns, calculate points earned	Y	Sensitive	F1Soft	Aggregation (e.g., Avg. spend)	For value-based recommendations
Merchant ID	eSewa/Fonepay Core, Partner Mgmt	String	Real-time	Identify preferred merchants, offer merchant-specific deals	Y	Public	F1Soft /Partners	Mapping to merchant categories	Key for merchant-based personalization
Merchant Category	Partner Mgmt, Internal Mapping	String	Daily/Weekly	Broaden personalization beyond specific merchants (e.g., Groceries, Restaurants)	Y	Public	F1Soft /Partners	Categorization	For broad category recommendations
Transaction Date/Time	eSewa/Fonepay Core	Timestamp	Real-time	Analyze purchase frequency,	Y	Public	F1Soft	Time-series analysis	For timely offers

Data Element	Source System(s)	Data Type	Frequency/Freshness	Purpose for Personalization	Availability (Y/N)	PII/Sensitivity (PII, Sensitive, Public)	Data Owner	Transformation/Processing	Remarks/Privacy Concerns
				seasonality					
Points Earned	Fonepoints Loyalty System	Integer	Real-time	Track points acquisition patterns	Y	Public	F1Soft	Aggregation	For understanding earning behavior
Points Exp. Date	Fonepoints Loyalty System	Date	Real-time	Trigger expiration notifications	Y	Public	F1Soft	N/A	Crucial for awareness alerts
App Activity (Clicks, Views, Features Used)	App Analytics Tools	Log/Event	Near Real-time	Understand user engagement with loyalty features	Y	Public	F1Soft	Aggregation, Behavioral analysis	To gauge feature effectiveness
User Location (last active/city)	App Usage (Opt-in)	Geo-coordinate/String	Near Real-time	Hyper-local offers, relevant merchant recommendations	N (requires opt-in)	PII	F1Soft	Geo-fencing, Aggregation	Requires explicit user consent
User Demographics (Age, Gender)	User Registration	String/Enum	On-change	Broad segmentation for campaigns (e.g., age-specific offers)	Y (limited)	PII	F1Soft	Segmentation	Subject to data availability & privacy
Offer ID	Campaign Mgmt System	String	Real-time	Track campaign performance	Y	Public	F1Soft	N/A	For A/B testing and analytics
Redemption Status	Fonepoints	Enum	Real-time	Track success/failure	Y	Public	F1Soft	N/A	For measuring

Data Element	Source System(s)	Data Type	Frequency/Freshness	Purpose for Personalization	Availability (Y/N)	PII/Sensitivity (PII, Sensitive, Public)	Data Owner	Transformation/Processing	Remarks/Privacy Concerns
	Loyalty System			of redemptions					redemption rates
Campaign Interaction (Viewed, Clicked)	App Analytics Tools	Log/Event	Near Real-time	Measure effectiveness of campaign delivery	Y	Public	F1Soft	Event tracking	Optimizing notification strategies

07. Functional Scope Summary

The functional scope clearly delineates what is included and excluded from this loyalty solution project.

In Scope:

- **Personalized Loyalty Recommendations:** Development and implementation of an AI/ML-driven engine to generate and deliver tailored Fonepoints reward suggestions based on user behavior, transaction history, and merchant preferences.
- **Dynamic Campaign Engine:** Tools and capabilities for F1Soft's marketing team to create, manage, and deploy various types of loyalty campaigns, including:
  - Flash sales and time-bound offers.
  - Gamified challenges.

- **Real-time Notification System:** Functionality to send immediate alerts for:
  - Points nearing expiration.
  - New personalized offers.
  - Campaign updates and challenge progress.

- **Enhanced Fonepoints Visibility and Redemption Flow:** Improvements to the eSewa/Fonepay app interface to clearly display Fonepoints balance, available rewards, and a streamlined, real-time redemption process.
- **Analytics Dashboard for Fonepoints:** Reporting and visualization tools for F1Soft to monitor key performance indicators (KPIs) related to Fonepoints engagement, redemption, and campaign effectiveness.
- **Integration with existing Fonepoints Loyalty System:** Leveraging the current points earning and balance management infrastructure.

Out of Scope:

- **Core eSewa/Fonepay Transaction Processing Engine:** The underlying systems responsible for processing wallet top-ups, QR payments, bill payments, and other financial transactions. This project will *consume* transaction data but will not modify core transaction logic.
- **Merchant Billing and Settlement Systems:** The processes and systems for merchant onboarding, invoicing, and financial settlements. This project will integrate with merchant data for personalization but will not alter their payment processing.

- **User Registration and KYC Processes:** No changes to how users sign up or verify their identity on eSewa/Fonepay.
- **New Loyalty Currencies:** This project focuses solely on enhancing the Fonepoints program, not introducing new loyalty currencies or schemes.
- **External Loyalty Program Integrations:** Beyond Fonepay and eSewa partners, no integration with third-party, non-Fonepoints loyalty programs.

08. Suggested KPIs for Success Measurement

These Key Performance Indicators (KPIs) will be crucial for measuring the success of the Fonepoints engagement and redemption enhancement initiative.

1. **Fonepoints Redemption Rate:**

   - **Definition:** (Number of Fonepoints redeemed / Total Fonepoints earned) * 100
   - **Goal:** Increase redemption rate significantly.

2. **Active Redeemers (Monthly/Quarterly):**

   - **Definition:** Unique users who performed at least one Fonepoints redemption within a given period.
   - **Goal:** Increase the number of users actively redeeming points.

3. **Average Redemption Value per User:**

   - **Definition:** Total value of redeemed points / Number of unique redeemers.
   - **Goal:** Encourage users to redeem higher value rewards or use points more frequently.

4. **Loyalty Feature Engagement Rate:**

   - **Definition:** (Number of users interacting with Fonepoints section / Total active users) * 100, or (Number of offer views / Total personalized offers sent) * 100.
   - **Goal:** Increase user visits and interactions within the Fonepoints section and with personalized offers.

5. **Gamified Challenge Participation Rate:**

   - **Definition:** (Number of users participating in challenges / Number of users eligible for challenges) * 100.
   - **Goal:** Boost participation in gamified loyalty activities.

6. **Partner Offer Uptake Rate:**

   - **Definition:** (Number of personalized partner offers redeemed / Number of personalized partner offers presented) * 100.
   - **Goal:** Drive users towards partner-specific offers, benefiting both F1Soft and its partners.

7. **Points Expiration Redemption Rate (post-notification):**

   - **Definition:** (Number of expiring points redeemed after notification / Total points notified as expiring) * 100.
   - **Goal:** Minimize points wastage due to expiration by proactive alerts.

8. **Repeat Redemption Rate:**

   - **Definition:** Percentage of users who have redeemed points more than once within a specified period.
   - **Goal:** Foster habitual redemption behavior and long-term loyalty.

9. **Customer Lifetime Value (CLV) of Engaged Users:**
   - **Definition:** The predicted total revenue that a customer is expected to generate throughout their relationship with F1Soft, specifically for users actively engaging with Fonepoints.
   - **Goal:** Demonstrate the business value of loyalty engagement.

10. **Customer Satisfaction (CSAT) Score (related to Loyalty Program):**
    - **Definition:** Measured through surveys on user satisfaction with the Fonepoints program's ease of use, relevance of offers, and overall experience.
    - **Goal:** Improve overall user sentiment towards the loyalty program.