

ISTM 6201 INFORMATION SYSTEMS DEVELOPMENT AND APPLICATIONS
TEAM PROJECT PRESENTATION

GW STORE

LOYALTY, REWARDS AND REFERRAL PROGRAM

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BUSINESS PROBLEM

ABOUT GW CAMPUS STORE



- The GW Campus Store is one of the many services provided by GWU Business Services to improve campus life.
- The store is currently relocated to a larger facility with enhanced amenities.
- Offers diverse product range and focusing on students' wellness and support for local enterprises.
- GW Store partners with Follett Campus Stores, for its offline and online store management.

BUSINESS PROBLEM



PROBLEM

Suboptimal customer engagement/conversion with no strategies for retention

1.82%

ENGAGEMENT RATE ON INSTAGRAM

vs 2.6% for an average performing account with 5-10K followers

1.73%

CLICK-THROUGH RATES IN EMAILS

vs 2-3% for an average click-through rates

- GW Store uses Instagram, email campaigns, engagement and conversion rates are suboptimal.
- Recently introduced SMS marketing, and campus events for customer acquisition
- SMS marketing is seen as intrusive – lowering engagement rates, while conducting/sponsoring events requires significant spending.
- Low engagement hinders customer acquisition, retention, and overall business growth.
- Reliance on conventional modes of acquisition and no strategies set in place to drive retention.

**Engagement and click-through rates sourced from GW Store Instagram (@stylegw) and Mailchimp data until December 2023.

BUSINESS PROBLEM

CURRENT IT SYSTEM

ONLINE STORE

- GW Store has partnered eFolette to manage their online presence.
- A digital storefront, inventory, catalogue, and sales/promotions management and a dashboard to track sales and revenue.
- Marketing campaigns, specifically Email and SMS.
- Payment gateway to handle credit/debit card payments

OFFLINE STORE

- The Store layout, digital signages and the Inventory management is also provided by eFolette
- Ordering system and Point of Sale to make payments via credit/debit cards
- Employee/Salesperson management

➔ **GW STORE - [HTTPS://WWW.BKSTR.COM/GEORGEWASHINGTONSTORE](https://www.bkstr.com/georgewashingtonstore)**

BUSINESS PROBLEM

PROPOSED SOLUTION

Implement a Loyalty, Rewards, and Referral System to enhance customer engagement, retention, and organic growth. The solution includes:

- Loyalty Program: Earn and redeem points with tier-based rewards.
- Referral System: Incentivize customers to bring new users.
- Integrated Dashboard: Real-time tracking of transactions, points, and referrals.
- Seamless Experience: User-friendly design for customers, employees, and managers.



GOAL: BUILD A CONNECTED, DATA-DRIVEN ECOSYSTEM TO BOOST STORE PERFORMANCE AND COMMUNITY ENGAGEMENT.

STAKEHOLDERS

The GW Campus Store operates through a network of stakeholders from both the university, community and external partners, each with unique needs and expectations.

STUDENTS

FACULTY & STAFF

ALUMNI

STORE MANAGEMENT

UNIVERSITY ADMINISTRATION

E-FOLETTE STORES

VOUCHER PARTNERS

LOCAL BUSINESSES

SUPPLIERS & VENBDORS

REQUIREMENTS ANALYSIS

REQUIREMENTS GATHERING APPROACH

→ STAKEHOLDER INTERVIEWS

- Conducted in-depth discussions with store managers, employees, and administrators to gather direct input on goals, challenges, and expectations.
- **Key Insights:**
 - Store Manager, requires analytics on sales, engagement, and referrals, with tools to customize loyalty rules and launch campaigns.
 - Employees highlighted the need for seamless POS integration and minimal disruption to workflows.
 - Customers preferred a straightforward loyalty program and ease of referral tracking.

→ DATA ANALYSIS & MARKET RESEARCH

- Benchmarked against similar loyalty programs in the retail and university sectors.
- Identified industry trends like:
 - Points-based rewards for purchases.
 - Tiered loyalty benefits, seasonal promotions and referral incentives.
- Data Analysis:
 - Reviewed transactional data to identify patterns in customer behavior:
 - Engagement metrics for existing promotional efforts.
 - Analyzed current POS system capabilities

REQUIREMENTS ANALYSIS

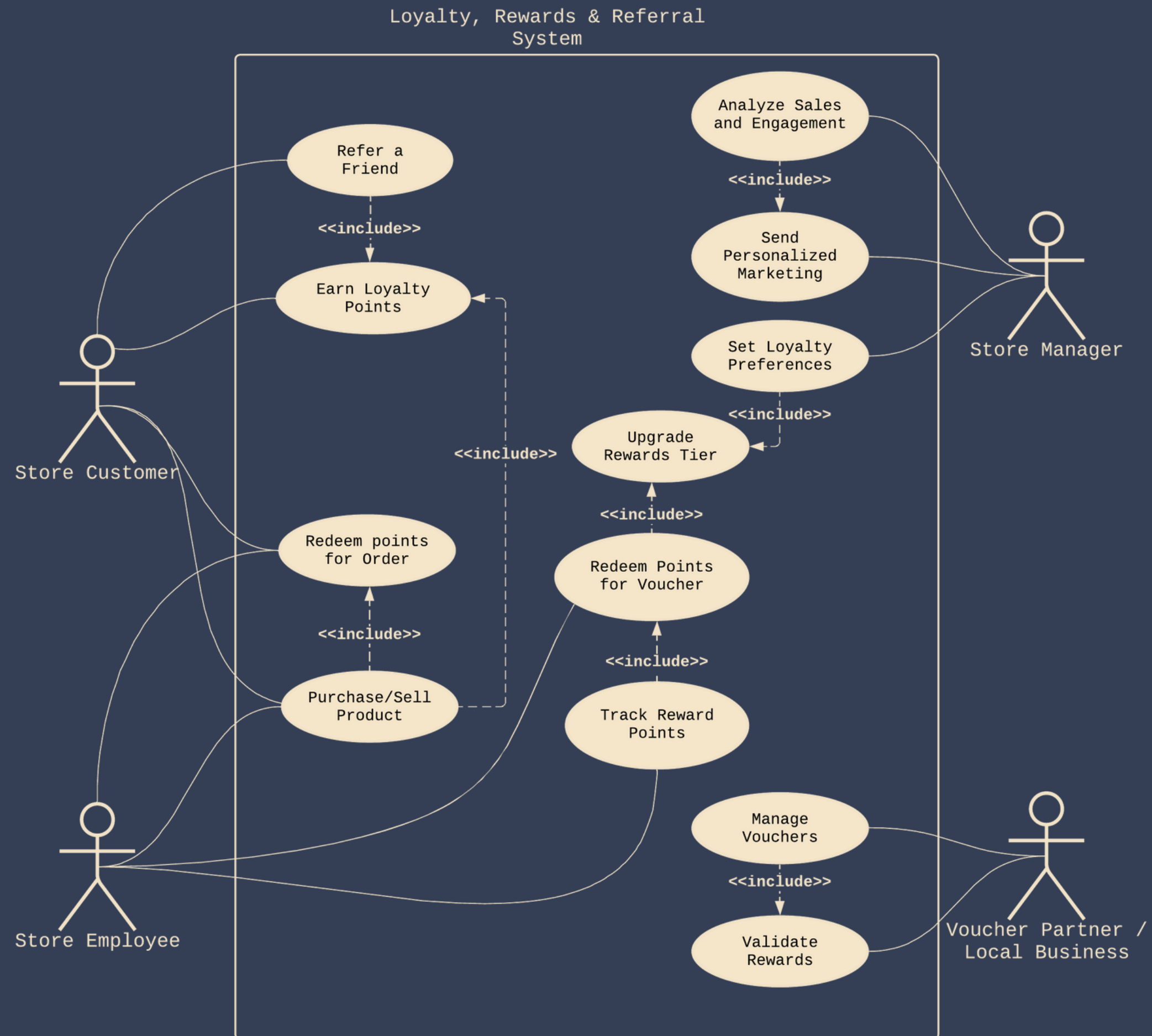
USE CASE ANALYSIS

• Actors

- **Store Customers:** Earn and redeem points, refer friends, and unlock higher loyalty tiers.
- **Store Managers:** Analyze sales, manage loyalty settings, and send personalized promotions.
- **Store Employees:** Facilitate purchases, track reward points, and assist with customer engagement.
- **Voucher Partners:** Validate and manage vouchers for rewards

• Core Features:

- Earn loyalty points on purchases.
- Redeem points for vouchers or rewards.
- Upgrade loyalty tiers based on point accumulation.
- Use referrals to expand customer engagement.



REQUIREMENTS ANALYSIS

ACTIVITY DIAGRAM

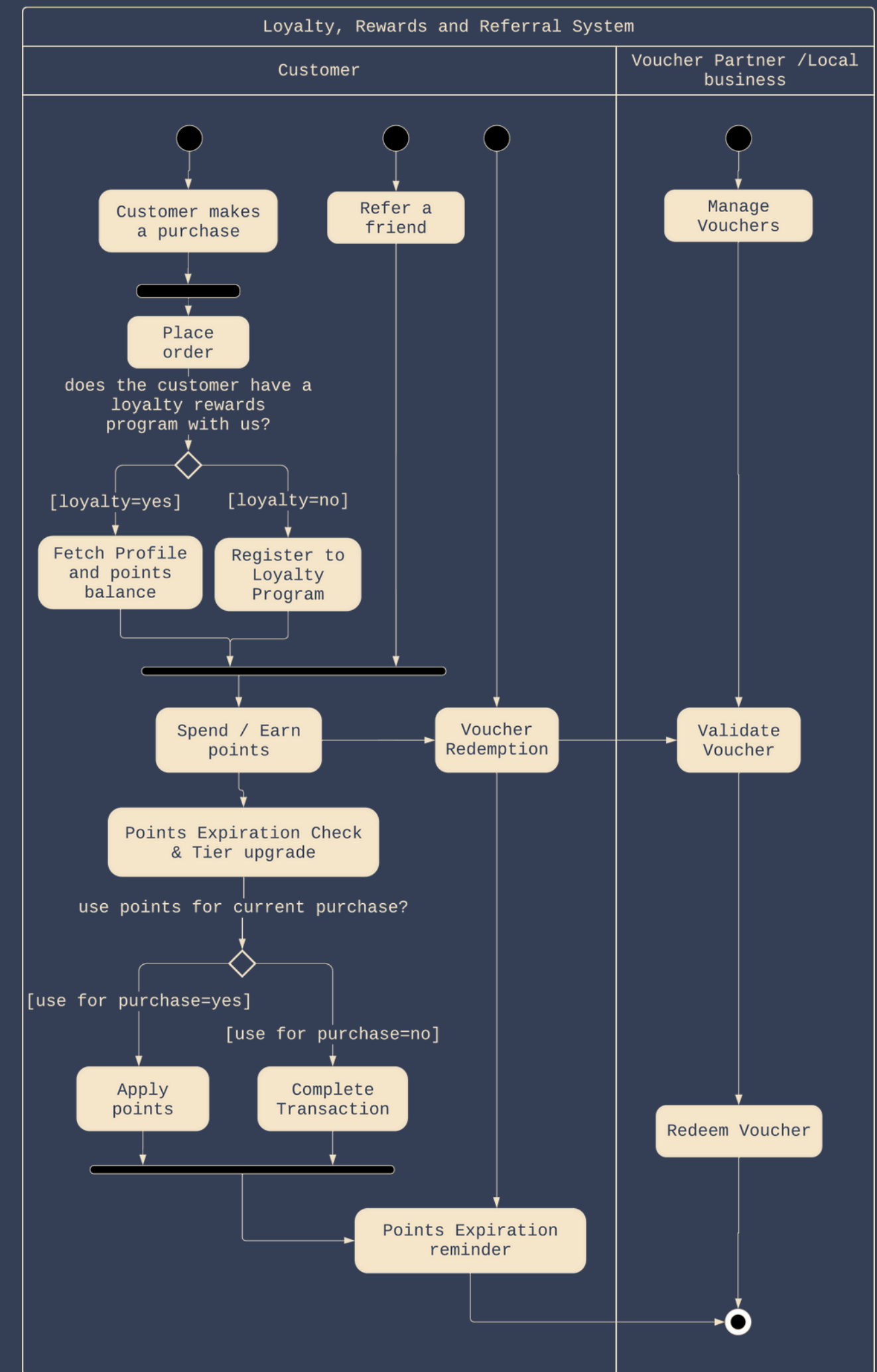
The activity diagram illustrates the flow of processes for the Loyalty, Rewards, and Referral System. It helps identify the key interactions between customers, voucher partners, and the system, serving as a foundation for gathering precise requirements.

- **Key Highlights:**

- Tracks customer journey: loyalty enrollment, point usage, and tier upgrades.
- Enables referral system and voucher management by partners.
- Identifies decision points like using points and voucher validation.

- **Value:**

- Clarifies workflows for stakeholders.
- Identifies gaps for feature prioritization.



FUNCTIONAL REQUIREMENTS

→ LOYALTY PROGRAM FEATURES

- Customers can earn points on purchases and redeem them for rewards or vouchers.
- Tiered loyalty structure (e.g., Influencer, Partner ...).

→ REFERRAL SYSTEM

- Customers can generate and share referral codes.
- Reward points are granted for successful referrals.

→ VOUCHER MANAGEMENT

- Integration with local partners, and businesses for voucher creation and validation.
- Customers can view and redeem vouchers

→ CUSTOMER MANAGEMENT

- Existing customers can view tier and points balance.
- New customers can register with email, phone, and referral codes.

→ ADMINISTRATIVE TOOLS

- Managers can analyze sales data, loyalty engagement, and referral effectiveness.
 - Customization options for loyalty rules, tiers, and campaigns.
-



NON-FUNCTIONAL REQUIREMENTS

- **Scalability:** Handle increased customer interactions and transactions as the store grows.
- **User-Friendly Interface:** Intuitive design for customers, employees, and managers.
- **Real-Time Updates:** Immediate reflection of points earned, redeemed, or adjusted.
- **Data Security:** Protect customer and transaction data with robust encryption.
- **Integration:** Seamless connection with the POS system and third-party voucher partners.

SYSTEM DESIGN

This system design integrates the structural, behavioral, and user experience aspects of the Loyalty, Rewards, and Referral System to provide a seamless and engaging solution for the GW Store.

CLASS DIAGRAM

Models the system's architecture by defining entities

SEQUENCE DIAGRAM

Maps key interactions to visualize the flow of operations between actors and system components.

STATE DIAGRAM

Tracks the lifecycle of key entities ensuring state management and clarity in transitions.

STORYBOARD & WIREFRAMING

Designs user-centric interfaces for key workflows

SYSTEM DESIGN

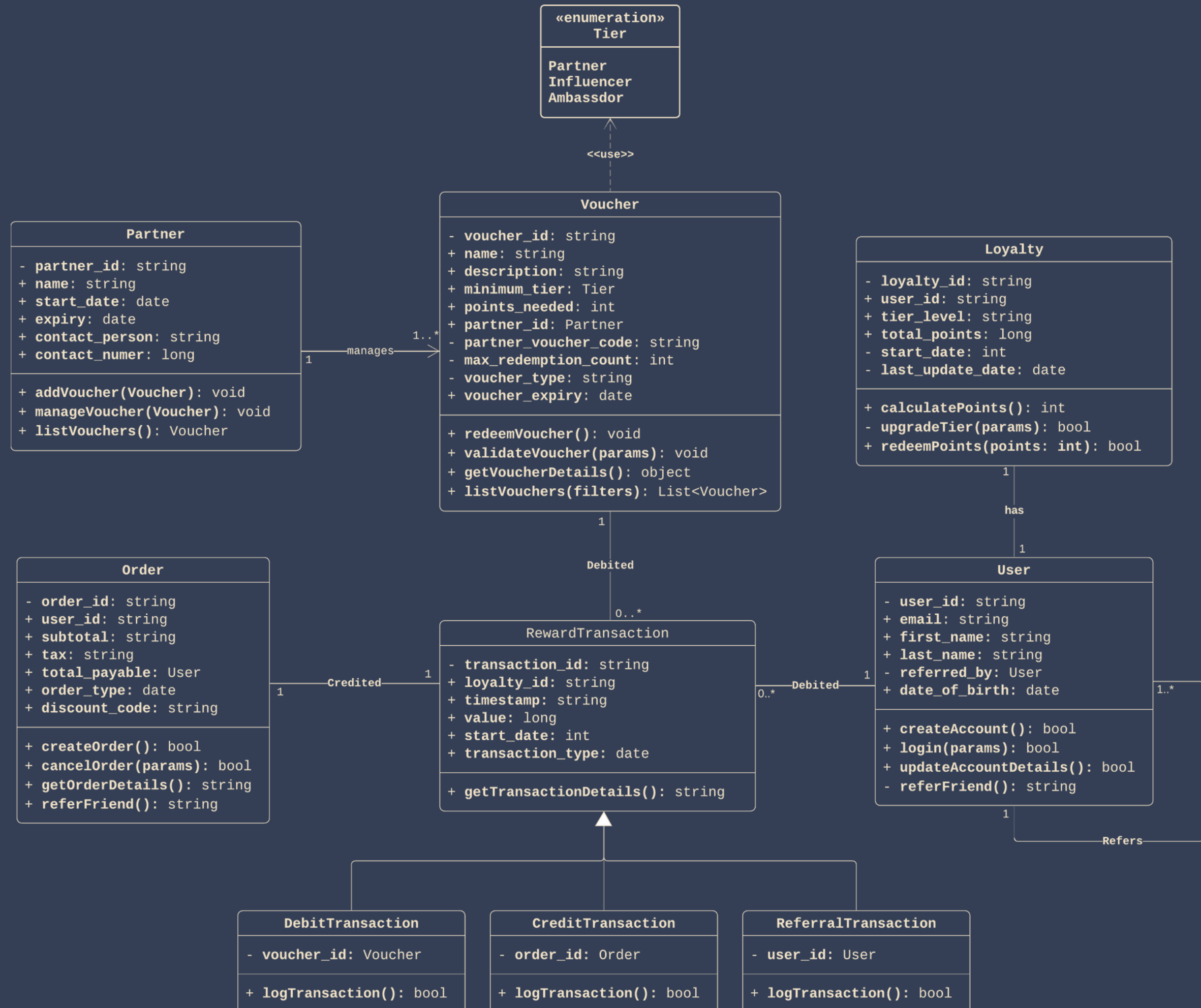
CLASS DIAGRAM

• Relationships

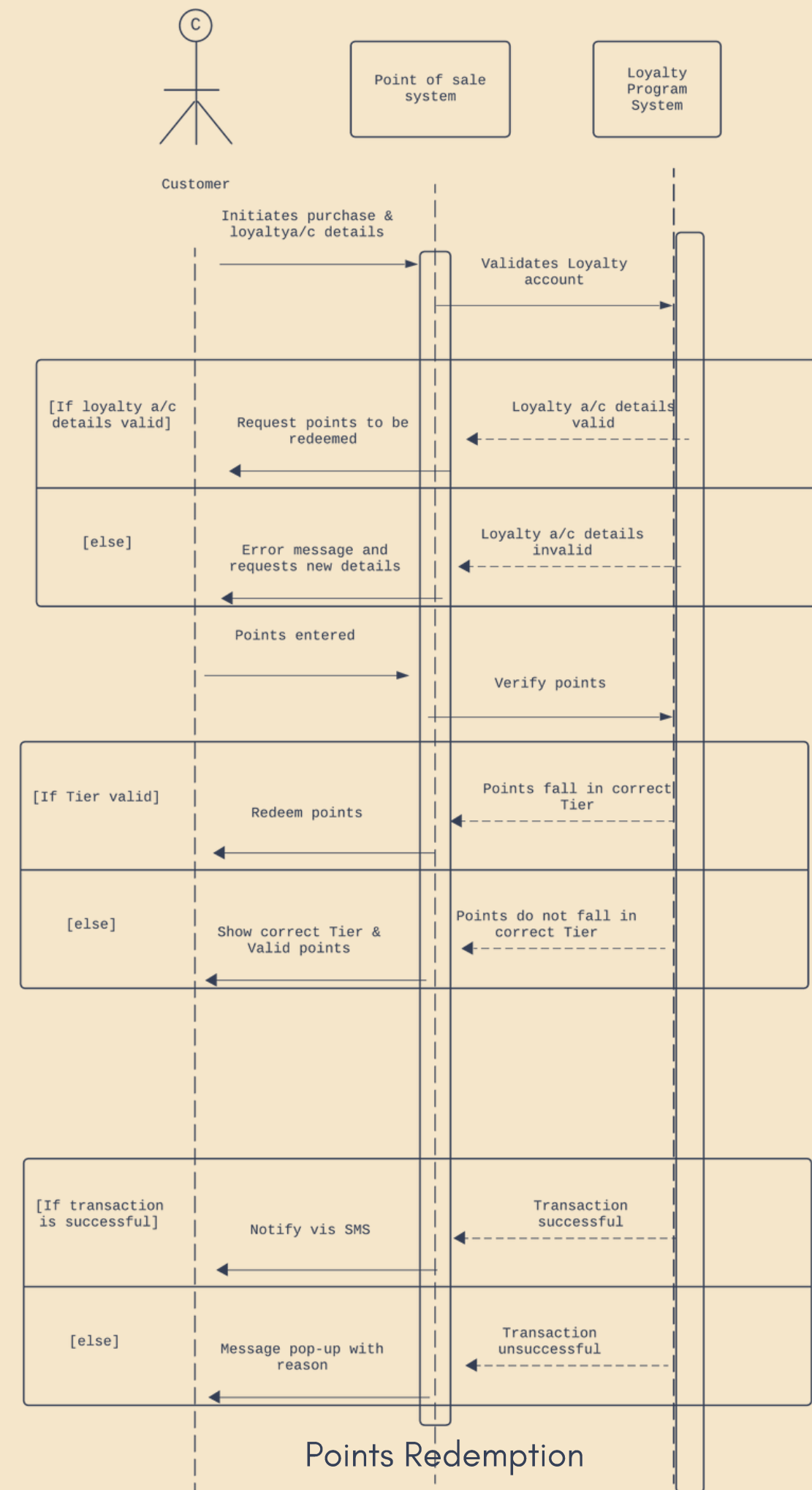
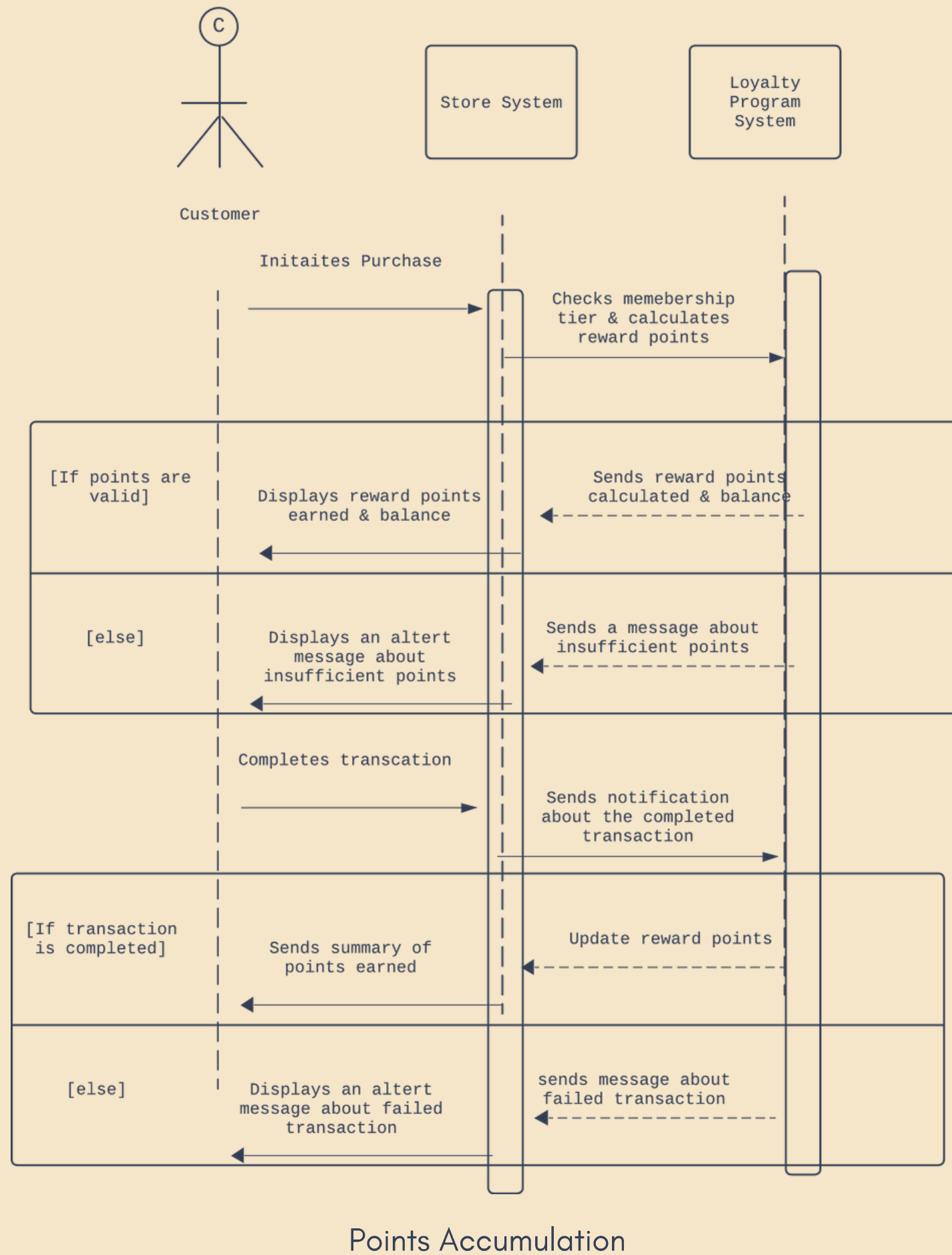
- User ↔ Loyalty: Tracks points and tier levels.
- User ↔ ReferralTransaction: Logs referral points.
- Loyalty ↔ RewardTransaction: Records point activities (earned/redeemed).
- Voucher ↔ Partner: Links vouchers to business partners.
- Order ↔ RewardTransaction: Tracks points from orders.

• Structure

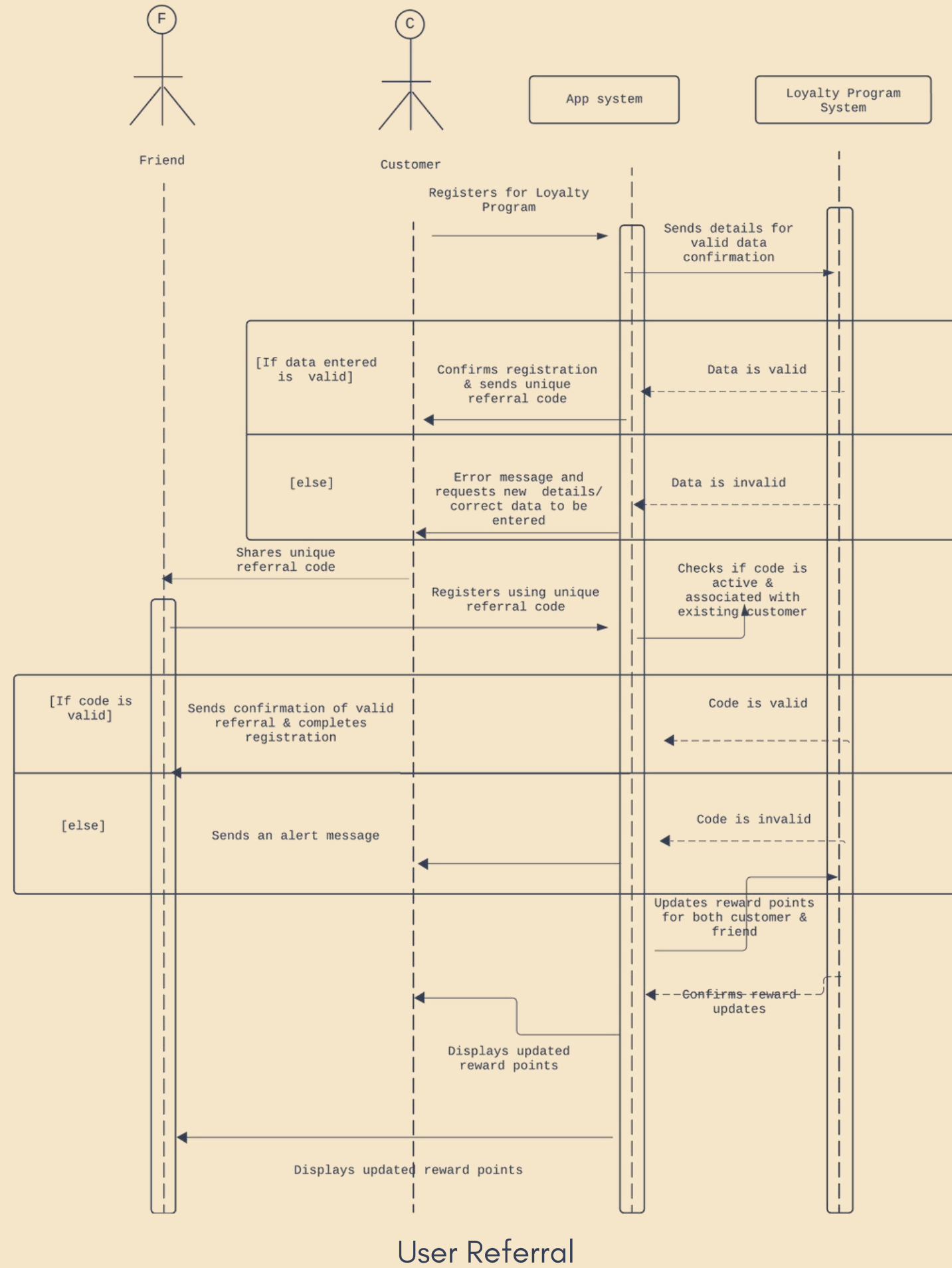
- **Superclass:** RewardTransaction with subclasses (Debit, Credit, Referral).
- **Enumeration:** Tier defines loyalty levels (Partner, Influencer, Ambassador) used for tier-specific benefits and voucher eligibility.
- **Interfaces:** Voucher and Partner manage validations and integrations.

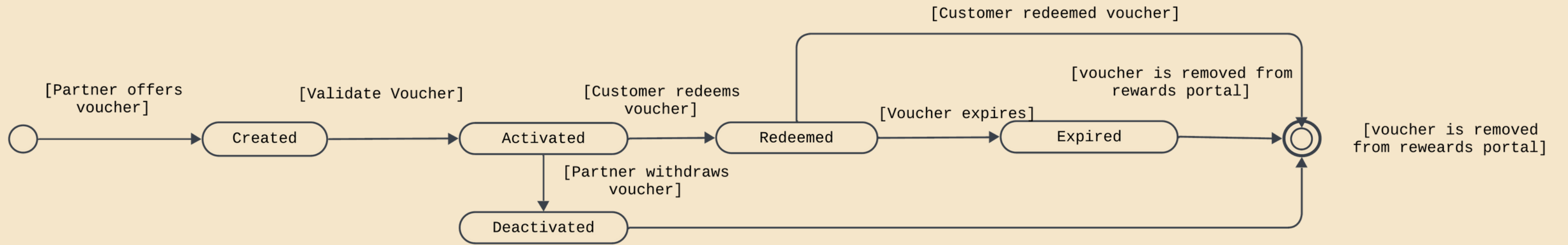


SYSTEM DESIGN

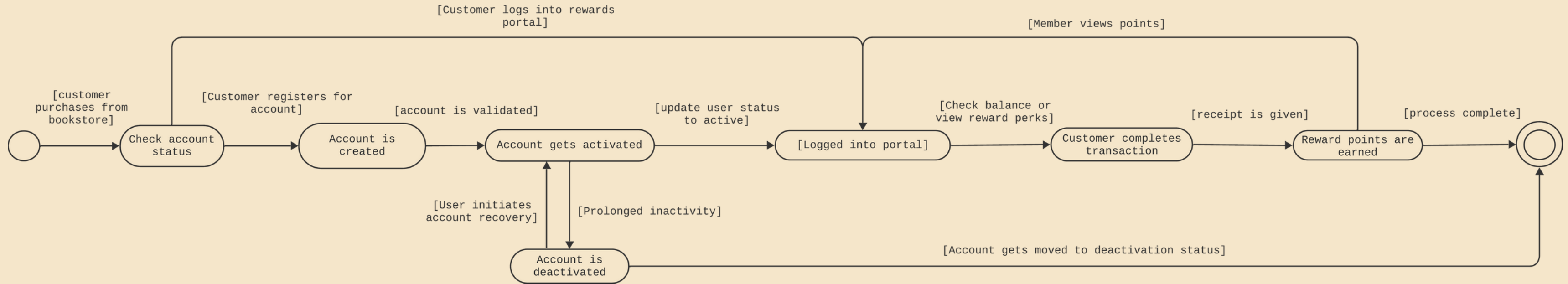


SYSTEM DESIGN





State Diagram for Voucher Redemption & Management



State Diagram for Reward Points Accrual



GW Campus Store

POS

Dashboard

Inventory

Customers

Promotions

Settings

Logged in as:



John Doe

Store Manager

Logout

Point of Sale

Search products by name, SKU, or category

Search



Textbooks

GW
Merchandise

Electronics

Supplies

Shopping Cart

Product	Price	Qty	Total
 GW Hoodie SKU: GW001	\$49.99	2	\$99.98
 Intro to Economics Textbook SKU: TB002	\$89.99	1	\$89.99

Clear Cart

Subtotal: \$189.97

Tax (8%): \$15.20

Total: \$205.17

10:30 AM

Notifications

Help

Customer Information

Search customer...




Sarah Johnson

Influencer

sarah.johnson@email.com

(202) 555-0123

Loyalty Points: 2,500

 Eligible for 10% discount on next purchase!

New Customer

Payment

Card

Cash

Apple Pay

Google Pay

Discount Code

Enter code

Apply

Complete Purchase

Dashboard

9:41

Loyalty Program

Reward Points

1200 Points • Influencer
You're 200 points away from a tier upgrade

Recent Activity

- Purchase at GW Store +100 Points
Aug 10, 2024
- Voucher for Panera Bread -500 Points
Aug 10, 2023
- Referred Sanjay V Devang +150 Points
Aug 10, 2023

Upcoming Rewards

- Free Coffee at Starb...
Redeem 500 points for...
850 Points
Coffee • Food • Drinks

View Full Points History

Shop Search Profile

Rewards Catalog

9:41

Loyalty Program

Rewards Catalog

1200 Points • Influencer
You're 200 points away from a tier upgrade

Filter by Category

Food & Beverages Travel Gift Cards

Available Rewards

- Free Coffee at Starb...
Enjoy stunning visuals with this high-resolutio...
★ (4.7+) • 5.7km
850 points
Redeem
- Air Pods Pro 2
Enjoy stunning visuals with this high-resolutio...
★ (4.7+) • 5.7km
3.5k points
Redeem

Shop Search Profile

Transactions

9:41

Loyalty Program

Transaction Summary

Total Earned 15,000 Total Spent 13,800

Filter Your Transactions

15/03/2024 - 29/10/2024

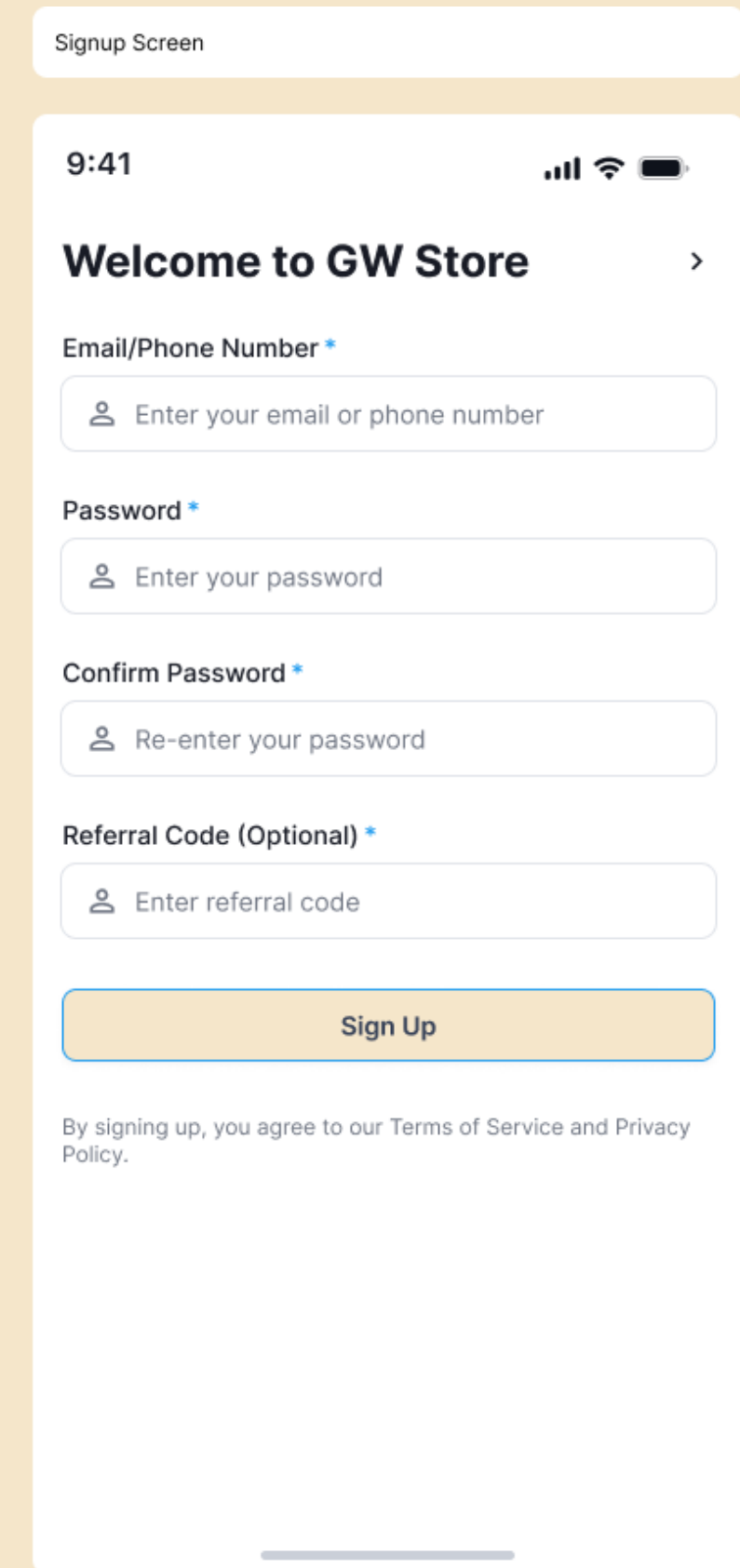
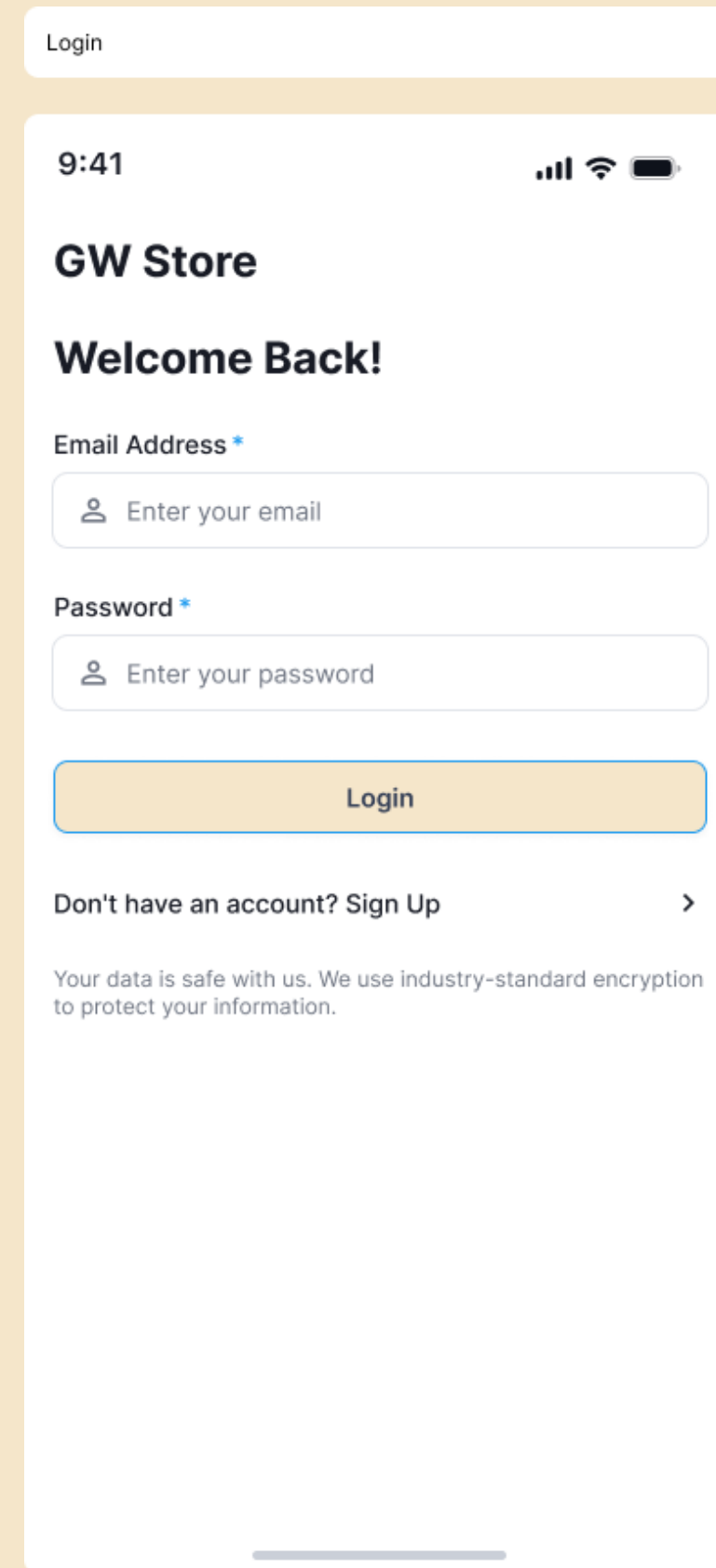
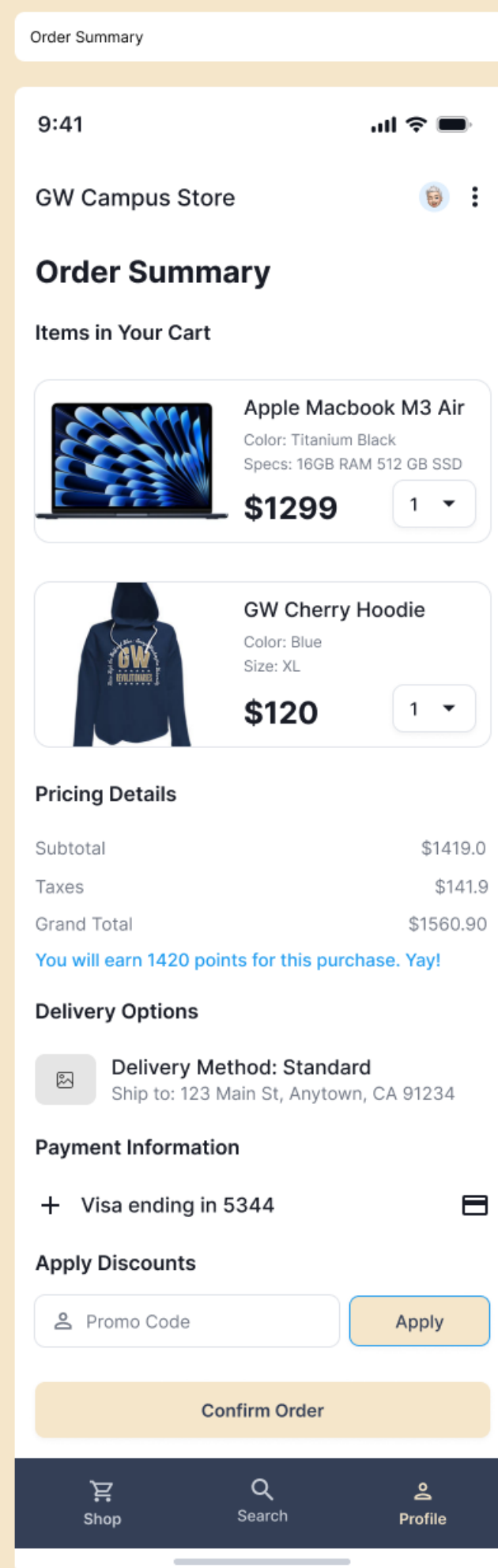
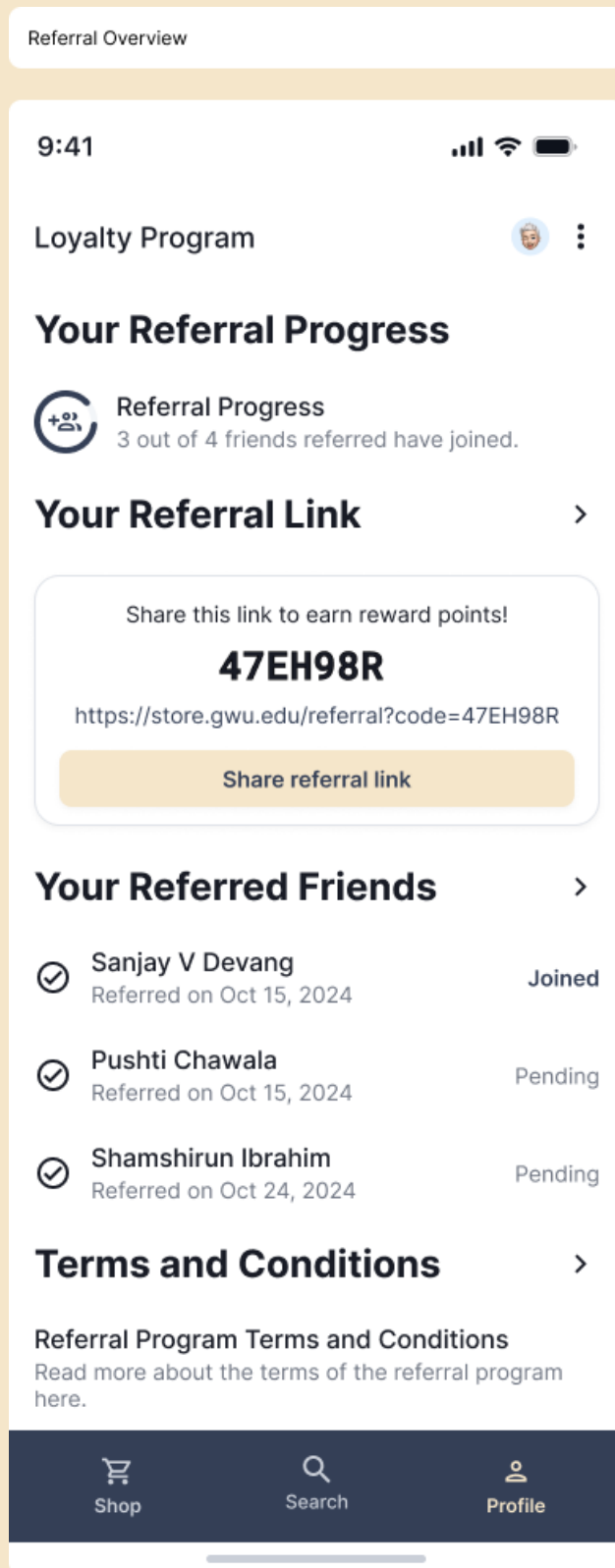
Filter by Type *
Select transaction type

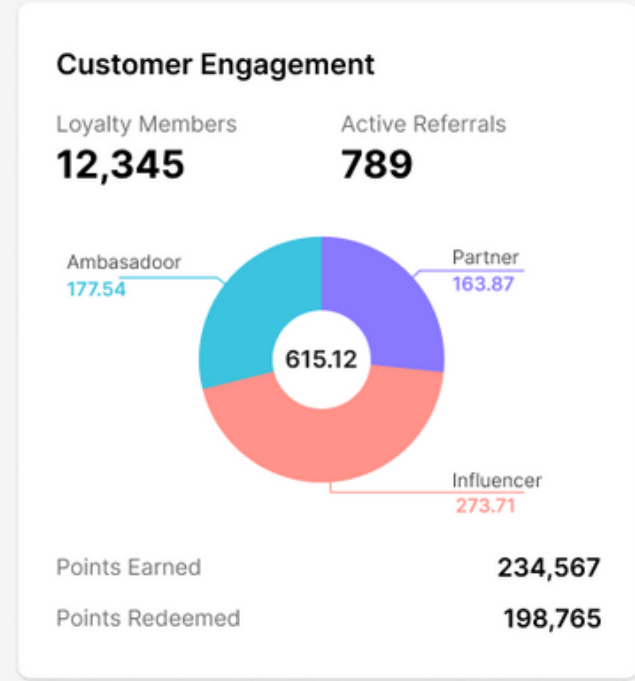
Reset Filters

Transaction Details

- Purchase at GW Store +100 Points
Aug 10, 2024
- Voucher for Panera Bread -500 Points
Aug 10, 2023
- Referred Sanjay V Devang +150 Points
Aug 10, 2023

Shop Search Profile



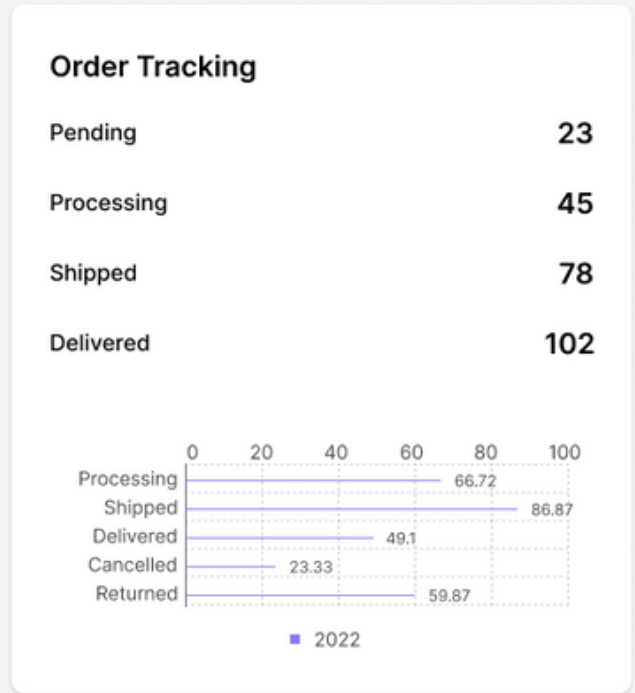


Inventory Management

Total Products **5,678**

- Textbooks: In Stock
- Apparel: Low Stock
- Electronics: Out of Stock

[View Full Inventory](#)



Promotions & Campaigns

Active Promotions: Summer Sale Active

Top Performing Campaign: Back to School **32% Conversion**

Suggested Promotion: Midterm Essentials Create

Dashboard Overview

Active Vouchers

24

Total Redemptions

1,234

Revenue Generated

\$12,345

Create New Voucher


Voucher Name

Category

Points Required

Minimum Purchase Amount

Expiry Date

Redemption Limit

Eligibility

 Influencer Partner Ambassador

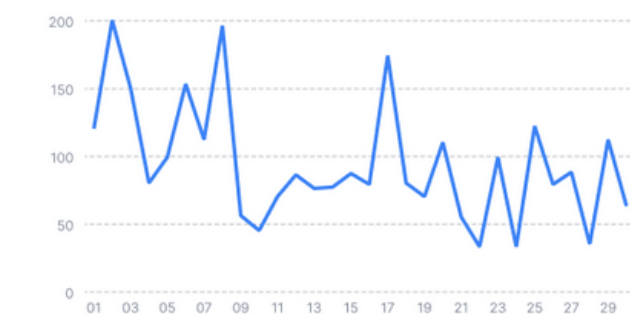
Create Voucher

Voucher Tracking

Voucher Name	Status	Redemptions	Revenue	Expiry
Summer Sale 2025	Active	245 / 500	\$12,450	31 Aug 2025
New Customer Discount	Expiring Soon	89 / 100	\$4,450	15 Jul 2025

Analytics

Redemption Rates



Revenue Generated



SECTION II

TESTING

→ ONLINE AND OFFLINE INTEGRATION

- Plug-and-play system integrated with existing retail setup
- Phased, agile approach to address issues incrementally.
- Dashboards and rewards tracking UI for convenient tracking and engagement
- Capture customer information (name, email, student ID) and purchase behavior

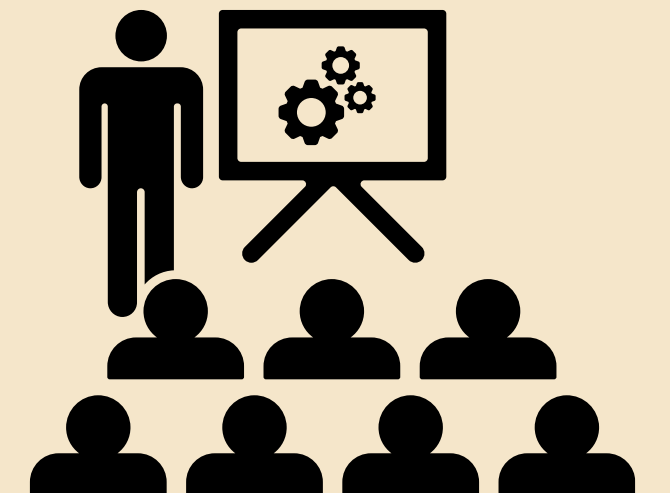
→ TEST PHASES

- 1) Unit Testing:** Validate core components (registration, rewards, vouchers).
- 2) Integration Testing:** Ensure data flow between POS, rewards engine, and accounts.
- 3) System Testing:** Test end-to-end workflows (earning, redeeming points).
- 4) UAT:** Collect user feedback for refinement.
- 5) Performance Testing:** Simulate peak traffic for stability.
- 6) Security Testing:** Ensure data protection and system integrity.

SECTION II

INSTALLATION

- Parallel conversion with a Whole-System conversion module.
- Pilot phase deployed in a live environment with actual users and bookstore operations.
- Monitor performance and collect feedback.
- Staff training and onboarding for campus store managers, employees, and GW IT officials.
- Expand system university-wide after successful pilot.





POTENTIAL LIMITATIONS

- Balancing incentives and profit margins requires careful resource allocation.
- Integrating new systems may be challenging due to compatibility or scalability issues with existing infrastructure.
- Non-beneficial vendor partnerships if negotiations with third parties for rewards and discounts do not align with project timelines or expectations.

CONCLUSION

EXPECTED OUTCOMES

- Once customers subscribe to a loyalty program, the marketing team can analyze their purchasing behaviors, preferences, and interests.
- This customer data enables personalized offerings, tailored communications, and desirable rewards.

69%

of consumers say their choice of retailer is influenced by where they can earn customer loyalty or rewards program points

- **8%** increase in repeat purchases
- **13%** increase in customer spend after sign-up
- **18%** decrease in customer churn
- **15%** decrease in customer acquisition

Loyalty linked to a referral scheme, have **37%** higher retention rate and **25%** higher average lifetime value.

THANK YOU

“Satisfaction is a rating. Loyalty is a brand”

Any Questions?

PRESENTED BY FALGUNI, GEORGE, RAMZA & RUTHVIK