Internship as a Product and Project Management Office Intern at The UCB Fintech Company (upay)

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A Report Submitted to the Department of Computer Science and Engineering
in Partial Fulfillment of the Requirements for the Degree of
B.Sc. in Computer Science

Department of Computer Science and Engineering
Brac University
Fall 2024

Declaration

- The internship report I submitted is my original work while completing my degree at Brac University.
- The Internship Report does not contain material previously published or written by a third party, except where appropriately cited.
- The Internship Report does not contain material that has been accepted/submitted for any other degree.
- I have acknowledged all primary sources of help.

Student's Full Name & Signature:
Junaid Abrar Razeen
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Approval

The Internship Report titled **"Internship as a Product and Project Management Office at The UCB Fintech Limited(upay)"** submitted by:

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Of **Fall, 2024**, has been accepted as satisfactory in partial fulfillment of the requirements for the degree of **B.Sc. in Computer Science**.

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Abstract

This report documents my internship experience at Upay (UCB Fintech Limited) under the Product and Project Management Office (PMO). This internship gave me valuable hands-on experience in product development, user experience design, and project coordination. My role involved configuring push notifications, automating spreadsheets for campaign tracking, assisting in User Acceptance Testing (UAT), and preparing Business and Software Requirement Sheets (BRD, SRS). As an Intern, I learned how to ensure smooth workflow execution and collaborate with multiple teams, including Developers, IT, Sales, Marketing, Business Intelligence, and Compliance. All of these deepened my technical coordination and communication skills, and I learned crucial insights into project management methodologies. This internship report outlines my contribution journey, responsibilities, and learning outcomes from the internship at upay.

Acknowledgment

I would like to extend my gratitude to my academic supervisor, **Md. Tanvir Arafat**, and my industry mentor, **Mohammad Mamun Reza Khan**, for their continuous support and guidance throughout my internship. Additionally, I am thankful to the **Product and PMO team** at Upay for providing me with the opportunity to work on real-world projects and gain invaluable industry experience. Lastly, I am grateful to my family and dear friend **Marufa Akter**.

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Chapter 1

Introduction

1.1 About Internship

Internships offer students valuable hands-on experience in a professional environment, helping them connect academic knowledge with industry demands. As a Computer Science student, I was eager to gain experience in product management, software development, and business analysis. upay, one of the leading mobile financial service (MFS) providers in Bangladesh, presented an ideal setting in which I could utilize my technical and analytical skills.

1.2 Objectives

- Learn and gain real-world experience in **product management and software development lifecycle**
- Deepen knowledge of **Agile methodologies and project coordination**
- Collaborate with cross-functional teams to develop financial technology solutions
- Work on **push notification configuration, UAT processes, and API integrations**
- Improve documentation skills by preparing **BRD and SRS**

Chapter 2

Company Profile

2.1 History of the Organization

Upay, a digital financial service brand, started its operations in early 2021 after receiving its license from Bangladesh Bank. It is a subsidiary of United Commercial Bank (UCB) Fintech Limited and initially began its journey in 2013 under the name "UCash," which was later rebranded as Upay in 2020. Millions of customers migrated from UCash to Upay in March 2021 to benefit from enhanced financial services, including mobile transactions, government payments, utility bill payments, salary disbursements, and remittances. Founded on July 30, 2020, Upay aims to revolutionize Bangladesh's mobile financial services sector by ensuring secure, accessible, and user-friendly financial solutions. The company aligns itself with the Smart Bangladesh vision by offering innovative, value-driven services that differentiate it in the highly competitive MFS market. Upay processed nearly 16 million transactions in 2021, its first year of operation, which nearly doubled to 31 million transactions in 2022. Revenue also increased from BDT 174 million to BDT 202 million. As of 2024, Upay has 8 million registered accounts, 1 million active users, 140,000 retail agents, and 10,000 merchants across the country. In 2023, Upay won the "Innovator of the Year" award from the e-Commerce Association of Bangladesh (eCAB) for its smart toll payment feature.

2.2 Products & Services

Products	**Services**
Traffic Fine	Upay Registration
Indian Visa Payment	Upay Chaka
Land Tax	Send Money
E-PORCHA	Mobile Recharge
DNCC Holding Tax	Cash-In/Cash-Out

upay, a leading mobile financial service (MFS) provider in Bangladesh, offers a wide range of products and services to its customers, ensuring convenience, accessibility, and reliability in financial transactions. These offerings can be broadly categorized into Products and Services, as outlined below:

2.3 Products

2.3.1 Traffic Fine

One of Upay's exclusive features that allows customers to pay traffic fines directly through the app, removing the traditional hassle of paying traffic fines.

2.3.2 Indian Visa Payment

Users can pay for their Indian visa application through the Upay app, making the visa application process more streamlined and convenient.

2.3.3 Land Tax

Users can pay their land taxes through the app, eliminating the need for manual payment processing and physical visits to government offices.

2.3.4 E-PORCHA

Offers digital access to land ownership documents, simplifying the land verification process for users.

2.3.5 DNCC Holding Tax

Allows users to pay Dhaka North City Corporation holding tax through the Upay app, streamlining the payment process.

2.3.6 E-Mutation

Provides an easy-to-use platform for e-mutation services (changing ownership of land), ensuring a more efficient process.

2.3.7 NID Services

Upay users can access various NID-related services, including verification and updates, directly through the app.

2.3.8 Toll Payment

Facilitates toll payments for highways, bridges, and other infrastructures, reducing the inconvenience of manual payments and long queues.

2.3.9 Education Payments

Enables tuition and exam fee payments for numerous educational institutions, including:

- Motijheel Model School and College
- Mirpur Cantonment School and College

- National University
- Viqarunnisa Noon School and College
- Dhaka Residential Model College
- Many other colleges across Bangladesh

2.4 Services

2.4.1 Upay Registration

A simple and user-friendly process for registering an account, providing access to Upay's various features.

2.4.2 Upay Chaka

A point-based reward system featuring a virtual wheel in the app that offers exciting rewards exclusively for Upay users.

2.4.3 Send Money

Provides a competitive edge by offering a free money transfer service for users.

2.4.4 Mobile Recharge

Allows users to recharge their mobile phones or transfer balance to others effortlessly.

2.4.5 Cash-In

Enables users to deposit money into their Upay accounts via agents, ATMs, or linked bank accounts.

2.4.6 Cash-Out

Allows users to withdraw money from their Upay accounts through agents, ATMs, or linked bank accounts.

2.4.7 Make Payment

Facilitates cashless payments for a variety of transactions.

2.4.8 Pay Bill

Allows users to pay utility bills such as electricity, water, gas, and internet directly through the app.

2.4.9 Lounge Facility

Offers premium users access to exclusive lounge facilities via the Upay app.

2.4.10 Add Money

Provides users with the option to bring money into their Upay accounts from linked bank accounts or cards.

2.4.11 Request Money

Enables users to request funds from others conveniently.

2.4.12 Fund Transfer

Facilitates the direct transfer of money between Upay and other linked accounts.

2.4.13 Donation

Simplifies the process of making donations through the app.

2.4.14 Remittance

Allows users to receive money securely from abroad into their Upay accounts.

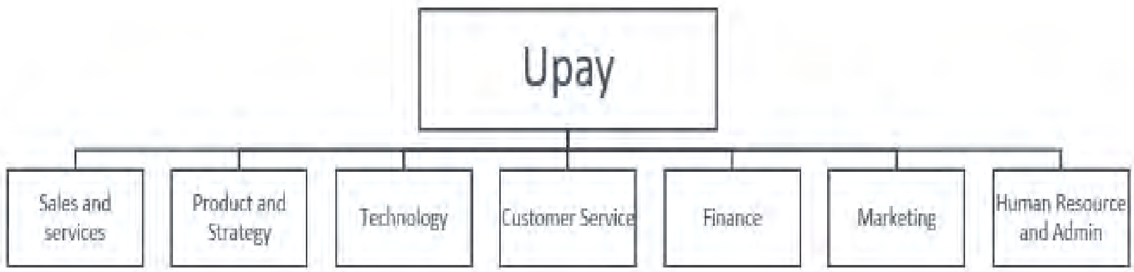
2.4.15 Payoneer Integration

In collaboration with Payoneer, Upay offers freelancers in Bangladesh a secure remittance channel, enabling them to link their Payoneer accounts with Upay for fund transfers.

2.4.16 Prepaid Card

As the first-ever prepaid card offered by an MFS in Bangladesh, this innovation, in partnership with UCB PLC, revolutionizes financial management and transactions for users.

2.5 Organizational Structure



- **Sales & Services**: The Sales and Services division is a very crucial part of the organization that works for the company's growth and revenue generation. This department is in charge of expanding the agent network, bringing on new clients, and making sure that the services are delivered effectively. This branch helps to sustain and guarantee the organization's reach in both urban and rural areas. Additionally, this segment guarantees the brand's nationwide awareness.

- **Product & Strategy**: This division is crucial to the development of novel products and services. They concentrate on creating creative financial solutions and establishing the long-term strategic objectives of the business. This division makes sure Upay is sufficiently advanced to maintain its competitiveness in the market. In addition to introducing new products and services, they also improve their current offers. This division also includes revenue assurance and business intelligence.

- **Technology**: The cornerstone of upay's digital platform is the technology department. In addition to developing the IT infrastructure, the technology division is essential in guaranteeing the dependability and security of upay's services. With innovative technologies to introduce cutting-edge characteristics of the services that are now acknowledged nationwide, this section develops software to preserve cyber security.

- **Customer Services**: The customer service division, which prioritizes a seamless client experience, is equally significant. This division responds to consumer questions, handles complaints, and accumulates feedback. Customer issues are promptly and effectively resolved by this division. This division improves upay's reputation in addition to guaranteeing positive relationships with its clients. This sector is also in charge of updating its clientele on new features, services, and product offerings.

- **Finance**: This division guarantees the organization's financial stability. This department is responsible for supply chain management, accounting, and budgeting. This division's duties also include anti-money laundering and fraud management. This division handles the expenses and investments that are the foundation of growth, enabling its operations to grow.

- **Marketing**: By developing plans and launching campaigns, this division aims to raise awareness of the brand. It guarantees that upay stays visible and appealing to its target demographic by promoting the brand through a variety of media. Through customized messaging for its clientele, it hopes to boost customer interaction and foster brand loyalty.

- **HR & Admin**: This division plays an important role in attracting, attaining and retaining talent. It also works to maintain proper workplace culture, fosters relationships among the employees, works towards increasing the productivity of the employees, provides training sessions, does employer branding and many other activities.

Chapter 3

My Hands-on Experience at Upay

3.1 Overview

Upay has a very modern onboarding process that starts with introductory training for interns. I joined as a Product and PMO intern and followed the same general router. My internship here at upay would also be part of my undergraduate program in Computer Science at BRAC University. This is being evaluated with my CSE400 course. Upay has seven divisions in total, and I'm working in the Product and PMO team. In this report, I've shared a couple of screenshots of software are, portals, and projects I've worked on.

3.2 Getting Familiar with Company Work Process

upay is a subsidiary of The UCB Fintech Company, and we also share four floors with the parent company, United Commercial Bank, within the main corporate building.

During our onboarding, we were introduced to the IT team, who registered our fingerprints and identification cards to grant access to the permitted floors. Being a financial institution, Upay follows a strict access management system. After issuing our ID cards and laptops and verifying our fingerprints, the HR team introduced us to the various teams operating under different divisions.

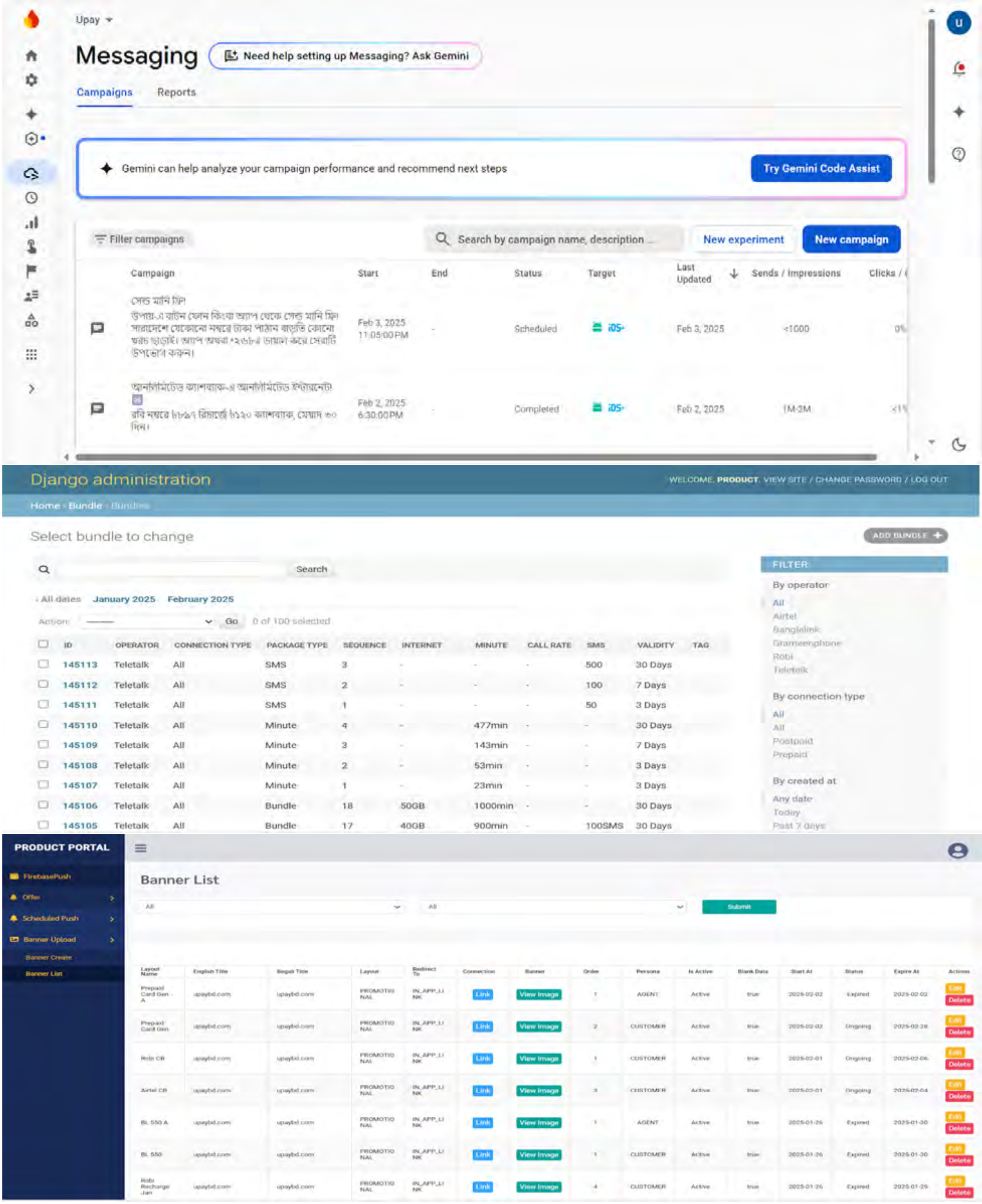
We used Microsoft 365 for office-related tasks, which was pre-installed on our laptops. Microsoft-native apps such as Outlook, Teams, and other Office tools facilitated seamless communication and workflow management. Our company email IDs were assigned under the "upaybd.com" domain.

Furthermore, I utilized MS Excel's "Automate" feature to streamline workflow automation using Python to track ongoing Mobile Network Operator's campaigns efficiently.

3.3 Core Contributions

3.3.1 Configuring Push Notifications and Banners for Upay's Campaigns

upay's real-time push notification system leverages Google Firebase Cloud Messaging (FCM) to deliver targeted promotional and transactional messages to users. As a part of the Product Team, I worked on configuring push notifications and in-app banners for marketing campaigns.



Our internal modular portal, which integrates with Firebase via REST APIs, enables the Product Team to dynamically manage and schedule campaign pushes.

I contributed by:

- Segmenting customer buckets using business intelligence reports and helping strategize which campaigns to push based on user engagement metrics and churn probability.

- Configuring push notification payloads using JSON for different audience segments, ensuring adherence to APNs (Apple Push Notification Service) and FCM notification formatting standards.

- Attending strategy meetings to design roadmaps for re-engaging churned customers and proposing data-driven A/B testing methodologies to improve conversion rates.

3.3.2 Automating Spreadsheet Tracking

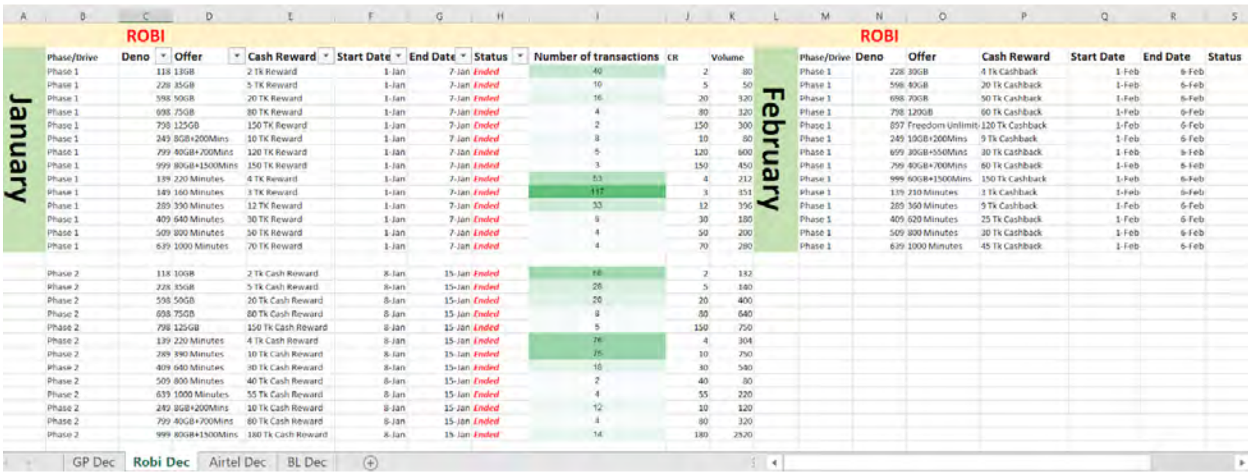
Tracking the campaigns from the five major Mobile Network Operators (MNOs) was previously done manually, making it error-prone and inefficient. To streamline the workflow, I developed an Automated Excel Sheet in Microsoft Excel, which:

- Automatically fetches campaign data from MNO's shared data sources.

- Sends a notification to all the stakeholders involved, making sure the executions are maintained timely.

- Implemented data validation and conditional formatting for minimal inconsistencies and to flag missing information.

- This automation significantly reduced manual tracking time and enhanced team collaboration.



3.3.3 User Acceptance Testing(UAT) and Biometric Integration Support

1. Agent App UAT:

   - Validated the Agent Cash Withdrawal Module, ensuring compliance with banking integration APIs.

   - Designed and executed test cases using TestRail, focusing on authentication mechanisms and transaction validation.

   - Logged and categorized defects using JIRA, collaborating with the Technology Division to resolve issues.

2. Biometric Login UAT:

    - Assisted in testing Android FingerprintManager API and iOS LocalAuthentication Framework for biometric authentication.
    - Evaluated API response latency, encryption standards, and fallback authentication mechanisms.

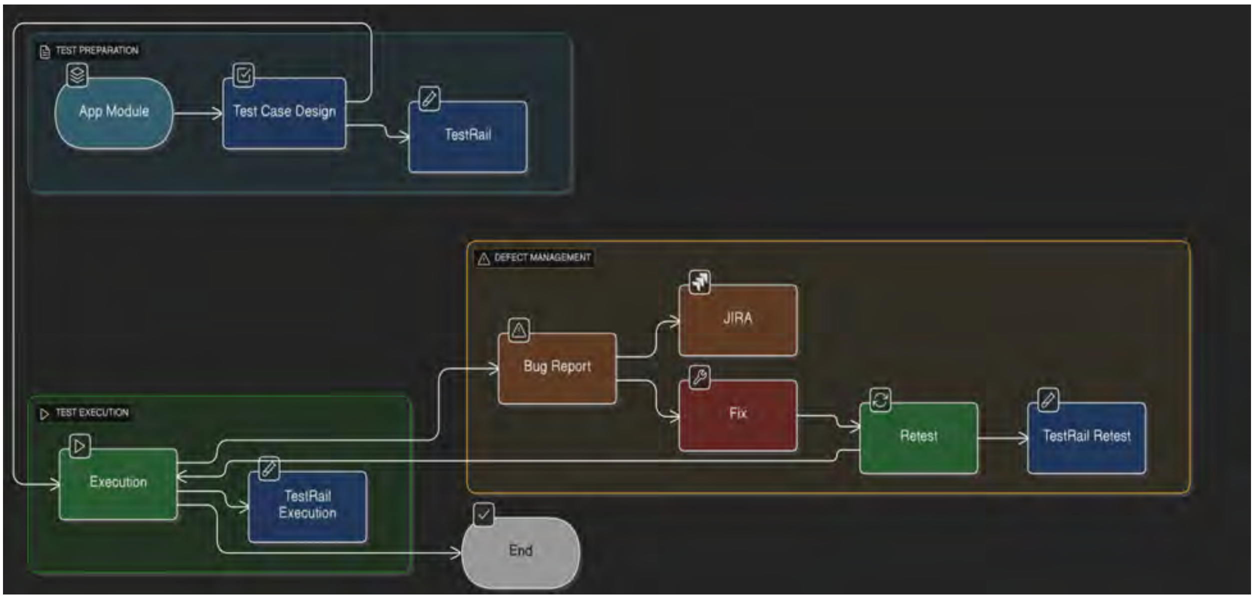
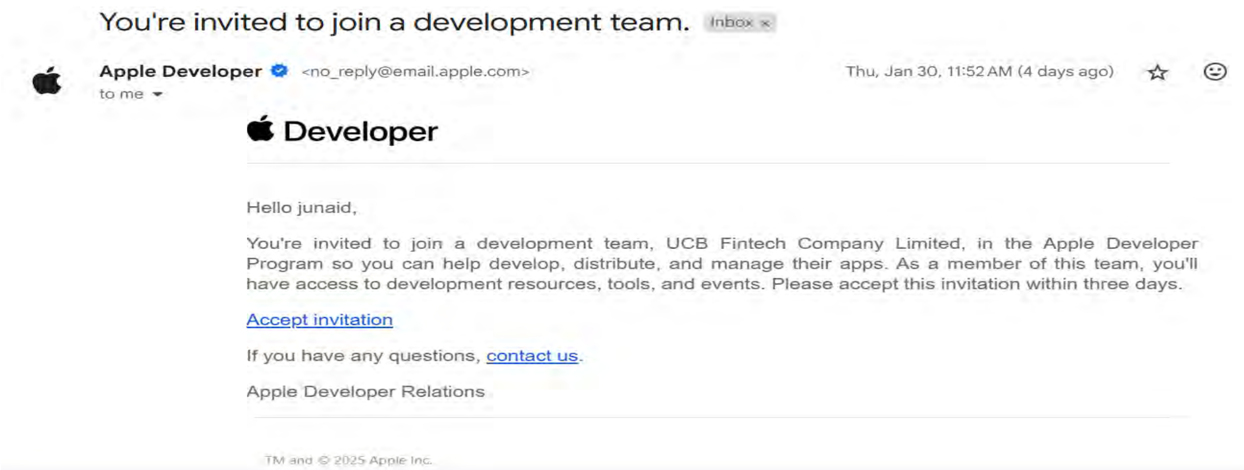


Figure: Biometric UAT Test Case Flowchart

3.3.4 iOS App Testing Using TestFlight


You're invited to join a development team. Inbox

Apple Developer <no_reply@email.apple.com>
to me

Thu, Jan 30, 11:52 AM (4 days ago)

Developer

Hello junaid,

You're invited to join a development team, UCB Fintech Company Limited, in the Apple Developer Program so you can help develop, distribute, and manage their apps. As a member of this team, you'll have access to development resources, tools, and events. Please accept this invitation within three days.

Accept invitation

If you have any questions, contact us.

Apple Developer Relations

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As part of my testing responsibilities, I collaborated with Upay's in-house Apple Developers Team to conduct early release testing for iOS builds via TestFlight. My contributions included:

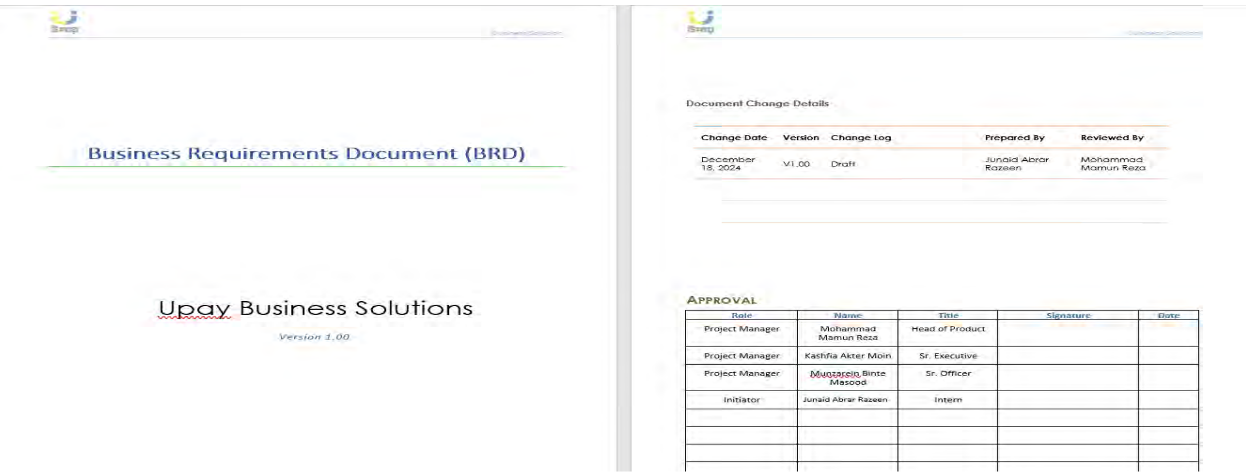
- Performing end-to-end functional testing on beta app versions before public release.
- Verifying UI/UX consistency against design specifications using Figma references.
- Conducting performance testing using Xcode's Instruments tool to monitor CPU and memory consumption.

- Reporting bugs and inconsistencies via JIRA, categorizing them based on severity.

3.3.5 Writing Business and Software Requirement Documents (BRD & SRS)

Throughout my internship, I prepared three **Business Requirement Documents (BRDs)** and corresponding **Software Requirement Specifications (SRS)** for new product features:

1. **Merchant Onboarding Streamlining:**
   - Assisted with API interactions for KYC verification via **NID integration** services and **OCR**
   - Assisted with outlining role-based access control policies (RBAC) for merchant management
2. **Khuchraa-Savings Feature:**
   - Proposed a **round-up savings algorithm**, where transaction rounding logic was defined using modular financial services APIs
   - Assisted with **database schema** modifications and learned how to accommodate savings ledger entries
3. **AI Bondhu – Financial Chatbot:**
   - Mapped intent to customer inquiries and drafted conversational flow using **Microsoft Visio**
   - Assisted with **API interaction models** for chatbots, account management systems, and transaction services for the **beta** release



Business Requirements Document (BRD)

Upay Business Solutions

Version 1.00

Document Change Details

Change Date	Version	Change Log	Prepared By	Reviewed By
December 18, 2024	V1.00	Draft	Junaid Abrar Razeen	Mohammad Mamun Reza

Approval

Role	Name	Title	Signature	Date
Project Manager	Mohammad Mamun Reza	Head of Product		
Project Manager	Kashfia Akter Moin	Sr. Executive		
Project Manager	Munzarein Binte Masood	Sr. Officer		
Initiator	Junaid Abrar Razeen	Intern		

Each BRD and SRS went through multiple iterations after considering feedback from different stakeholders before final approval.

3.3.6 Designing User Workflow Journeys in Visio

To visualize product flows, I created **User Workflow Journeys** in MS Visio, detailing both:

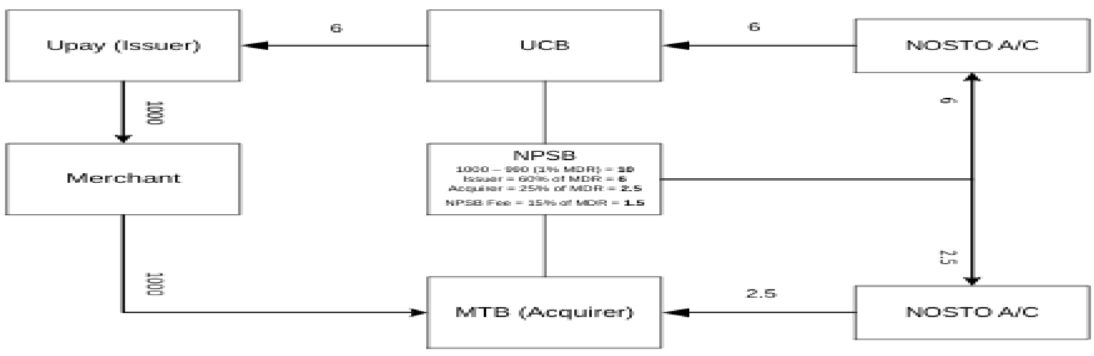
- **Happy Paths** – Illustrating an optimal user experience
- **Sad Paths** – Covering edge cases and failure scenarios (e.g., failed transactions, biometric mismatch)
- **High-Fidelity Wireframes** – Diagrams incorporating visual details such as colours, typography, and images
- **Low-Fidelity Wireframes** – Focusing on basic layout and functionality without detailed visual elements

These workflows were reviewed in **scrum meetings**, where key stakeholders (PMs, developers, QA, and compliance teams) provided feedback before the final development phase.

3.3.7 Cross-Team Collaboration: IT, Marketing, Sales, Compliance, and Business Intelligence

Being part of the product team, I worked cross-functionally with various departments, ensuring alignment across different stakeholders:

- **Marketing Sales** – Coordinated campaign execution strategies and user engagement tracking.
- **Compliance** – Ensured regulatory compliance in the product features involving financial transactions.
- **Business Intelligence** – Wrote SQL queries and analyzed BI dashboards to understand transaction patterns, helping refine product strategies.
- **Understood the Banking Protocols** – The Bank that issues the POS machine to the merchant to the charges applied for using the NPSB (National Payment Switch Bangladesh) protocol, I learned how fees are allocated, which helped me to understand the financial flow behind digital transactions and the role of different entities in the payment ecosystem.



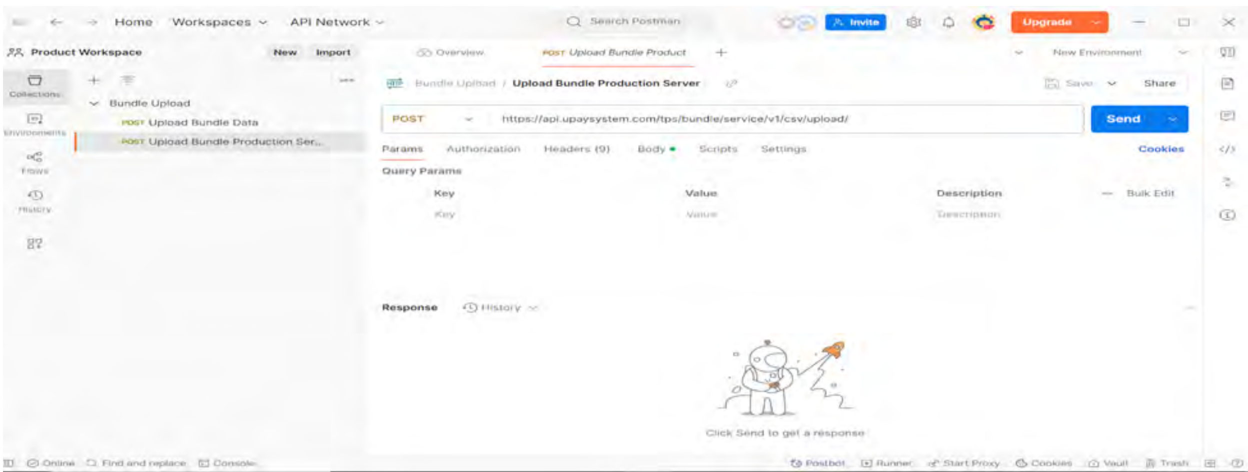
3.3.8 Troubleshooting and maintaining clusters using DevOps Tools

During my internship, I encountered an issue where our modular portal for the Product Team, which sends API requests to the production environment, was failing when handling large files. Specifically, when uploading a CSV file of significant size, the portal would send the request, but the server wouldn't respond. I had the opportunity to collaborate with our DevOps team to debug the issue. We analyzed the Kubernetes logs of our production environment and systematically tested multiple file sizes to pinpoint the problem. After several iterations, we discovered that one of our pods was not running, which was preventing the server from processing large file uploads. Once the pod was restarted, the issue was resolved. While doing all these troubleshooting, this experience gave me hands-on exposure to debugging production issues while going through Kubernetes error logs and working closely with the DevOps team to ensure system reliability.

3.3.9 Using Postman API for Mobile Recharge Pack Configuration

I actively worked with Postman API to test and configure Upay's mobile recharge pack offerings. My tasks included:

- Using Postman's RESTful API requests to configure and validate package configurations and check their formatting.
- Ensuring CSV file formatting adhered to required standards before API ingestion.
- Debugging failed API responses using Postman's console logs and response body analysis.



Chapter 4

Challenges and Solutions

During my internship at upay, I encountered several challenges that required adaptability, technical problem-solving, and collaboration across different teams.

1. **Ensuring Seamless Push Notification Delivery Across Platforms**
    - *Challenge:* Upay's push notifications are powered by **Google Firebase Cloud Messaging (FCM)** and **Apple Push Notification Service (APNs)**
    - *Problem:* Inconsistent notification delivery on iOS due to Apple's strict background execution policies
    - *Solution:* Researched APNs behavior, collaborated with developers to implement correct **device tokens**, **payload structures**, and **background mode configurations** for iOS
2. **Automating Campaign Tracking with Google Apps Script**
    - *Problem:* Errors in event triggering caused delayed campaign deadline notifications
    - *Solution:* Debugged using **Google Apps Script Logger**, optimized trigger intervals, and monitored script execution limits
3. **Managing API Errors in Postman While Configuring Mobile Recharge Packs**
    - *Problem:* API failures due to incorrect CSV formatting and missing parameters
    - *Solution:* Analyzed error codes and created **standardized CSV template** for bulk uploads
4. **User Acceptance Testing (UAT) – Handling Biometric Authentication Edge Cases**
    - *Problem:* Inconsistent fingerprint detection across Android devices
    - *Solution:* Coordinated with developers to refine **fallback mechanisms** and ensure cross-device biometric compatibility
5. **Writing BRDs & SRS Without Prior Product Management Experience**
    - *Challenge:* Limited knowledge of industry-standard documentation formats
    - *Solution:* Studied previous BRDs, followed **IEEE SRS guidelines**, and incorporated team feedback

Chapter 5

Growth and Learning

During my internship at upay, my technical, analytical, and project management skills improved significantly. Key growth areas include:

1. **Technical Skills**
   - **Cloud Integration:** Gained hands-on experience with **Firebase Cloud Messaging (FCM)**, **Apple Developer Portal**, and **Postman APIs**
   - **Scripting & Automation:** Improved proficiency in **Google Apps Script** for workflow automation
   - **Software Testing & Debugging:** Learned structured **UAT methodologies**, bug tracking with **JIRA**, and API testing using **Postman**
   - **Database & BI:** Used **SQL queries** to extract insights from Upay's Business Intelligence dashboards
2. **Product & Project Management Skills**
   - **Writing BRDs/SRS:** Enhanced ability to document both **business logic** and **technical specifications**
   - **Workflow Design:** Developed user journey mapping skills in **Figma** covering **Happy/Sad Paths**
   - **Stakeholder Collaboration:** Worked cross-functionally with **IT**, **Compliance**, **Marketing**, and **BI teams** to align technical solutions with business goals
3. **Personal & Professional Growth**
   - **Adaptability:**
     - Delivered under tight deadlines
     - Adjusted to rapidly evolving project requirements
   - **Problem-Solving:**
     - Developed a structured approach to debugging
     - Learned to handle setbacks in project workflows
     - Improved technical communication strategies
   - **Cross-Functional Communication:** Enhanced ability to translate **technical insights** for non-technical stakeholders

Chapter 6

Conclusion

My internship at The UCB Fintech Company, upay, provided real-world, hands-on experience that aligned with my Computer Science background while strengthening my skills in **Automation**, **API integration**, **Software testing**, and **Cloud Technologies**.

Key takeaways from this experience include:

- Bridging technical and business needs through **product documentation** and **workflow optimization**
- Gaining exposure to **MFS (Mobile Financial Services)** technologies, strengthening my career trajectory in **Cloud Engineering**
- Understanding the impact of **data-driven decision-making** through business intelligence reports to enhance product engagement

Fintech, by nature, operates in a fast-paced environment where I applied technical skills to real-life challenges in **product management**, **project workflows**, and **software deployment**. This experience not only solidified my interest in financial technology but also equipped me with practical skills to contribute to Bangladesh's digital payment ecosystem. I look forward to applying these competencies in future opportunities while continuing to support the digitization of our country's financial infrastructure.