

# Chapter 1: Introduction

## 1.1. Introduction

Over the course of my Backend Python Developer Internship at Khalti Digital Wallet, the chance was given to fully embrace the software development culture and observe how it has been used effectively to deliver software to the masses. Khalti Digital Wallet is one of the well-known names in innovative financial solutions, offering a wide array of innovative and advanced solutions to commercial banks, development banks, financial institutions, and several other large enterprises. The company is committed to using advanced technology with the view of enhancing financial inclusion and making digital experience seamless. The primary responsibility, as a member of the backend team, has been to learn how to streamline and enhance the development and operational processes, so that the resulting systems could be robust, efficient, and reliable.

The main duty included understanding and implementation of software practices, simplify different parts of the software development process. This entailed creation as well as optimization of various software systems while increasing overall team's productivity.

Additionally, there was an opportunity given to observe how corporations utilize various scheduling services for handling asynchronous tasks in their environments. Scheduling services/payments not only saves time but also reduces human error which is crucial in online payment, thereby increasing reliability and yielding consistent results. Practical experience was gained in routine operations, implementing robust codebase, managing production seamlessly deployed across different systems or platforms.

Real-world experience with Software Development, complementing the theoretical knowledge I previously acquired, has been one of the best outcomes of this internship. A better understanding of the collaborative and iterative nature of software development was also achieved. Khalti has been able to produce quality software faster by focusing on continuous improvement, optimization, and ensuring effective communication between development and operations teams. These skills and ideas will help in handling future challenges in this area, thereby contributing to becoming an even better software engineer.

## 1.2. Problem Statement

In the rapidly evolving fintech industry, efficient and timely management of payments is a critical factor for enhancing user satisfaction and operational reliability. Prior to the introduction of a payment scheduling feature, users of Khalti faced limitations in managing their financial transactions effectively. They were required to manually initiate each payment at the specific time they desired the transaction to occur. This method was not only time-consuming but also prone to human error, potentially leading to missed payments or financial discrepancies. Furthermore, the lack of an automated payment scheduling system placed unnecessary constraints on users who needed to manage recurring payments or transactions during inconvenient hours, ultimately impacting user engagement and satisfaction.

To address these challenges, the company aimed to integrate a robust payment scheduling feature that allows users to automate their transactions. The goal was to enable precise, reliable, and secure management of scheduled payments, thereby enhancing the overall user experience, increasing the functionality of the digital wallet, and maintaining the platform's competitive edge in the fintech market. This feature was to be implemented using Django for the backend development and Celery

for managing background tasks, ensuring that payments are processed at the scheduled times without requiring user interaction at the point of transaction.

Addressing these problems was crucial for maintaining Khalti's competitive edge, ensuring customer satisfaction, and supporting the company's growth objectives.

### 1.3. Objectives

The primary objectives of my internship at Khalti Digital Wallet were:

- i) **Gain Professional Experience:**  
Work in a real-world corporate environment to understand team dynamics, project management, and effective communication within a professional setting.
- ii) **Develop Problem-Solving Skills:**  
Tackle real-world challenges and develop solutions, enhancing critical thinking and problem-solving abilities.
- iii) **Software Deployment Processes:**  
Implement various steps of software development life cycle, to gain hands-on experience developing scalable backend application.
- iv) **Collaboration with Senior Developers:**  
To collaborate with senior developers and learn best practices in coding and project management.

### 1.4. Scope and Limitation

#### 1.4.1. Scope

The scope of my internship included the following key areas:

- i) **Backend Development Contribution:**  
Django and Django REST frameworks used to construct APIs for the digital wallet, including a payment scheduling feature with functionalities for scheduling, rescheduling, and automatic execution.
- ii) **Agile Development Participation:**  
Involvement in the software development lifecycle, potentially encompassing sprints, code reviews, and collaboration with mentors and teams to deliver the payment scheduling feature.
- iii) **Mentorship and Knowledge Acquisition:**  
Guidance from experienced developers, understanding of secure backend development for financial applications and best practices within the software development lifecycle.
- iv) **Technical Skill Development:**  
Enhancement of python programming skills and expertise in the Django framework. Expanding knowledge of financial regulations while addressing challenges and proposing codebase improvements.

#### 1.4.2. Limitations

Despite the comprehensive scope, there were some limitations during my internship:

- i) **Limited Project Scope:**  
The internship focused primarily on the development of a single feature (payment scheduling)

within the digital wallet, potentially limiting exposure to the broader functionalities of the application.

ii) **Intern-Level Responsibilities:**

Tasks were assigned with an intern's experience level in mind, potentially offering less opportunity to work on complex backend functionalities or core system architecture.

iii) **Focus on Specific Technologies:**

The internship primarily used Django and Django REST framework, potentially limiting exposure to a wider range of technologies and frameworks used in the industry.

iv) **Time Constraints:**

The internship's timeframe may have restricted the ability to delve deeper into specific technical aspects or explore alternative approaches to the payment scheduling feature.

## 1.5. Report Organization

This report is structured into four main chapters, each detailing different aspects of my internship experience at Khalti Digital Wallet. Here is a brief overview of each chapter:

i) **Chapter 1: Introduction**

This chapter introduces the work completed during my internship. It outlines the problem statement, the objectives of the internship, the scope and limitations of the project, and provides an overview of the report's organization.

ii) **Chapter 2: Organization Details and Literature Review**

In this chapter, a comprehensive introduction to Khalti Digital Wallet has been provided. This includes an overview of the organization, its hierarchy, the various domains in which it operates, and a detailed description of the department where internship has been completed. Additionally, this chapter includes a literature review or related study, highlighting relevant theories and frameworks that underpin the works that have been performed during the internship.

iii) **Chapter 3: Internship Activities**

This chapter delves into the specifics of my internship activities. It outlines my roles and responsibilities, provides a weekly log of the technical activities, describes the involved projects, and details the technical tasks and activities have been completed successfully. This section offers an in-depth look at the hands-on experience obtained.

iv) **Chapter 4: Conclusion and Learning Outcomes**

A brief overview of the experience gained during the internship is also stated in this last part, as well as the main conclusions. It mentions my skills and knowledge, challenges I faced and how I dealt with them. Additionally, the section talks about what the future holds in terms of career development after such an opportunity.

