MINISTRY OF EDUCATION AND TRAINING

FPT UNIVERSITY

Capstone Project Document

Garment Factory Human Resource Management System

SEP490-G5	
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Supervisor	Nguyen Quang Hung
Capstone Project code	GF-HRMS

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Definition and Acronyms

Acronym	Definition
PWM	Psychology Website
AWS	Amazon Web Services
BA	Business Analysis
BR	Business Rule
ERD	Entity Relationship Diagram
GUI	Graphical User Interface
PM	Project Manager
SDD	Software Design Description
SPMP	Software Project Management Plan
SRS	Software Requirement Specification
UAT	User Acceptance Test
UC	Use Case
API	Application Program Interface
CRUD	Create, Read, Update, Delete

I. Project Introduction

1. Overview

1.1 Project Information

- Project name: Garment Factory Human Resource Management System
- Project code: GF-HRMS
- Group name: SEP490-G5
- Software type: Web and Mobile App

1.2 Project Team

1.2.1. Supervisor

Full Name	Email	Title
Nguyen Quang Hung	HungNQ@fpt.edu.vn	Lecturer

Table 1.1: Supervisor Information

1.2.2. Team Members

Full Name	Student code	Role	Email	Mobile
Tran Vi Quang	HE161125	Member	quangtvhe161125@fpt.edu.vn	0979978375
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Nguyen Tung Lam	HE161761	Member	lamnthe161761@fpt.edu.vn	0974149916
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Table 1.2: Team Member Information

2. Product Background

In the context of modern industrialization, factories may be facing many formulas in human resource management, especially when the scale of production is constantly expanding. Factors such as large numbers of employees, complex production processes, and high requirements for efficiency and quality have created an urgent need for advanced energy management solutions. The goal of the human resource management system in the factory may not stop at the work supported by the main operation but also focus on the level of priority of process management, there by contributing to increased efficiency and reduced operating costs.

Key features of garment factory human resource management system

1. **Employee Profile Management**:
    - Automatically store and manage employee personal information including personal records, qualifications, work experience, and contact information.
    - Support quick updating and searching of personnel information, helping to save time for the management department..
    - **Insurance management:**
        1. Support calculation and management of employee taxes and mandatory insurance, helping factories comply with labour and insurance laws.
        2. Provide detailed tax and insurance reports, automatically notify when these payments are due.
    - **Union Management:**
        1. Monitor and manage union activities in the factory, including employee welfare programs, union dues and support activities.
        2. The system provides detailed reports on union activity status, helping managers coordinate effectively with union organisations in protecting workers' rights.
    - **Labour contract management:**
        1. Enable HR to add, edit, and delete employee labour contracts, ensuring seamless management of employee profiles and compliance with company policies.
        2. Maintain a comprehensive history of each employee's contracts, including:
        3. Key contract terms and conditions.
        4. Contract signing date, start date, and end date.
2. **Attendance Management:**
    - The system automatically records employee working hours through methods such as fingerprint timekeeping machines or via mobile applications.
    - Supports tracking of overtime, night shifts, and violations of working hours.
3. **Flexible work assignments and working hours:**
    - Support flexible management and adjustment of work assignments according to shifts, working days and actual production requirements.
    - Allows changing work shifts and instantly notifies employees of changes via the application
4. **Manage application types:**
    - Employees can submit various types of work-related requests online through the system, including
        1. **Leave Requests**: Employees can submit requests for vacation or sick leave, which will be reviewed and approved by managers.
        2. **Shift Change Requests**: Employees can request to change their shifts, and managers can approve or deny the changes based on production needs.
    - The system automatically tracks and updates the status of each request and notifies both employees and managers

5. **Manage employees accounts :**
    - Each employee will be provided with a personal account to access the system, where they can:
        i. View personal information, including contact details and work history.
        ii. Check payroll and salary details.
        iii. View their work schedule and shift timings.
        iv. Submit leave requests, shift change requests, and overtime requests.
        v. View information about your employment contract, including terms and duration.
        vi. View your personal profile and employment history.
        vii. View attendance reports, track hours worked, vacations, and other types of attendance.
    - **Account Deactivation**: When an employee is no longer working at the factory, the system will automatically lock their account to prevent further access to the system.

6. **Automatic salary calculation from timesheet:**

    - Based on the timesheet, the system automatically calculates basic salary, overtime pay, bonuses and penalties if any.
    - Minimise errors in the salary calculation process, ensuring accuracy and transparency.

Specific goals of the system:

- **Reduced HR processing time by 30%,** allowing HR to focus on more strategic tasks.
- **Increased shift management efficiency by 20%,** reducing shift overlap or staff shortages during peak hours.
- **Reduced payroll errors by 15%,** improving employee satisfaction and avoiding salary disputes.

Quantitative benefits:

- Reduces errors in shift assignment by 20%, thanks to the automation of the tracking and scheduling process.
- Reduces operational costs related to human resource management by 10% through process optimization and minimising human intervention in routine tasks.
- Reduces the workload for the HR department: Automated processes from timekeeping, contracts, to payroll help reduce the workload for the HR department. This allows HR to focus on strategic tasks and human resource development rather than routine tasks.
- Improves the quality of the working environment: Transparency in compensation management, along with feedback and complaint tools, helps improve employee satisfaction, build a positive working environment, and reduce conflicts.
- Process applications, suggestions, and complaints quickly: Minimise waiting times, help improve employee satisfaction, and create a transparent, fair work environment.

Example of a real-life problem:

Time-consuming and labour-intensive employee records management: All records are stored manually, making it difficult to retrieve information and errors often occur.

Inefficient scheduling: Manual shift scheduling leads to scheduling conflicts, staff shortages during peak production shifts and overstaffing during off-peak shifts.

Difficulty in calculating salaries and bonuses: Manually calculating salaries and bonuses is complicated, error-prone, and often delayed, causing employee dissatisfaction.

Human resource management issues in large manufacturing plants:

- **Scenario:** A footwear manufacturing company has over 1,000 employees, but their HR management system still relies on Excel spreadsheets. This results in a lot of time spent updating employee information, managing work schedules, and calculating compensation. When employees leave or request a shift change, adjusting the spreadsheet can easily cause confusion and increase the workload for the HR department.
- **Solution:** Garment Factory Human Resource Management System can automate these processes, helping to manage employee records, work schedules and salaries accurately and quickly, minimising errors and saving time for the HR department.

Reporting and decision-making issues:

- **Scenario:** A small garment factory does not have an automatic statistical reporting system. Managers have to spend a lot of time synthesising data from many different sources, slowing down important decision-making such as adjusting production or recruiting more staff.

- **Solution:** The Garment Factory Human Resource Management System provides detailed and timely reports, helping managers easily grasp the human resource situation and make quick and accurate decisions, thereby improving production and business efficiency.

Time-consuming and labour-intensive in managing employee records:

- **Scenario:** All employee records are stored manually, making information retrieval complicated and time-consuming. Not only that, this manual storage also leads to frequent errors, from data entry to data management, affecting the decision-making process of the HR department.

- **Solution:** The Garment Factory Human Resource Management System will digitise all employee records, making information retrieval faster and easier. Thanks to that, the system not only saves time but also minimises errors in the record management process, helping to increase accuracy and work efficiency.

Ineffective work schedule management:

- **Situation:** Manually arranging work shifts causes many schedule conflicts, leading to a shortage of personnel during peak production shifts and a surplus of personnel during off-peak shifts. This not only reduces production efficiency but also makes it difficult to manage personnel and adjust resources when necessary.

- **Solution:** The Garment Factory Human Resource Management System can automate work scheduling based on the number of existing employees and actual production needs. The system will help avoid scheduling conflicts and optimise human resources, ensuring that the factory always has enough employees for important production shifts and minimising manpower waste during off-peak shifts.

Difficulties in calculating salaries and bonuses:

- **Situation:** The manual calculation of salaries and bonuses is complicated and prone to errors. These errors not only affect employee benefits but also create dissatisfaction, especially when salaries and bonuses are delayed. This can lead to reduced productivity and a poor working environment.

- **Solution:** The Garment Factory Human Resource Management System provides automatic salary and bonus calculation, based on accurate data on working hours, performance and other criteria. The system ensures that this process is fast, accurate and on time, thereby increasing employee satisfaction and maintaining a positive working environment.

3. Existing Systems

In this section, we will present some existing systems that can help solve the problems we listed above or systems that we can refer to to design our system.

3.1. HRIS

Description: HRIS is a human resource management system developed by FPT, helping businesses manage the entire process from recruitment, employee records storage, timekeeping management to salary and benefits calculation. The system is designed with a friendly interface, integrating many important automation features, suitable for the needs of businesses in Vietnam.

Link: https://hr.fpt.vn/#/account/login?returnUrl=%2F

Figure 1.1: Website FPT HRIS Official Site

System Actors:

- **HR Managers:** Manage employee records, timekeeping, and reporting.
- **Employees:** Access and update personal information, register for leave.
- **Payroll Specialists:** Manage and process salaries and bonuses.

Features:

- Automatic employee profile management.
- Timekeeping and leave registration functions.
- Calculate salary and bonus automatically.
- Detailed HR data reporting and analysis.

Pros:

- Easy to use and deploy.
- Automate complex processes.
- Integrated and customised to suit the business environment in Vietnam.

Cons:

- High cost for small businesses.
- Limited customization capabilities for specific requirements.

3.2 BambooHR

Description: BambooHR is a popular human resource management system designed to help businesses manage the entire process from employee records, work schedules, to payroll and benefits. BambooHR offers a user-friendly interface and many important automation features.

Link: [BambooHR Official Site]

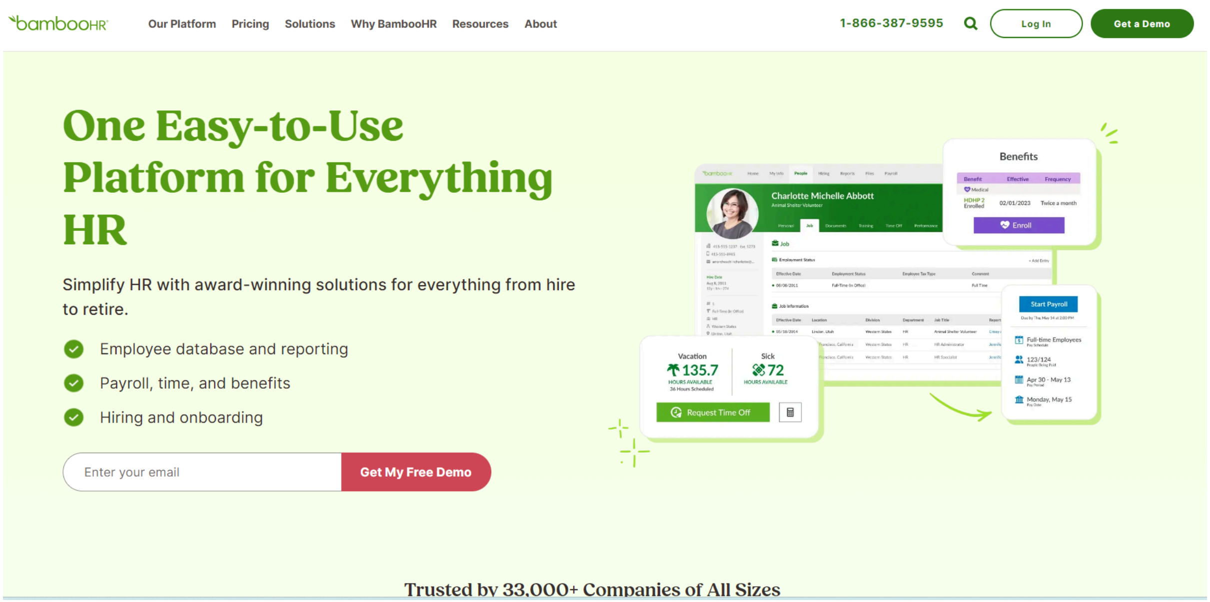


Figure 1.2: Website [BambooHR Official Site]

System Actors:

- **HR Managers:** Manage employee records, schedules, and reports.
- **Employees:** Access and update personal information, request leave.
- **Payroll Specialists:** Manage and process payroll and bonuses.

Features:

- Automated employee profile management.
- Work schedule tracking and leave request functionality.
- Automatic payroll and bonus calculation.
- Detailed HR reporting and analytics.

Pros:

- Easy to use and deploy.
- Automate complex processes.
- Provide detailed reports to support decision making.

Cons:

- High cost for small businesses.
- Limited customization features.

3.3 Workday

Description: Workday is a comprehensive enterprise resource planning (ERP) platform that specialises in human resources and financial management. The system is designed to meet the needs of large, global enterprises, providing powerful tools for managing human resources, finances, and planning.

Link: [Workday Official Site]

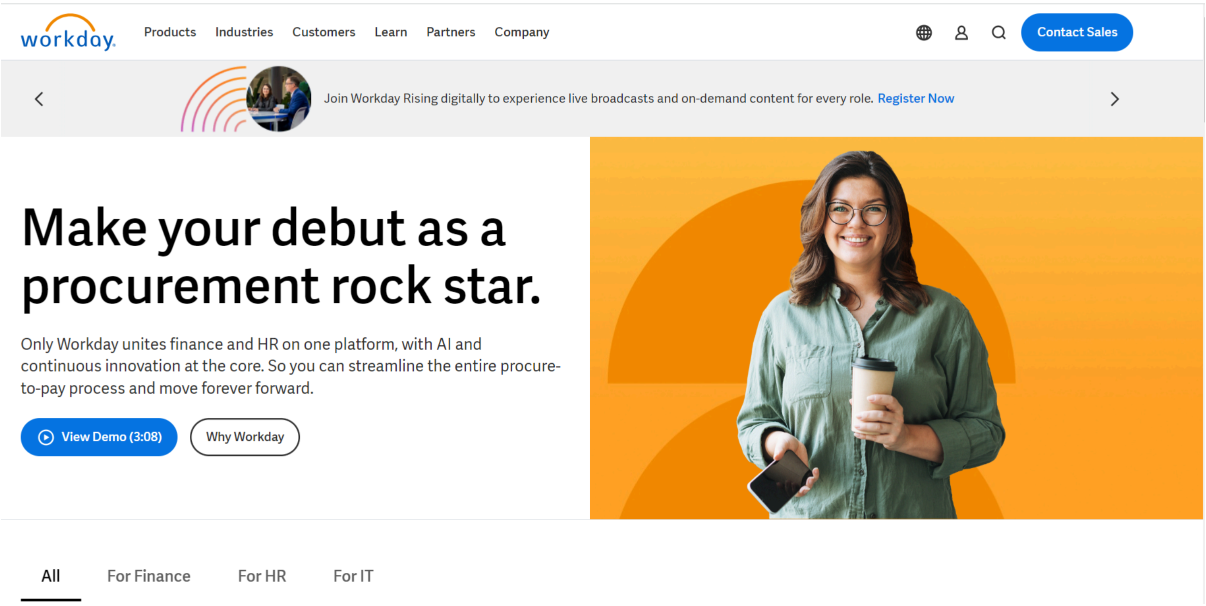


Figure 1.3: Website [Workday Official Site]

System Actors:

- **HR Managers:** Manage recruitment, employee records, and human resources processes.
- **Finance Managers:** Manage budgets, expenses, and payroll.
- **Executives:** Make strategic decisions based on data analytics from the system.

Features:

- HR management from hiring to termination.
- Integrated financial management.
- Strategic planning and analysis tools.
- Multi-language and multi-currency support for global businesses.

Pros:

- Comprehensive integration with finance and HR departments.
- Support strategic planning with detailed data.
- Good support for large-scale and multinational enterprises.

Cons:

- Complex system and requires long implementation time.
- High implementation and maintenance costs.
- Requires extensive user training.

3.4 SAP SuccessFactors

Description: SAP SuccessFactors is another comprehensive human resource management solution that is especially suitable for large and complex organisations. The system focuses on optimising human resource processes, from recruitment to performance management and employee development.

Link: SAP SuccessFactors Official Site

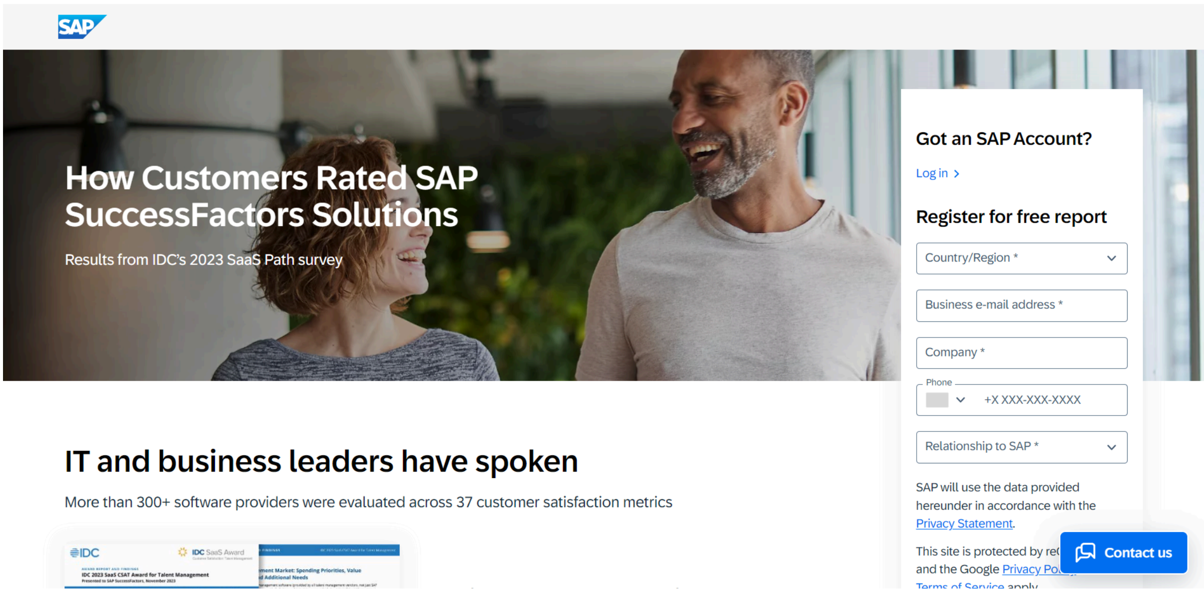


Figure 1.4: Website SAP SuccessFactors Official Site

System Actors:

- **HR Managers:** Manage the entire employee lifecycle, from recruitment to development and performance management.
- **Employees:** Access and update personal information, request support.
- **Executives:** Analyse employee performance and make strategic decisions.

Features:

- End-to-end employee lifecycle management.

- Employee development and performance management tools.
- Integration with other SAP ERP and financial systems.
- Mobile and multilingual support.

Pros:

- Strong integration with other ERP solutions.
- Powerful employee development and performance management tools.
- Good support for large and complex organisations.

Cons:

- High cost and requires robust infrastructure.
- Requires extensive user training.
- Complex interface for new users.

4. Business Opportunity

In the garment industry, human resource management is a major challenge due to the ever-expanding scale of production and the increasing demand for labour efficiency. Currently, many garment factories are still using manual management methods or relying on basic tools such as Excel spreadsheets, which is time-consuming, error-prone, and difficult to optimise human resources. This not only affects production efficiency but also creates dissatisfaction among the workforce due to issues related to payroll, job assignment, and performance management.

Market: Garment Factory Human Resource Management System will compete in the market for human resource management (HRM) and production management software solutions. This market is currently experiencing high demand for digitalization and automation solutions, especially in large-scale manufacturing industries such as the garment industry. Existing products such as BambooHR, Workday, and SAP SuccessFactors focus on human resource management in general enterprise environments, but do not fully meet the specific needs of garment factories, where work schedule management, production process optimization, and employee performance management play a key role.

Business Opportunity: Garment Factory Human Resource Management System will directly solve problems that current solutions cannot do, such as:

- Automate the work schedule management process, minimise conflicts and optimise personnel allocation in different production shifts.
- Automatically calculate accurate and timely salaries and bonuses, helping to minimise employee dissatisfaction and maintain a positive working environment.
- Provide detailed and timely reports to help managers easily grasp the personnel situation and make quick and accurate decisions.

Market trends: With the rise of digitalization and automation in manufacturing, garment factories are looking for solutions that can be easily integrated into their existing processes and help them increase their efficiency and competitiveness. Our systems are not only in line with current trends but also compatible with the long-term development strategies of businesses, helping them meet the stringent requirements of domestic and international markets.

Product benefits: The proposed product not only helps to solve current human resource management problems but also opens up opportunities for garment factories to increase production efficiency, reduce operating costs and improve employee satisfaction. This will create a strong competitive advantage in the market, especially in the context of the garment industry facing pressure on labour costs and high quality requirements from customers

5. Software Product Vision

For garment factories struggling with inefficient human resource management, Garment Factory Human Resource Management System is a comprehensive automated software solution designed to streamline and optimise every aspect of human resource operations, from recruiting and training employees to managing work schedules, tracking performance, and processing payroll.

The system aims to replace outdated, error-prone, and inefficient manual processes with a modern, technology-driven approach. By automating routine tasks and providing real-time insights into workforce management, the system will enable factory managers to make informed decisions quickly, reduce administrative costs, and ensure compliance with labour regulations.

Unlike existing fragmented systems that require significant manual intervention and are not suited to the dynamic needs of apparel manufacturing, our solution will seamlessly integrate into existing factory operations, increasing productivity, improving employee satisfaction, and supporting sustainable business growth. This vision aligns with the ongoing digital transformation in manufacturing, addressing the specific needs of apparel factories while being able to adapt to future technological advances and industry requirements.

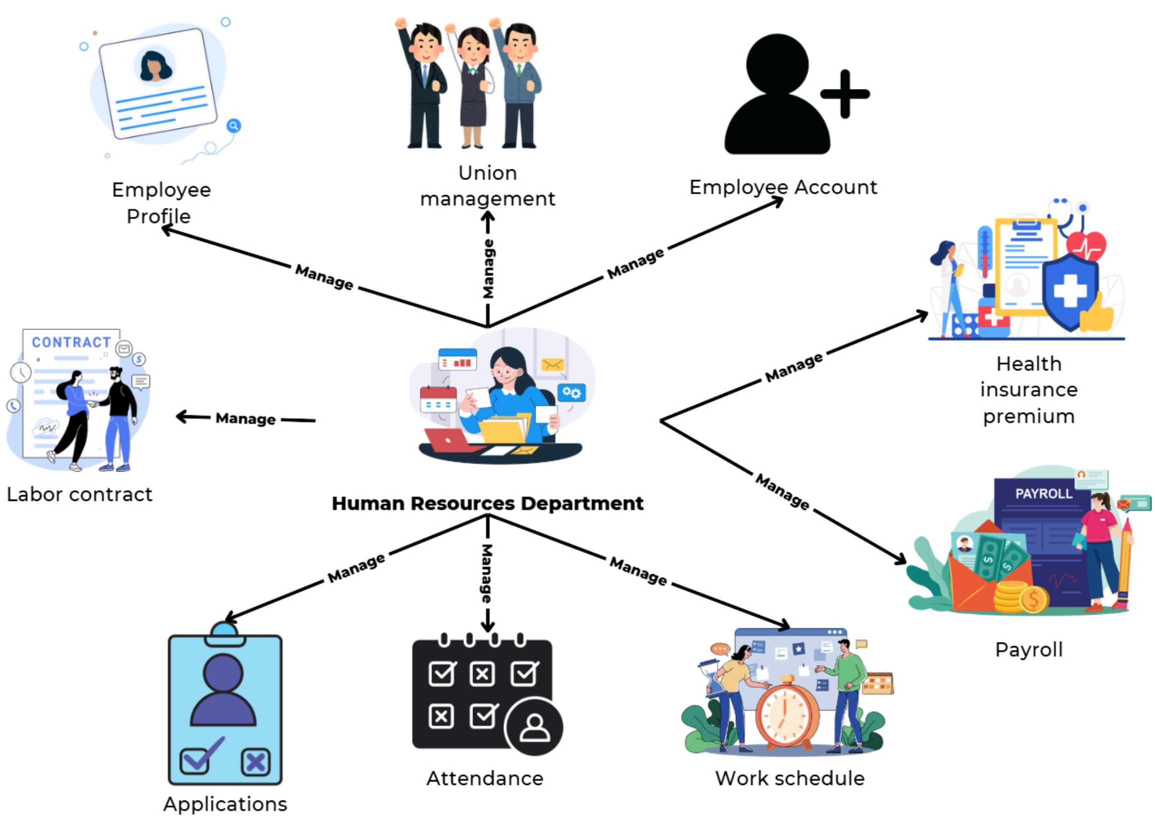


Figure 1.5: Our Product Idea With HR

New Product Goals and Intentions for HR:

Employee Profile Management: HR can easily add, edit, delete and update employee records. Profiles include personal information, qualifications, work experience and contact information of each employee. The system supports quick search and updates, helping to reduce time and effort for the management department.

Manage employee accounts: HR can provide account access to new employees, editing account information and passwords as necessary. For employees who have quit or are no longer active at the company, HR can deactivate their accounts.

Attendance Management: The system automatically records employee working time via timekeeping or mobile application, supporting tracking overtime and working hour violations. In case the machine does not receive the employee's timekeeping data, HR can directly edit the timekeeping data on the system.

Flexible work assignments and working hours: The system supports HR to flexibly manage and adjust tasks according to shifts, working days and actual production needs. When an employee submits a request to change shifts, HR can review and approve, then the system will automatically notify employees of the changes via the application.

Online leave management: HR can easily review and approve employee leave applications. After approval, the system will automatically update the employee's remaining days off according to company regulations.

Union Management: HR monitors and manages union activities in the factory, including employee benefit programs, union dues, and other support activities. The system provides detailed reports on union activities, helping HR coordinate effectively with trade unions to protect workers' rights.

Health insurance management:
The HR will monitor and manage health insurance payments for employees, ensuring payment and compliance with legal insurance regulations.

Labour Contract Management:
HR is empowered to create, edit, and delete employee labour contracts, ensuring accurate and up-to-date records. The system maintains a comprehensive history of contracts for each employee, including details such as terms, signing dates, and end dates. This feature helps HR efficiently manage contractual obligations and ensures timely renewals or updates, reducing the risk of lapses or misunderstandings.

Payroll Management:
The system automatically calculates salaries based on attendance data, factoring in overtime pay, bonuses, and deductions. It ensures transparency and accuracy in payroll processing, minimising errors and building trust among employees. HR can generate detailed salary reports, manage tax and insurance deductions, and ensure compliance with legal requirements. Employees can access their salary details directly through the system, fostering satisfaction and confidence in the payroll process.

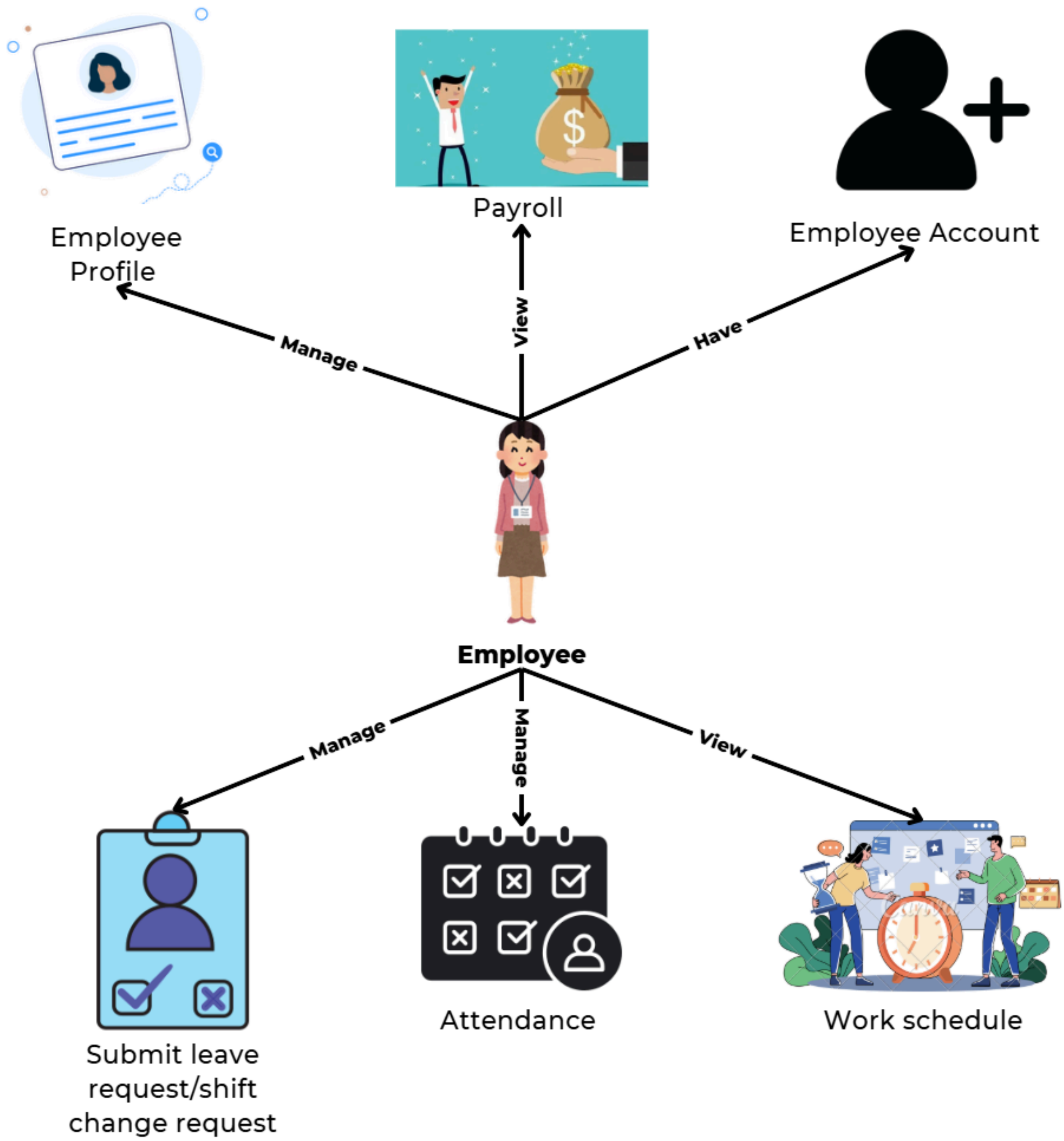


Figure 1.6: Our Product Idea With Employee

New Product Goals and Intentions for Employee:

Employee profile management:
Employees can access and update their personal profile, including personal information, qualifications, work experience and contact information. This makes it easy for them to manage and ensure records are always updated accurately.

Account management:
Employees can access their accounts to edit personal information, change passwords when necessary, and ensure that login information is always secure.

Attendance management:
Employees can check their working time and track overtime hours. The system helps employees clearly understand their timekeeping data for comparison and monitoring.

View job assignments and working hours:
Employees can easily view their work schedule, including work days and assigned shifts, helping them prepare and organise their personal work effectively.

Manage leave and shift change requests online:
Employees can submit leave requests or shift change requests directly on the system and track the approval status from the HR department. Shift change requests will be sent and processed according to the same process, making it easy for employees to change their work schedule when needed. Once approved, the system automatically updates the employee's remaining leave days and adjusts the shift schedule, providing flexibility and efficiency in management.

Compensation Management:

Employees can easily look up details of hourly wages, piece rates, and individual bonuses and penalties through the system. All information is updated continuously and clearly, helping employees monitor their financial situation accurately.

Vision Statement:

"Garment Factory Human Resource Management System is a comprehensive, automated solution designed to streamline and optimise human resource operations in garment manufacturing. Our system aims to revolutionise workforce management by replacing outdated manual processes with a technology-driven approach, providing real-time insights and automation across recruitment, training, work schedules, performance tracking, and payroll. By integrating seamlessly into factory operations, our system enhances productivity, improves employee satisfaction, and supports sustainable growth, aligning with the industry's digital transformation and future advancements."

6. Project Scope & Limitations

6.1 Major Features

There are 3 types of user in Garment Factory Human Resource Management System:

Type Of User	Description
Admin	The Admin is typically a user with the highest level of access in the system. They have full control over the platform and are responsible for managing other users, setting up system configurations, and overseeing all aspects of the operation.
Human Resources Department	The human resources department is a department responsible for effectively managing human resources, managing personnel records, labour contracts,...

Employee	Worker is a worker working in a factory

Table 1.3: Major Features

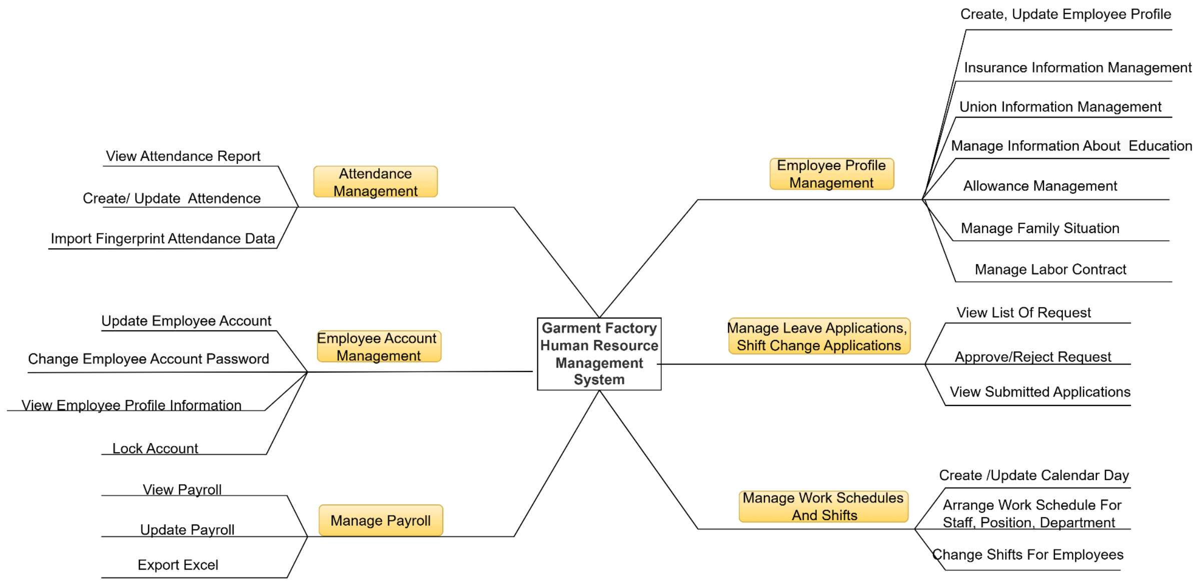


Figure 1.7:Major Features Diagram

6.2 Limitations & Exclusions

6.2.1. Limitations

LI-1: The system will not support employee asset or device management; it will focus solely on HR and timekeeping management.

LI-2: The product will not include employee training and development features; training courses will need to be manually managed outside the system.

LI-3: The system will not have a performance management feature.

LI-4: The system will not have an expense management feature.

6.2.2. Exclusions

EX-1: The system will not include employee health record management features; health-related information will not be stored or processed in the system.

EX-2: Recruitment management or posting of job postings directly on the system is not supported; these functions must be performed via other platforms.

EX-3: Notifications or reminders via SMS or mobile apps are not supported; notifications are sent via email only.

EX-4: Does not provide online training or e-learning tools; training must be administered off-site.

EX-5: Does not support remote or work-from-home job management and tracking; on-site personnel management only.

II. Project Management Plan

1. Overview

1.1 Scope & Estimation

#	WBS Item	Complexity	East. Effort (man-days)
1	***Project Initiating***		***25.5***
1.1	Define project scope	Medium	4
1.2	List the requirements	Complex	11
1.3	Create Report 1 (Project Introduction)	Medium	5
1.4	Customer meeting	Medium	1
1.5	Team meeting	Simple	4
1.6	Complete project initialization	Simple	0.5
2	***Project Planning***		***31.5***
2.1	Create report 2 (Project Management Plan)	Complex	10
2.2	Technical training	Complex	15
2.3	Customer meeting	Medium	2
2.4	Team meeting	Simple	4
2.5	Complete project planning	Simple	0.5
3	***Project Executing***		
3.1	***Sprint 1***		***83***
3.1.1	**Requirement & Design**		**44**
3.1..1.1	Define & analyse requirements	Complex	10
3.1..1.2	Define main use cases	Medium	7
3.1..1.3	Define & analyse main business flow	Complex	10
3.1..1.4	Design main screen mockup	Medium	10
3.1..1.5	Design main screen mobile	Complex	7
3.1.2	**Code & Web Implementation**		**28**
3.1.2.1	**Front-End**		**10**
3.1.2.1.1	Environment Configuration & Setup	Medium	5
3.1.2.1.2	Create base project	Medium	5

3.1.2.2	**Back-end**		**10**
3.1.2.2.1	Configuration & Setup environment	Medium	5
3.1.2.2.2	Create base project	Medium	5
3.1.2.3	**Mobile**		**8**
3.1.2.3.1	**Front-End**		**6**
3.1.2.3.1.1	Configuration & Setup environment	Medium	3
3.1.2.3.1.2	Create base project	Medium	3
3.1.2.3.2	**Back-end**		**2**
3.1.2.3.2.1	Configure & Install Library	Medium	2
3.1.3	**Document**		**11**
3.1.3.1	Create report 3 (SRS)	Medium	10
3.1.3.2	**Summary & Review Sprint 1**	Simple	1
3.2	***Sprint 2***		***87***
3.2.1	**Requirement & Design**		**25**
3.2.1.1	List the requirements	Medium	5
3.2.1.2	System architecture design	Complex	5
3.2.1.3	Back-end architecture design	Complex	5
3.2.1.4	Design front-end architecture	Complex	5
3.2.1.5	Design database	Complex	5
3.2.2	**Code & Implementation**		**47**
3.2.2.1	**Back-end**		**20.5**
3.2.2.1.1	**API**		**20.5**
3.2.2.1.1.1	API authentication	Medium	2
3.2.2.1.1.2	API CRUD User Login	Simple	1
3.2.2.1.1.3	API User claims	Medium	1
3.2.2.1.1.4	API User Token	Medium	2
3.2.2.1.1.5	UserRole API	Medium	2
3.2.2.1.1.6	API RoleClaims	Complex	2
3.2.2.1.1.7	API User Infors	Simple	1
3.2.2.1.1.8	API Allowance	Medium	2

3.2.2.1.1.9	API Contract Users	Complex	2
3.2.2.1.1.10	API Contract Allowance	Medium	2
3.2.2.1.1.11	CCCDs API	Simple	0,5
3.2.2.1.1.12	API Position User	Medium	0,5
3.2.2.1.1.13	API profile	Simple	0,5
3.2.2.1.1.14	Timekeeping API	Medium	2
3.2.2.2	**Front-end**		**14.5**
3.2.2.2.1	**Authentication screen**		**2**
3.2.2.2.1.1	Sign in Screen	Simple	1
3.2.2.2.1.2	Home Screen	Medium	1
3.2.2.2.2	**Manage Labour Contract Screen**		**5,5**
3.2.2.2.2.1	Screen View list of labor contracts	Medium	2
3.2.2.2.2.2	Labour contract CRUD screen	Medium	2
3.2.2.2.2.3	Contract Renewal / Termination Screen	Medium	1,5
3.2.2.2.3	**Profile screen**		**1,5**
3.2.2.2.3.1	User profile screen	Simple	1
3.2.2.2.3.2	Update profile screen	Simple	0,5
3.2.2.2.4	**Employee account management screen**		**2,5**
3.2.2.2.4.1	Screen to create new account for employee	Simple	0,5
3.2.2.2.4.2	Screen to delete account	Simple	0,5
3.2.2.2.4.3	Screen to edit information/change password of employee	Simple	0,5
3.2.2.2.4.4	Screen to view list of employee accounts	Simple	1
3.2.2.2.5	**Screen to view attendance information**	Complex	**3**
3.2.2.3	**Mobile Screen**		**12**
3.2.2.3.1	**Font-end**		**11**
3.2.2.3.1	Login Screen	Simple	1
3.2.2.3.2	Home Screen	Medium	0,5
3.2.2.3.3	Profile Screen	Medium	1
3.2.2.3.6	Notification screen	Medium	1

3.2.2.3.7	Detailed notification screen	Medium	0,5
3.2.2.3.8	Attendance report screen	Medium	1
3.2.2.3.9	Leave application status screen, overtime application, shift change application screen	Medium	2
3.2.2.3.10	Profile management screen	Complex	2
3.2.2.3.11	Timekeeping information viewing screen	Complex	2
3.2.2.3.2	**Back-end**		**1**
3.2.2.3.2.1	Integrate API into login	Complex	1
3.2.3	**Testing**		**4**
3.2.3.1	Create test case Sprint 2	Medium	2
3.2.3.2	Test sprint 2	Simple	1
3.2.3.3	Fix Bug Sprint 2	Medium	1
3.2.4	**Document**		**11**
3.2.4.1	Create Report 4(Software Design)	Medium	10
3.2.5	**Summary & Review Sprint 2**	Simple	1
3.3	**Sprint 3**		**76.5**
3.3.1	**Requirement & Design**		**25**
3.3.1.1	Update requirements	Medium	5
3.3.1.2	System architecture design	Complex	5
3.3.1.3	Back-end architectural design	Complex	5
3.3.1.4	Design front-end architecture	Complex	5
3.3.1.5	Design database	Complex	5
3.3.2	**Code & Implementation**		**41.5**
3.3.2.1	**Back-end**		**22.5**
3.3.2.1.1	**API**		**22.5**
3.3.2.1.1.1	API Company Address	Simple	0,5
3.3.2.1.1.1	Employee Salary Information API	Complex	3
3.3.2.1.1.2	Overtime Registration API	Medium	2
3.3.2.1.1.3	Leave Registration API	Medium	2
3.3.2.1.1.4	Shift Registration API	Medium	2

3.3.2.1.1.5	View Shifts, Workdays API	Complex	3
3.3.2.1.1.6	API Tax	Complex	3
3.3.2.1.1.7	API Leave Type	Medium	1
3.3.2.1.1.8	Health Insurance API, Health Insurance Details	Complex	3
3.3.2.1.1.9	**Employee Profile Management API**	Medium	**3**
3.3.2.1.1.9.1	Employee Profile CRUD API	Medium	2
3.3.2.1.1.9.2	Employee Account Creation API	Medium	1
3.3.2.2	**Front-end**		**7**
3.3.2.2.1	Admin screen	Complex	2
3.3.2.2.2	Dashboard screen	Complex	3
3.3.2.2.3	Manage user screen	Medium	2
3.3.2.3	**Mobile**		**8**
3.3.2.3.1	Work Schedule Screen	Complex	4
3.3.2.3.2	Salary Information Screen	Medium	4
3.3.3	**Firebase**		**4**
3.3.3.1	Notification	Medium	2
3.3.3.2	Submit complaints, feedback	Medium	2
3.3.4	**Testing**		**4**
3.3.4.1	Create test case Sprint 3	Medium	2
3.3.4.2	Test sprint 3	Simple	1
3.3.4.3	Fix bug Sprint 3	Medium	1
3.3.5	**Document**		**6**
3.3.5.1	Create Report 5(Test document)	Medium	5
3.3.6	**Summary & Review Sprint 3**	Simple	1
4	***Project Monitoring and Controlling***		***17***
4.1	Create Report 6(Software User Guides)	Simple	7
4.2	Perform project communication	Medium	2
4.3	Monitor and control scope	Medium	2
4.4	Monitor and control risk	Medium	2

4.5	Monitor and control cost	Medium	2
4.6	Tracking progress	Medium	2
5	***Project Closing***		***13***
5.1	Create final report	Medium	5
5.2	Team meeting	Medium	2
5.3	UAT	Complex	5
5.4	Close Project	Medium	1
		Total Estimated Effort (man-days)	**333.5**

Table 2.1: WBS & Estimation

1.2 Project Objectives

Timeliness: The project must be completed before December 105, 2024

Allocated effort (man-days): 333,5

Error distribution:

#	Testing Stage	Test Coverage	No. of Defects	% of Defect	Notes
1	Reviewing	100	30	33,33%	Technical leader reviews code of members before merging
2	Unit Test	100	10	10%	Test each functional unit individually.
3	Integration Test	450	30	6.67%	Integration testing of developed modules.
4	System Test	50	5	10%	Comprehensive system testing on request
5	API Test	200	70	35%	Test the functionality and performance of APIs.
6	Acceptance Test	80	4	5%	Customer acceptance test.
	Total :	**980**	**149**	**100%**	

Table 2.2: Defect Distribution

1.3 Project Risks

#	Risk Description	Impact	Possibility	Response Plans
1	Change requests	High	High	Communicate regularly with stakeholders to ensure requirements are clear; develop flexibly to adapt to change.
2	Data leaks and security	High	Medium	Implement strong encryption, regular security audits, and comply with data protection regulations
3	Conflicts between team members	Medium	Medium	Hold problem-solving meetings and maintain transparency in communication among members to resolve conflicts and promote cooperation.
4	Sick or absent member	Medium	Medium	Have a backup plan in place, make sure the documentation is clear and up to date so other members can easily replace you. Be flexible in adjusting staff or extending the sprint if needed.
5	Poor UI/UX design	Medium	Medium	Conduct user testing and evaluation sessions to get timely feedback
6	Lack of knowledge of some techniques	Medium	Medium	Members support each other and enhance their preparation of necessary knowledge.
7	Unsupported or outdated libraries	Medium	Medium	Look for alternatives if the library is no longer supported.
8	Too much work	Medium	Medium	Use the Scrum method to break down work into sprints with clear and achievable goals. Track daily workloads using management tools such as burndown charts. Adjust the backlog and prioritize important tasks to avoid overloading the team. Be flexible in extending sprints or adding more people if necessary.

Table 2.3: Project Risks

2. Management Approach

2.1 Project Process

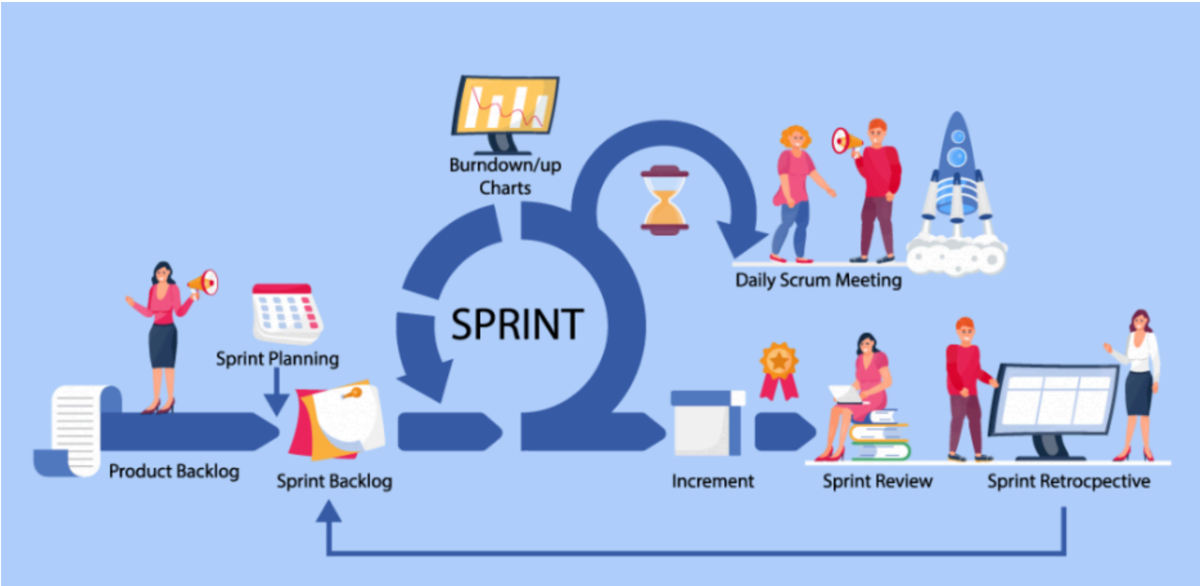


Figure 2.1 Scrum Project Management

This project uses the Scrum framework, a popular Agile methodology. Scrum is especially useful for projects with complex requirements that need to be adjusted frequently. The framework emphasises progress over sprints, allowing teams to continuously adjust and improve their work. By using Scrum, we break the project down into manageable pieces of work and focus on delivering incremental value. The Scrum framework has several advantages:

- **Rollover Delivery:** Products are delivered in small chunks, called sprints, typically lasting 2-4 weeks, allowing stakeholders to see progress and provide regular feedback.
- **Flexibility and Adaptability:** Scrum allows for rapid adjustment of requirements and priorities based on feedback and changing needs.
- **Enhanced Collaboration:**This framework encourages daily meetings, sprint reviews and retrospectives, facilitating close communication and collaboration within the team and with stakeholders.
- **Transparency and Visibility:** Scrum practices, such as sprint planning and review meetings, provide transparency into progress and challenges, ensuring everyone understands and is aware of the project status.
- **Focus on Value:** Scrum emphasises completing the most important features first, ensuring that the most valuable and impactful work is completed early in the project.
- **Continuous Improvement:** Regular retrospectives allow the team to reflect on its processes and performance, driving continuous improvement and adopting best practices.

2.2 Quality Management

- **React** must be used during front-end application development to ensure React code follows consistent conventions. React helps:
    - Enhanced management of user interface components.

- Make sure that the code follows general rules and is easy to maintain.

- **Visual Studio Code 2019** will be the main development tool for front-end applications.
- **.NET** must be used in back-end application development to ensure correct C# code.
- Programming and database conventions must be strictly followed to ensure consistency, improve readability, and make the source code and database correct and maintainable.
- **Source code structure** clearly divided for easy development, testing, debugging and extension.
- All tasks and issues are created in Jira and **Google Sheets** for the group to monitor and implement. The more tasks completed and the fewer errors that appear, the better the project quality is guaranteed.

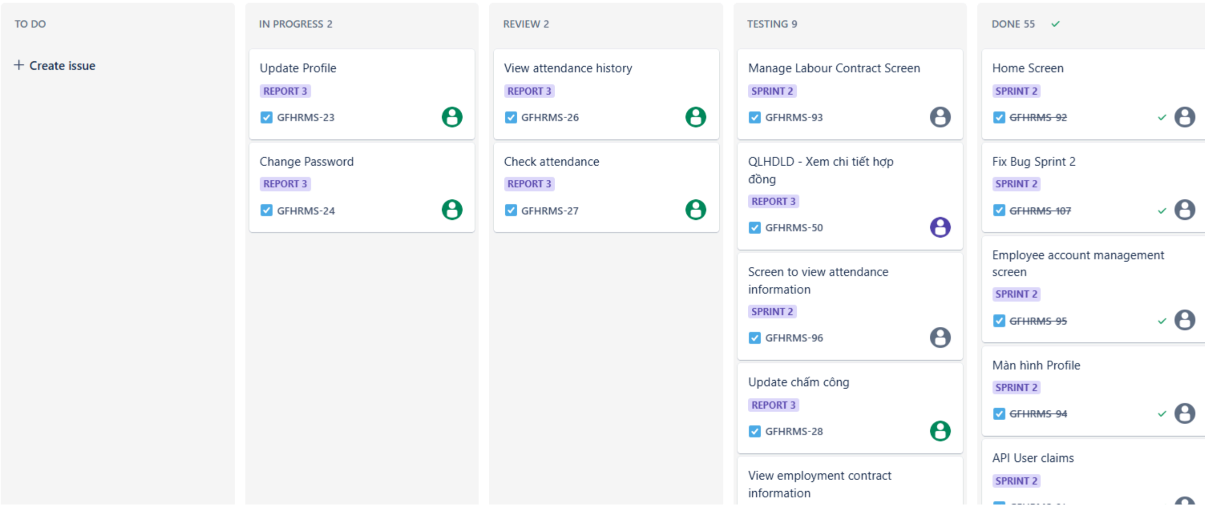
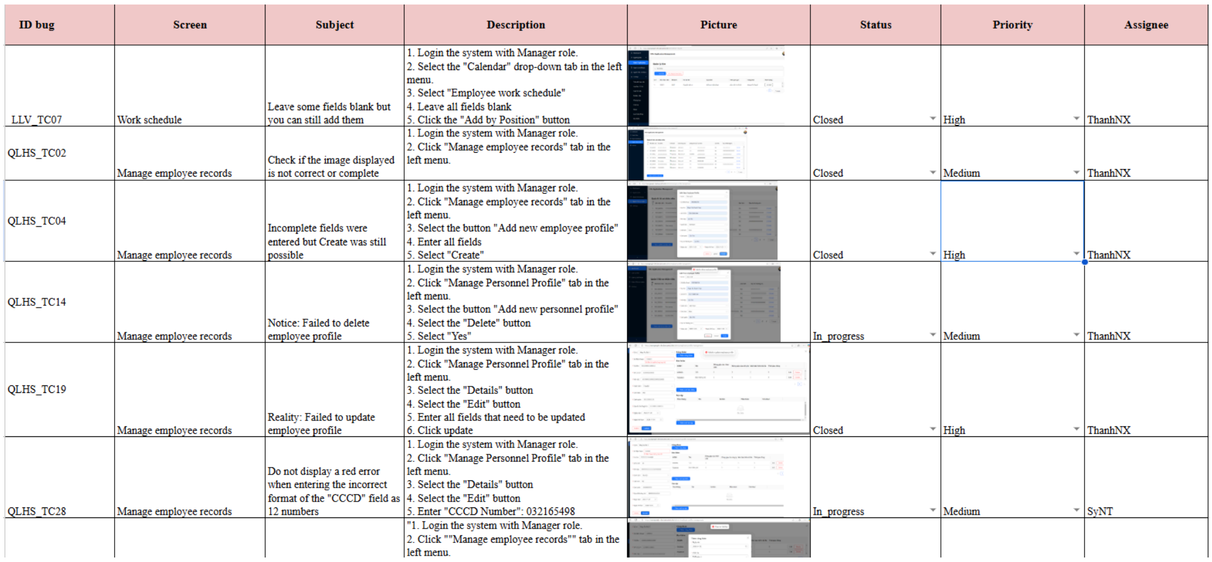


Figure 2.2 Task In Jira



ID bug	Screen	Subject	Description	Picture	Status	Priority	Assignee
LLV_TC07	Work schedule	Leave some fields blank but you can still add them	1. Login the system with Manager role. 2. Select the "Calendar" drop-down tab in the left menu. 3. Select "Employee work schedule" 4. Leave all fields blank 5. Click the "Add by Position" button		Closed	High	ThanhNX
QLHS_TC02	Manage employee records	Check if the image displayed is not correct or complete	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu.		Closed	Medium	ThanhNX
QLHS_TC04	Manage employee records	Incomplete fields were entered but Create was still possible	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu. 3. Select the button "Add new employee profile" 4. Enter all fields 5. Select "Create"		Closed	High	ThanhNX
QLHS_TC14	Manage employee records	Notice: Failed to delete employee profile	1. Login the system with Manager role. 2. Click "Manage Personnel Profile" tab in the left menu. 3. Select the button "Add new personnel profile" 4. Select the "Delete" button 5. Select "Yes"		In_progress	Medium	ThanhNX
QLHS_TC19	Manage employee records	Reality: Failed to update employee profile	1. Login the system with Manager role. 2. Click "Manage Personnel Profile" tab in the left menu. 3. Select the "Details" button 4. Select the "Edit" button 5. Enter all fields that need to be updated 6. Click update		Closed	High	ThanhNX
QLHS_TC28	Manage employee records	Do not display a red error when entering the incorrect format of the "CCCD" field as 12 numbers	1. Login the system with Manager role. 2. Click "Manage Personnel Profile" tab in the left menu. 3. Select the "Details" button 4. Select the "Edit" button 5. Enter "CCCD Number": 032165498		In_progress	Medium	SyNT
			"1. Login the system with Manager role. 2. Click ""Manage employee records"" tab in the left menu.				

Figure 2.3 Issues In Google Sheet

2.3 Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Visual Studio 2022	Lam, Quang, Duyen	6/9/2024 - 30/9/2024	Mandatory
Git, Github	All members	6/9/2024 - 30/9/2024	Mandatory
SQL Server	All members	6/9/2024 - 30/9/2024	Mandatory
Jira	All members	6/9/2024 - 30/9/2024	Mandatory
Visual Studio Code	Thanh, Sy	6/9/2024 - 30/9/2024	Mandatory

Table 2.4: : Training Plan

3. Project Deliverables

#	Deliverable	Two Dates	Notes
1	Project Idea	05/09/2024	
2	Report 1 – Project Introduction	10/09/2024	Product Background Existing Systems Business Opportunity Product Vision Project Scope & Limitations
3	Report 2 - Project Management Plan	20/09/2024	WBS Project Process Plan and Schedule Project Organization Project Communication Configuration Management
4	Report 3 – SRS	30/9/2024	Business Rules Use Case Diagram & Use Case Description Functional Requirements Non-Functional Requirements
5	Report 4 – Software Design	10/10/2024	System Architecture Back-end Architecture Front-end Architecture Database design
6	Code & Sprint 1	30/10/2024	Detail Design Code & Unit Test Integration & System test cases
7	Code & Sprint 2	15/11/2024	Detail Design Code & Unit Test Integration & System test cases
8	Report 5 – Test Document	20/11/2024	Test Model Test Plan Test Cases Test Reports
9	Report 6 – Software User Guides	27/11/2024	Deliverable Package Installation Guides User Manual
10	Code & Sprint 3	9/12/2024	Detailed Design Code & Unit test

			Integration & System test cases
11	Final Code & Report	9/12/2024	

Table 2.5: : Master Schedule

4. Responsibility Assignments

4.1.Team & Structures

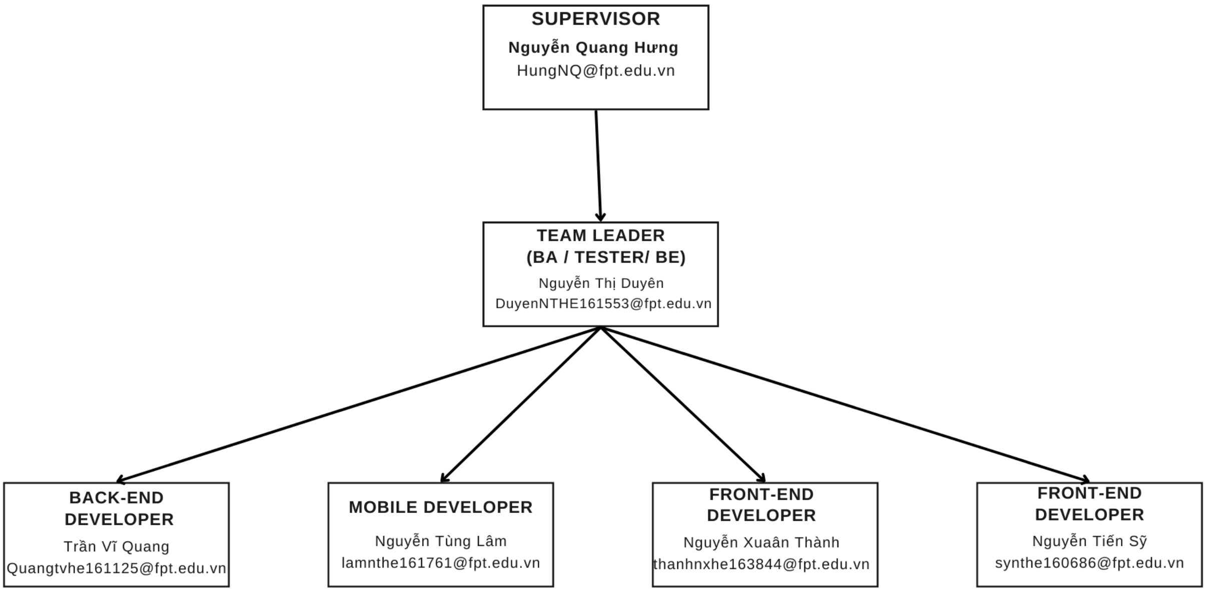


Figure 2.4: Project Team

4.2 Roles & Responsibilities

Role	Responsibility
Supervisor	- Oversee overall project progress and quality. - Provide strategic guidance and resolve major issues. - Support the team in making key decisions. - Define long-term and short-term goals for the project, ensuring the team is on track. - Evaluate performance and provide regular feedback to team members. - Ensure the resources and tools needed for the team to complete the work.
Team Leader	- Plan, develop schedules, coordinate communications, and be responsible for keeping the team focused on the main goal. - Analyse requirements - Define scope and create documentation - Record and describe specific use cases
BA / Tester	- Analyse requirements - Define scope and create documentation - Record and describe specific use cases - Create a sample test document. - Define test strategy, create test plan and error log

	template. - Create a sample test document. - Define test strategy, create test plan and error log template. - Create test cases. - Implement test cases and error logs.
Devops Developer	- Develop and maintain the entire system from front-end to back-end - Integrate APIs and services - Ensure system performance, security and scalability
Mobile Developer	- Mobile App Development - Optimise Apps for Mobile Devices - Integrate Mobile-Specific Features - Integrate APIs and Services to Mobile
Front-End Developer	- User Interface Design and Development - Optimising User Experience (UX/UI) - Ensuring Consistency and Efficiency of Interfaces

Table 2.6: : Roles And Responsibilities

4.3 Responsibility Assignments

D~Do; R~Review; S~Support; I~Informed; <blank>- Omitted

Responsibility	DuyenNT	QuangTV	LamNT	ThanhNX	SyNT
Project Planning & Tracking	D/R	S/R	S/R	S/R	S/R
Prepare Project Introduction Document	D/R	S/R	S/R	S/R	S/R
Prepare SRS Document (Overview Part)	D/R	S/R	S/R	S/R	S/R
Prepare SRS Document (User Requirements)	D/R	D/R	D/R	D/R	D/R
Prepare SRS Document (Non-Functional Requirements)	D/R	S/R	S/R	S/R	S/R
Prepare SRS Document (Requirements Appendix)	D/R	S/R	S/R	S/R	S/R
Prepare SDD (System Design)	D/R	D/R	D/R	D/R	D/R
Prepare SDD (Database Design)	D/R	D/R	S/R	S/R	S/R
Prepare SDD (Detail Design)	D/R	D/R	D/R	D/R	D/R

Code Sprint 1	D/R	D/R	D/R	D/R	D/R
Code Sprint 2	S/R	D/R	D/R	D/R	D/R
Code Sprint 3	S/R	D/R	D/R	D/R	D/R
Code Sprint 4	S/R	D/R	D/R	D/R	D/R
Prepare Test Documentation (Scope of Testing)	D/R	S/R	S/R	S/R	S/R
Prepare Test Documentation (Test strategy)	D/R	D/R	S/R	S/R	S/R
Prepare Test Documentation (Test plan)	D/R	D/R	S/D	S/D	S/D
Prepare TestDocumentation (Test cases)	D/R	D/R/S	D/R/S	D/R/S	D/R/S
Prepare Test Documentation (Test report)	D/R	S/R	S/R	S/R	S/R
Prepare Software User Guides	D/R	S	S	S	S
Prepare Final Software Report	D/R	S	S	S	S
Slide	D/R	S/R	S/R	S/R	S/R
Deploy BE	I	D/R	I	I	I
Deploy FE + Integrate	I	S/R	D/R	D/R	D/R

Table 2.7: Responsibility Assignments

5. Project Communications

5.1 Communication Plan

Communication Item	Who/ Target	Purpose	When, Frequency	Type, Tool, Method(s)
Daily team meeting	All Team members	Report project's progress and status of each member's work progress. - Discussion problems	1 hour every evening at 22:00	Google Meet , Message
Weekly meeting with mentor	All Team members	Report project progress, fix bugs found by mentor in previous meeting let mentor review project, define next week plan	Once every 1 week	Google Meet

Unscheduled meeting	All Team members	Find solution for an unexpected issue, or which can't be solved by team resource	When need	Face to face, Online

Table 2.8: Communication Plan

5.2 External Interface

Function	Contact Person (name, position)	Contact address (email)	Responsibility
Supervisor	Nguyen Quang Hung	HungNQ@fpt.edu.vn	- Provide document template - Give instruction to project team - Review deliverables - Supervise project status - Receive report project

Table 2.9: FU Contact

6. Configuration Management

6.1 Document Management

6.1.1. Convention

- Font family: Times New Roman
- Font size: 12pt

6.1.2. Management

- All documents will be stored on Google Docs.
- All team members can access, view and edit online documents on Google Docs.
- All reports will be delivered to the supervisor in a group on facebook.

6.2 Source Code Management

6.2.1. Convention

- All coding branches must be reviewed by at least one developer before merge to - default branch.
- There is only one person who can merge branches to the default branch.
- All developers must implement unit test and review code before create merge
- Request.

6.2.2. Management

- All source code will be stored on Github.
- Only team members can access the repository on Github.

6.3 Tools & Infrastructures

Category	Tools / Infrastructure
Programming Languages	.NET, React
Technology	Visual Studio Code , Visual Studio 2022
Database	Sql Server 2022
API	Restful API
API Manager Tool	Swagger
IDEs/Editors	Visual Studio Code
Diagramming	StarUML, DrawIO, Visual Paradigm Online
Documentation	Google Docs/Sheets/Slides
Version Control	GitHub (Source Codes), Google Drive (Documents)
Deployment Server	Ubuntu Server
Project Management	Jira, GitLab (Tasks, Defects)

Table 2.10: Tools & Techniques

III. Software Requirement Specification

1. Product Overview

The Human Resource Management System (HRMS) for garment factories is an integrated software solution designed to automate and optimize human resource processes, from employee information management to payroll and timekeeping processing. The system helps to improve management efficiency, minimize manual errors, and improve decision-making by providing timely and accurate information.

Below is a context diagram illustrating the external entities and interfaces of the system in the first version (version 1.0). The human resource management system is linked to many departments and functions, including:

- Admin: Manages user access rights and system settings, ensuring stable and secure operations.
- Human Resources (HR) Department: Responsible for managing labour contracts, employee records, timekeeping, and salaries. HR is also responsible for approving leave, processing information change requests, and announcing new human resource policies.
- Employees: Employees can access the system to view personal information, submit leave requests, check payroll, and report errors. They can also check their attendance records.

This HRMS system creates a seamless work environment where all human resource processes are centrally managed, from attendance, payroll calculation to leave requests and employment contracts. The functions in the system are clearly divided, interacting with each other through automatic data flows, ensuring accurate and transparent information between departments.

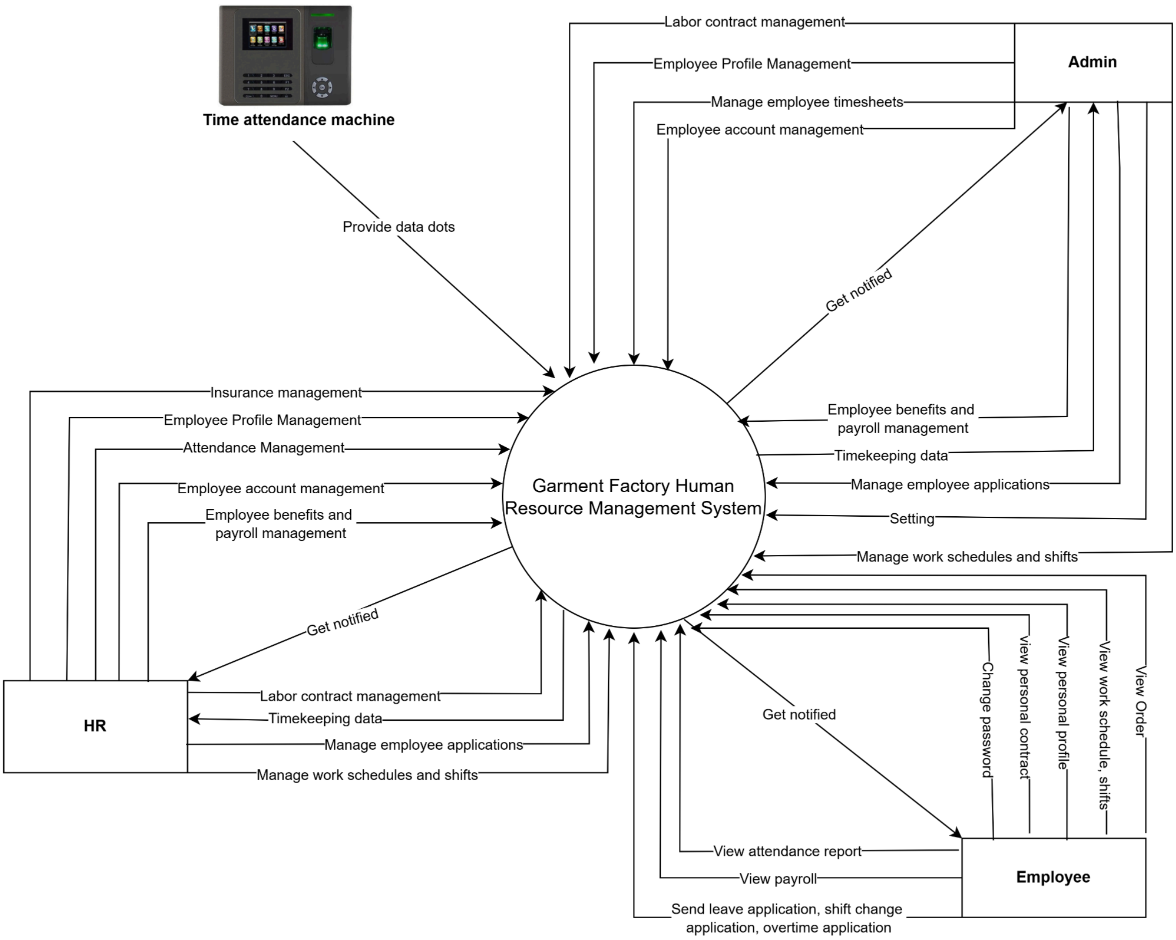


Figure 3.1: Context Diagram

2. User Requirements

2.1 Actors

#	Actor	Description
1	HR	Human resources staff are responsible for managing employee information, tracking insurance, timekeeping, and labor contracts. HR handles payroll, bonuses, insurance, and expenses, with access to payroll and insurance expense reports.
2	Employee	Employees can view work days, shifts, check timekeeping reports and track the status of submitted requests, view information about their salary, personal profile or labor contract via the mobile application or website.
3	Admin	Admins have the same responsibilities as HR, including managing employee information, tracking insurance, timekeeping, and handling payroll, bonuses, and other expenses. Additionally, Admins can configure job titles, manage support (allowances, benefits), and set up roles within the system.

Table 3.1: Actors

2.2 Use Cases

2.2.1 Diagram(s)

2.2.1.1 UseCase Diagram (Website)

2.2.1.1.1. Use case Actor Admin

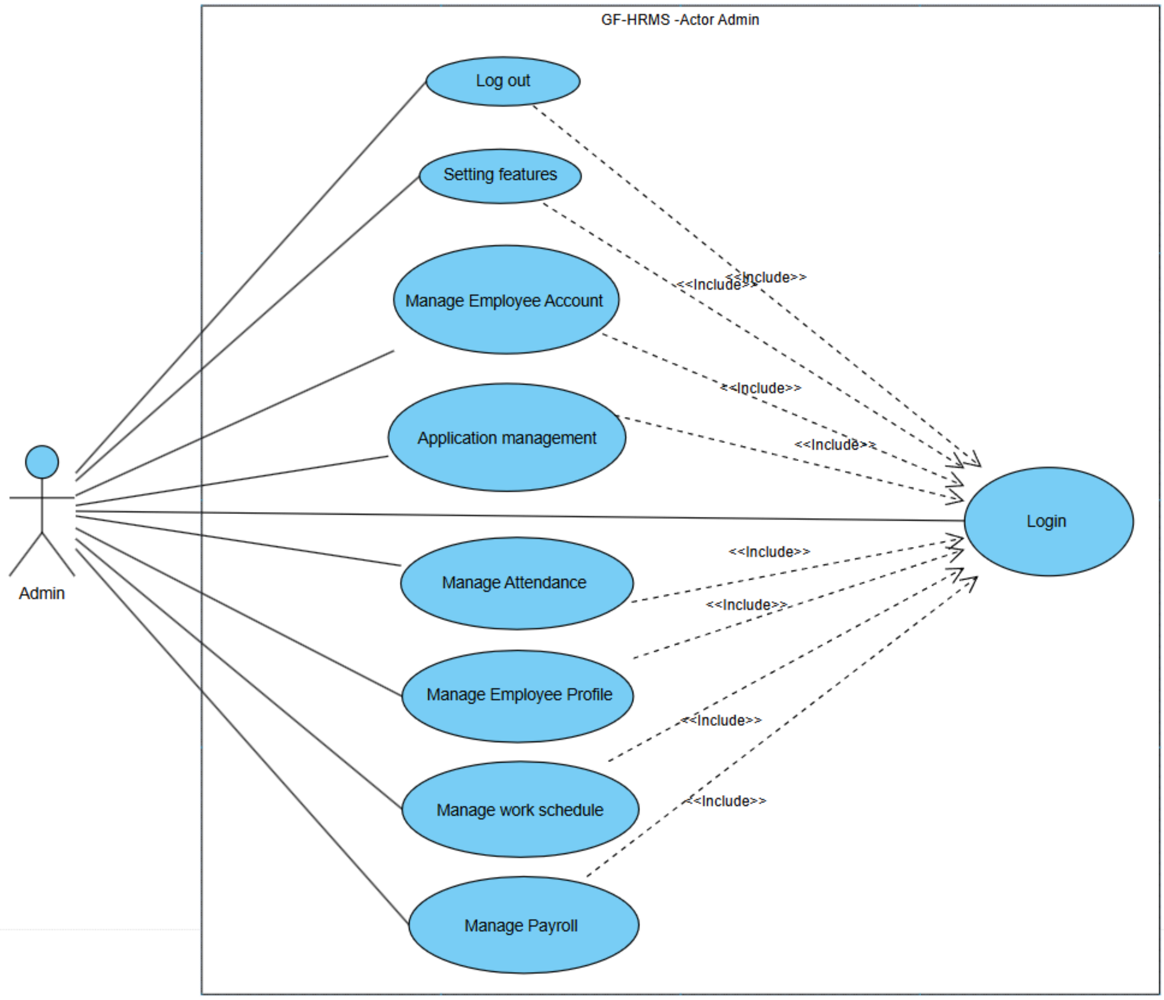


Figure 3.2: Use Case Diagram – Admin

2.2.1.1.2. Use case Actor HR

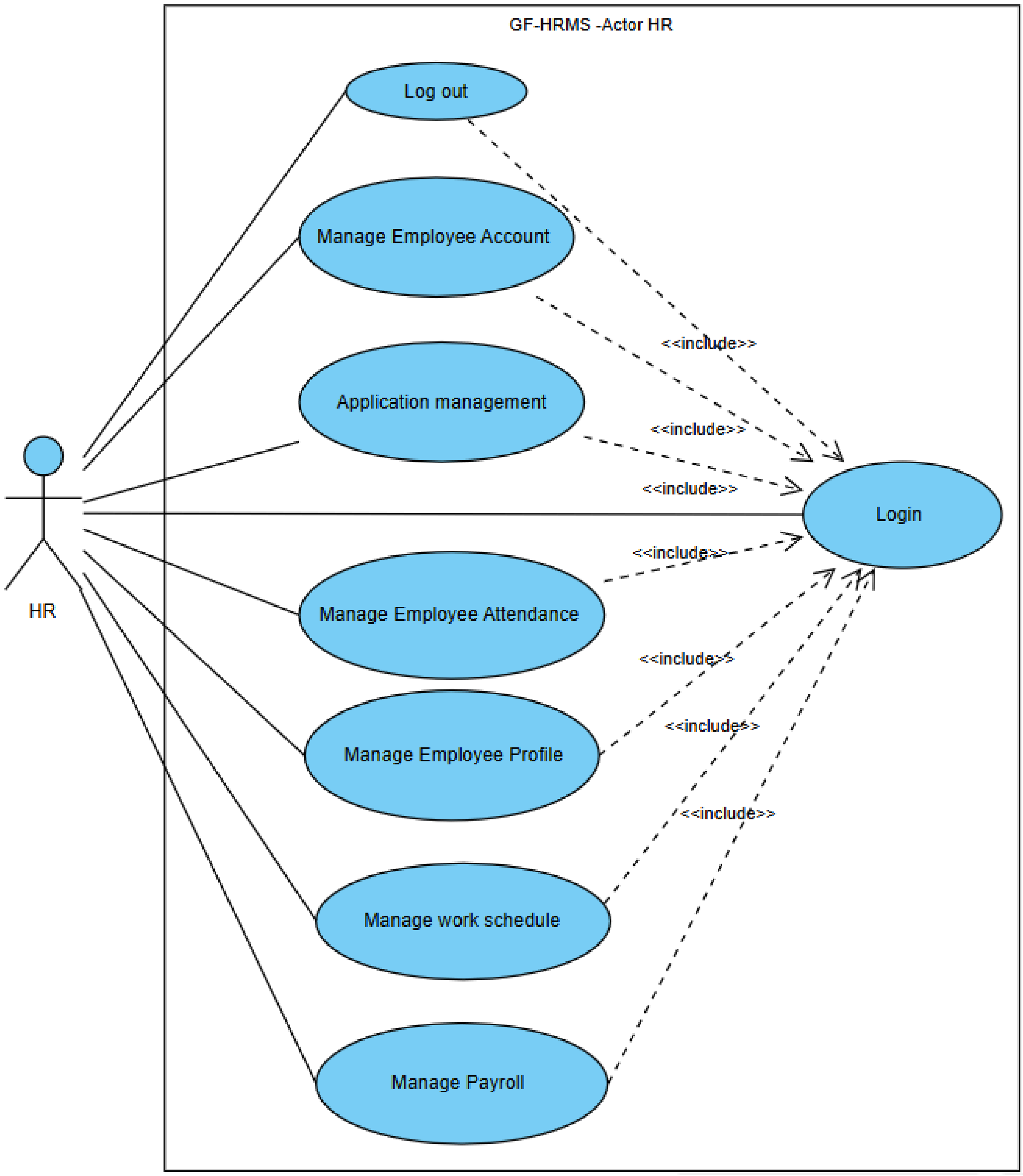


Figure 3.3: Use Case Diagram – HR

2.2.1.1.3. Use case Actor Employee

Figure 3.4: Use Case Diagram – Actor Employee

2.2.1.1.4. Use case Function Change Personal Password

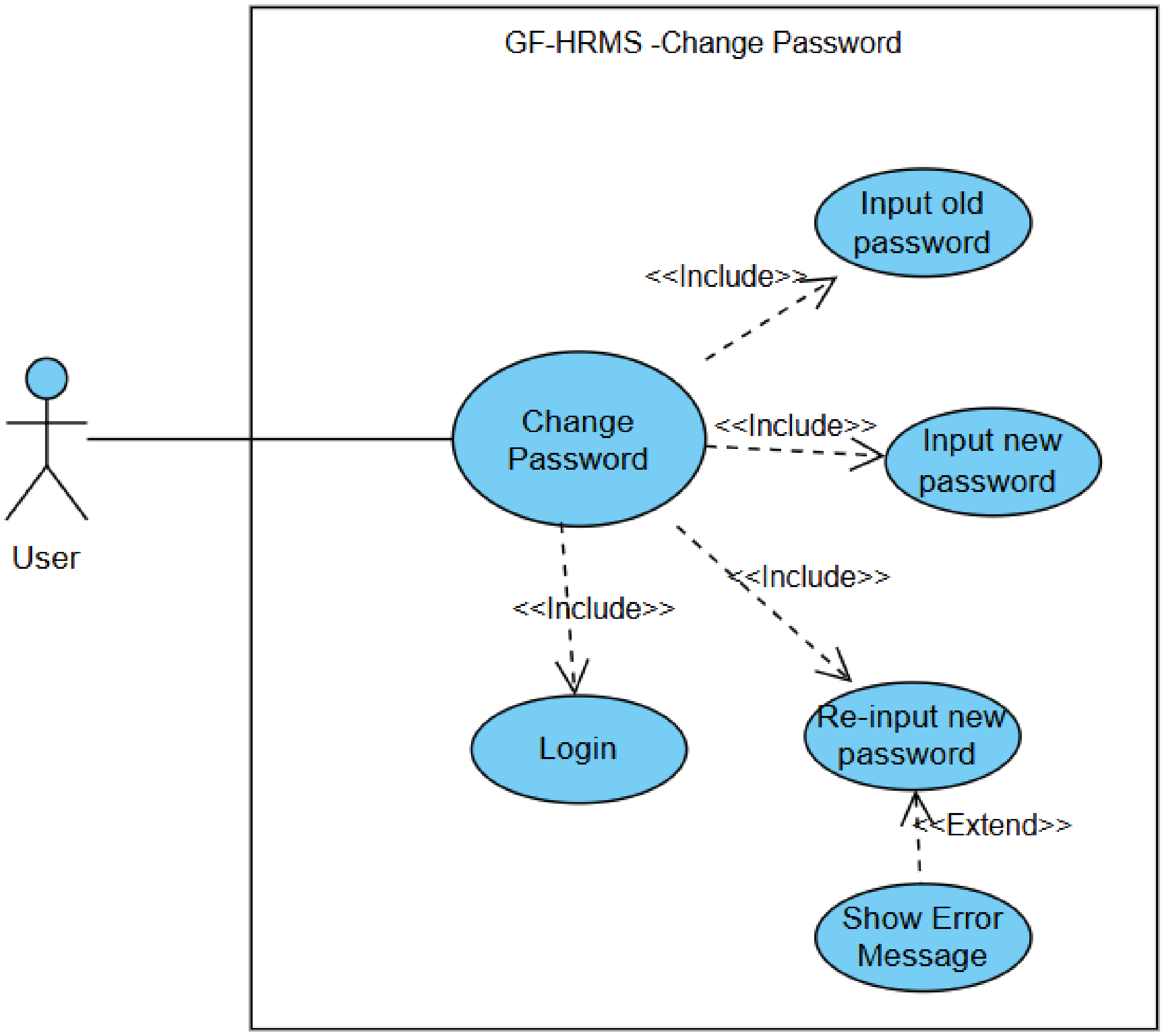


Figure 3.5: Use Case Diagram – Change Personal Password

2.2.1.1.5. Use case Function Employee Profile Management

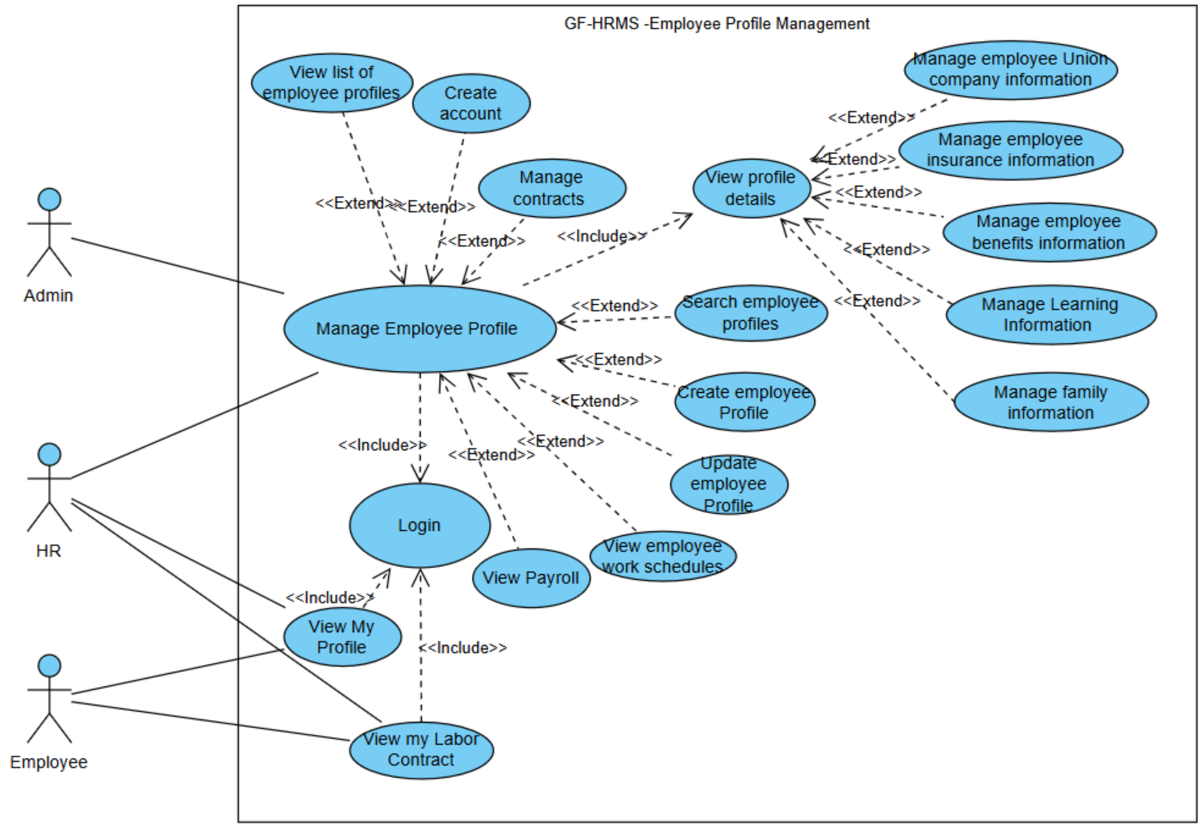


Figure 3.6: Use Case Diagram – Function Employee Profile Management

2.2.1.1.6. Use case Function Employee Account Management

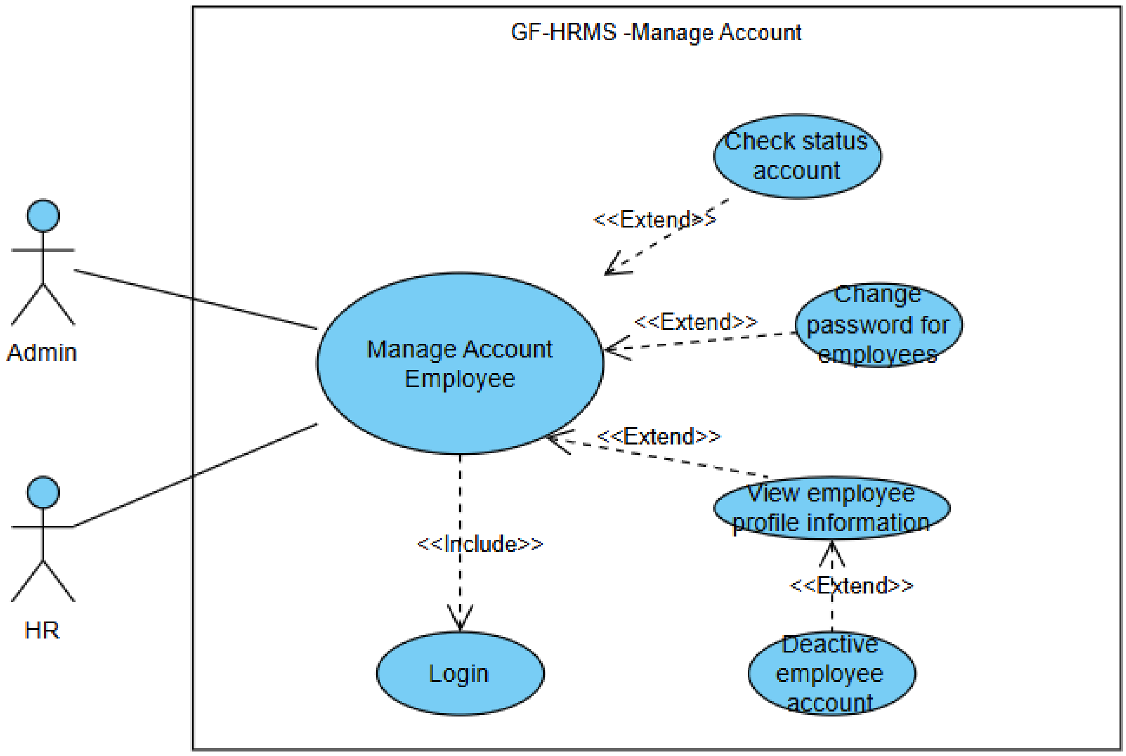


Figure 3.7: Use Case Diagram – Function Employee Account Management

2.2.1.7. Use case Function Work schedule

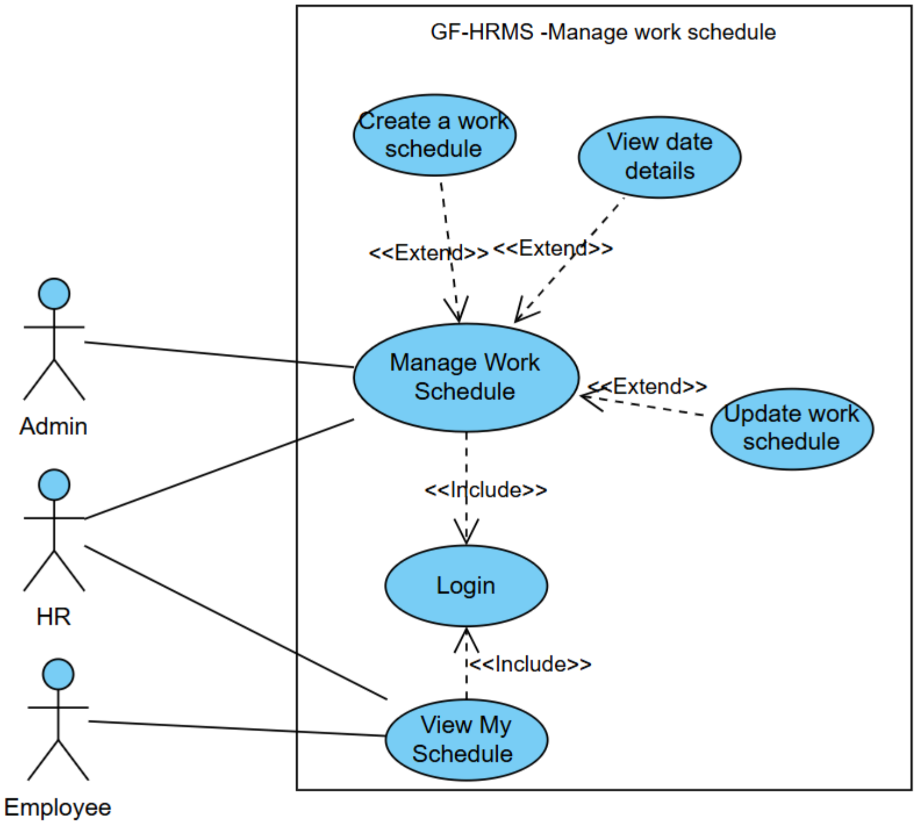


Figure 3.8: Use Case Diagram – Function Work schedule

2.2.1.8. Use case Function Manage Calendar Day

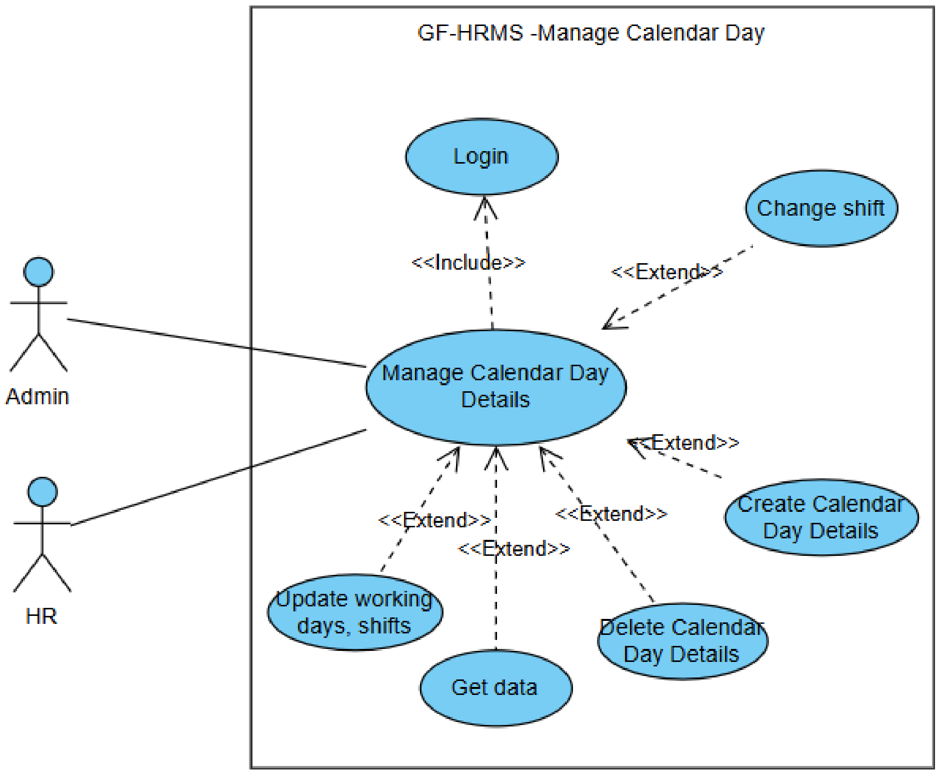


Figure 3.9 : Use Case Diagram – Function Manage Calendar Day

2.2.1.1.9. Use case Function Manage Request

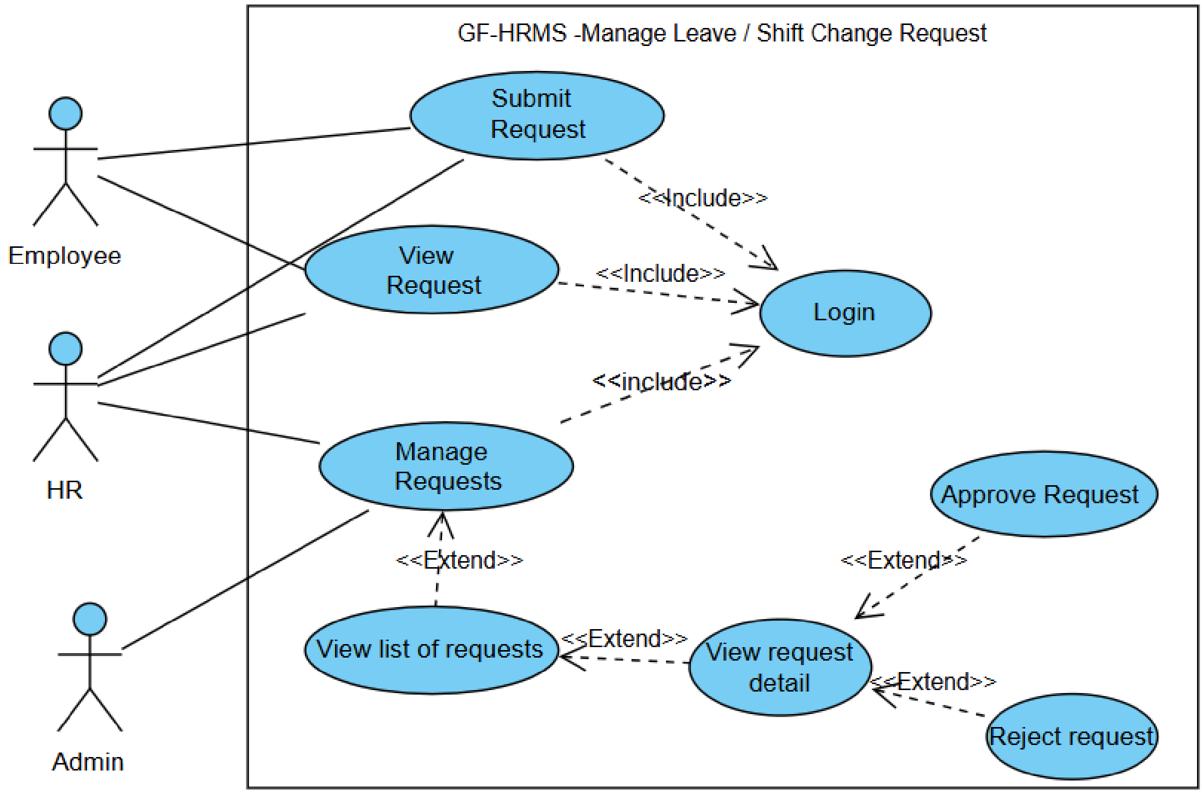


Figure 3.10: Use Case Diagram – Function Manage Request

2.2.1.1.10. Use case Function Attendance management

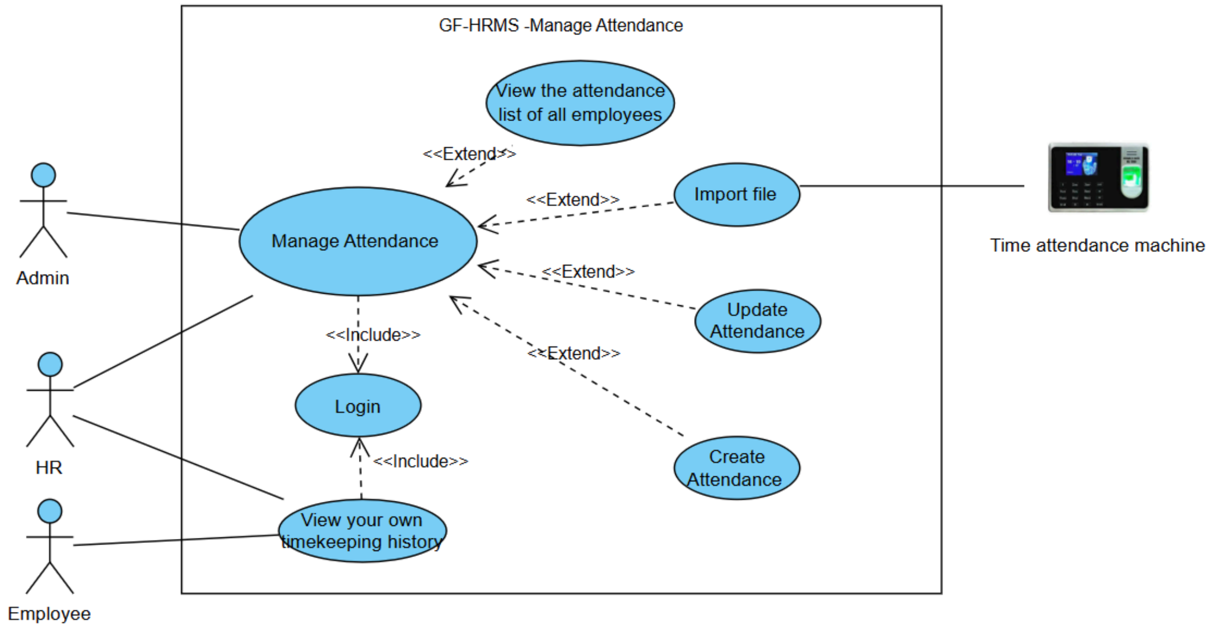


Figure 3.11: Use Case Diagram – Function Attendance Management

2.2.1.1.11. Use case Function Manage Payroll

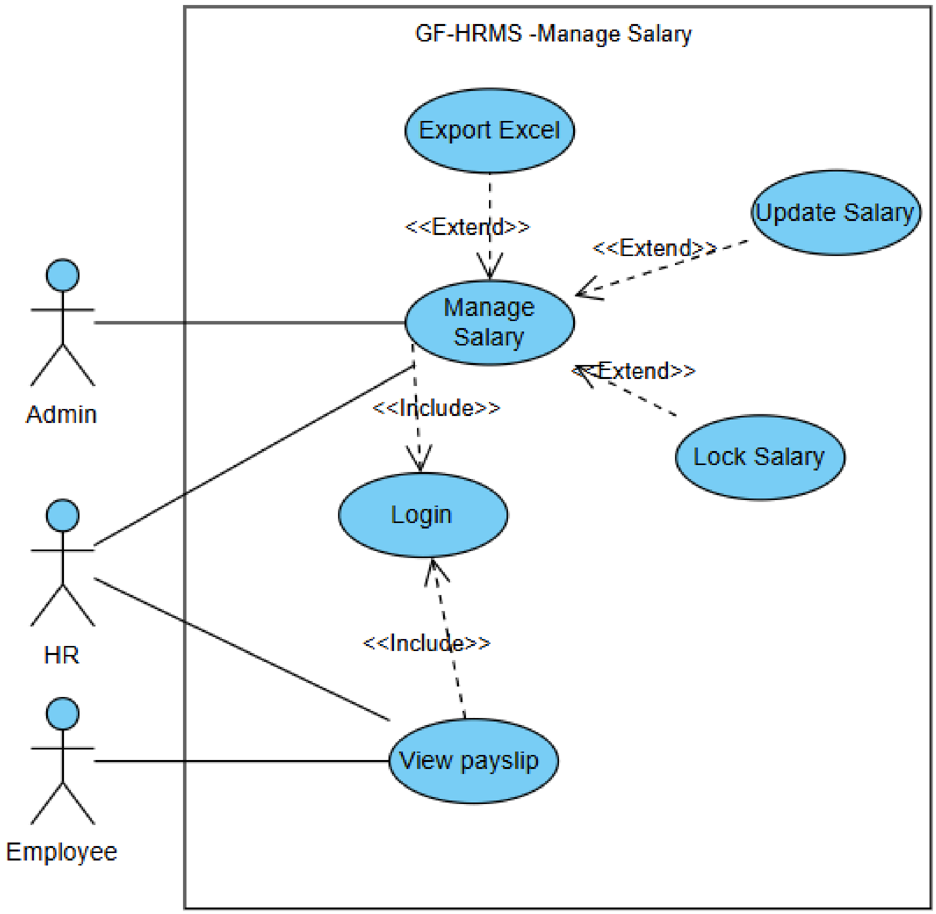


Figure 3.12: Use Case Diagram – Function Manage Payroll

2.2.1.2. UseCase Diagram (Mobile)

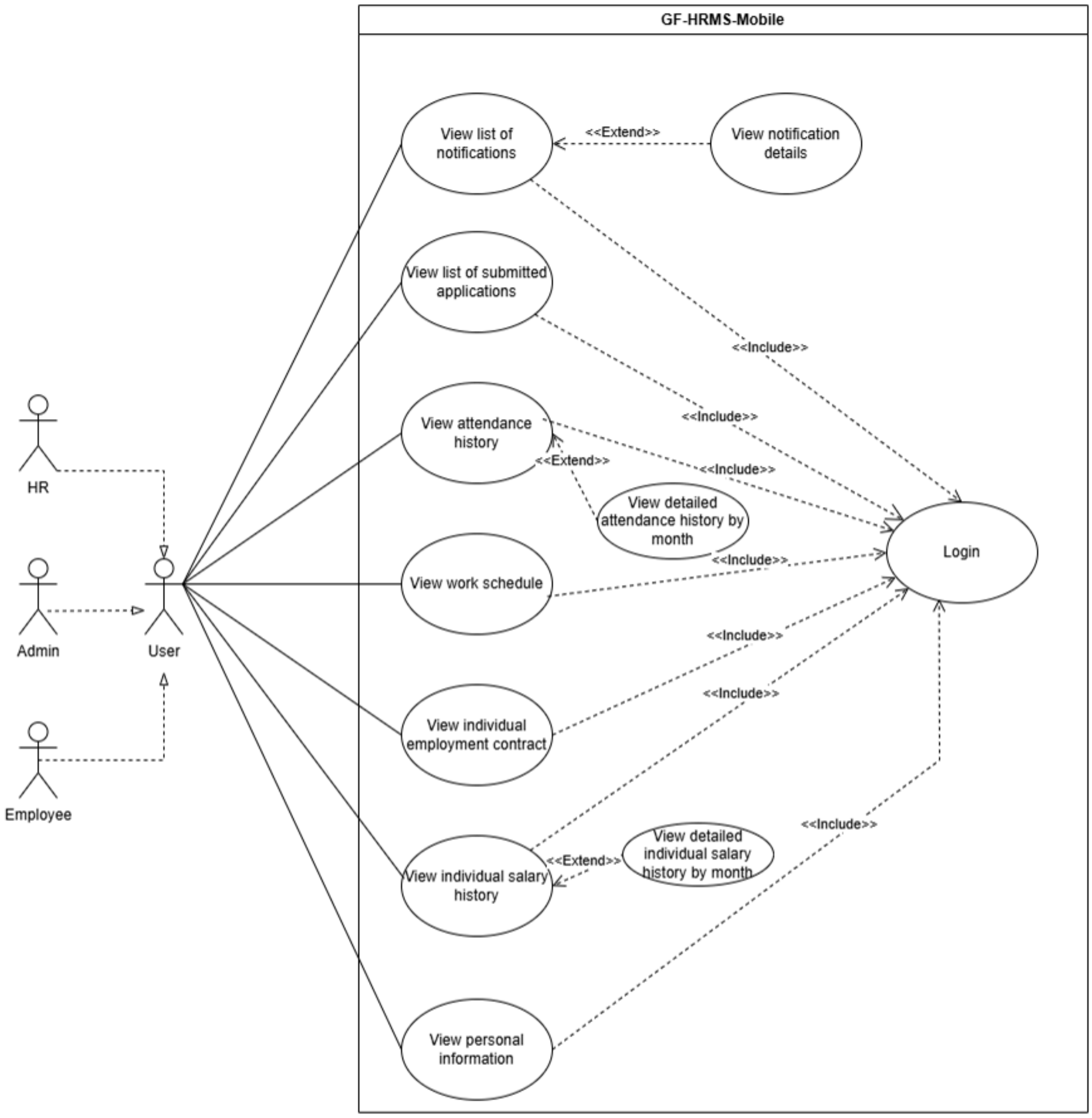


Figure 3.13: Use Case Diagram – Mobile

2.2.2 Descriptions

ID	Use Case		Actors	Use Case Description
UC-01	**Login**		HR, Admin, Employee	Allows registered users to log into the system using their credentials.
UC-02	**Manager Profile**	View detail personal information	HR, Admin, Employee	Users can view detailed personal information in their profile.

UC-03		Update Profile	HR, Admin, Employee	Users can edit their personal information such as contact details.
UC-04		Change Password	HR, Admin, Employee	Users can change their account password for security.
UC-05		View employment contract information	HR, Admin, Employee	Users can view their own employment contract details.
UC-06	**Manage Attendance**	View attendance report.	HR, Admin, Employee	Users can view their attendance history, including days worked.
UC-07		Check attendance detail	HR, Admin, Employee	Users can check if their attendance for the current day has been recorded.
UC-08		Update attendance	HR, Admin	Users can correct attendance records in case of errors.
UC-09	**Manage shift change / leave application**	Send Request	HR, Employee	Users can submit requests, such as leave applications, to their superiors. Example: Employee sends leave request to HR
UC-10		View Application	HR, Admin, Employee	Users can view and track the status of their requests.
UC-11		View request details	HR, Admin, Employee	Users can view the details and reasons for their requests.
UC-12		Approve requests	HR, Admin	Users can approve requests if they agree with them.
UC-13		Reject requests	HR, Admin	Users can reject requests if necessary.

UC-14		Track order history	HR, Admin, Employee	Users can see the history of all their submitted requests.
UC-15	**View work schedule and shifts**	View work schedule and shifts	HR, Admin, Employee	Users can see detailed work schedules and shifts.
UC-16		Create a work schedule	HR, Admin	Users can create work schedules for employees.
UC-17		Delete work schedule	HR, Admin	Users can delete an item in the calendar if necessary.
UC-18		Update work schedule	HR, Admin	Users can update existing work schedules.
UC-19	**Manage Calendar Day Details**	Create Calendar Day Details	HR, Admin	Users can create detailed entries for a specific day on the calendar.
UC-20		Delete Calendar Day Details	HR, Admin	Users can delete date details in the calendar when needed.
UC-21		Get data	HR, Admin	Users can retrieve data related to date details in the employee's calendar or work schedule.
UC-22	**Manage employee profiles**	View employee profile list	HR, Admin	Users can view the entire list of employee records
UC-23		Create new employee profile	HR, Admin	Users can create new employee profiles in the system.

UC-24		Edit employee profiles	HR, Admin	Users can edit existing employee profiles
UC-25		View employee profile details	HR, Admin, Employee	Users can view their detailed employee profile.
UC-26		Manage employee Union company information	HR, Admin	Users can manage union information of employees in the company.
UC-27		Manage employee insurance information	HR, Admin	Users can manage employee insurance details.
UC-28		Manage employee benefits information	HR, Admin	Users can manage details of employee allowances and benefits.
UC-29		Manage Education Information	HR, Admin	Users can manage training information and qualifications of employees.
UC-30	**Manage labour contracts**	Update labour contract	HR, Admin	Users can update a new labour contract.
UC-31		Create labour contract	HR, Admin	Users can create a new labour contract.
UC-32		View contract details	HR, Admin	Users can view the details of their own labour contract.
UC-33	**Manage employee accounts**	View employee account information	HR, Admin	Users can view personal information of employees.
UC-34		Edit employee account information	HR, Admin	Users can edit employee account information.
UC-35		Change password for employee	HR, Admin	Users can change the password for an employee.
UC-36		Create employee account	HR, Admin	Users can create new employee accounts in the system.
UC-37		Deactivate employee account	HR, Admin	Users can deactivate an employee's account

				when the employee leaves the company.
UC-38	**Manage Payroll**	View salary information	HR, Admin	Users can view the salary information of employees.
UC-39		View Payslip details	HR, Admin, Employee	Users can view Payslip details.
UC-40		Update payroll	HR, Admin	Users can update the salary details if necessary.
UC-41		Send payslip	HR, Admin	After calculating and preparing payslips, the Users can issue the salary to employees.
UC-42		Lock salary for edits	HR, Admin	Users can lock the salary records to prevent further editing after they are finalised.

Table 3.2: Descriptions Use Case

3. Functional Requirements

3.1 System Functional Overview

3.1.1 Screens Flow

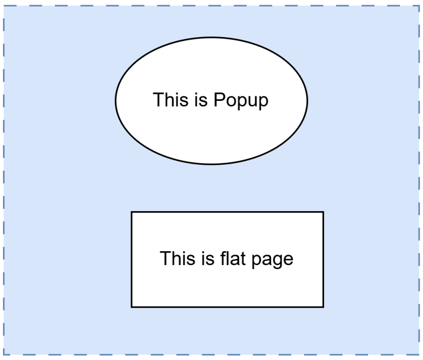
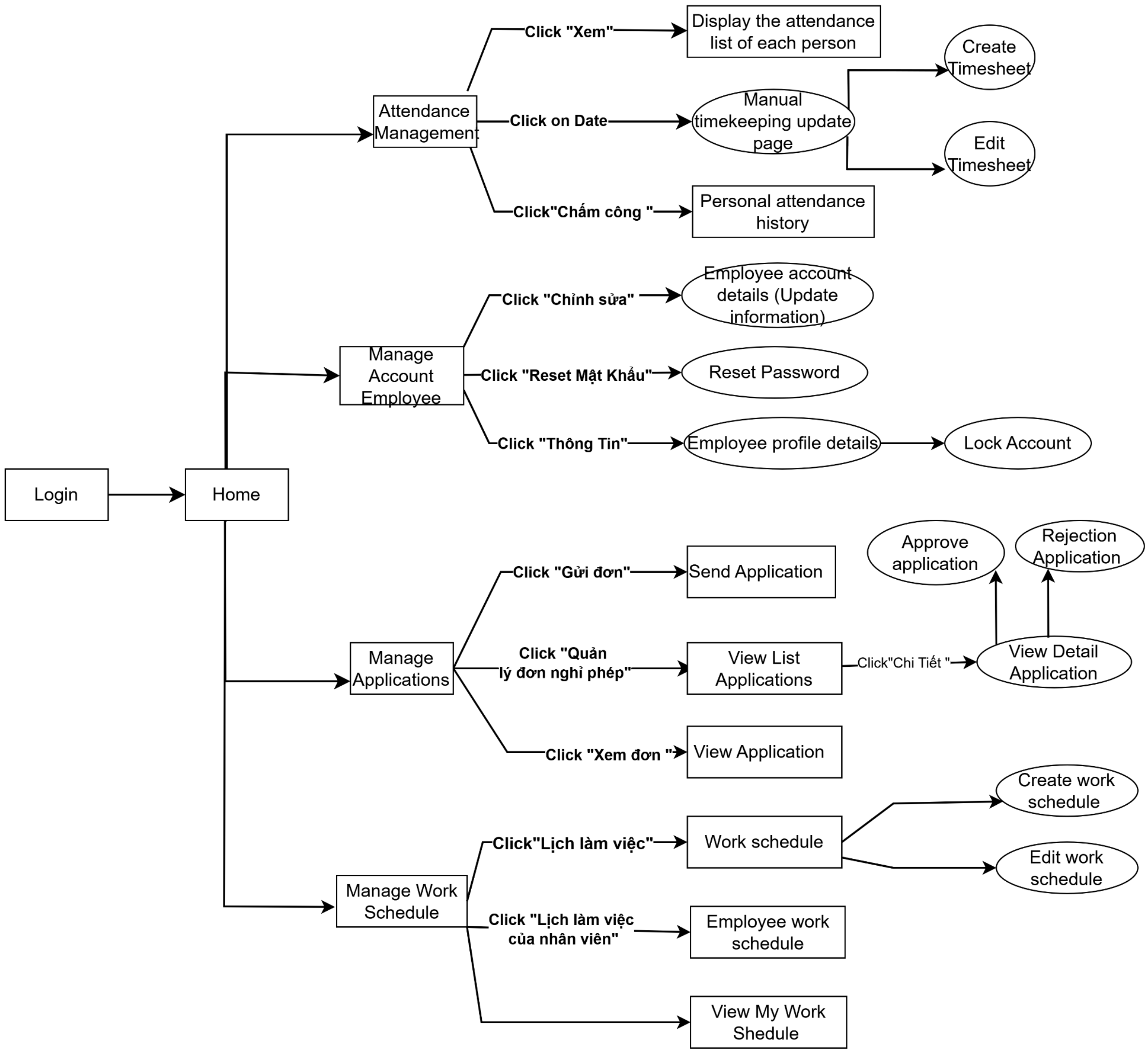


Figure 3.14: Annotation In Screenflow

3.1.1.1 Screen Flow With HR



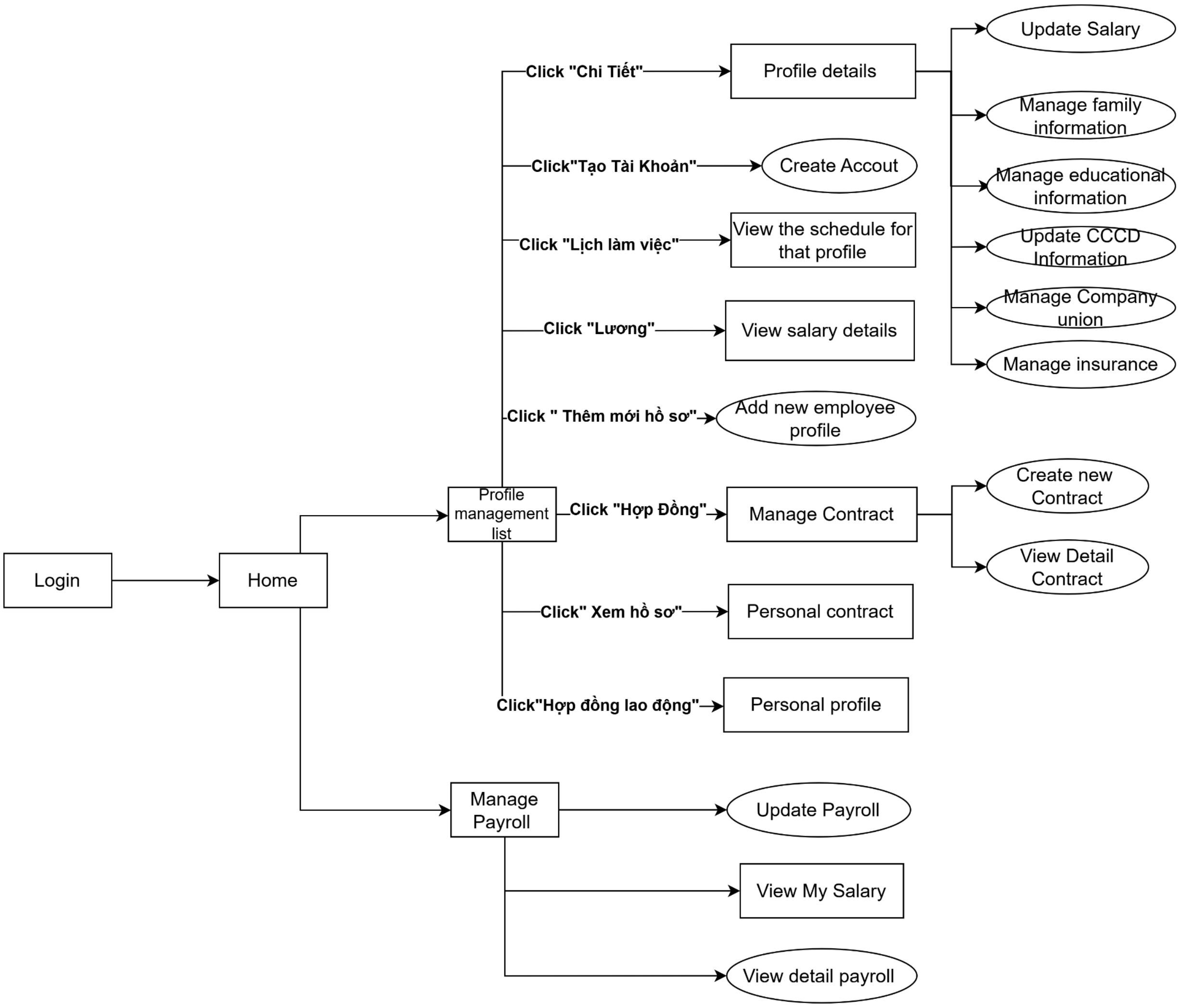
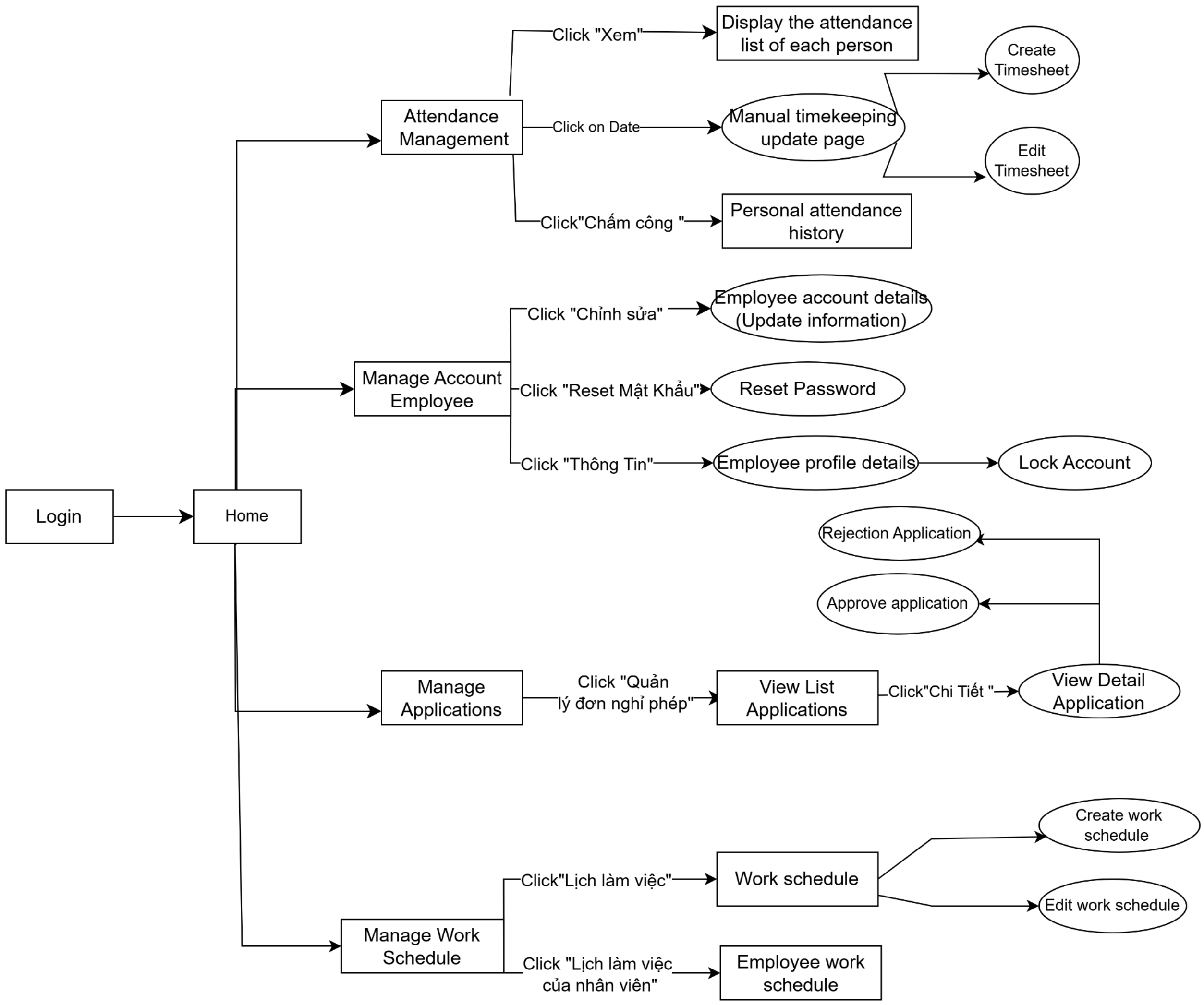


Figure 3.15: Screens Flow - With HR

3.1.1.2 Screen Flow With Admin



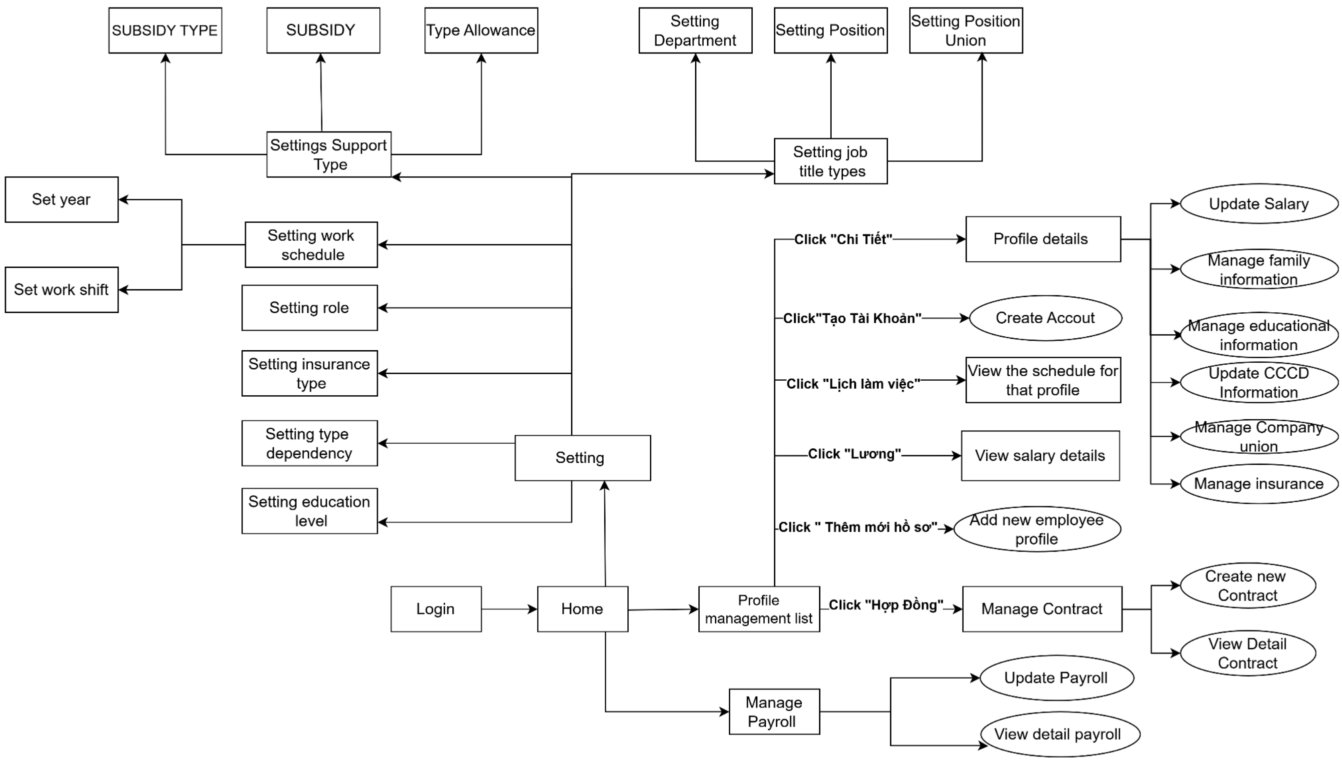


Figure 3.16: Screens Flow - With Admin

3.1.1.3 Screen Flow With Employee

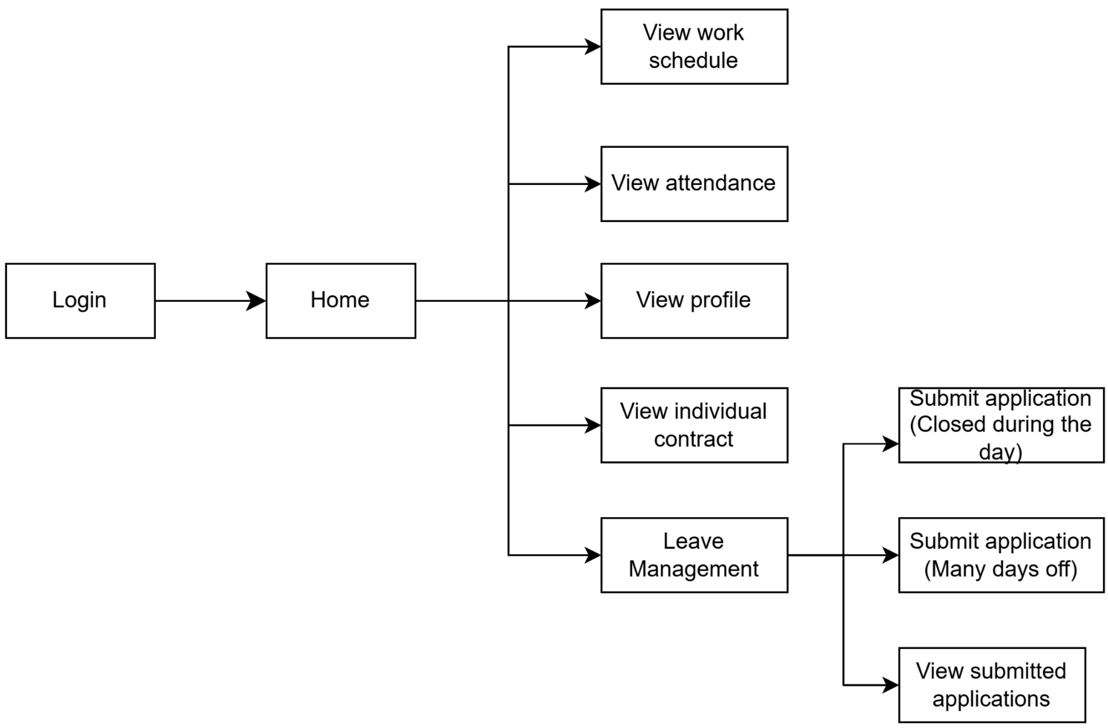


Figure 3.17: Screens Flow - With Employee (On Website And Mobile)

3.1.2 Main Screen Mockup

3.1.2.1 Home

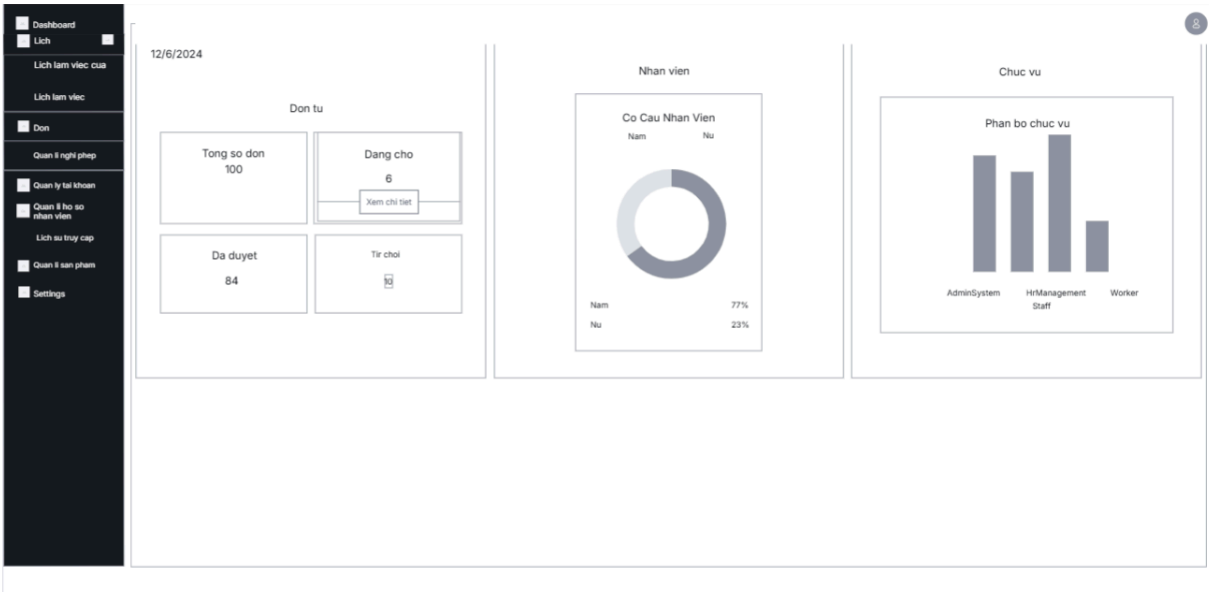


Figure 3.18: Mockup - Home

3.1.2.2 Manage Work Schedule

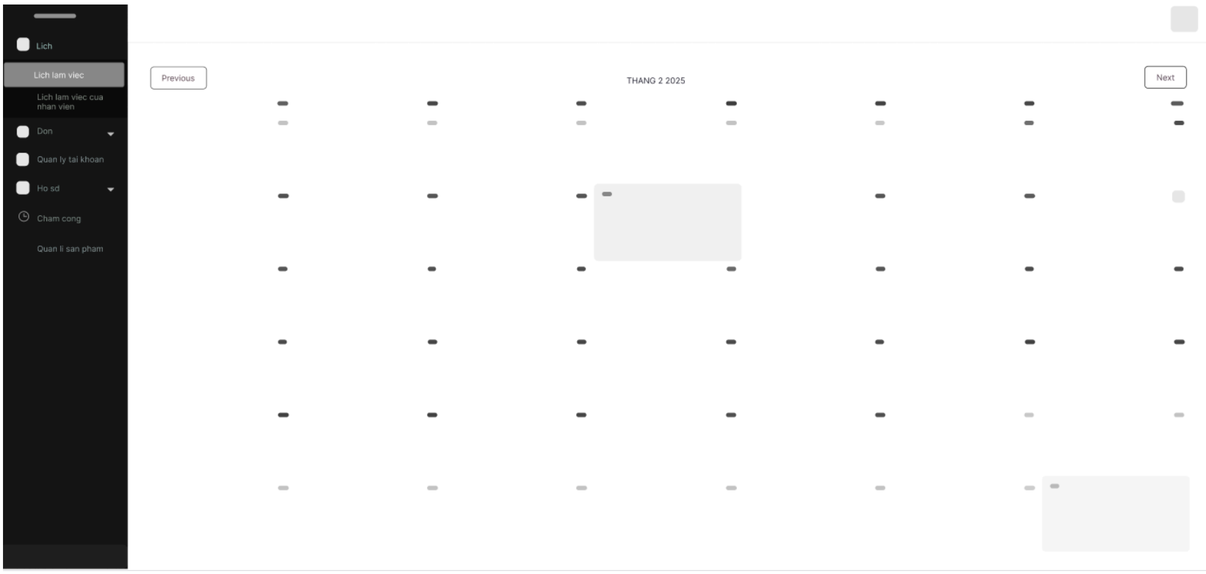


Figure 3.19: Mockup - Manage Work Schedule

3.1.2.3 Create Work Date

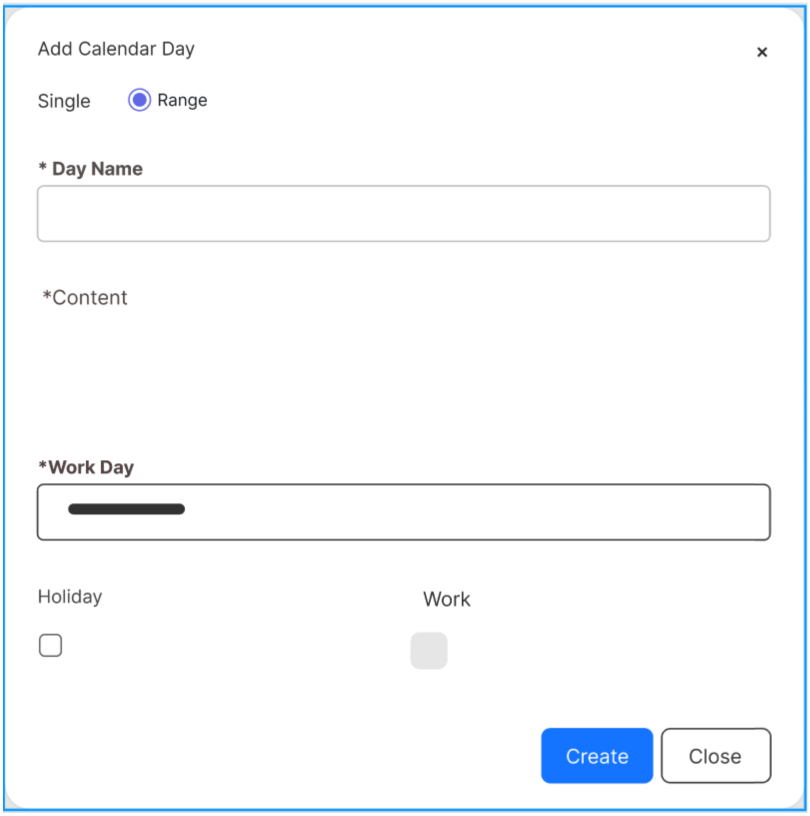


Figure 3.20: Mockup - Create Work Date

3.1.2.4 Update/Delete Work Date

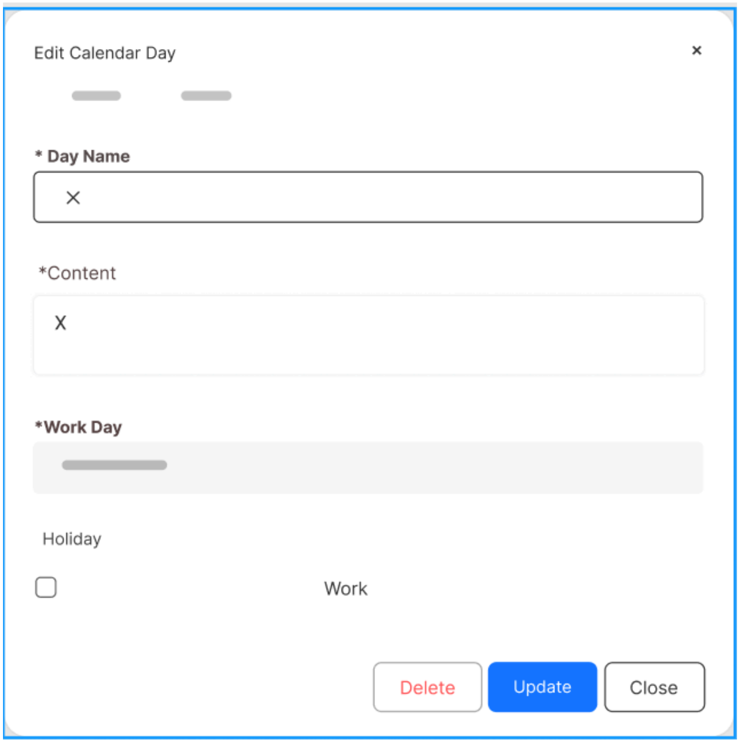


Figure 3.21: Mockup - Update/Delete Work Date

3.1.2.5 Manage Work Schedule for Employees

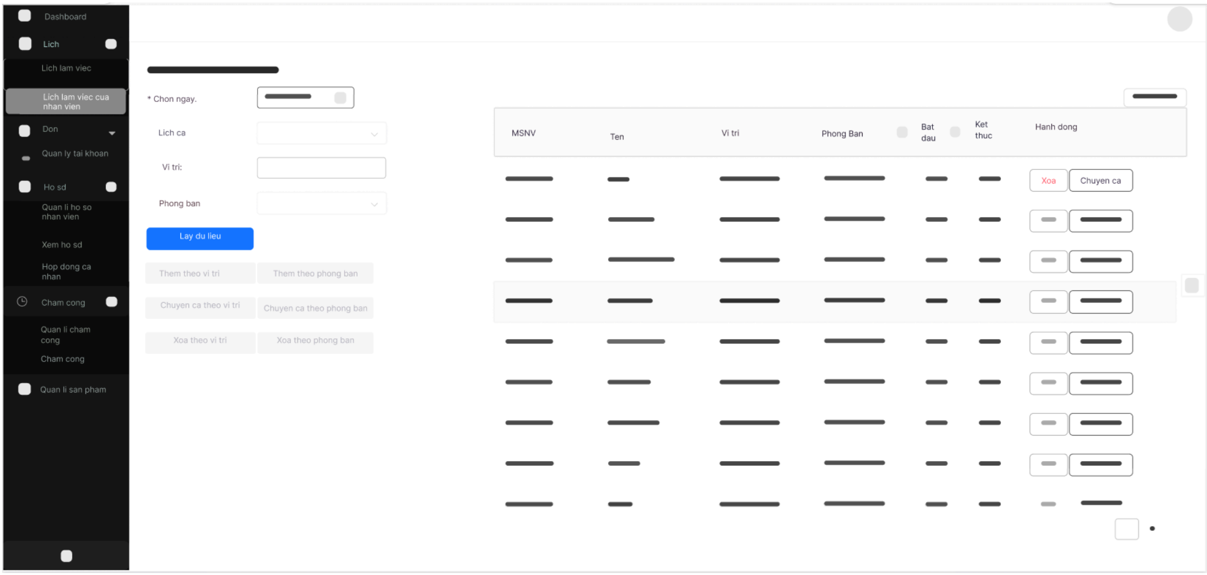


Figure 3.22: Mockup - Manage Work Schedule For Employees

3.1.2.6 Add Work Date for Employees by Position

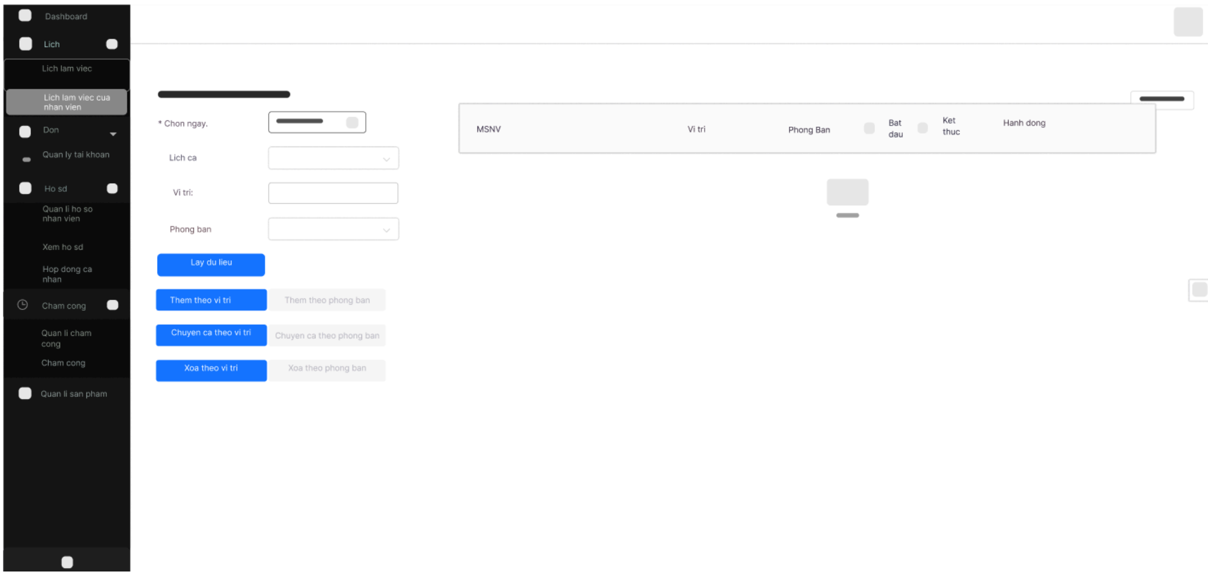


Figure 3.23: Mockup - Add Work Date For Employees By Position

3.1.2.7 Add Work Date for Employees by Department

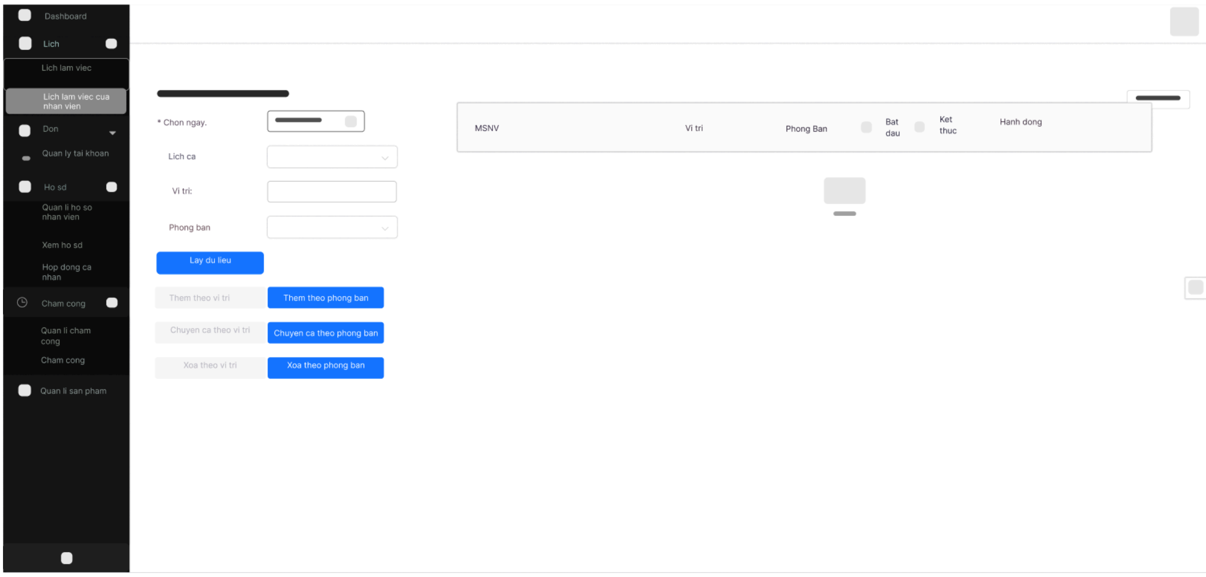


Figure 3.24: Mockup - Add Work Date For Employees By Department

3.1.2.8 Change Shift for Employees

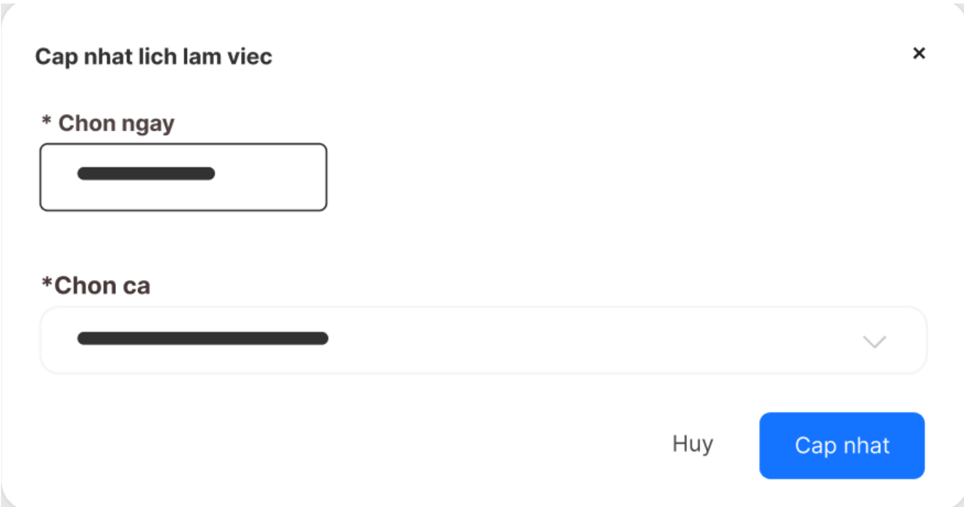


Figure 3.25: Mockup - Change Shift For Employees

3.1.2.9 Manage Leave Requests

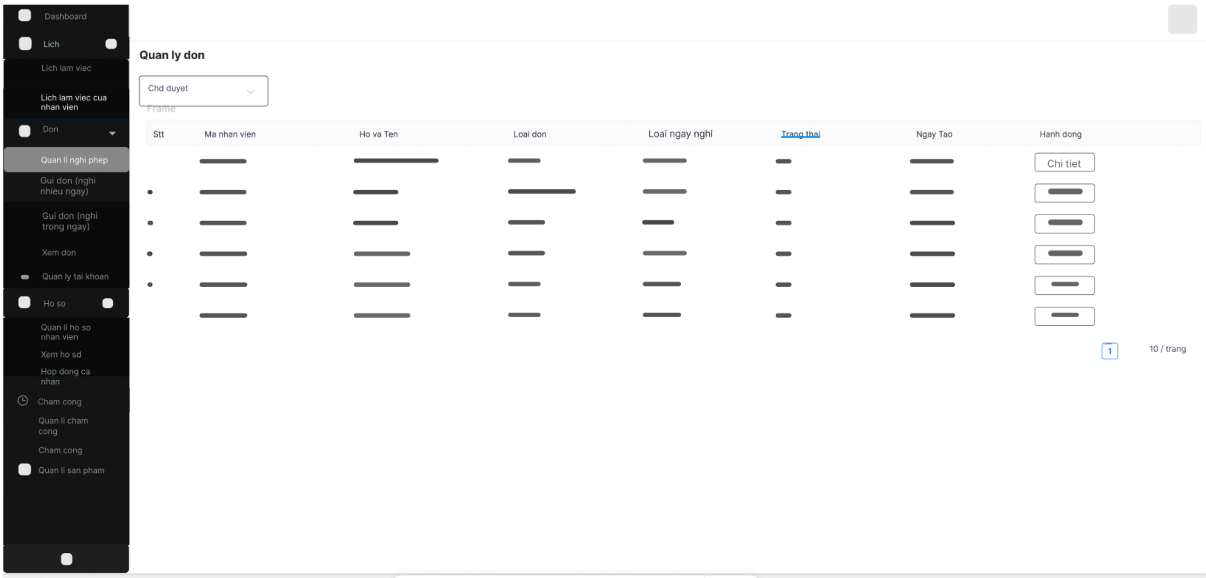


Figure 3.26: Mockup - Manage Leave Requests

3.1.2.10 Send Leave Requests

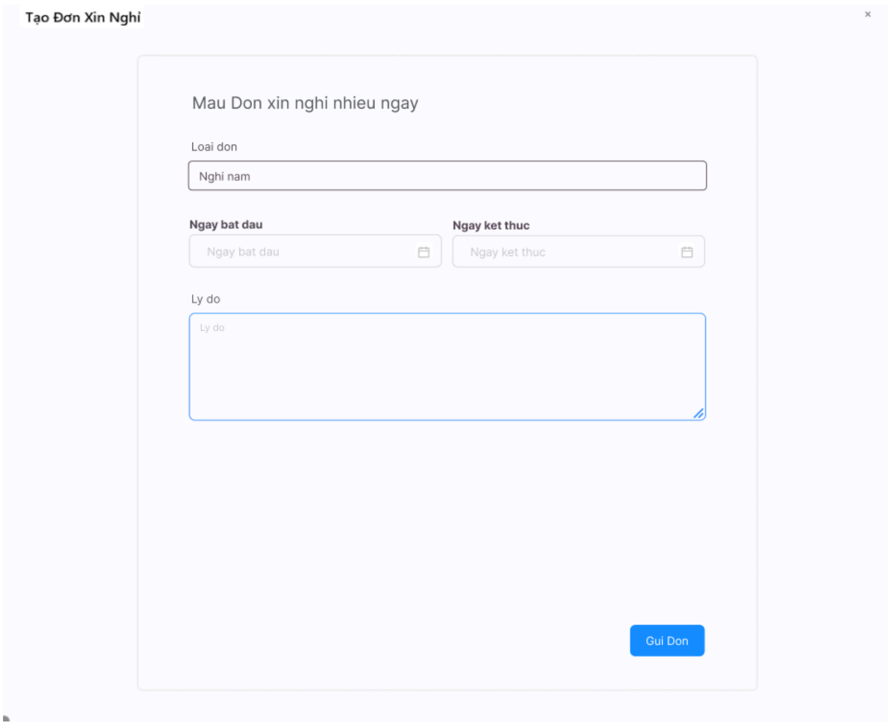


Figure 3.27: Mockup - Submit Leave Request For Multiple Days

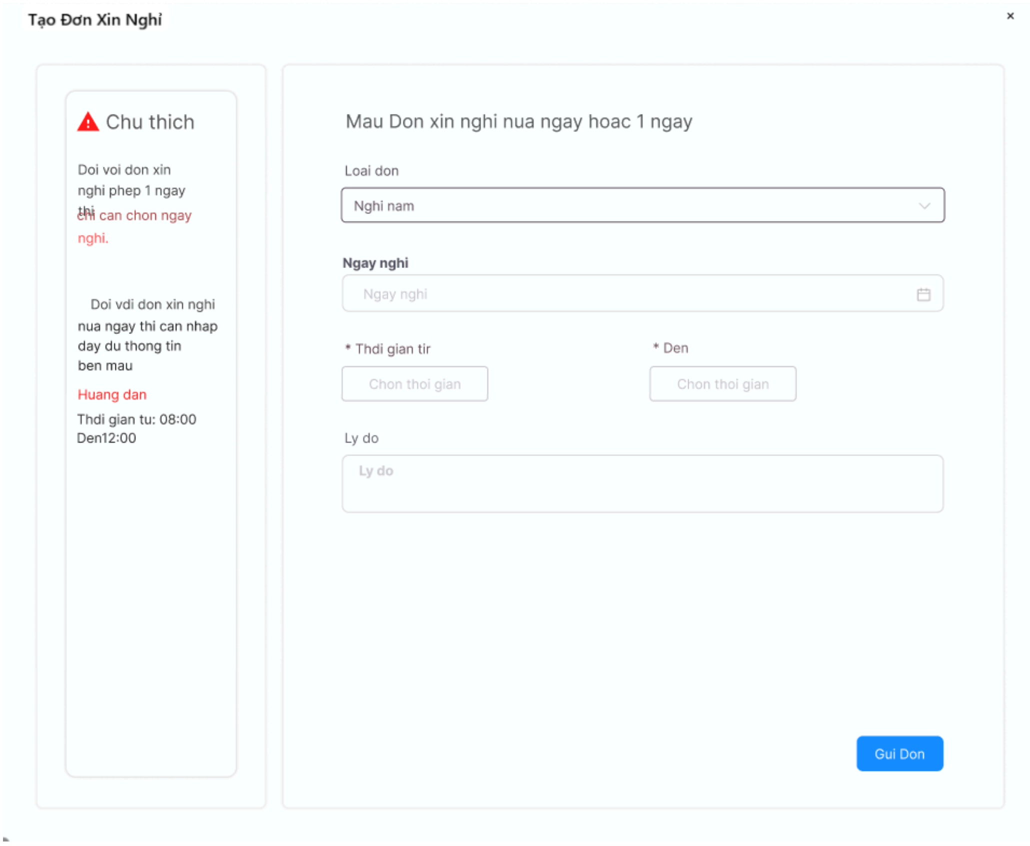


Figure 3.28: Mockup - Submit Leave Request During The Day

3.1.2.11 View Submitted Leave Requests

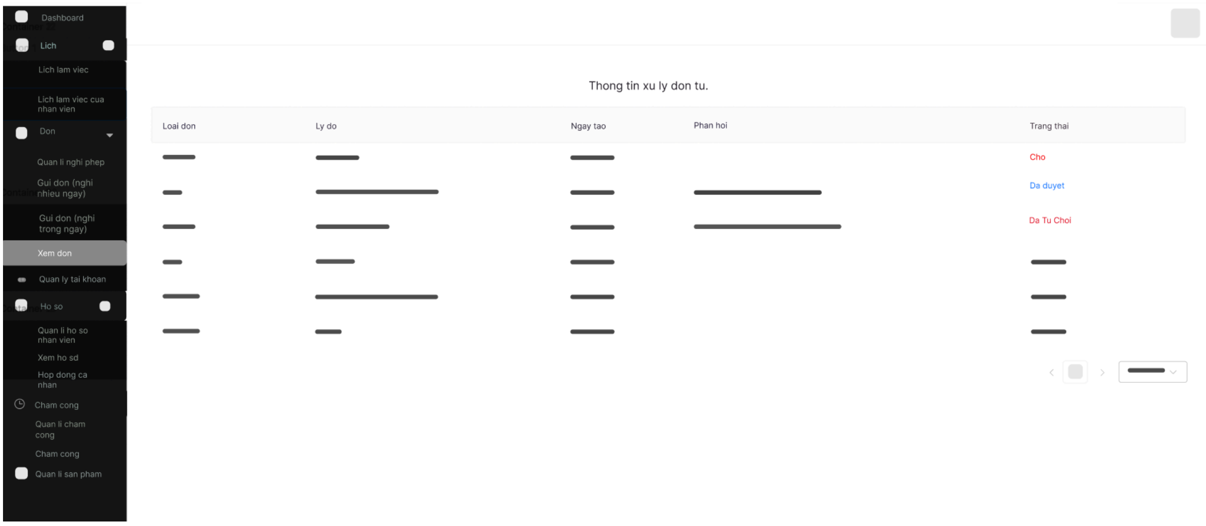


Figure 3.29: Mockup - View Submitted Leave Requests

3.1.2.12 View Leave Request Details (Approve/Reject)

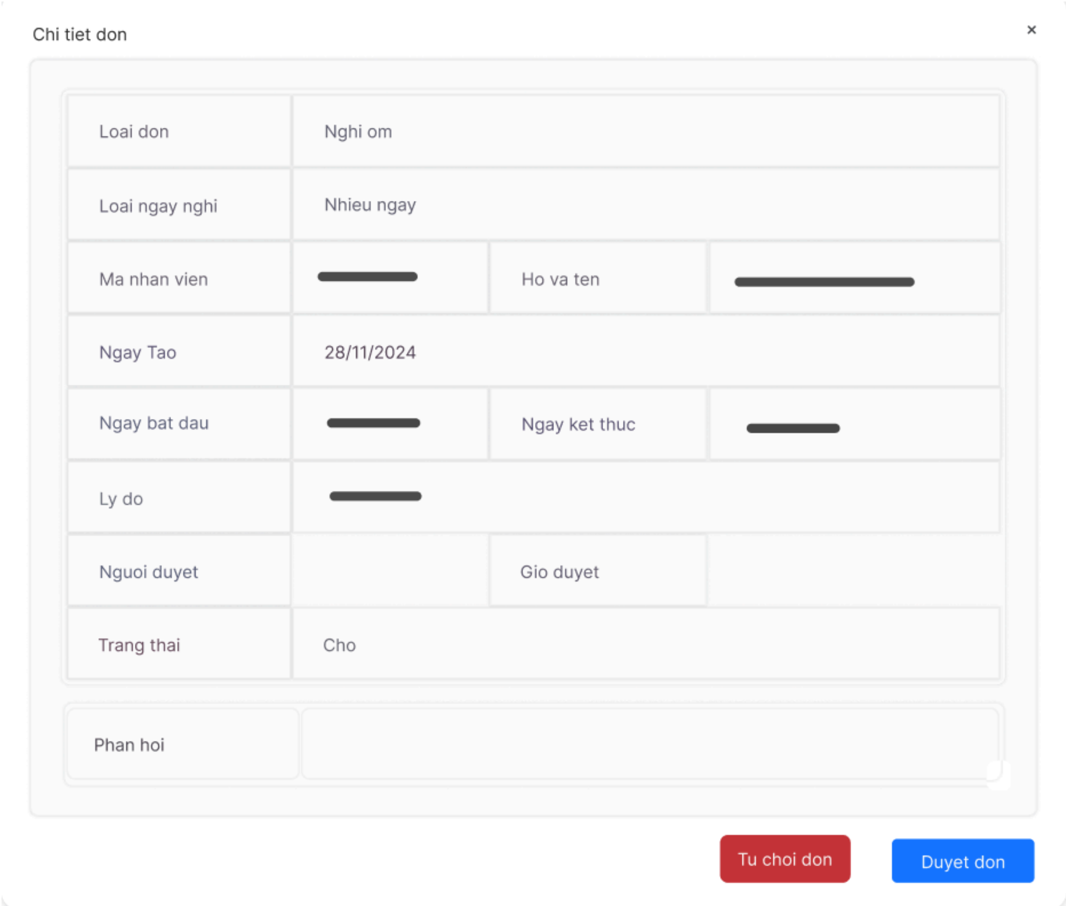


Figure 3.30: Mockup - View Leave Request Details (Approve/Reject)

3.1.2.13 Manage User Accounts

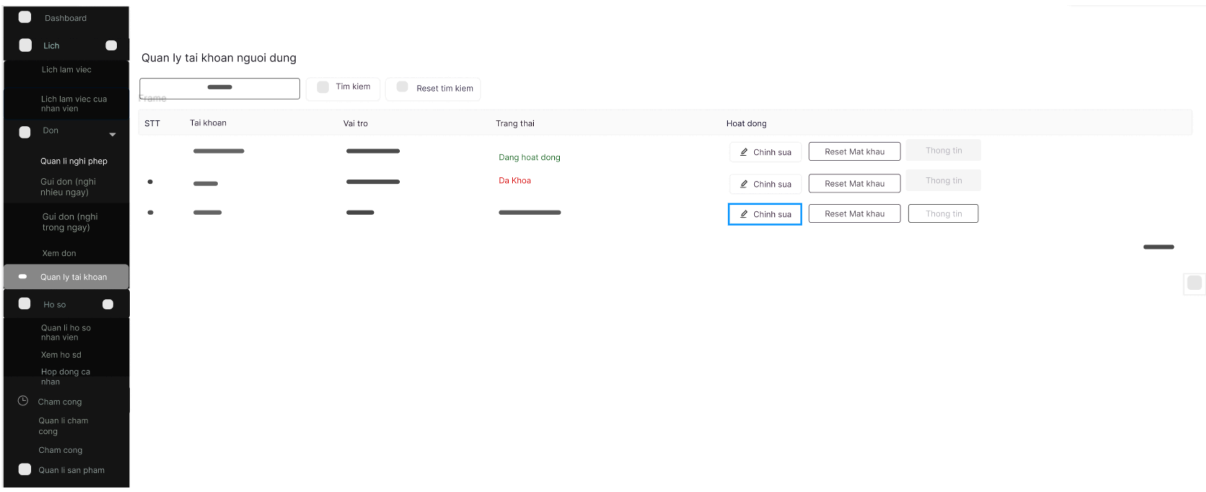


Figure 3.31: Mockup - Manage User Accounts

3.1.2.14 Reset Password

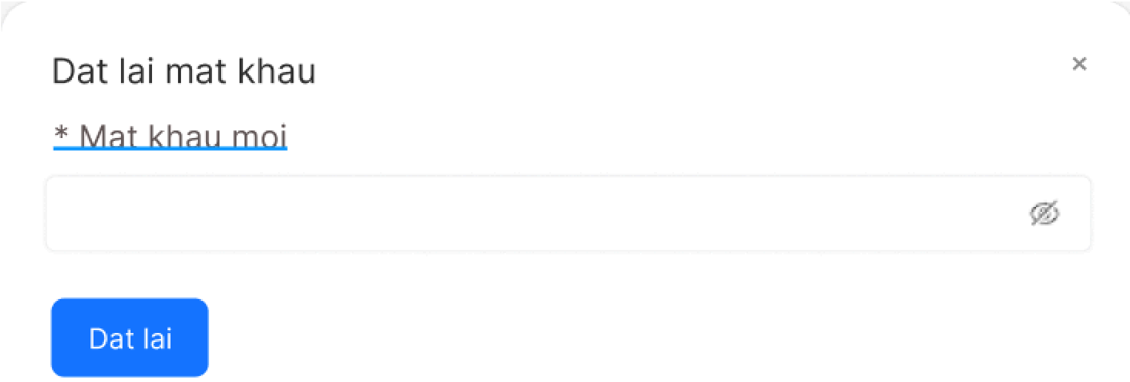


Figure 3.32: Mockup - Reset Password

3.1.2.15 Lock Account

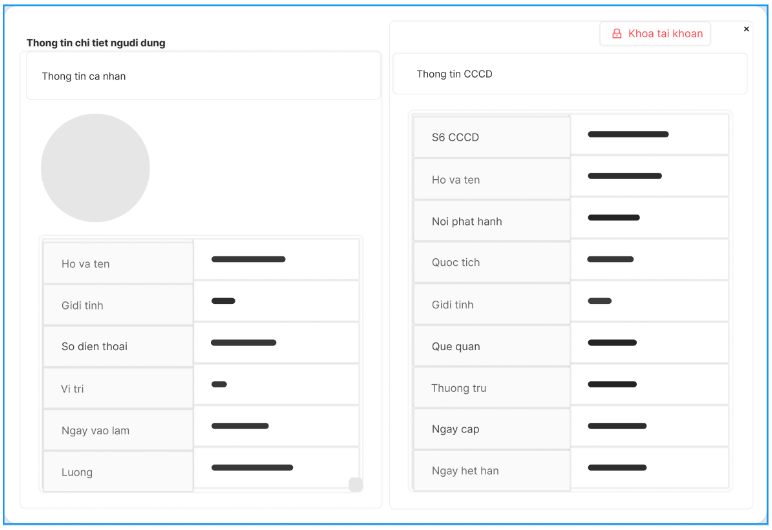


Figure 3.33: Mockup - Lock Account

3.1.2.16 Manage Employee Profiles

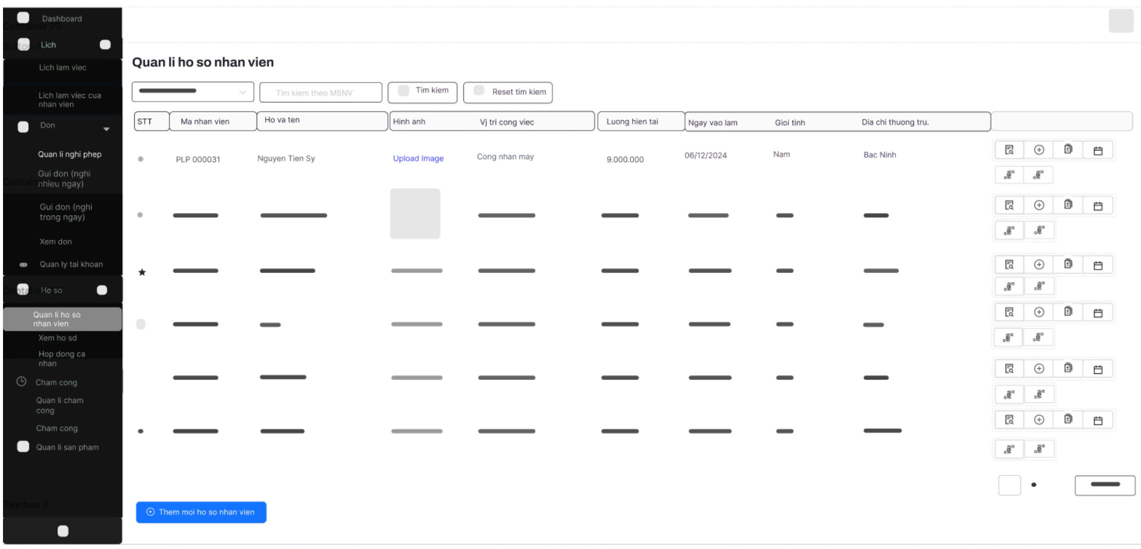


Figure 3.34: Mockup - Manage Employee Profiles

3.1.2.17 Add Employee Profile

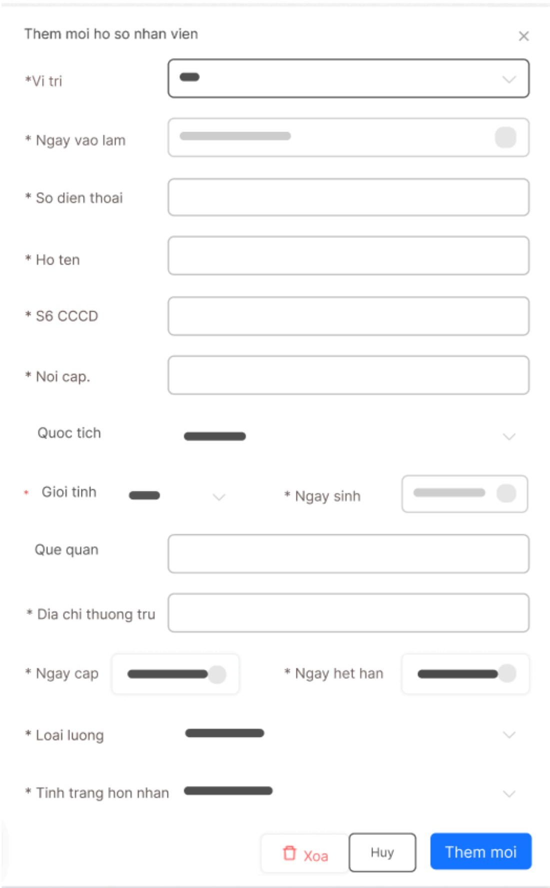


Figure 3.35: Mockup - Add Employee Profile

3.1.2.18 View Employee Profile Details

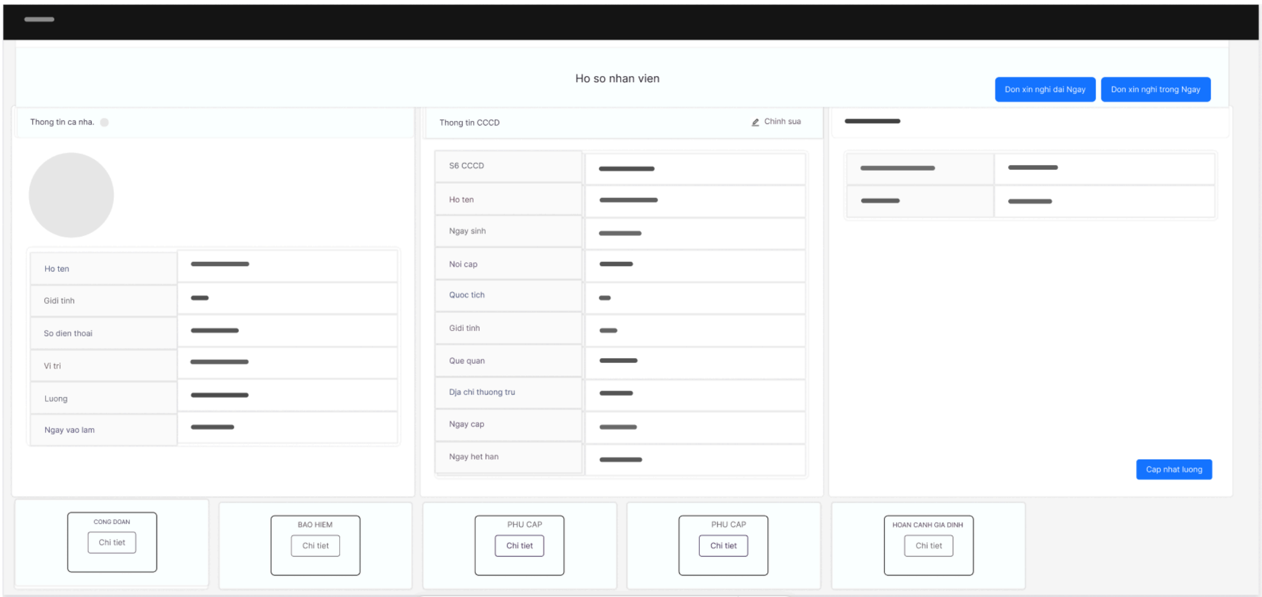


Figure 3.36: Mockup - View Employee Profile Details

3.1.2.19 Edit Employee Profile Information

Figure 3.37: Mockup - Edit Employee Profile Information

3.1.2.20 Update Salary

Figure 3.38: Mockup - Update Salary

3.1.2.21 Create Account for Profile

Figure 3.39: Mockup - Create Account For Profile

3.1.2.22 Manage Labor Contracts

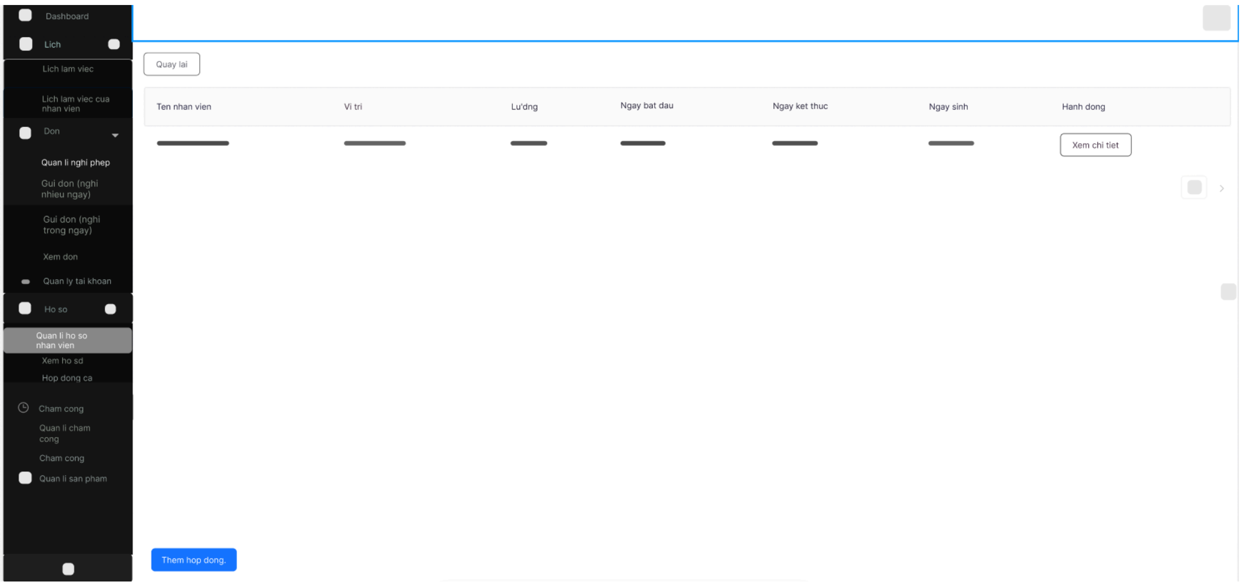
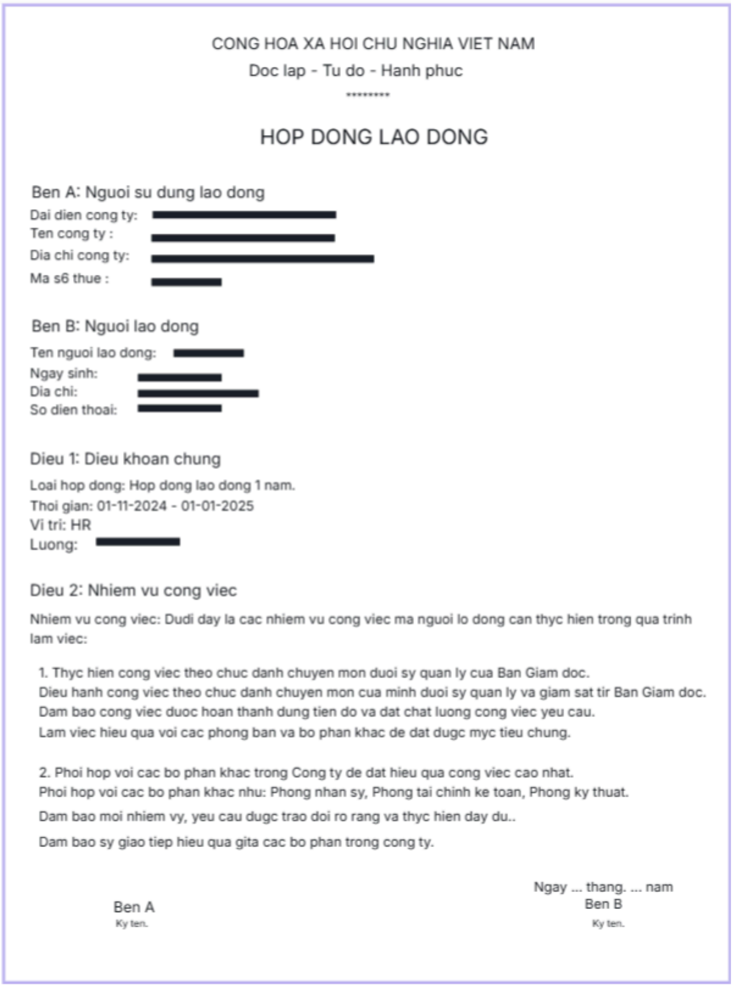


Figure 3.40: Mockup - Manage Labor Contracts

3.1.2.23 Create Labor Contracts

Figure 3.41: Mockup - Create Labor Contracts

3.1.2.24 View Labor Contract Details



CONG HOA XA HOI CHU NGHIA VIET NAM
Doc lap - Tu do - Hanh phuc
****

HOP DONG LAO DONG

Ben A: Nguoi su dung lao dong
Dai dien cong ty: [redacted]
Ten cong ty : [redacted]
Dia chi cong ty: [redacted]
Ma s6 thue : [redacted]

Ben B: Nguoi lao dong
Ten nguoi lao dong: [redacted]
Ngay sinh: [redacted]
Dia chi: [redacted]
So dien thoai: [redacted]

Dieu 1: Dieu khoan chung
Loai hop dong: Hop dong lao dong 1 nam.
Thoi gian: 01-11-2024 - 01-01-2025
Vi tri: HR
Luong: [redacted]

Dieu 2: Nhiem vu cong viec
Nhiem vu cong viec: Dudi day la cac nhiem vu cong viec ma nguoi lo dong can thyc hien trong qua trinh lam viec:

1. Thyc hien cong viec theo chuc danh chuyen mon duoi sy quan ly cua Ban Giam doc.
Dieu hanh cong viec theo chuc danh chuyen mon cua minh duoi sy quan ly va giam sat tir Ban Giam doc.
Dam bao cong viec duoc hoan thanh dung tien do va dat chat luong cong viec yeu cau.
Lam viec hieu qua voi cac phong ban va bo phan khac de dat dugc myc tieu chung.

2. Phoi hop voi cac bo phan khac trong Cong ty de dat hieu qua cong viec cao nhat.
Phoi hop voi cac bo phan khac nhu: Phong nhan sy, Phong tai chinh ke toan, Phong ky thuat.
Dam bao moi nhiem vy, yeu cau dugc trao doi ro rang va thyc hien day du..
Dam bao sy giao tiep hieu qua gita cac bo phan trong cong ty.

Ngay ... thang. ... nam
Ben A
Ky ten.
Ben B
Ky ten.

Figure 3.42: Mockup - View Labor Contract Details

3.1.2.25 View Profile Work Schedule

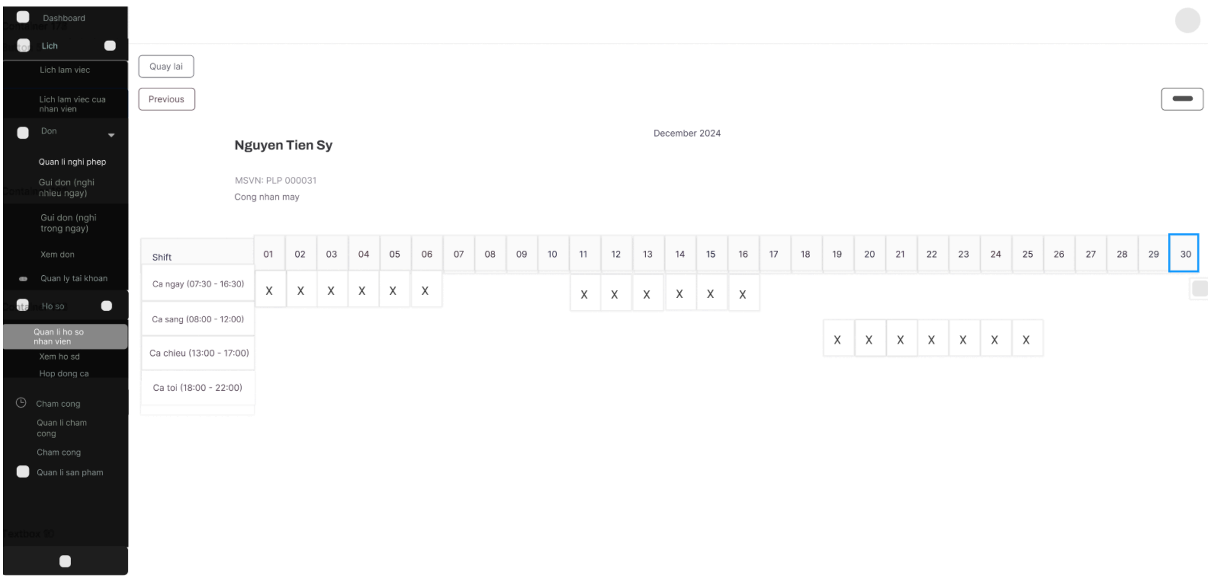


Figure 3.43: Mockup - View Profile Work Schedule

3.1.2.26 View Salary Information

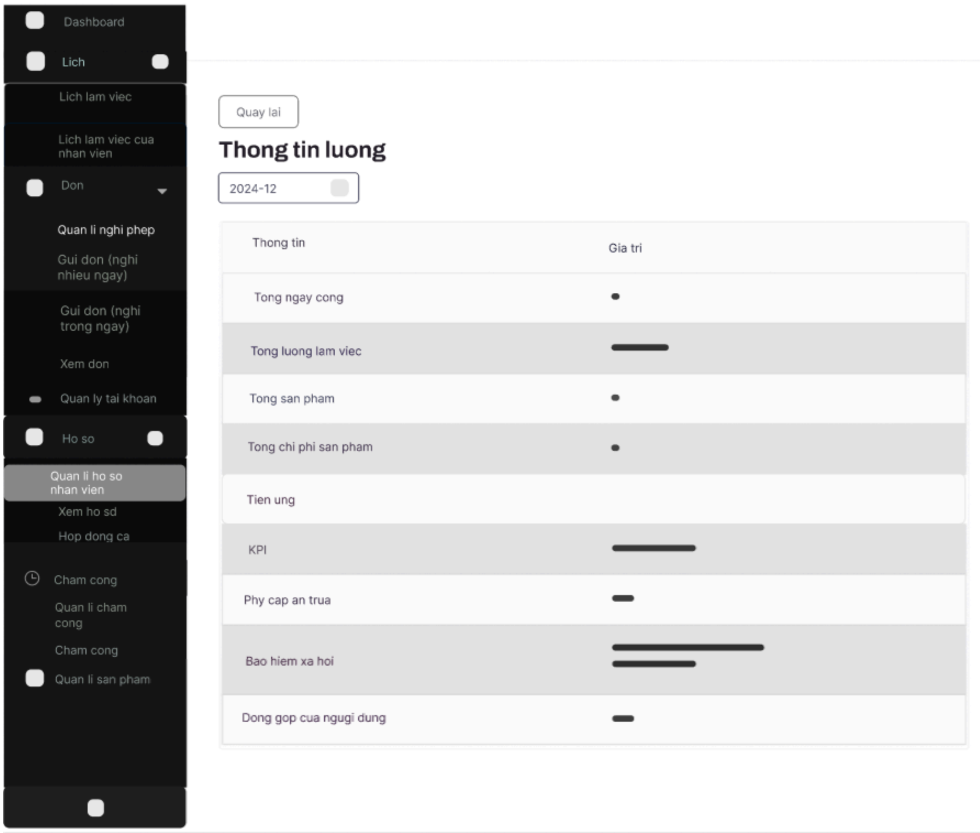


Figure 3.44: Mockup - View Salary Information

3.1.2.27 View Reward and Penalty Information

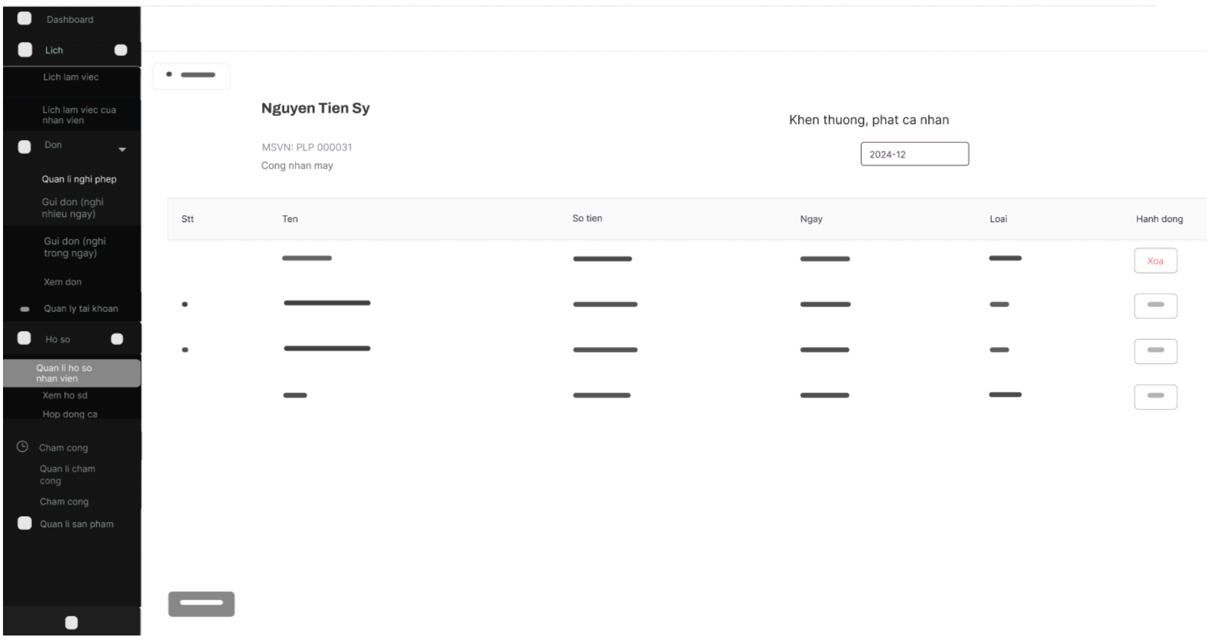


Figure 3.45: Mockup - View Reward And Penalty Information

3.1.2.28 View Employee Timekeeping Report

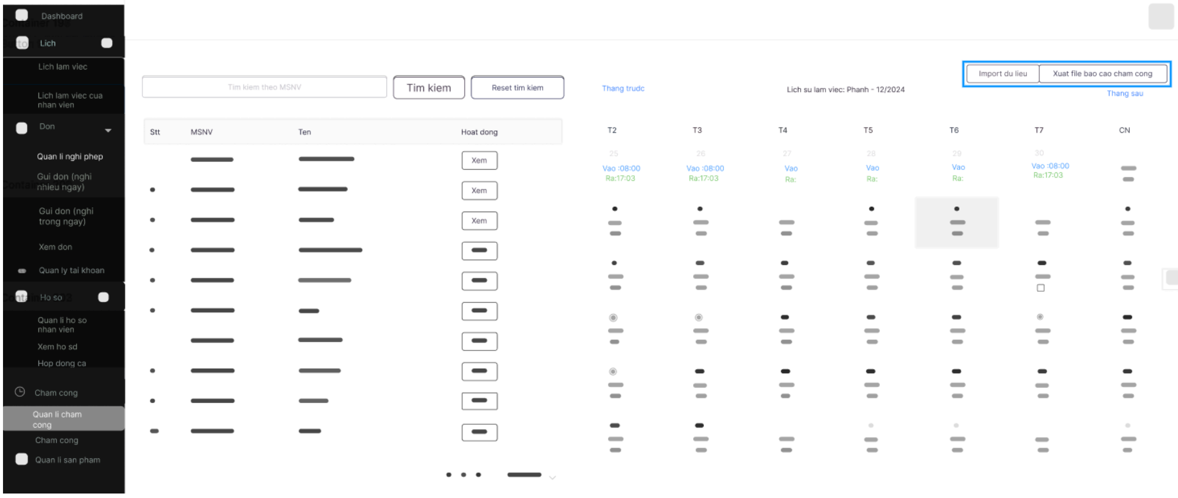


Figure 3.46: Mockup - View Employee Timekeeping Report

3.1.2.29 View Individual Timekeeping Report

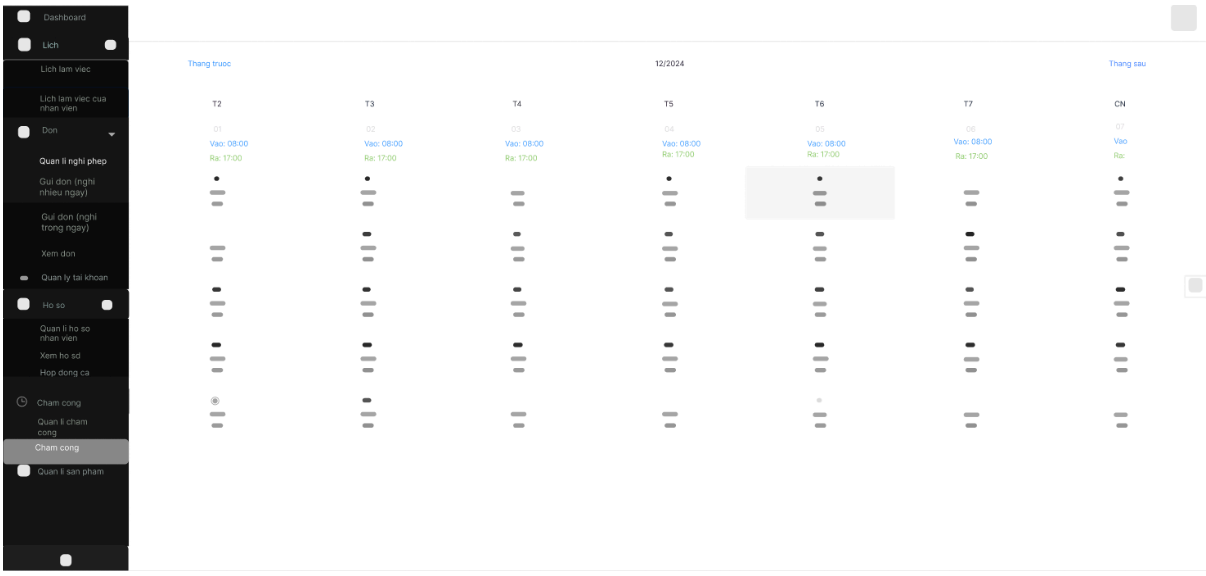


Figure 3.47: Mockup - View Individual Timekeeping Report

3.1.3 Screen Descriptions

#	Feature	Screen	Description
1	Login	Log in	Users accessing the website will be navigated to the login page to log into the system
2	Home	Home	Home page for HR and Admin users.
3	Manage Profile	Manage Profile	Manage personal profile

4	Manage Contract Employee	List of labor contracts	See list of labor contracts
5		Create/Update contract	Create a new labor contract
6		Labor contract detail view (More updates)	View labor contract details (with further updates)
7		Manage Labor Contract personal	Individual accounts can view their own contracts
8	Attendance Management	View List Attendance	Timekeeping management
9		View each person's attendance details	View attendance details of each employee
10		Manual timekeeping update page	Manual timekeeping update page
11		Personal Attendance History View Screen	View Personal Attendance History
12	Profile Management List	Profile management list	List of employee records management
13		Profile details	View and update employee profile details
14		Pop-up Update CCCD Information	Update CCCD information for profiles.
15		Pop-up Manage Company union	Manage company union information.
16		Pop-up Manage insurance	Manage insurance details.
17		Pop-up Manage Grant	Manage grant information.
18		Add new employee profile	Add a new employee profile.
19		Personal profile view screen	Individual accounts can view their attendance history

20	Account Management	List of employee accounts	View and manage the list of employee accounts.
21		Employee account details (Update information)	View and update employee account information.
22		Pop-up create new account	Create a new employee account.
23		Pop-up Reset Password	Reset an employee's password.
24		Pop-up Account Lock	Lock an employee account.
25	Manage Applications	View List Applications	View the list of submitted applications.
26		Pop-up View Detail Application	View detailed information of a specific application.
27		Pop-up Reason	View the reason for application approval or rejection.
28		Send Application	Send an application.
29		View Application	View application details.
30	Manage Work Schedule	Work schedule	Create and manage work schedules.
31		Employee work schedule	View employee work schedules.
32		Edit work schedule or shift	Edit existing work schedules or shifts.
33		View My Work Schedule and shift	Individual accounts can view their own work schedules and shifts
34	Manage Payroll	View detail payroll / Update Payroll	HR will perform payroll calculations for employees and update salary details as needed.
35	Setting	Setting job title types	Configure job title types.
36		Setting Position Union	Configure union positions.
37		Setting Position	Configure positions within the factory.
38		Setting Department	Set up departments.
39		Settings Support Type	Configure support types (allowances, benefits).

40		Type Allowance	Set up types of allowances.
41		Setting education level	Configure employee education levels.
42		Setting role	Set up roles and permissions for users.
43		Setting insurance type	Configure different types of insurance.
44		Setting type dependency	Set up dependency types (e.g., dependents).
45		Setting work schedule	Set and manage work schedules.
46		Set work shift	Configure and set work shifts for employees.
47		Set year	Set the operational year for timekeeping and schedules.

Table 3.3: Screen Descriptions

3.1.4 Screen Authorization

Screen	HR	Admin	Employee
Login	X	X	X
Manage personal information	X	X	X
Change password	X	X	X
Employee account management screen		X	
View list of employee accounts	X	X	
Create a new account	X	X	
Update account information	X	X	
Reset Password	X	X	
Account Lock	X	X	
Employee profile management screen	X	X	
View employee profile list	X	X	
Add new employee profile	X	X	
Profile details	X	X	X
Update CCCD Information	X	X	
Manage Company union	X	X	
Manage insurance	X	X	
Manage Grant	X	X	
Personal profile management	X	X	
Labor contract management screen	X	X	
See List Labor Contract	X	X	
Create Labor Contract	X	X	
Update Labor Contract	X	X	
View Detail Labor Contract	X	X	X
View their individual employment contracts	X		
Attendance management screen	X	X	
View attendance list	X	X	
View attendance details	X	X	X
View timekeeping details and edits	X	X	
View individual timekeeping history	X		
Manage list of application types	X	X	
View List Applications	X	X	
Pop-up View Detail Application	X	X	
Pop-up Reason	X	X	
Send Application	X		X

View Application	X		X
Manage Work Schedule	X	X	
Work schedule	X	X	
Employee work schedule	X	X	
Edit work schedule or shift	X	X	
View Personal work schedule	X		X
Manage Payroll	X	X	
View detail payroll	X	X	
Update Payroll	X	X	
View personal detail payroll	X		X
Setting	X	X	
Setting job title types	X	X	
Setting Position Union	X	X	
Setting Position	X	X	
Setting Department	X	X	
Settings Support Type	X	X	
Type Allowance	X	X	
Setting education level	X	X	
Setting role		X	
Setting insurance type	X	X	
Setting type dependency	X	X	
Setting work schedule	X	X	
Set work shift	X	X	
Set year	X	X	

Table 3.4: Screen Authorization

3.2 Use Case Specification

3.2.1 Login

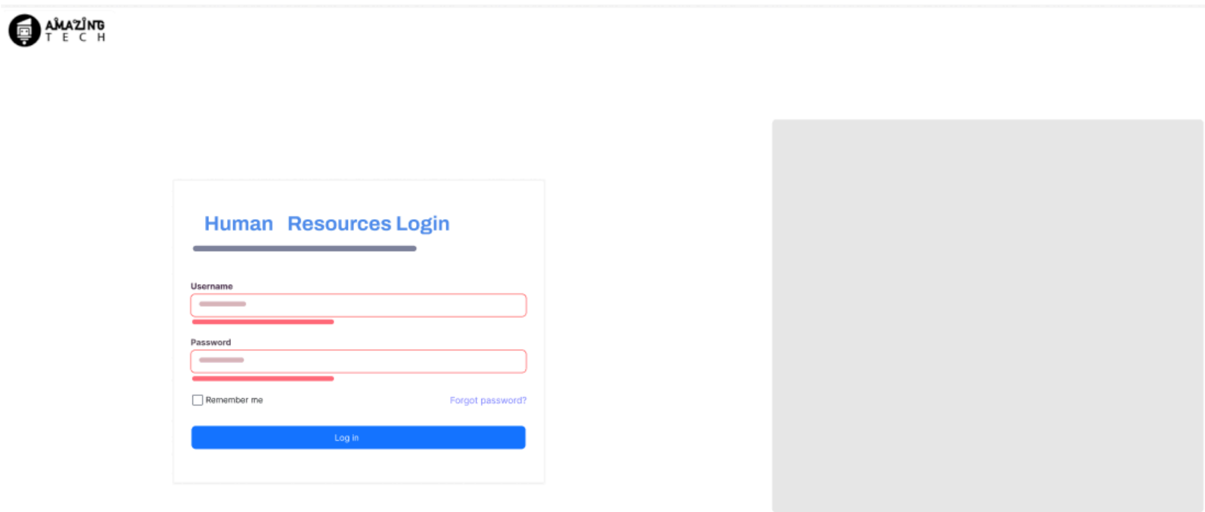


Figure 3.47: Screen - Login

#	Element	Type	Validate	Description
1	Username	Text	Required	Username assigned by HR or Admin
2	Password	Password	Required	Password assigned by HR or Admin
3	Remember Me	Checkbox	Optional	Option to remember user credentials
4	Login	Button	N/A	Button to initiate login action
5	Forgot Password	Link/Button	N/A	Link to initiate password reset process (usually prompts user for email or username)

Table 3.5: Screen Specifications - Login

UC ID	UC-01	Use Case Name	Login
Create by	ThanhNX	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin, Employee
Trigger	• User click "Login" button in Login Page		
Description	• This function allows users to log in to the system using email && password to Login into the system.		
Pre-conditions	• Users access the website. • The system is active and has a network connection. • Users must have an account previously issued by the company.		

Post-conditions	● If the login information is valid, the user will be redirected to the system's home page. ● If the login information is invalid, the system will notify an error and ask the user to try again.
Normal flow	1. Users access the system. 2. The system displays the login page, allowing the user to enter their login information. 3. The user enters their email && password, then clicks the "Sign in" button. 4. The system checks for null values in both the email && password fields. 5. If there is a non-null value in both fields: 5.1. The Use case Function Manage Salary System verifies account information by comparing it with stored account data. 6. If the account exists and is active: 6.1. The system establishes a session for the user and authorizes access for subsequent logins. 7. The system redirects users to the relevant page based on their role.
Alternative flows	● User forgot password - The system provides users with another page to send a request to reset the user's password.
Exceptions	● **EX-1**:Account locked. - Displays a message that the user's account has been locked.
Priority	● Hight
Business rules	● Log in with your company-issued account.

Table 3.6: Use Case Specification - Login

3.2.2. Manager Profile

3.2.2.1 View personal information

Figure 3.48: Screen - Manage Profile

#	Element	Type	Validate	Description
1	Full name	Text	Required	Employee's full name, entered by HR.
2	Employee code	Text	Required	Unique identification number for the employee, issued by HR.
3	Phone number	Text	Optional	Employee contact phone number.
4	Job location	Text	Required	The employee's title, for example: Employee, Manager.
5	Current salary	Currency	Required	Current salary of employee.
6	CCCD number	Text	Required	Employee ID number.
7	Place of issue	Text	Required	Place to issue employee ID cards.
8	Nationality	Text	Required	Nationality of employee.

9	Sex	Dropdown	Required	Employee gender, choose from the list.
10	Hometown	Text	Optional	Employee's hometown.
11	Permanent residence	Text	Optional	Employee's permanent address.
12	Date of issue	Date	Required	Date of issuance of employee's citizen identification card.
13	Expiration date	Date	Required	Expiry date of citizen identification card.
14	Other additional information	Text	Optional	Other additional employee information.

Table 3.7: Screen Specifications - Personal Information View

UC ID	UC-02	Use Case Name	View personal information
Create by	ThanhNX	Created Date	09/25/2024
Primary actor	HR	Secondary Actor	Employee, Admin
Trigger	• Users click on “View personal information” in the Dropdown bar to view their information.		
Description	• This function allows users to view and confirm personal information of users registered in the system. The system displays detailed personal information of users.		
Pre-conditions	• Users access the website. • The system is active and has a network connection. • The user has logged into the system.		

	• The system already has the user's personal information stored.
Post-conditions	• Users can view personal information.
Normal flow	1. The user selects the "View personal information" function from the menu bar. 2. The system displays detailed personal information of the user. 3. The user views the information and confirms its accuracy.
Alternative flows	N/A
Exceptions	N/A
Priority	• Medium
Business rules	• Users can only view their own personal information.

Table 3.8: Use Case Specification -Personal Information View

3.2.2.2 Update Profile

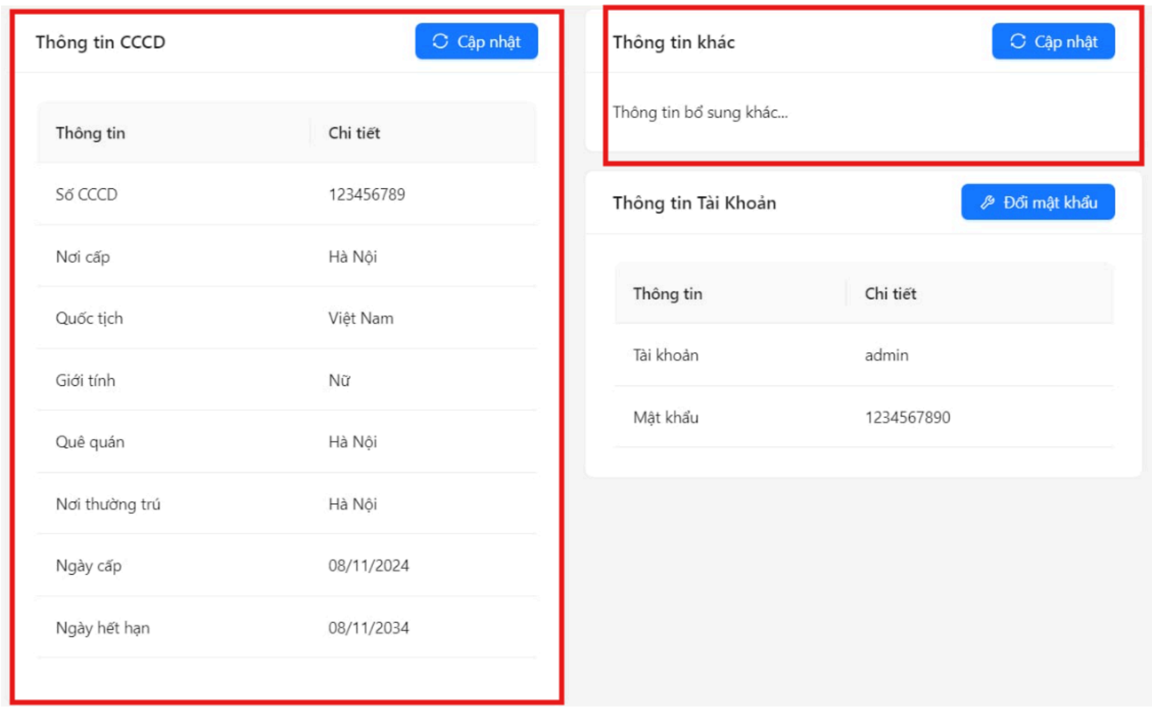


Figure 3.49: Screen - Update Profile

#	Element	Type	Validate	Description
	Update	Button	N/A	Button for HR or employee to update personal or CCCD information.
	Update	Button	N/A	Users can add some additional information

Table 3.9: Screen Specifications - Profile Update

UC ID	UC-03	Use Case Name	Update Profile
Create by	ThanhNX	Date created	09/25/2024
Primary actor	HR	Secondary Actor	Employee, Admin
Trigger	● Users click on "Update Profile" on the system's View Profile page to update their information.		
Description	● The "Update Profile" function allows users to update their information to ensure their information is most accurate.		
Pre-conditions	● The user has logged into the system. ● The user is on the Profile page so the user can update his or her information.		
Post-conditions	● The user's information in the system has been updated to new information. ● The system displays the message “Update Fellowship Profile”.		
Normal flow	1. The user clicks on the avatar icon or username. 2. User clicks on “Profile”. 3. The system displays the user's personal information page. 4. The user fills in the information lines that need to be edited on the Profile page and clicks the Update button.		

	5. The system saves the information you just updated into the database. 6. The system displays the message "Update profile successful" if the profile update is successful.
Alternative flows	N/A
Exceptions	N/A
Priority	• Medium
Business rules	• Users can only update their own personal information.

Table 3.10: Use Case Specification - Profile Update

3.2.2.3 Change Password

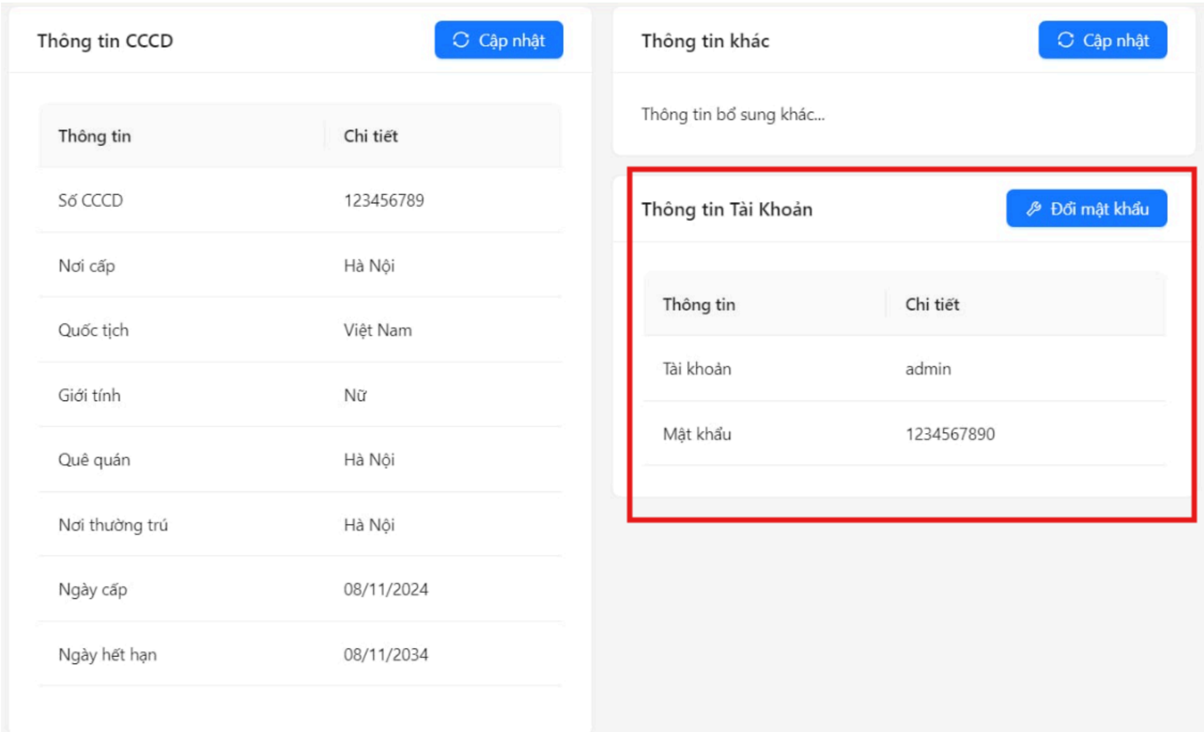


Figure 3.50: Screen - Change Password

#	Element	Type	Validate	Description
	Account	Text	Optional	Employee login name, issued by HR.
	Password	password	Optional	The employee's current password, which can be updated.
	Change password	Button	N/A	Button to access the employee account password change function. When clicked, the system will ask to enter a new password and reconfirm the password.

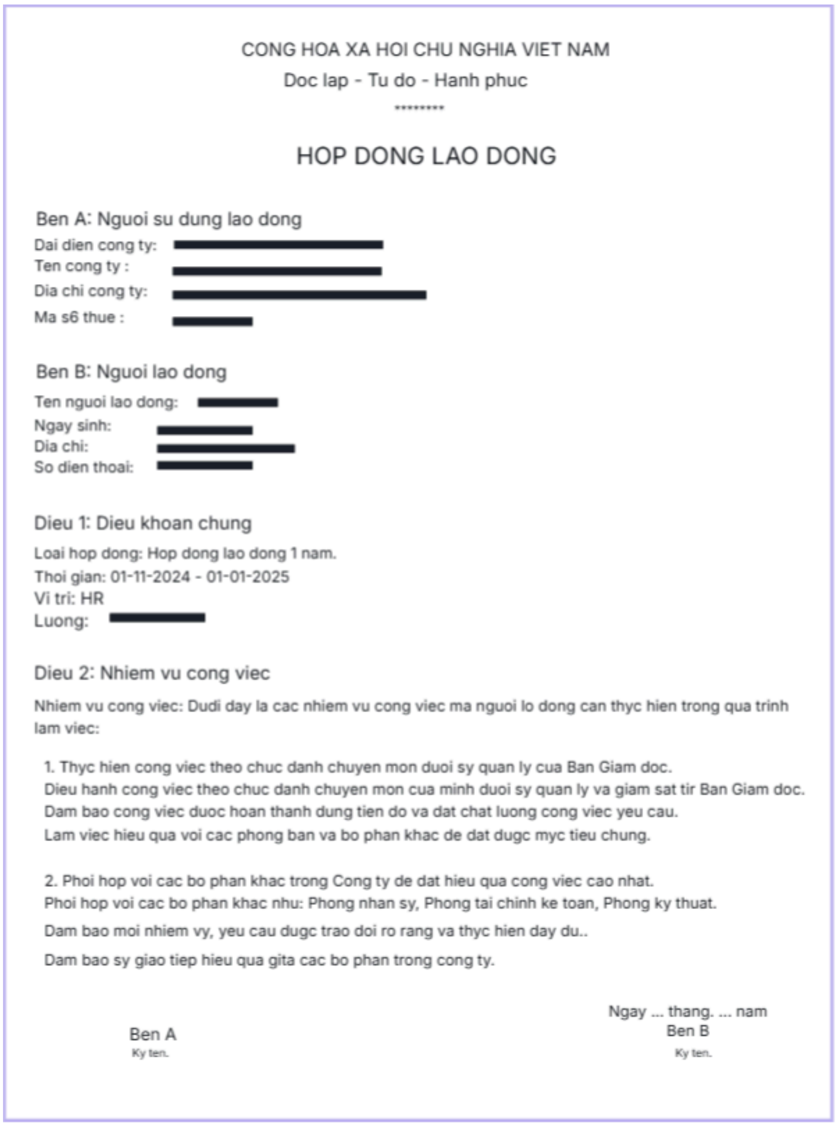
Table 3.11: Screen Specifications - Change Password

UC ID	UC-04	Use Case Name	Change Password
Create by	ThanhNX	Date created	09/25/2024
Primary actor	HR	Secondary Actor	Employee, Admin
Trigger	● The user clicks on “Change Password” in the dropdown menu.		
Description	● The "Change password" function allows users to update their current password to increase security.		
Pre-conditions	● The user has logged into the system. ● The user is on the Change password page where the user can change his password ● The user knows his current password and provides it for verification.		
Post-conditions	● The user's password in the system has been updated. ● The system displays the message "Password changed successfully".		

	● Users can use the new password to access the system
Normal flow	1. The user clicks on the avatar icon or username. 2. User clicks on “Change password”. 3. The system displays the change password page. 4. The user fills in the information lines in the Change password page and presses the "Change password" button. 5. The system saves searches and verifies old ID/password data fields 6. If the old password matches 6.1 New password update system. 7. The system displays the message "Change password successfully".
Alternative flows	N/A
Exceptions	1. If the user enters a new password that matches the current password. The system will notify the user "The new password must not be the same as the current password.
Priority	● Medium
Business rules	● The new password must not be the same as the user's previous password.

Table 3.12: Use Case Specification - Change Password

3.2.2.4 View employment contract information.



CONG HOA XA HOI CHU NGHIA VIET NAM
Doc lap - Tu do - Hanh phuc
****

HOP DONG LAO DONG

Ben A: Nguoi su dung lao dong
Dai dien cong ty: [redacted]
Ten cong ty : [redacted]
Dia chi cong ty: [redacted]
Ma s6 thue : [redacted]

Ben B: Nguoi lao dong
Ten nguoi lao dong: [redacted]
Ngay sinh: [redacted]
Dia chi: [redacted]
So dien thoai: [redacted]

Dieu 1: Dieu khoan chung
Loai hop dong: Hop dong lao dong 1 nam.
Thoi gian: 01-11-2024 - 01-01-2025
Vi tri: HR
Luong: [redacted]

Dieu 2: Nhiem vu cong viec
Nhiem vu cong viec: Dudi day la cac nhiem vu cong viec ma nguoi lo dong can thyc hien trong qua trinh lam viec:

1. Thyc hien cong viec theo chuc danh chuyen mon duoi sy quan ly cua Ban Giam doc.
Dieu hanh cong viec theo chuc danh chuyen mon cua minh duoi sy quan ly va giam sat tir Ban Giam doc.
Dam bao cong viec duoc hoan thanh dung tien do va dat chat luong cong viec yeu cau.
Lam viec hieu qua voi cac phong ban va bo phan khac de dat dugc myc tieu chung.

2. Phoi hop voi cac bo phan khac trong Cong ty de dat hieu qua cong viec cao nhat.
Phoi hop voi cac bo phan khac nhu: Phong nhan sy, Phong tai chinh ke toan, Phong ky thuat.
Dam bao moi nhiem vy, yeu cau dugc trao doi ro rang va thyc hien day du..
Dam bao sy giao tiep hieu qua gita cac bo phan trong cong ty.

Ngay ... thang. ... nam

Ben A
Ky ten.

Ben B
Ky ten.

Figure 3.51: Screen - View Employment Contract Information

UC ID	UC-05	Use Case Name	View employment contract information.
Create by	ThanhNX	Date created	09/25/2024
Primary actor	HR	Secondary Actor	Employee
Trigger	• Users click on "Hồ Sơ Cá Nhân " in the contract section in the sidebar menu on the left of the screen.		

Description	● Function "View employment contract information" allows users to view detailed information about the user's contract with the company.
Pre-conditions	● The user is currently logged into the system as a worker. ● The system must have the user's labor contract information stored.
Post-conditions	● Users can view information about the user's contract with the company. ● The system updates information if there are changes to the contract.
Normal flow	1. Users click on the contract icon or click on "Hồ Sơ Cá Nhân" in the menu bar. 2. The system redirects the user to a page displaying the user's contract information. 3. Users can view their contract details
Alternative flows	N/A
Exceptions	N/A
Priority	Medium
Business rules	● Users can only view their own contracts.

Table 3.13: Description Of View Employment Contract Information.

3.2.3. Attendance Management

3.2.3.1 View attendance report

UC ID	UC-06	Use Case Name	View attendance report
Create by	ThanhNX	Date created	09/25/2024

Primary actor	HR	Secondary actor	Admin
Trigger	• Users click on "View attendance report" in the Report section in the sidebar menu on the left side of the screen.		
Description	• The "View attendance report" function allows users to view details of a person's attendance history for all previous months.		
Pre-conditions	• The user is currently logged into the system. • The system must have recorded user attendance data.		
Post-conditions	• Users can view information about their work history in previous months.(Present / Absent)		
Normal flow	1. Users click on the "report" icon or click on "Report" in the menu sidebar. 2. The system redirects the user to the page displaying the user's View attendance report information. 3. Users click on the list of months displayed on the screen to see their work history for that month.		
Alternative flows	N/A		
Exceptions	N/A		
Priority	• Medium		
Business rules	• Users can only view their own attendance reports.		

Table 3.14: Description View Attendance Report

3.2.3.2 Add Attendance

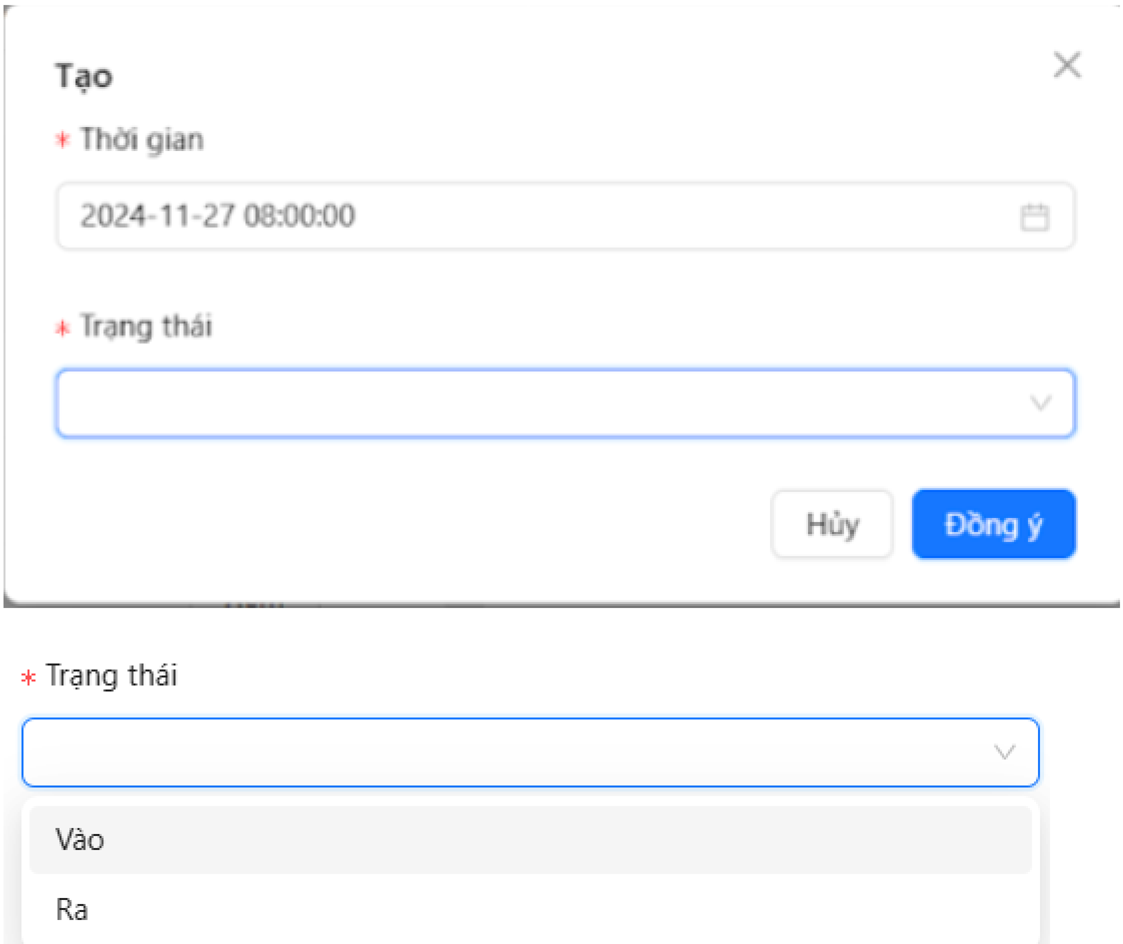


Figure 3.52: Screen - Add Attendance

#	Element	Type	Validate	Description
1	Date	Date Picker	Required	Select a working day to enter timekeeping for a specific day.
2	Time In	Date Picker	Required	Enter work hours or select work hours from the time interface.
3	Time Out	Date Picker	Required	Enter a departure time or select a departure time from the time view
4	Agree	Button	N/A	Button for users to send timekeeping information to the system.

Table 3.15: Screen Specifications - Add Attendance

UC ID	UC-07	Use Case Name	Add Attendance
Create by	ThanhNX	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR needs to manually create or edit timekeeping information for employees.		
Description	HR logs into the system to manually enter or edit timekeeping information for an employee for a specific workday.		
Pre-conditions	- HR has logged into the system. - HR has the right to create or edit manual timekeeping. - The system allows manual timekeeping operations.		
Post-conditions	- Employee's manual timekeeping information is successfully stored in the system. - The employee or HR receives a notification confirming the information has been recorded.		
Normal flow	1. HR logs into the system. 2. HR selects the employee and the date to be clocked. 3. HR enters check-in and check-out times for employees. 4. HR press the "Submit" button to send the information. 5. The system saves the information and displays a confirmation message.		
Alternative flows	- If HR does not enter complete information (for example, check-in time or check-out time), the system requires re-entry. - If the system encounters a connection or information storage error, the system reports an error and requests to try again.		

Exceptions	- The system does not allow timekeeping during holidays or outside working hours. - HR enters invalid information (for example: outgoing hours are smaller than incoming hours).
Priority	High
Business rules	- Only HR or Admin has the right to manually time clock employees. - The system will automatically calculate working hours based on check-in and check-out hours (if any).

Table 3.16: Use Case Specification - Add Attendance

3.2.3.3 Update Attendance

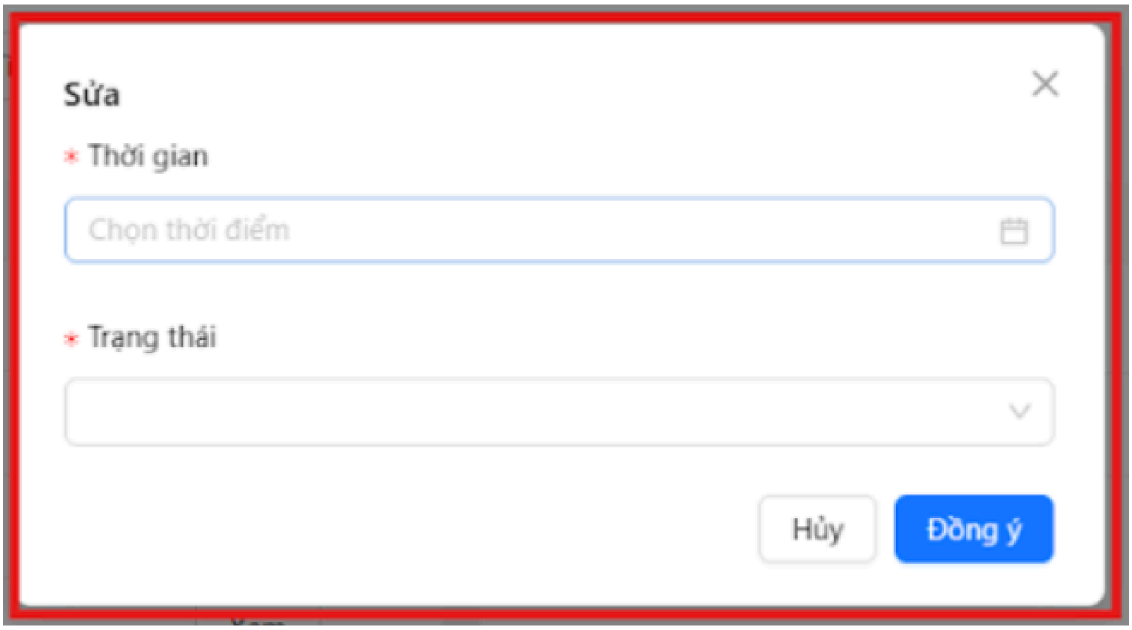


Figure 3.53: Screen - Update Attendance

#	Element	Type	Validate	Description
1	Time	Date Picker	Required, Valid Date Format	Input field to select the specific date and time for timekeeping adjustments.

2	Status	Dropdown Menu	Required, Must select one of the predefined values	Dropdown to choose the status, such as "Ra" (Out) or "Vào" (In).
3	Cancel	Button	Always Enabled	Discards changes and closes the edit modal without saving updates.
4	Save	Button	Enabled only when validations pass	Saves the updated timekeeping record and applies the changes.

Table 3.17: Screen Specifications - Update Attendance

UC ID	UC-08	Use Case Name	Update Timekeeping
Create by	ThanhNX	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	• HR clicks on the “Update Timekeeping” button on the screen in the “Timekeeping Management” section in the sidebar menu on the left of the screen.		
Description	• The human resources department can correct employee timekeeping records if there are errors.		
Pre-conditions	• The user is currently logged into the system as HR • Users already have attendance information that needs to be updated in the system.		
Post-conditions	• The user's attendance status is updated in the system. • The system displays a confirmation message confirming successful timekeeping update.		

Normal flow	1. The user selects the "Update Time Attendance" function from the menu bar. 2. The system redirects the user to a page displaying the employee list 3. HR searches for the name of the employee who needs to update timekeeping. 4. Click on the employee, the system redirects to that employee's View Attendance report page. 5. HR edited it again Present / Absent and click update 6. The system saves the updated information to the system and announces "Update successful". 7. Display the correct information again as updated.
Alternative flows	N/A
Exceptions	N/A
Priority	• Medium
Business rules	• Only HR,Admin can update timekeeping.

Table 3.18:Use Case Specification - Update Attendance

3.2.4 Application management

3.2.4.1 Send Leave Request Application

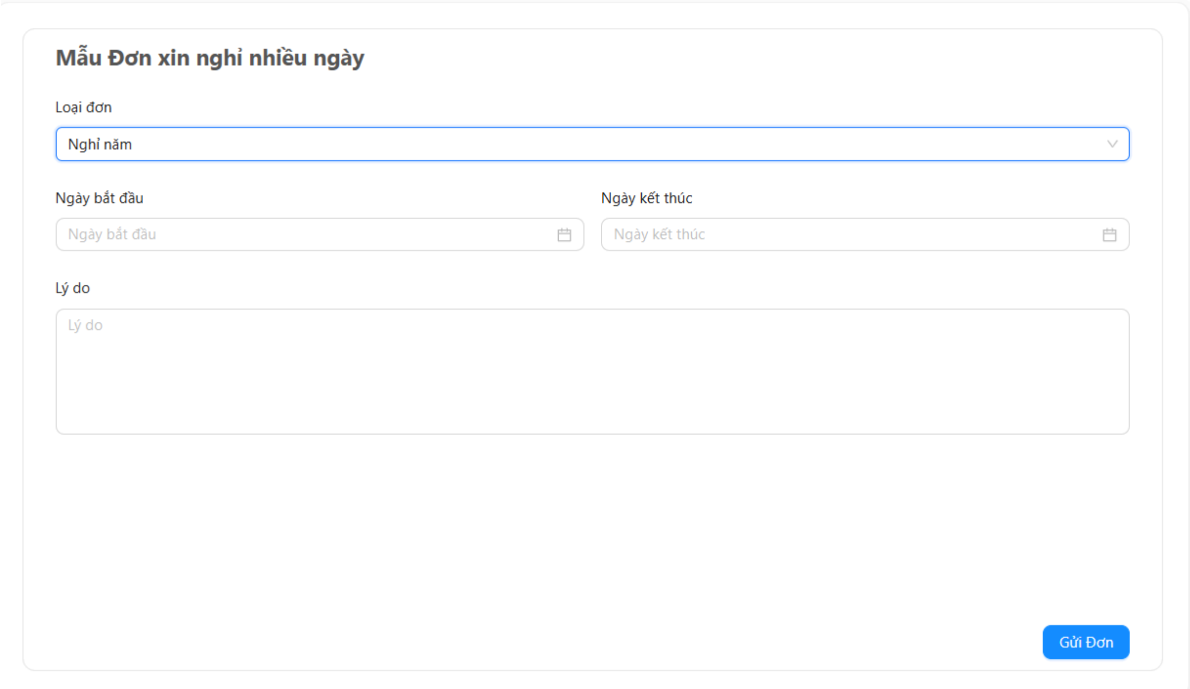


Figure 3.54: Screen - Application Form For Multiple Days Off

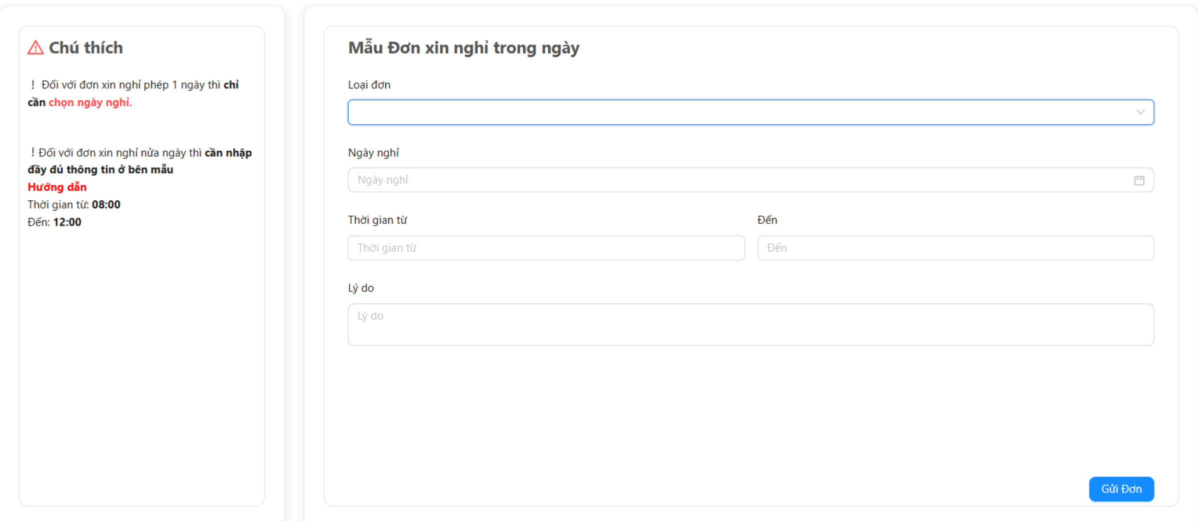


Figure 3.55: Screen - Application Form For Leave Of Absence

#	Element	Type	Validate	Description
1	Application type	Dropdown/Select Input	- Make sure HR selects an item from the list. - Confirm there are no blanks before sending.	Dropdown allows HR to choose the type of application to submit related to activities such as vacation, sick leave, unpaid leave, etc.
2	Start date	Date Picker/Input	- Make sure to select a valid start date. - The start date cannot be in the past compared to the current date.	This field allows HR to select the start date of the holiday or related event.
3	End date	Date Picker/ Input	- Make sure the end date is later or equal to the start date. - The ending date must be reasonable with the starting date.	This field allows HR to select the end date for the holiday or event.
4	Reason	Textarea/Input	- Check not to leave blank if required. - Character limit to ensure concise content.	- Check not to leave blank if required. - Character limit to ensure concise content.
5	Submit Application	Button	- Only activates when all required fields have been filled in correctly.	This button only allows HR to send leave applications or information, only works when the information is complete or displays a warning if it is missing.

Table 3.56: Screen Specifications - Send Leave Request Application

UC ID	UC-09	Use Case Name	Send Application
Create by	ThanhNX	Date created	09/25/2024
Primary actor	Employee	Secondary actor	HR
Trigger	● The user clicks “Send Application” in the sidebar menu on the left side of the screen.		
Description	● The system allows users to create various types of applications (leave applications, complaints, etc.) and push them to the system so that HR can view and approve the applications.		
Pre-conditions	● The user has logged into the system.		
Post-conditions	● The user creates his/her application and successfully uploads it to the system.		
Normal flow	1. The user selects the "Send Application" function in the menu bar on the left side of the screen. 2. The system displays the application submission form on the screen. 3. User selects the Leave Request application type. 4. The system displays the corresponding form for the user to fill in information. 5. Users enter content into the necessary information fields 6. User clicks “Send”.		
Alternative flows	1. N/A		
Exceptions	● **EX-1**: Network connection error or system error causes the application submission process to fail ○ The system displays an error message and allows the user to try again. ● **EX-2**: User did not select application type before submitting.		

	○ The system displays a message asking the user to select an application type. ● **EX-3**: User did not enter all required information in the form. ○ The system displays a warning and requires the user to enter enough information.
Priority	● High
Business rules	● Users must select the application type in the list before sending. ● Users must enter complete information in required data fields

Table 3.20: Use Case Specification - Update Attendance

3.2.4.2 View Leave Request

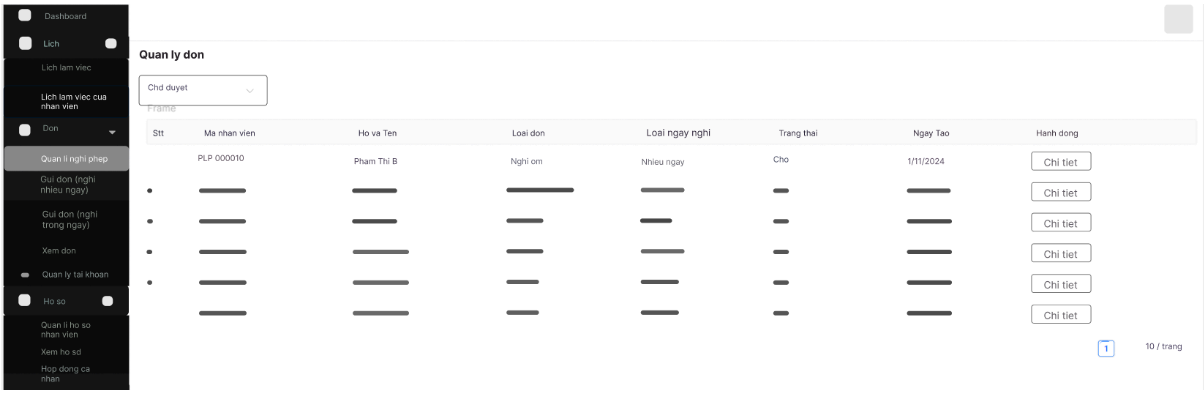


Figure 3.57: Screen - View Leave Application

#	Element	Type	Validate	Description
1	Application type	Text	Text	The type of leave application submitted by the employee, such as annual leave, sick leave, unpaid leave, etc.
2	Reason	Text	Text	Detailed reason for the leave application, written by the employee to explain the reason for the leave.
3	Feedback	Text	Optional	Response from HR or Admin on the leave request, which may

				include comments or additional information.
4	Status	Table	Required (Value must be valid, e.g., "Approved", "Waiting", "Rejected")	Required (Value must be valid, e.g., "Approved", "Waiting", "Rejected")

Table 3.21: Screen Specifications- - View Leave Request

UC ID	UC-10	Use Case Name	View Application
Create by	ThanhNX	Date created	09/25/2024
Primary actor	Employee	Secondary actor	HR
Trigger	● The user clicks on "View Application" from the menu bar on the left side of the screen		
Description	● Users select the "View Application" function to review the applications users have submitted to the system. The system displays a list of submitted applications and allows users to view details of each application and its current status.		
Pre-conditions	● The user is logged into the system. ● The system must have at least one application submitted by the user to display.		
Post-conditions	● Users can view a list of submitted applications and details of each application and its current status. ● The system updates the status of the application in case of changes.		

Normal flow	1. The user selects the "View Single" function from the menu bar. 2. The system displays a list of submitted applications. 3. The user selects an order from the list. 4. The system displays order details, including order content and current status. 5. The user can return to the list or exit the application view function.
Alternative flows	● N/A
Exceptions	● N/A
Priority	● Low
Business rules	● Users can only view the applications they submit to the system.

Table 3.22: Use Case Specification - View Leave Request

3.2.4.3 View application details

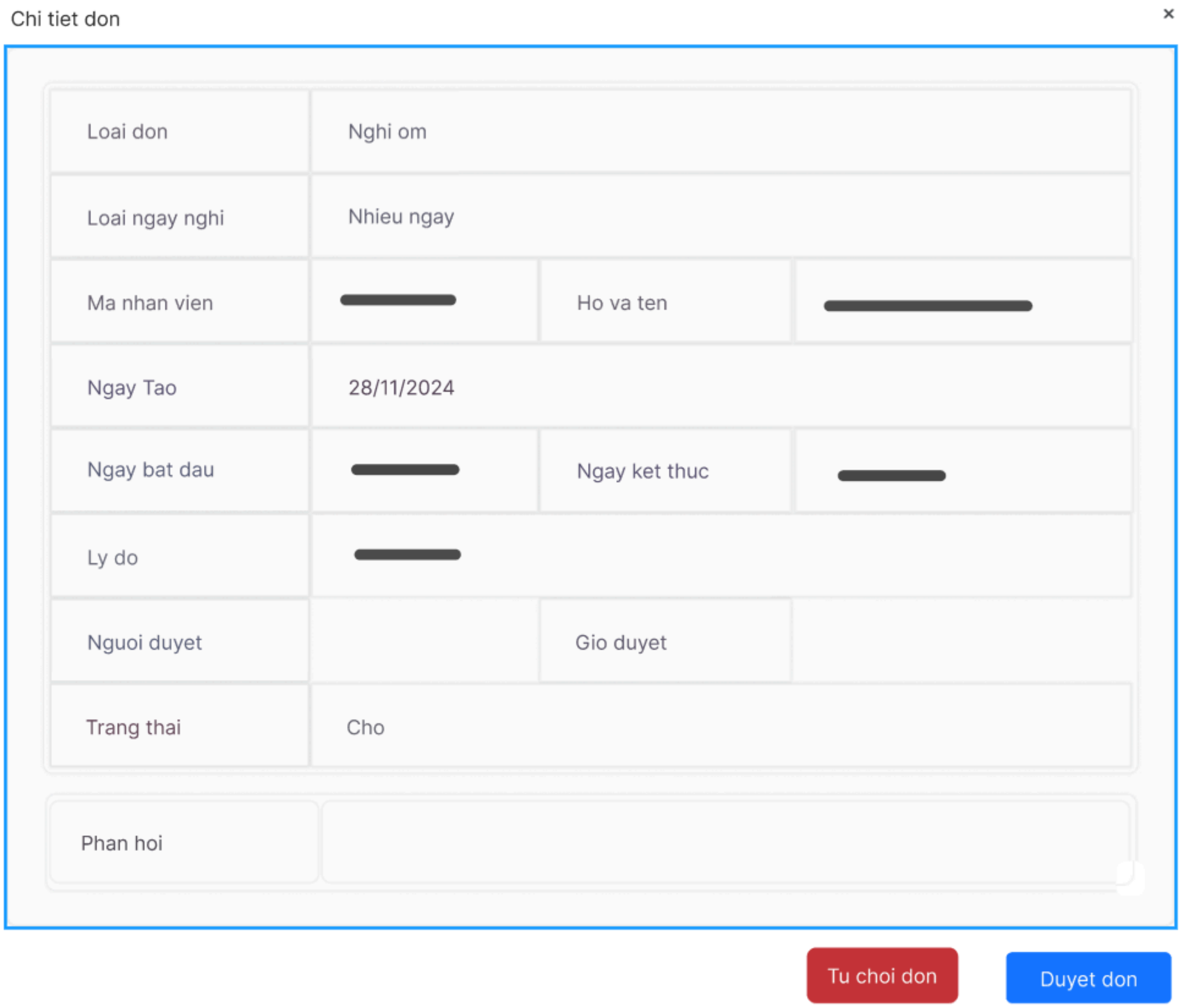


Figure 3.58: Screen - View Leave Application Detail

#	Element	Type	Validate	Description
1	Application type	Dropdown	Required	Select application type (eg: Leave application, etc.)
2	Employee code	Text	Required	Unique identifier of the employee submitting the application.
3	Full name	Text	Optional	Full name and full name of the employee submitting the application.

4	Start date	Date	Required	Start date for application (e.g. leave date)
5	End date	Date	Required	The closing date associated with the application
6	Status	Label	Read-only	Show status of application (e.g. Pending, Approved, Rejected)
7	Reason	Text	Required	Reason for submitting application (for example: Reason for sick leave).
9	Reviewer	Text	Optional	Name of person reviewing the application (if approved or denied).
10	Feedback	Text Area	Optional	Area to enter a response from the reviewer, explaining the reason for approval or rejection.
11	Refuse the application	Button	Action	Button to reject the application, request confirmation from the approver.
12	Browse application	Button	Action	Button to approve the application, request confirmation from the approver

Table 3.23: Screen Specifications - View Application Details

UC ID	UC-11	Use Case Name	View application details
Create by	LamNT	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin, Employee
Trigger	• Employees, HR, or Admin want to see details of applications that have been submitted or are being processed.		
Description	• The system allows key roles to access and view the details of a specific application (leave application, request form, etc.). Details include application content, current status, approval history, and additional notes from HR or management.		
Pre-conditions	• The user is logged into the system with the appropriate role (Employee, HR, Admin, etc.). • The application already exists in the system and is associated with the user or created by the user. • The system is active and has a network connection.		
Post-conditions	• Users can view full application details, including content and current status. • If they are HR or a manager, they may have additional options to edit or approve the application.		
Normal flow	1. The user selects the "View application detail" function from the main interface. 2. The system displays a list of orders related to the user. 3. The user selects an order from the list to view details. 4. The system displays detailed content of the application, including status, history, and additional notes (if any).		
Alternative flows	• If the user selects an application that has been rejected or processed, the system displays the final status and does not allow editing.		

Exceptions	• **EX-1**: If the application does not exist or has been deleted, the system displays the message "The application does not exist". • **EX-2**: If the system encounters an error while retrieving the item, an error message is displayed and the user can try again later.
Priority	• High
Business rules	• All applications must be properly linked to users for security and protection of personal data. • Application information must be displayed completely and accurately to ensure transparency in the application management process. • If the application has been locked or finally confirmed, the system does not allow further editing to ensure data integrity.

Table 3.24: Use Case Specification - View Leave Application Detail

3.2.4.4 Approval of application

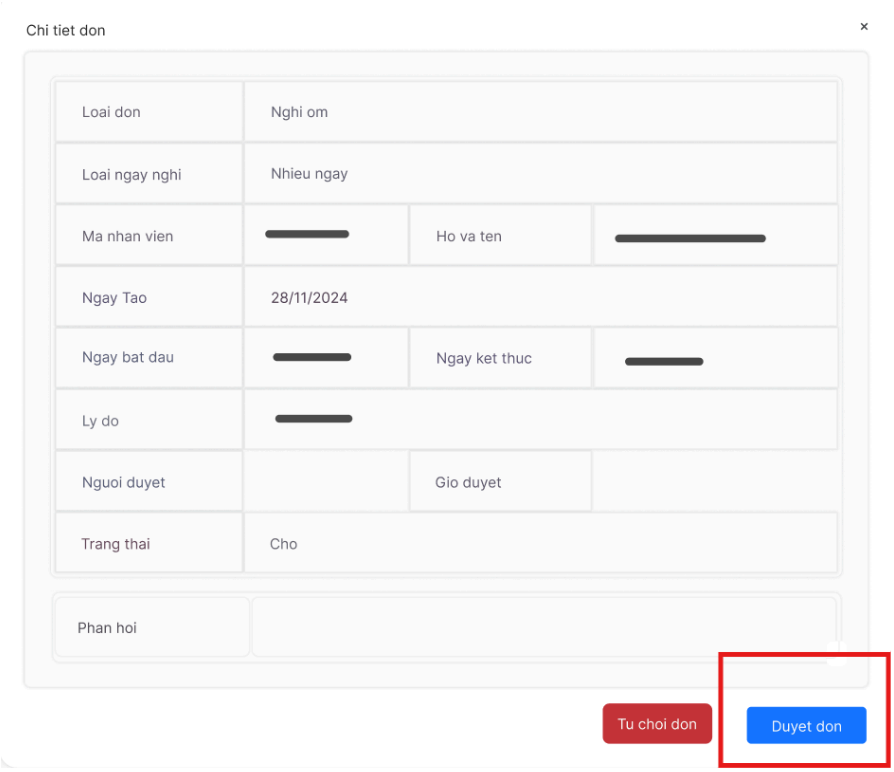


Figure 3.59: Screen - Approval Of Application

#	Element	Type	Validate	Description
1	“Approve Application” Button	Button	N/A	Button used to approve the application after processing the information.

Table 3.25: Screen Specifications - Approval Of Application

UC ID	UC-12	Use Case Name	Approval of application
Create by	LamNT	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	● HR receives a notification requesting approval of the application from the system.		
Description	● The system allows HR to access and approve employee applications (for example, leave applications, support requests). The approval process includes checking application details and approval.		
Pre-conditions	● The user is logged in as HR. ● The application is in "Waiting for approval" status.		
Post-conditions	● The application is moved to "Approved" or "Rejected" status. ● Notifications are sent to employees about the approval results.		
Normal flow	1. HR logs into the system. 2. Access the list of applications awaiting approval. 3. Select a specific order to view details. 4. Check the content and status of the application. 5. Approve or reject the application. 6. Update application status. 7. The system sends a notification to the order creator.		

Alternative flows	• If the application requires additional information, HR may request the submitter to provide additional information before approval.
Exceptions	• If the system cannot find the order or encounters an error when displaying order details. • If the user does not have permission to approve the application.
Priority	• High
Business rules	• Only HR has the right to approve the application. • All applications must be approved by a specific deadline.

Table 3.26:Use Case Specification - Approval Of Application

3.2.4.5 Refuse the application

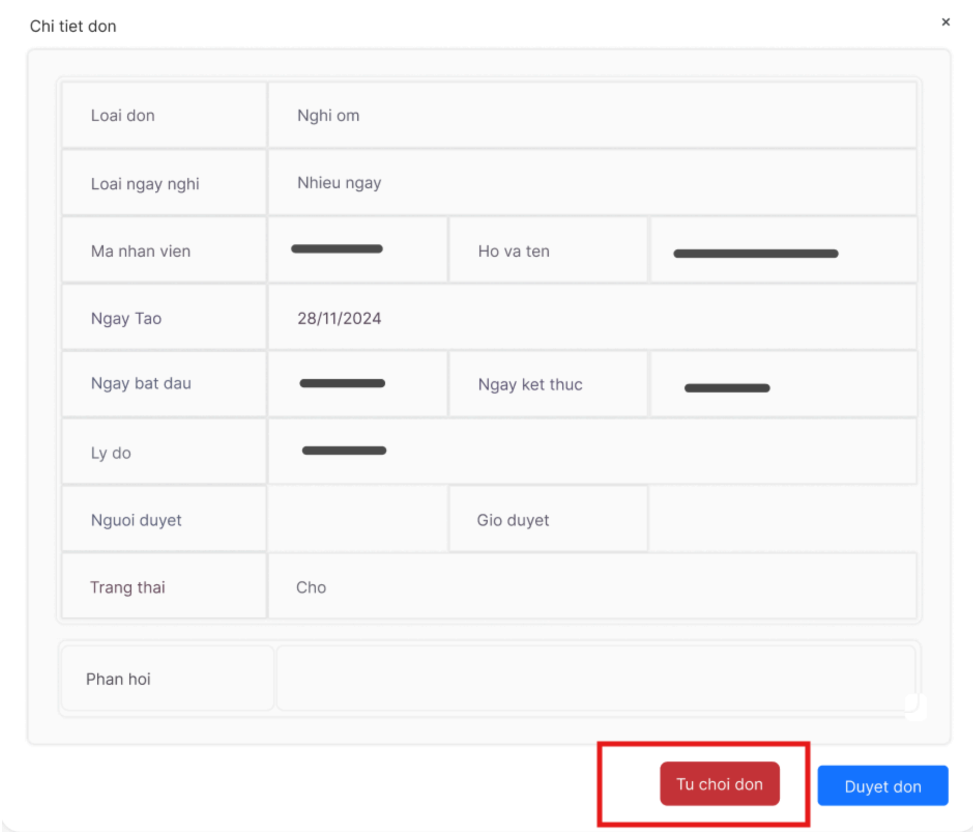


Figure 3.60: Screen - Refuse The Application

#	Element	Type	Validate	Description
1	“Reject” Button	Button	N/A	Button used to reject the application after reviewing the information.

Table 3.25: Screen Specifications - Refuse The Application

UC ID	UC-13	Use Case Name	Refuse of application
Create by	LamNT	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	● HR decides to reject an application submitted by an employee.		
Description	● The system allows HR to reject applications from employees. When rejected, the system will notify the result to the applicant.		
Pre-conditions	● The user is logged into the system as HR. ● The application is in "Waiting for approval" status.		
Post-conditions	● The application is changed to "Rejected" status. ● Notify the creator of the application.		
Normal flow	1. HR logs into the system. 2. Access the list of applications awaiting approval. 3. Select the request to reject. 4. View the application details and press the "Decline" option. 5. Enter the reason for refusal (if any). 6. Update application status to "Rejected". 7. The system sends a notification of the refusal decision to the applicant.		

Alternative flows	• If HRrequires additional information before deciding to deny, they can send a request for additional information to the applicant.
Exceptions	• If the application cannot be found or an error was encountered during the rejection process. • If the user does not have the right to refuse the application.
Priority	• High
Business rules	• Only HR has the right to refuse the application.

Table 3.26:Use Case Specification - Refuse The Application

3.2.4.6 Track order history

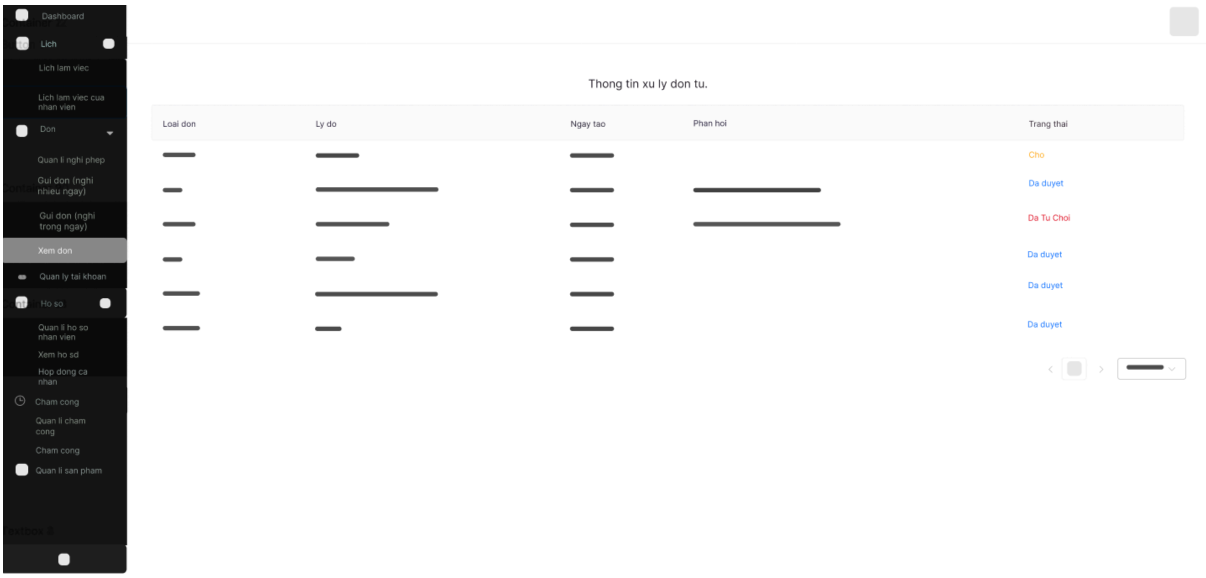


Figure 3.61: Screen - Track Order History

UC ID	UC-14	Use Case Name	Track order history
Create by	DuyenNT	Date created	11/19/2024
Primary actor	Employee	Secondary actor	Admin, HR

Trigger	● When employees, HR want to see the history of submitted applications and their status.
Description	● The system allows users to view a historical list of submitted applications. Information includes application type, submission date, current status, and notes from HR or management (if applicable).
Pre-conditions	● The user is logged into the system with appropriate permissions (Employee, HR). ● The system has submitted application data related to the user.
Post-conditions	● Users can view the complete history of submitted applications, including status and notes.
Normal flow	The user selects the "Application View" function from the main interface. Users can select each order to view details (if needed).
Alternative flows	Users can filter the list by application type or status for easy searching.
Exceptions	If there are no orders in history, the system displays the message "There are no orders in history". If a system error occurs when retrieving data, the system displays an error message and asks the user to try again later.
Priority	Medium
Business rules	- Only users with valid permissions can view their application history. - Displayed data must be updated and accurate. - Access and view history can be limited by user role.

Table 3.27:Use Case Specification - Track Order History

3.2.5 View work schedule and shifts

3.2.5.1 View detailed work schedule

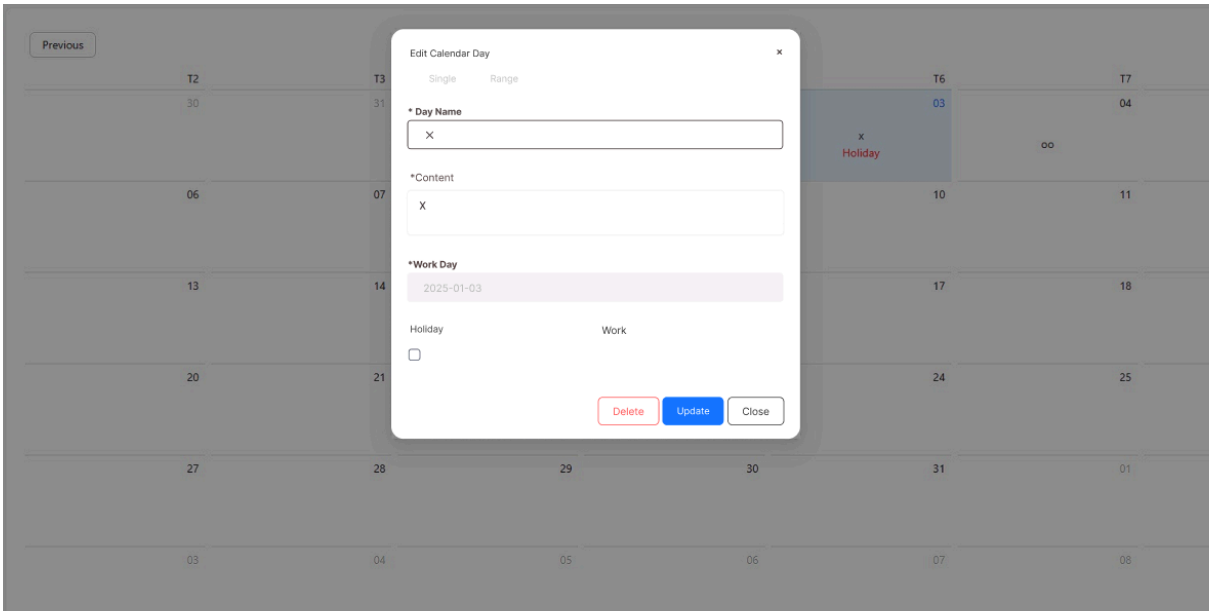


Figure 3.62: Screen - View Detailed Work Schedule

#	Element	Type	Validate	Description
1	Day Name	Text Input	Required	The name of the workday to be edited, for example: "Holiday", "Birthday"
2	Content	Text Area	Required	Describe in detail the content or reason for the workday.
3	Work Day	Date Picker	Required (Read-only for edit)	Working date needs editing, specific date format.
4	Holiday Checkbox	Checkbox	Optional	Check if the day is a holiday.
5	Work Checkbox	Checkbox	Optional	Check if the day is a business day.
6	Delete Button	Button	Confirmation required before action	Button to delete working days from the calendar, requires confirmation before execution.

7	Update Button	Button	Enabled when all required fields are filled.	Button to save changes the next business day after editing is complete.
8	Close Button	Button	No validation	Button to close the editing window without saving changes.

Table 3.28: Screen Specifications - View Detailed Work Schedule

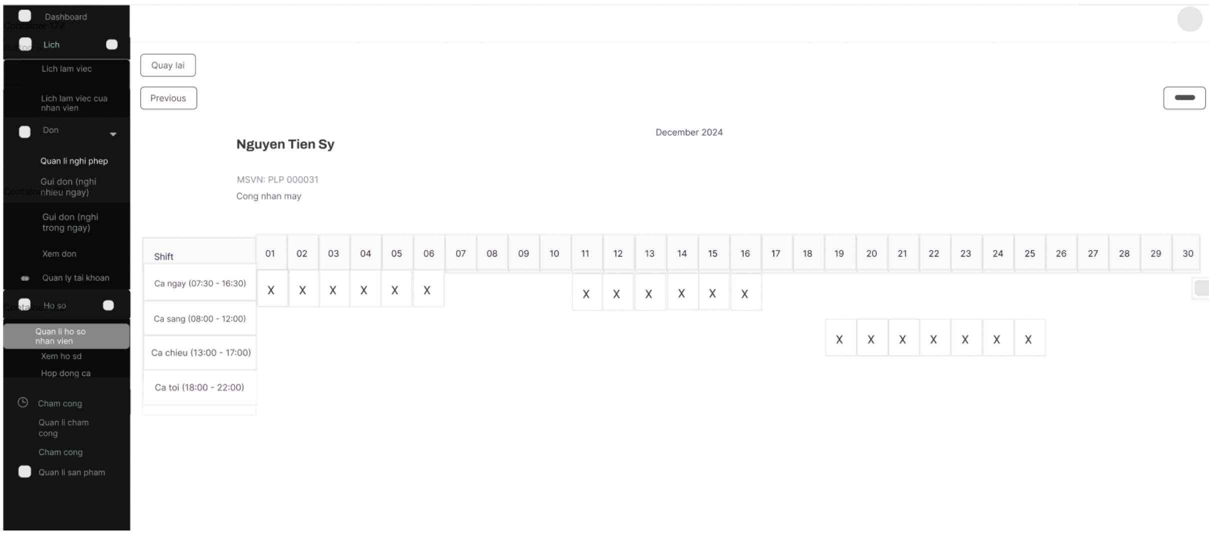


Figure 3.63: Screen - View detailed work schedule of employee

UC ID	UC-15	Use Case Name	View detailed work schedule
Create by	LamNT	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR or Admin wants to see details of a working day in the calendar.		
Description	The system allows HR and Admin to view detailed information of a working day, including day name, detailed content, holiday or working day status.		

Pre-conditions	HR or Admin must log in to the system. Workdays already exist in the calendar.
Post-conditions	Detailed information of the working day is fully displayed on the screen.
Normal flow	1. HR or Admin log in to the system. 2. Access the "Work schedule" section from the main interface. 3. Select a specific day in the calendar to view details. 4. The system displays detailed information of the working day, including: - Date name - Description content - Working days - Status (Holiday/Work).
Alternative flows	N/A
Exceptions	● -If the working day's data is incorrect or incomplete, the system displays a message to recheck the data. ● The working date does not exist or has been deleted from the system, the system displays a message that the information was not found. ● There was a technical problem loading detailed information, the system displayed an error and asked to try again later.
Priority	Medium
Business rules	- Detailed working day information must be displayed fully and accurately to ensure transparency and effective management. - The system must comply with the company's data security regulations, ensuring work schedule information is not illegally disclosed.

Table 3.29:Use Case Specification - View Detailed Work Schedule

3.2.5.2 Create work schedules for employees

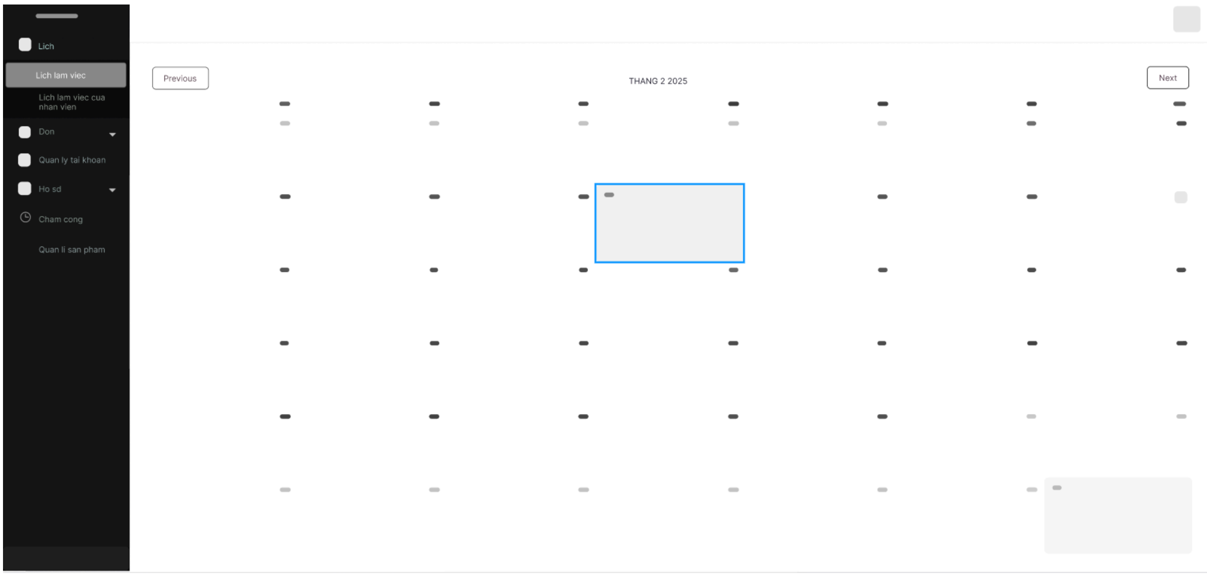


Figure 3.64: Screen - Work Schedule

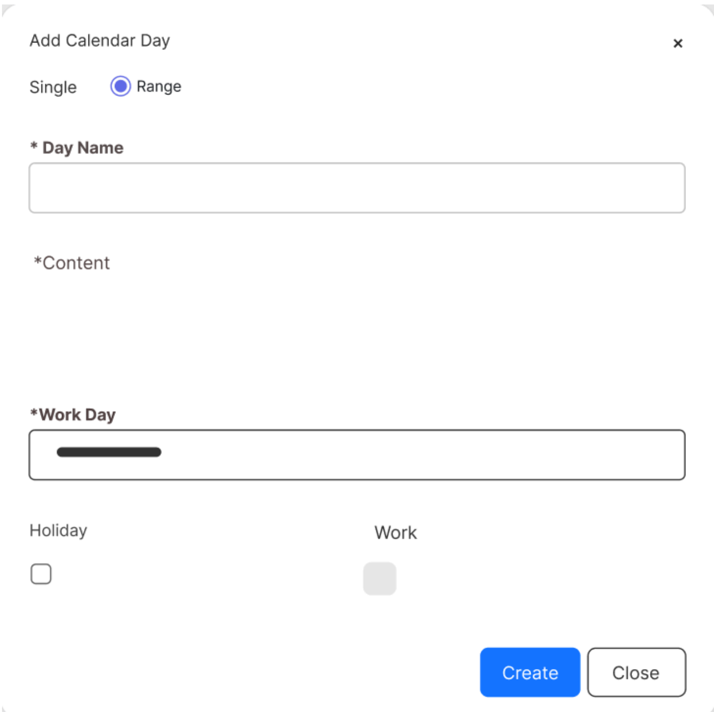


Figure 3.65: Screen - Create Work Schedules For Employees

#	Element	Type	Validate	Description
	Day Name	Text Input	Required	The name of the day to add to the calendar, for example: "Holiday", "Normal business day"
	Content	Text Area	Required	A detailed description for the day added to the calendar, helping to explain why the day is a work day or a holiday.
	Work Day	Date Picker	Required	Working days or holidays need to be added to the calendar, with a specific date format
	Holiday Checkbox	Checkbox	Optional	Mark if the day is a holiday, to help differentiate holidays in the calendar
	Work Checkbox	Checkbox	Optional	Mark if the day is a working day, to help differentiate working days in the calendar.
	Create Button	Button	Enabled when all required fields are filled.	Button to save and add dates to the calendar after filling in all information.
	Close Button	Button	No validation	Button to close the workday creation window without saving changes.

Table 3.30: Screen Specifications - Create Work Schedules For Employees

UC ID	UC-16	Use Case Name	Create work schedules for employees
Create by	LamNT	Date created	11/19/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR or Admin wants to create work schedules for employees in the system.		
Description	The system allows HR and Admin to create work schedules for employees by selecting days, shifts, locations and departments.		
Pre-conditions	HR or Admin must log in to the system. The list of employees and shifts has been updated in the system.		
Post-conditions	The work schedule for the selected day is created and displayed on the interface.		
Normal flow	1. HR or Admin log in to the system. 2. Access the "Work schedule" section from the main interface. 3. Select the date in the "Calendar Day Details" section. 4. Select work schedule (shift), location, and/or department. 5. Click the "Get Data" button to display the corresponding employee list. 6. Add employees to the calendar by selecting "Add by Position" or "Add by Department". 7. Confirm the employee addition and save the work schedule.		
Alternative flows	HR or Admin can add or remove work schedules based on location or other departments using the corresponding buttons.		
Exceptions	- If there are no employees matching the selection, the system will display a message with no data.		

	- If there is a system error during the process of adding or deleting work schedules, the system will display an error message.
Priority	Medium
Business rules	- Only HR and Admin have the right to create and edit employee work schedules. - Information about work schedules must comply with company regulations and policies.

Table 3.31:Use Case Specification - Create Work Schedules For Employees

3.2.5.3 Delete work schedule

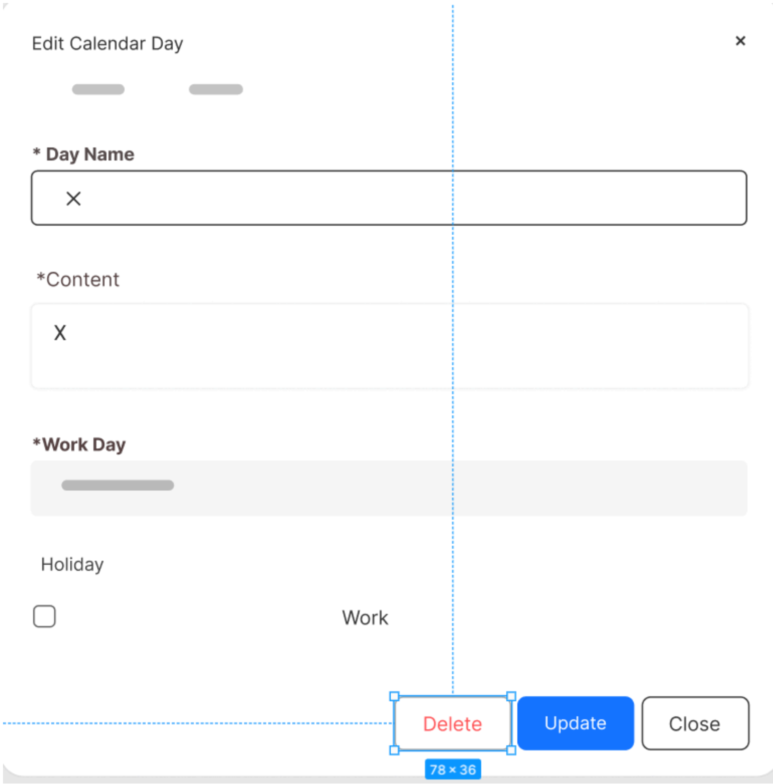


Figure 3.66: Screen - Delete work schedule

#	Element	Type	Validate	Description
1	Delete	Button	Confirmation required	Button to delete the selected work schedule. Ask for confirmation before taking action.

Table 3.32: Screen Specifications- - Delete Work Schedule

UC ID	UC-17	Use Case Name	Delete work schedule
Create by	DuyenNT	Date created	11/19/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR or Admin wants to delete a work schedule from the system.		
Description	The system allows HR and Admin to delete a specific work schedule. This can be done when work schedules have changed or are no longer needed.		
Pre-conditions	Users must log in to the system as HR or Admin. The system has a network connection and work schedule data already exists.		
Post-conditions	The work schedule is deleted from the system and is no longer displayed in the work schedule list.		
Normal flow	HR or Admin select "work schedule" from the main interface. Select the work schedule to delete and press the "Delete" button. Confirm deletion of work schedule.		
Alternative flows	N/A		
Exceptions	If the work schedule does not exist or has been previously deleted, the system displays blank when pressing on that day If there is a system error when deleting a work schedule, the system displays an error message and asks to try again later.		
Priority	High		
Business rules	- Only HR and Admin have the right to delete work schedules.		

	- The system must ask for confirmation before deleting to avoid incorrect operations.

Table 3.33:Use Case Specification - Delete Work Schedule

3.2.5.4. Update work schedule

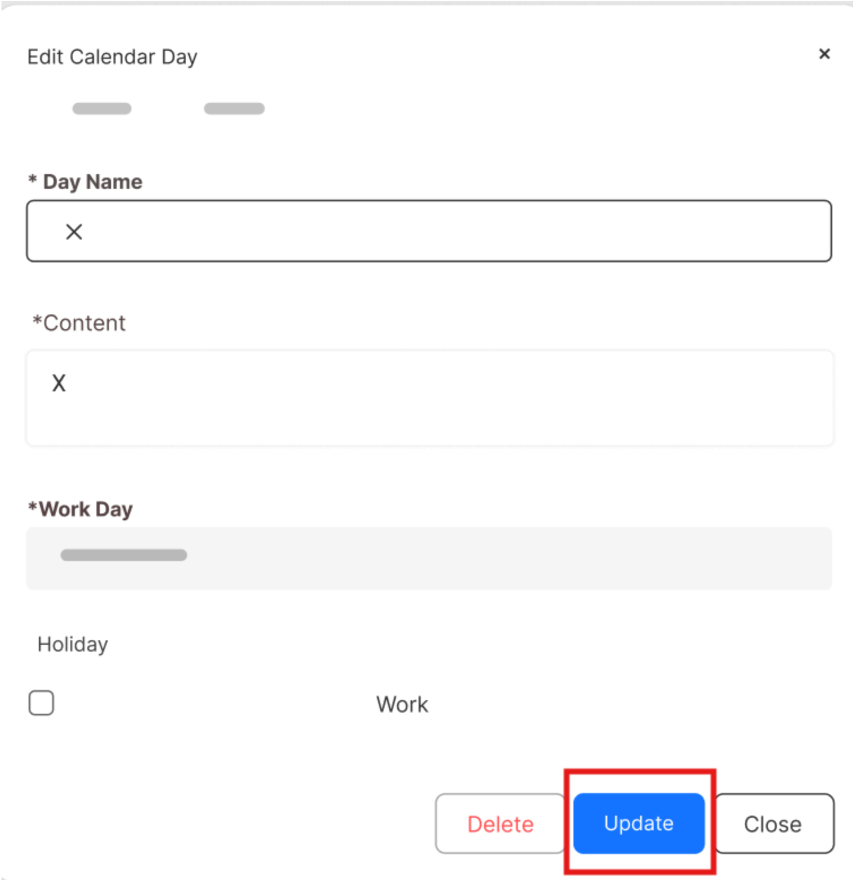


Figure 3.67: Screen - Update Work Schedule

#	Element	Type	Validate	Description
1	Update	Button	Confirmation required	Button to update date information in the calendar. Ask for confirmation before proceeding.

Table 3.34:Screen Specifications- - Update Work Schedule

UC ID	UC-18	Use Case Name	Update work schedule
Create by	DuyenNT	Date created	11/19/2024
Primary actor	HR	Secondary actor	Admin
Trigger	When HR or Admin needs to edit information on a specific day in the work schedule.		
Description	The system allows HR and Admin to update detailed information for a day in the calendar, including name, description, and status (holiday or working day).		
Pre-conditions	The user is logged into the system as HR or Admin. The calendar date already exists in the system.		
Post-conditions	The calendar date is updated with new information and saved in the system.		
Normal flow	HR or Admin selects the date in the calendar to edit. Actor edits date information and presses the "Update" button. Actor confirms the update.		
Alternative flows	If the user chooses to edit but does not change anything, the system does not save and displays a notification.		
Exceptions	If there is a system error during the update process, the system displays an error message and asks to try again later		
Priority	High		
Business rules	- Only HR and Admin have the right to edit dates in the calendar.		

	- The system must ask for confirmation before saving changes to avoid incorrect operations.

Table 3.35:Use Case Specification - Update Work Schedule

3.2.5.5. Create Calendar Day Details

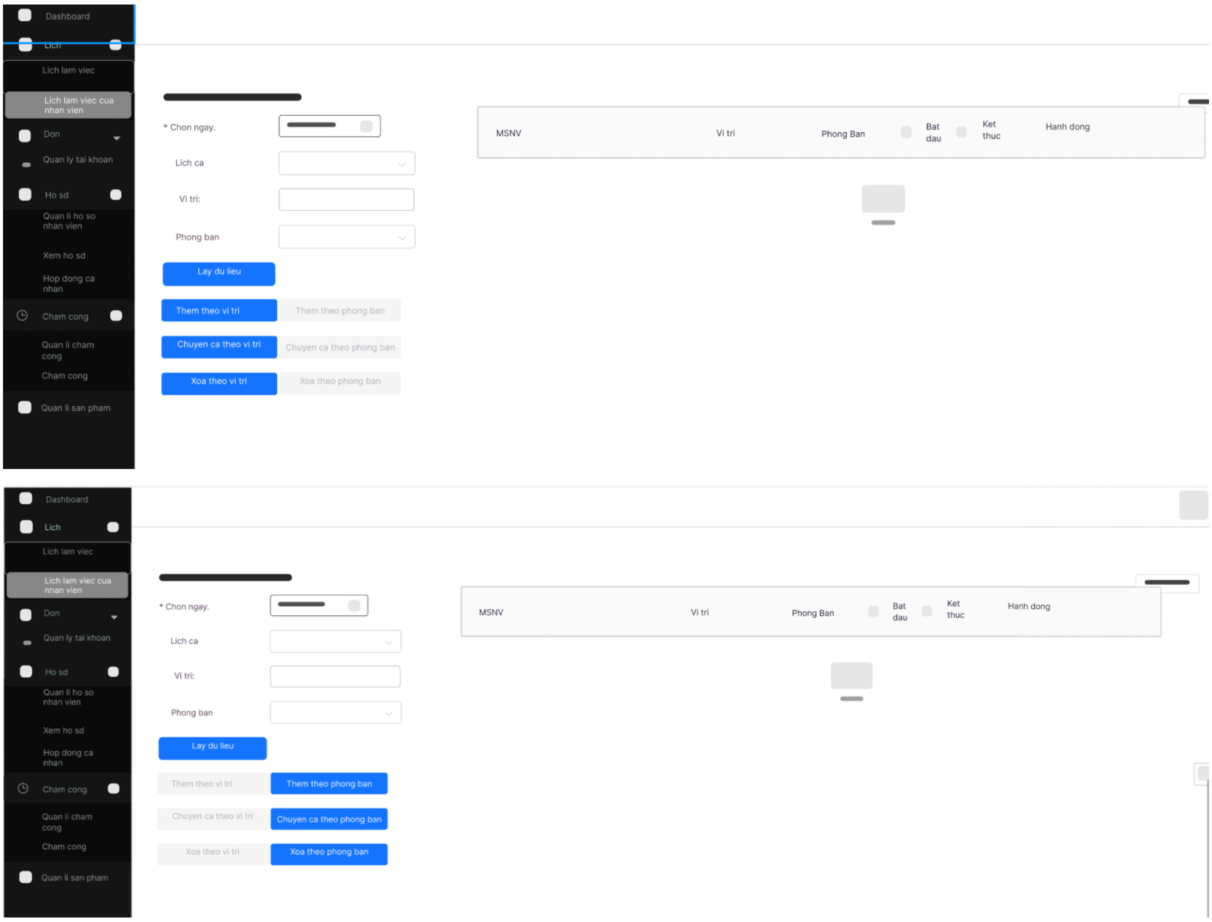


Figure 3.68: Screen - Create Calendar Day Details

#	Element	Type	Validate	Description
1	Select Date	Date Picker	Required	Select the day you need to manage your work schedule.
2	Shift Schedule	Dropdown	Required	Select the appropriate shift from the list.
3	Position	Dropdown	Optional	Select the employee's job position.
4	Department	Text	Optional	Enter the department name if necessary.

5	Get data	Button	Action	Button to get work schedule data according to selected conditions.
6	Add by Position	Button	Confirmation required	Add work schedule according to employee position after confirmation.
7	Add by Department	Button	Confirmation required	Add work schedules by department after confirmation.

Table 3.36:Screen Specifications - Create Calendar Day Details

UC ID	UC-19	Use Case Name	Create Calendar Day Details
Create by	DuyeNT	Date created	11/19/2024
Primary actor	HR, Admin	Secondary actor	N/A
Trigger	When HR or Admin needs to manage details of an employee's working day.		
Description	The system allows HR and Admin to add, update or delete work schedules for employees by day, location or department.		
Pre-conditions	The user is logged into the system as HR or Admin. The system has a network connection.		
Post-conditions	The employee's work schedule was successfully updated and saved in the system.		
Normal flow	Select dates and related conditions (shift, location, department). Click "Add by Position" or "Add by Department" to add a work schedule. Click the "Get Data" button to check the available work schedule.		
Alternative flows	Users can edit work schedule information before further confirmation		

Exceptions	If no work schedule data is found, the system displays the message "No suitable data". If a system error occurs when adding or deleting a calendar, the system displays an error message and asks to try again later.
Priority	High
Business rules	Only HR and Admin have the right to manage work schedules.

Table 3.37:Use Case Specification - Create Calendar Day Details

3.2.5.6. Delete Calendar Day Details

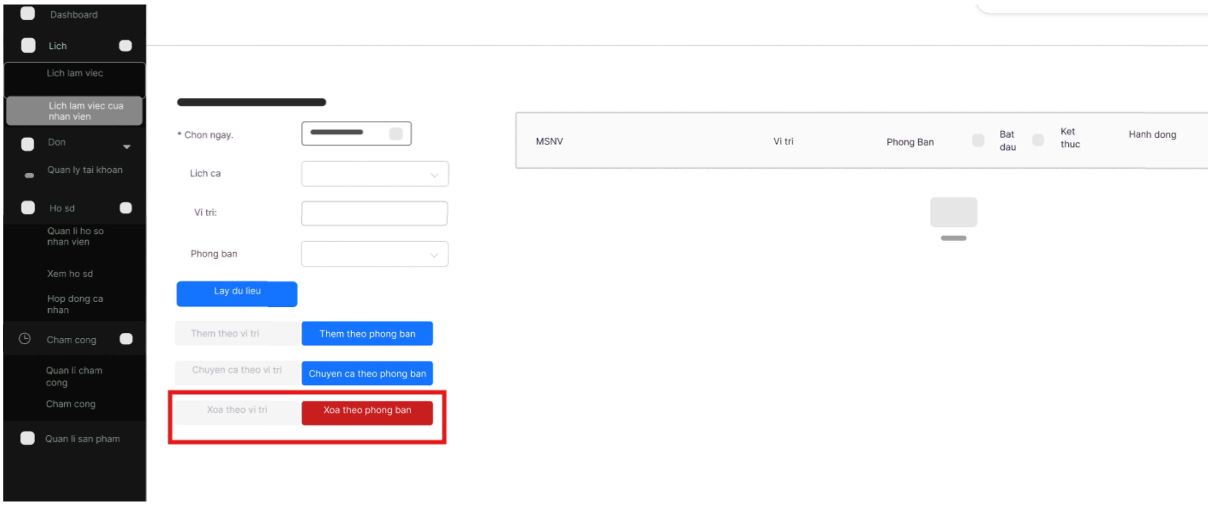


Figure 3.69: Screen - Delete Calendar Day Details

#	Element	Type	Validate	Description
1	Delete by Position	Button	Confirmation required	Delete work schedules by location after confirmation from the user.
2	Delete by Department	Button	Confirmation required	Delete work schedules by department after confirmation from the user

Table 3.38:Screen Specifications - Delete Calendar Day Details

UC ID	UC-20	Use Case Name	Delete Calendar Day Details
Create by	DuyenNT	Date created	11/19/2024
Primary actor	HR, Admin	Secondary actor	N/A
Trigger	When HR or Admin needs to delete working day details in the calendar by location or department.		
Description	The system allows HR and Admin to delete working day details by specific location or department in the work schedule after confirmation.		
Pre-conditions	The user is logged into the system as HR or Admin. The system has a network connection and work schedule data exists.		
Post-conditions	Workday details are removed from the system and are no longer displayed in the work schedule list.		
Normal flow	HR or Admin select the date in the calendar and press the "Delete by Position" or "Delete by Department" button. The actor confirms the deletion operation		
Alternative flows	If the user cancels the confirmation, the system retains the working day details without deleting.		
Exceptions	If the working day details do not exist or have been deleted, the system displays the message "Date details are empty". If there is a system error when deleting workday details, the system displays an error message and asks to try again later.		
Priority	High		

Business rules	- Only HR and Admin have the right to delete working day details. - The system must request confirmation from the user before deleting to avoid incorrect operations.

Table 3.39:Use Case Specification - Delete Calendar Day Details

3.2.5.7 Get data

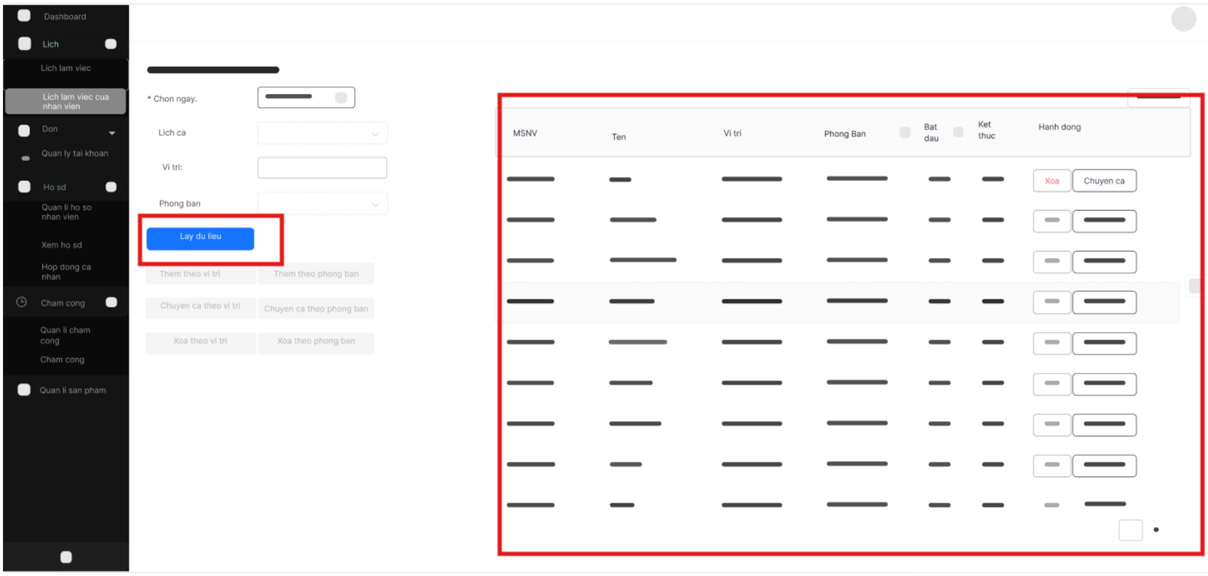


Figure 3.70: Screen - Get Data Calendar Day Details

#	Element	Type	Validate	Description
1	Button “Get data”	Button	Required	The "Get Data" button allows the user to retrieve and display work schedule data for the selected day.
2	Data Table	Data Table	Auto	Displays a list of employees with information about location, start time, end time, and actions after the data is retrieved.

Table 3.40:Screen Specifications - Get Data Calendar Day Details

UC ID	UC-21	Use Case Name	Get Data
Create by	DuyenNT	Date created	11/19/2024

Primary actor	HR, Admin	Secondary actor	N/A
Trigger	When HR or Admin needs to get work schedule data to display in the detail table.		
Description	The system allows HR and Admin to click the "Get Data" button to display work schedule information for the selected day. The data is updated in the table after the button is pressed.		
Pre-conditions	The user is logged into the system as HR or Admin. The system has a network connection and work schedule data exists.		
Post-conditions	Work schedule data displayed in the table, including user information, location, start time and end time.		
Normal flow	HR or Admin selects the date in the calendar. Click the "Get Data" button. The system retrieves data from the database and displays it in a table.		
Alternative flows	If the user cancels the operation, the system will not retrieve data.		
Exceptions	If there is no work schedule data for the selected day, the system displays the message "No data available". If there is a system error when retrieving data, the system displays an error message and asks to try again later.		
Priority	High		
Business rules	Only HR and Admin have the right to perform data retrieval operations. The data retrieval operation must be performed on the basis of a valid selected date.		

Table 3.41: Use Case Specification - Get Data Calendar Day Details

3.2.6 Employee Profile Management

3.2.6.1 View employee profile list

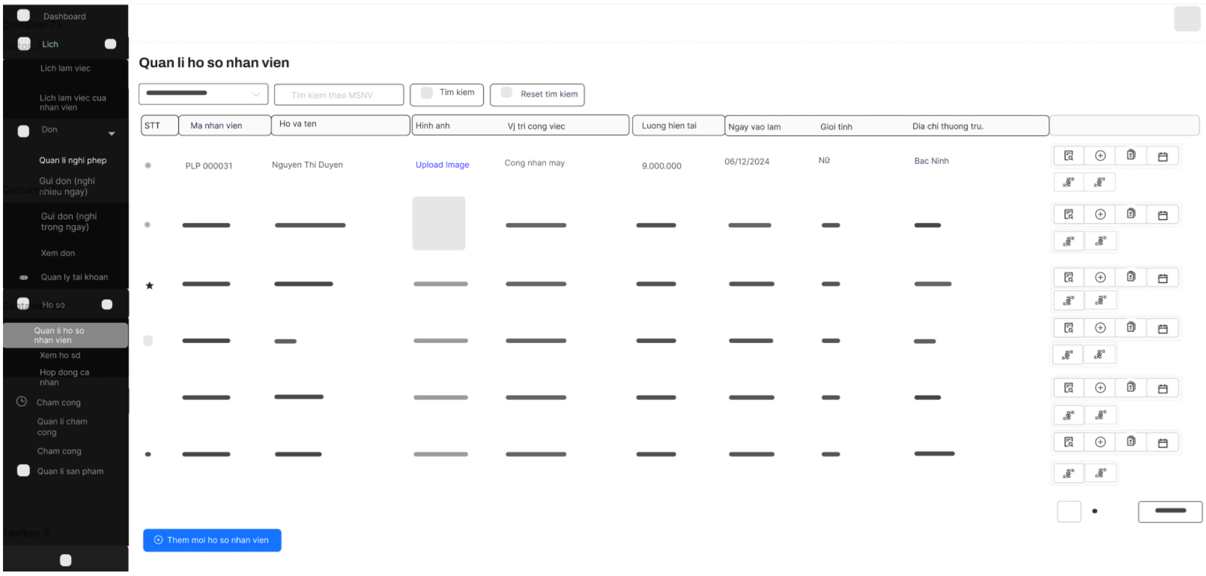


Figure 3.71: Screen - View Employee Profile List

#	Element	Type	Validate	Description
1	Search Box	Text Input	Optional	Allows users to search for employees by employee number (MSNV).
2	Search Button	Button	Action	Button to start the search according to the information entered in the search box.
3	Reset Search Button	Button	Action	Button to reset search results and display a full list.
4	Employee List	Table	Read-only	Displays a list of employees with detailed information such as employee code, name, position, current salary, starting date, gender, permanent address, etc.

5	Upload Image Link	Link	Action (Optional)	Link to upload an employee's profile image (if one doesn't already exist).
6	Detail Button	Button	Action	Button to view specific employee profile details.
7	Create Account	Button	Confirmation required	Button to create accounts for new employees when needed.
8	Add New Employee Button	Button	Action	Button to add a new employee profile to the system.

Table 3.42:Screen Specifications - View Employee Profile List

UC ID	UC-22	Use Case Name	View employee profile list
Create by	LamNT	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR needs to see a list of employee profiles.		
Description	• HR access and view employee profile list. The system will display information related to employees such as name, position, department, and working status.		
Pre-conditions	• The system is working. • The user has been authenticated and has permission to access the employee profile list. • The employee records are already in the database.		
Post-conditions	• The user has successfully viewed the employee profile list. • The system records this action for auditing purposes.		

Normal flow	1. User logs into the system. 2. Users navigate to the human resources management section. 3. The system retrieves and displays a list of employee records. 4. Users can view details such as employee name, position, department, and working status. 5. Users can filter or search the list as needed.
Alternative flows	● The system displays a message denying access and requires the user to log in with an account with appropriate permissions. ● The system updates the list based on the specified filtering criteria.
Exceptions	● The system displays an error message and suggests the user try again later. ● The system displays a message saying employee records were not found if no records are available.
Priority	● High
Business rules	● Only HR have permission to view the list of employee records. ● Any access to the record list must be recorded in the system log for auditing and security purposes.

Table 3.43: Use Case Specification - View Employee Profile List

3.2.6.2 Create a new employee profile

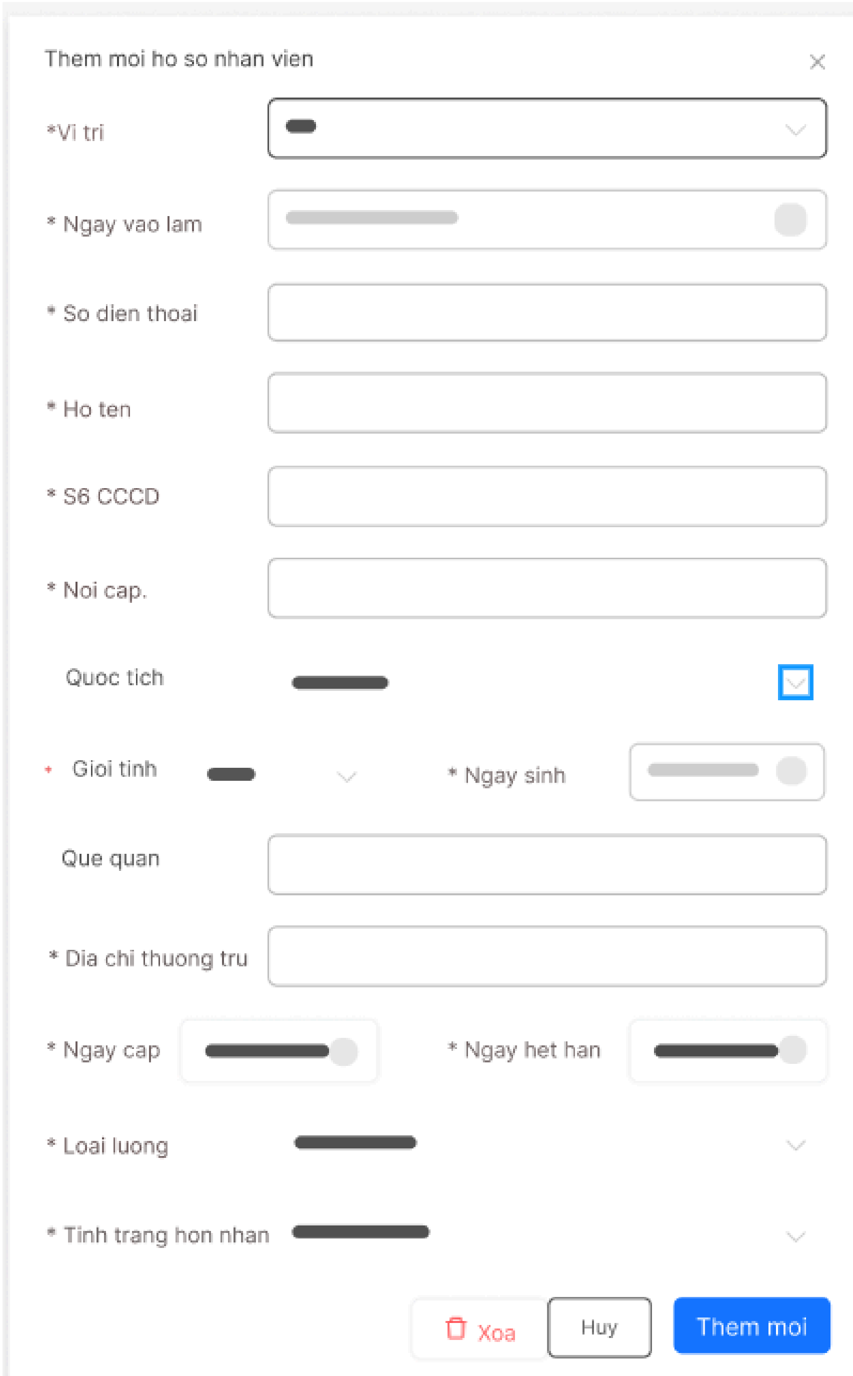


Figure 3.72: Screen - Create A New Employee Profile

#	Element	Type	Validate	Description
1	Location	Dropdown	Required	Select the employee's job position from the list.
2	Day of work	Date Picker	Required	Select the date the employee starts working.

3	Phone number	Text Input	Required	Enter the employee's contact phone number.
4	Full name	Text Input	Required	Enter the employee's full name.
5	CCCD number	Text Input	Required	Enter the employee's citizen identification number.
6	Place of issue	Text Input	Required	Enter the place of issuance of the CCCD for the employee.
7	Nationality	Dropdown	Required	Select the employee's nationality from the list.
8	Sex	Dropdown	Required	Select the employee's gender from the list.
9	Hometown	Text Input	Optional	Enter the employee's hometown.
10	Permanent address	Text Input	Optional	Enter the employee's permanent address.
11	Date of issue	Date Picker	Required	Select the CCCD expiration date for the employee.
12	Expiration date	Date Picker	Required	Select the CCCD expiration date for the employee.
13	Erase	Button	Confirmation required	Button to delete entered information before adding a new one.
14	Cancel	Button	Action	Button to cancel the operation and return to the previous screen.
15	Add new	Button	Confirmation required	Button to add a new employee profile after checking the entered information.

Table 3.44:Screen Specifications - Create A New Employee Profile

UC ID	UC-23	Use Case Name	Create a new employee profile
Create by	LamNT	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin

Trigger	● HR wants to create a new employee record in the system when a new employee joins the company.
Description	● The system allows HR to create new employee profiles, including personal information, contact information, position information, and other related information for human resource management.
Pre-conditions	● The user is logged into the system as HR. ● Have complete information about the new employee (name, date of birth, address, etc.).
Post-conditions	● The new employee profile is successfully created and stored in the system. ● New employees receive notifications about profile creation and next steps.
Normal flow	1. HR logs into the system. 2. Access the "Create new employee profile" section from the main interface. 3. Enter the new employee's personal information, including: Name, Date of birth, Sex , Address, Phone number, Email, Position, Departments,... 4. Confirm information and send requests to create a profile. 5. The system checks information and creates new employee records. 6. The new employee receives a notification confirming profile creation.
Alternative flows	● If the information entered is invalid, the system will ask the user to correct it. ● HR can save information temporarily and return to complete it later.
Exceptions	● The system cannot create a profile due to a technical error. ● If an employee with similar information already exists in the system.
Priority	● High

Business rules	• Employee records must be created within 7 days of the employee joining the company. • Personal information must be kept confidential and accessible only to authorized persons.

Table 3.45:Use Case Specification - Create A New Employee Profile

3.2.6.3 Edit employee profile

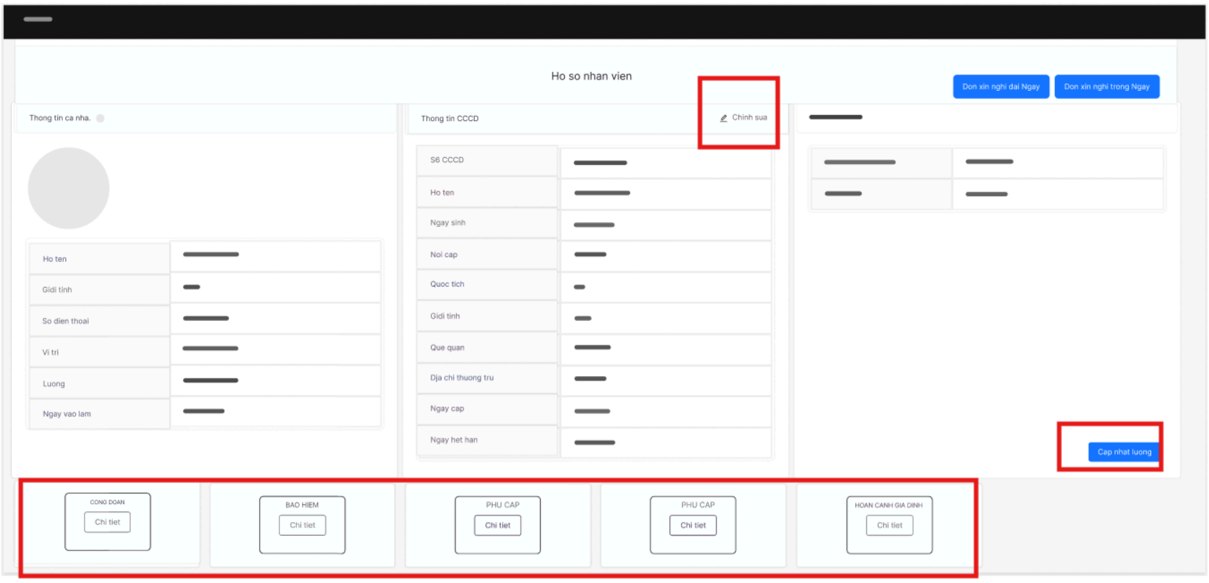


Figure 3.73: Screen - View Detail Employee Profile

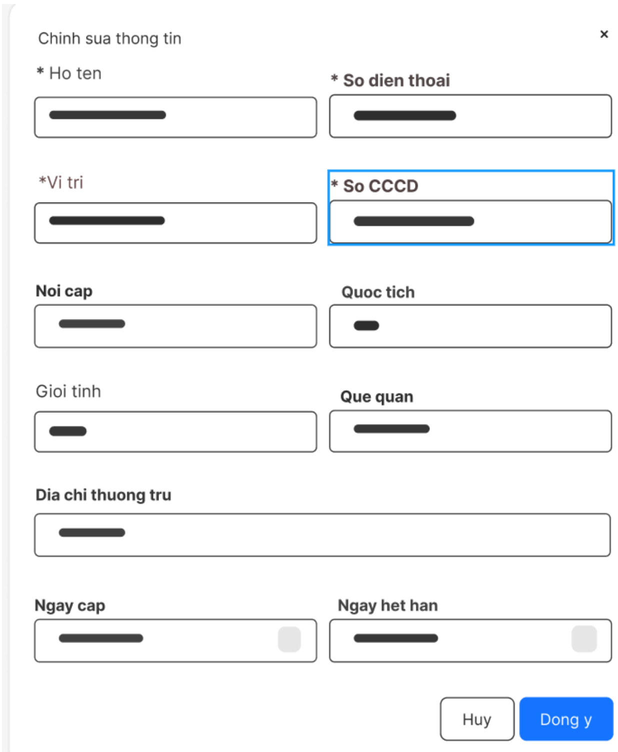


Figure 3.74: Screen - Edit Employee Profile CCCD Information

#	Element	Type	Validate	Description
1	Edit Personal Info Button	Button	Confirmation required	Button to edit employee personal information, for example: full name, gender, phone number, etc.
2	Edit CCCD Info Button	Button	Confirmation required	Button to edit employee CCCD information, including CCCD number, place of issue, date of issue, expiration date.
3	Edit Insurance Info Button	Button	Confirmation required	Button to edit employee insurance information.
4	Edit Allowance Info Button	Button	Confirmation required	Button to edit employee benefit information.
5	Edit Education Info Button	Button	Confirmation required	Button to edit employee education information, including degree, school, and year of graduation.

Table 3.46: Screen Specifications - Edit Employee Profile CCCD Information

UC ID	UC-24	Use Case Name	Edit employee profile
Create by	LamNT	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	• HR needs to update employee information already in the system.		

Description	• The system allows HR to edit employee records, including updating personal information, contact information, position, and other information.
Pre-conditions	• The user is logged into the system as HR. • The employee profile that needs to be edited already exists in the system.
Post-conditions	• Employee records are successfully updated and stored in the system. • The relevant employee receives a notification about the record correction.
Normal flow	1. HR logs into the system. 2. Access the "Edit employee profile" section from the main interface. 3. Search for employees who need to be edited via name, employee code or other information. 4. Open the employee's profile and make the necessary changes, including: a. Update personal information (name, address, phone number, etc.) b. Update positions or departments. c. Update contact information (email, emergency phone number, etc.) 5. Confirm the corrected information and submit an update request. 6. The system checks and saves changes to employee records. 7. The relevant employee receives a confirmation message about the record correction.
Alternative flows	• If the information entered is invalid, the system will ask the user to correct it. • HR can save temporary changes and come back to complete them later.
Exceptions	• The system cannot update records due to technical errors. • The employee does not exist in the system or does not have permission to edit records.

Priority	• High
Business rules	• All employee record changes must be stored with a change history to ensure transparency. • Only people with certain permissions can edit employee records.

Table 3.47:Use Case Specification - Edit Employee Profile Information

3.2.6.4. View profile details staff

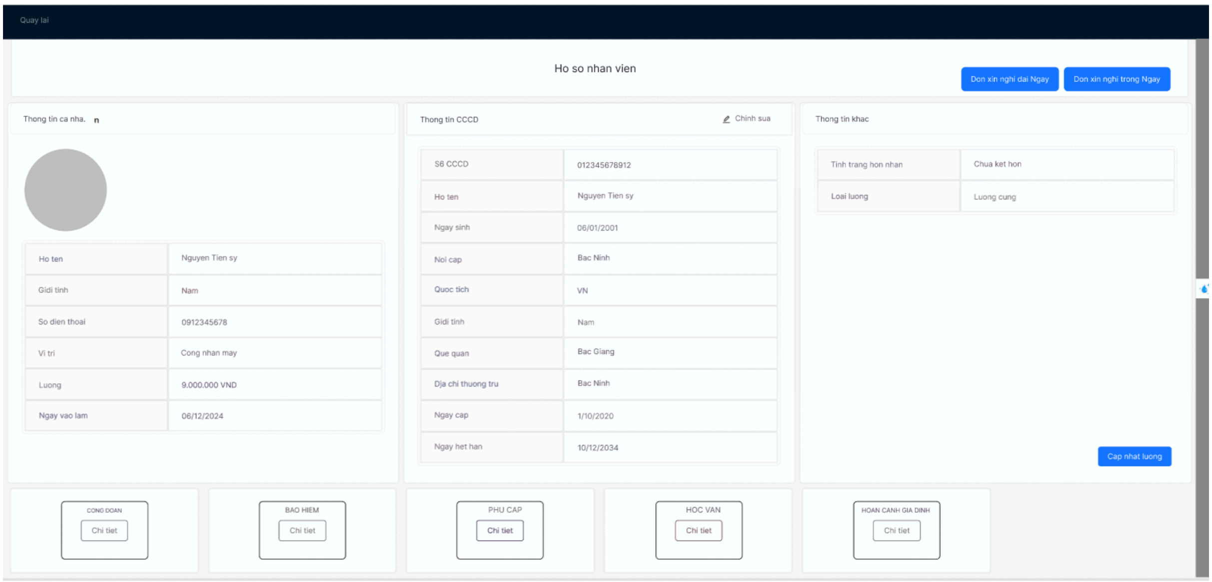


Figure 3.75: Screen - View Profile Details Staff

UC ID	UC-25	Use Case Name	View profile details staff
Create by	LamNT	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	• HR wants to see details of an employee's profile or Employees want to see details of a personal profile.		
Description	• The system allows users to have access to view detailed employee records. Profile includes personal information, contact information, position, department, work history, and related documents.		

Pre-conditions	● The user has logged into the system with the role of HR, employee. ● Employee records already exist in the system. ● Users have permission to view employee profiles (for example, employees can only view their personal profiles, while HR and Directors can view all employees' profiles).
Post-conditions	● Detailed information about the employee profile is displayed to the user. ● The system records access history to ensure security.
Normal flow	1. User logs into the system. 2. Access the "View profile details" section from the main interface for employees, and for HR and Directors, they will access the "List of profiles" section from the main interface. 3. Enter or select the employee who needs to view profile details via employee code or name. 4. The system displays detailed information of employee records, including: ○ Personal information (name, date of birth, gender) ○ Contact information (address, email, phone number) ○ Position, department ○ Other information (educational qualifications, experience, relevant documents) 5. User checks detailed information. 6. The system saves access history records to monitor and manage security.
Alternative flows	● If the employee's profile is not found in the system, the system will notify the user of an error. ● Employees can request to update information if they find any errors.
Exceptions	● The system cannot display profile information due to technical error. ● The user does not have access to other employee records.
Priority	● Medium

Business rules	• Users can only view profiles if they have appropriate permissions. • Records access history must be recorded and kept confidential according to regulations.

Table 3.48: Use Case Specification - View Profile Details Staff

3.2.6.5. Manage employee Union company information

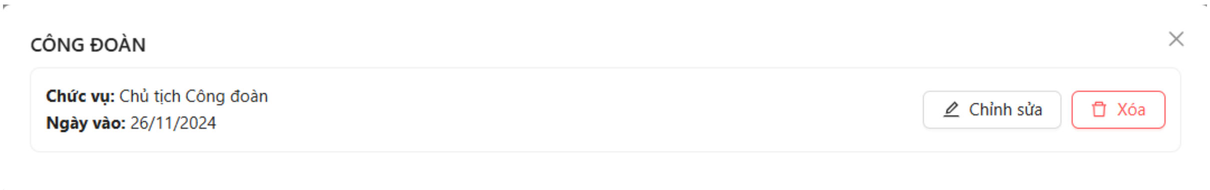


Figure 3.76: Screen -Manage Employee Union Company Information

UC ID	UC-26	Use Case Name	Manage employee Union company information
Create by	LamNT	Date created	11/19/2024
Primary actor	HR	Secondary actor	Admin
Trigger	Triggered when there is a need to manage or update employee union-related information.		
Description	This use case allows HR and Admin to view, add, update, or delete information related to employees' participation in labor unions. This includes union membership details, contributions, and other relevant data.		
Pre-conditions	HR/Admin must be logged into the system with appropriate permissions. Employee records must already exist in the system.		
Post-conditions	Union information for the employee is updated and saved in the database. Changes are reflected in the system's union information management module.		

Normal flow	HR/Admin navigates to the "Manage Union Information" section. The system displays a list of employees with their union-related information. HR/Admin selects an employee and: ● Views their current union details. ● Updates or edits existing information. ● Adds new union-related data (e.g., contribution records). ● Deletes outdated or incorrect records. HR/Admin confirms the changes. The system validates the updates and saves the changes to the database.
Alternative flows	N/A
Exceptions	**E1**: If mandatory fields are left blank, the system displays an error message and prevents saving changes. **E2**: If there are database connectivity issues, the system notifies the user to try again later.
Priority	High
Business rules	Only HR and Admin roles can access and modify union-related information. All changes must be logged for audit purposes. **Validation Rules**: ● Mandatory fields (e.g., union membership number, contribution amounts) must be filled. ● Dates must follow the correct format and be valid. ● Numeric fields (e.g., contribution amounts) must contain valid positive numbers. The system must ensure data consistency and integrity when records are updated or deleted.

Table 3.49:Use Case Specification - Manage Employee Union Company Information

3.2.6.6. Manage employee insurance information

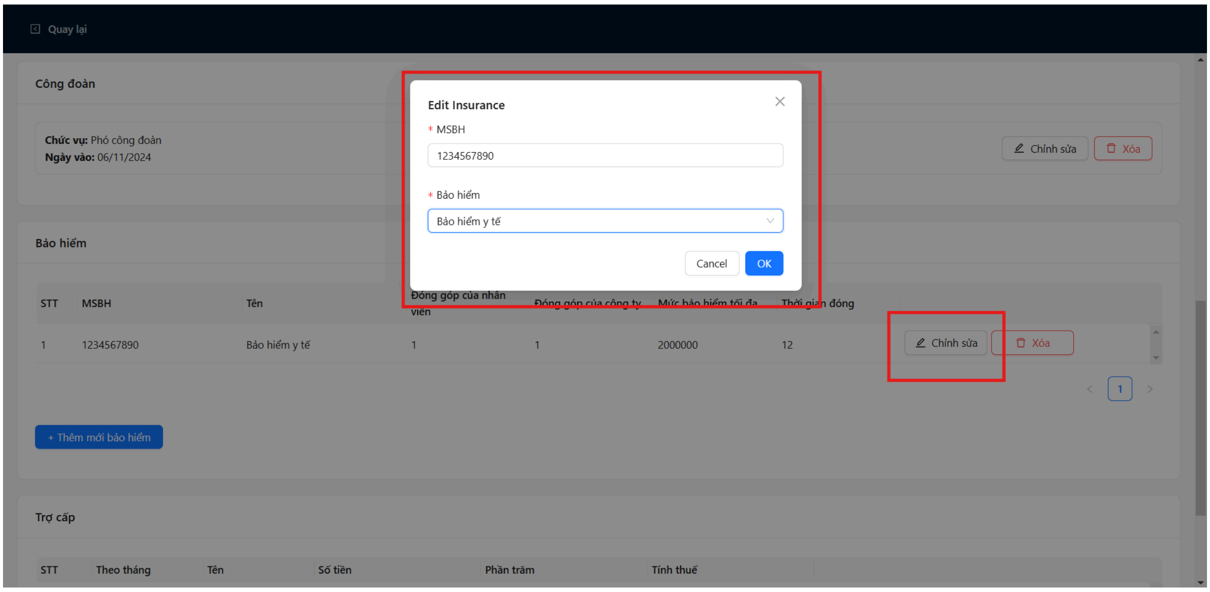


Figure 3.77: Screen -Manage Employee Insurance Information

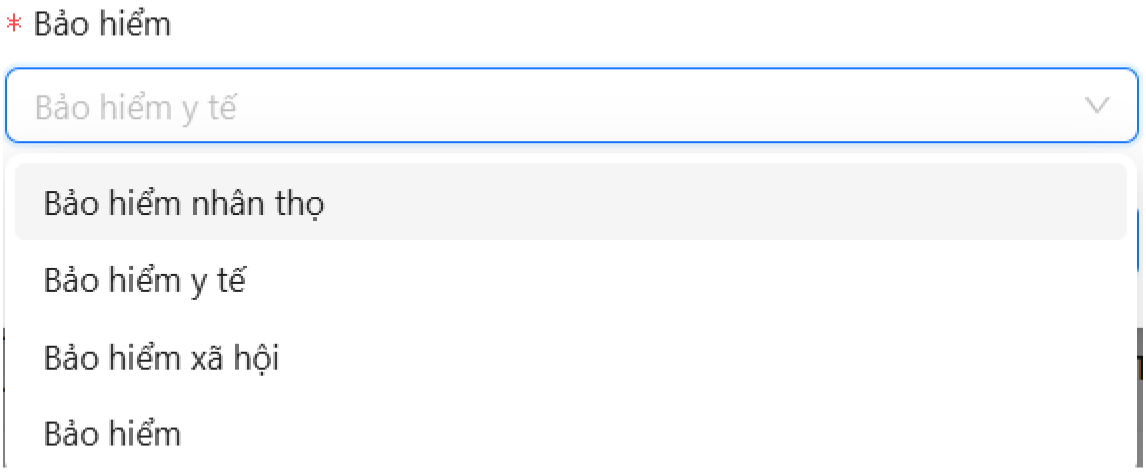


Figure 3.72:Screen -View Detail Type Insurance Information

#	Element	Type	Validate	Description
1	Insurance ID (MSBH)	Text Input	Required	Enter the employee's insurance number.
2	Insurance Type Dropdown	Dropdown	Required	Select your employee's insurance type from the available list, such as health insurance, social insurance, etc.
3	Edit Insurance Button	Button	Confirmation required	Button to edit employee insurance information.

4	Save Changes Button	Button	Action	Button to save changes after editing insurance information.
5	Cancel Button	Button	Action	Button to cancel editing operations and return to the previous interface.

Table 3.50: Screen Specifications - Manage Employee Insurance Information

UC ID	UC-27	Use Case Name	Manage employee insurance information
Create by	LamNT	Date created	11/19/2024
Primary actor	HR	Secondary actor	Admin
Trigger	When you need to manage employee insurance information		
Description	The system allows HR to manage employee insurance information, including editing and adding new insurance types.		
Pre-conditions	The system is operational and the user has been authenticated with the appropriate access rights.		
Post-conditions	The employee's insurance information has been successfully updated or added.		
Normal flow	1. HR selects the function to edit or add new insurance information from the management interface. 2. The system displays a window to edit or add new information. 3. HR enters the information to edit/add and save.		
Alternative flows	N/A		
Exceptions	1. If an error occurs while saving information, the system displays an error message.		

	2. If required information is missing, the system requires it to be filled in completely before saving.
Priority	High
Business rules	Only HR and Admin have the right to edit and add new employee insurance information. Each insurance type can only be selected once

Table 3.51: Use Case Specification - Manage Employee Insurance Information

3.2.6.7. Manage employee benefits information

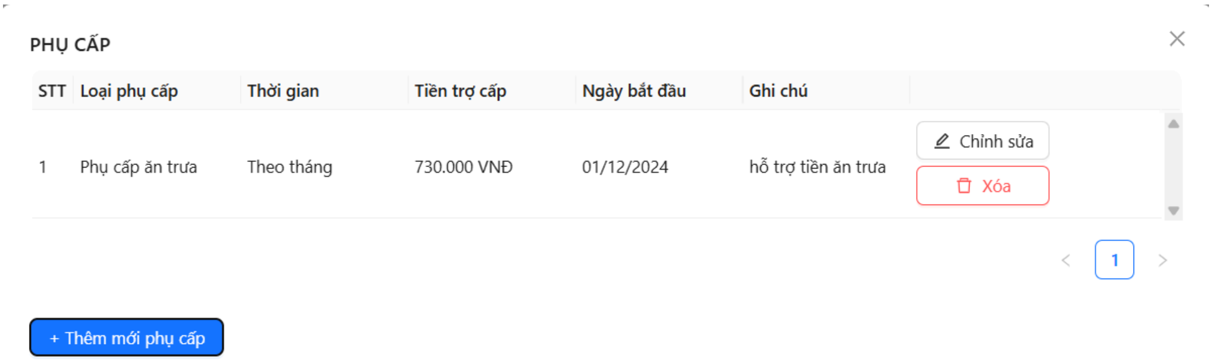


Figure 3.78: Screen - Manage Employee Benefits Information

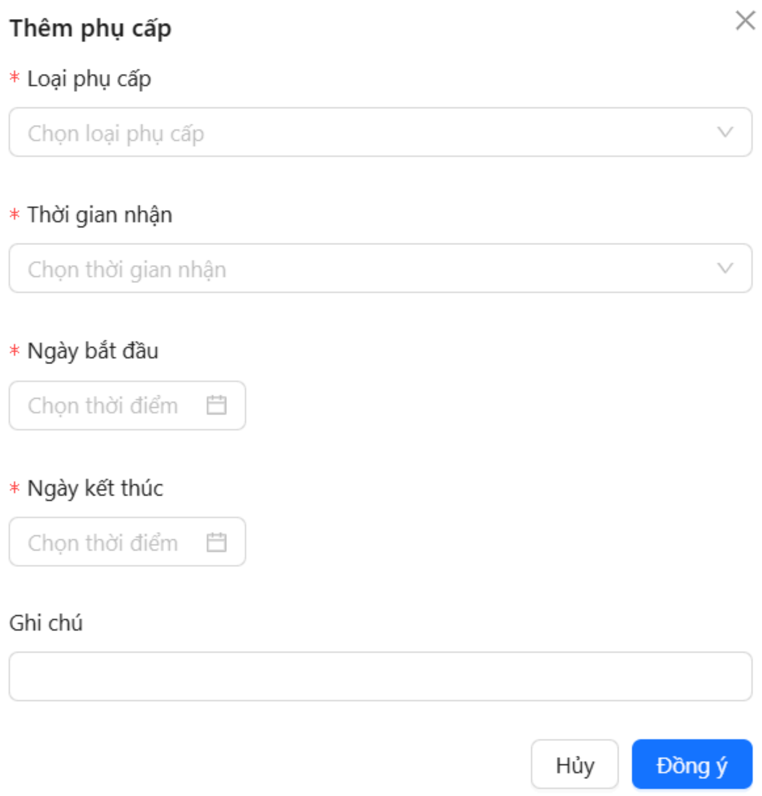


Figure 3.79: Screen - Create Employee Benefits Information

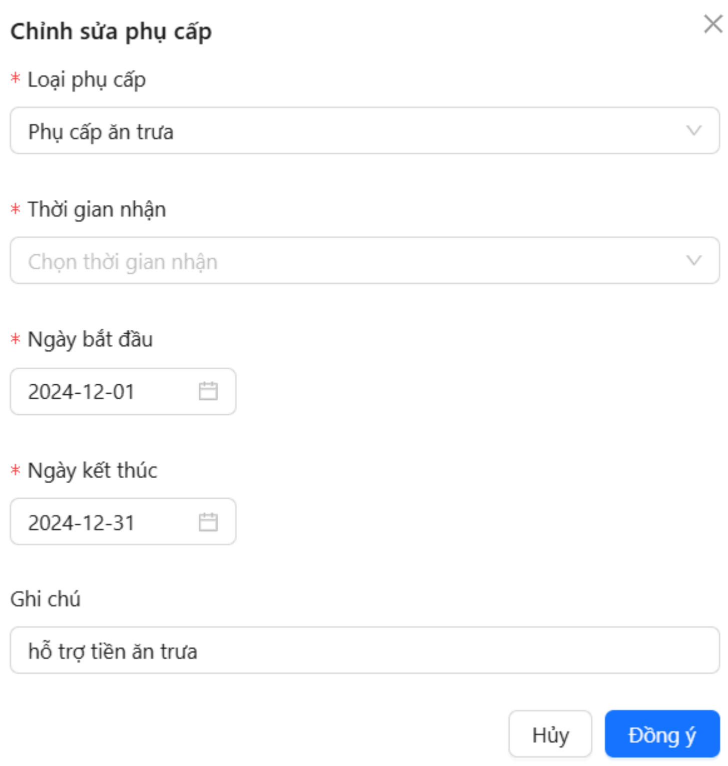


Figure 3.80: Screen - Update Employee Benefits Information

#	Element	Type	Validate	Description
1	Allowance type	Dropdown	Required	This field allows selecting the type of allowance (e.g., transportation allowance, meal allowance, etc.).
2	Receiving time	Dropdown	Required	This is the field to select the receiving time (e.g., monthly, quarterly, annually, etc.).
3	Start date	Date	Required	The date when the allowance starts.
4	End date	Date	Required	The date when the allowance ends.
5	Notes	Free text	Optional	Additional information or notes related to the allowance.
6	Cancel	Button	Action	Button to cancel the action or request.
7	Confirm	Button	Action	Button to confirm or approve the selected information.

Table 3.52: Screen Specifications - Manage Employee Benefits Information

UC ID	UC-28	Use Case Name	Manage employee benefits information
Create by	DuyenNT	Date created	11/19/2024
Primary actor	HR	Secondary actor	Admin
Trigger	The process is triggered when an HR user or Admin needs to create, update, or manage employee benefit information.		
Description	This use case allows the HR department and Admin to manage the employee benefits information. This includes adding, updating, and removing details related to employee allowances, bonuses, and other types of compensation.		
Pre-conditions	1. HR or Admin must log in to the system. 2. HR or Admin must have access and management rights to employee allowance information. 3. Employee information is already in the system.		

Post-conditions	1. The employee benefit information is updated or added to the employee record. 2. A confirmation message is displayed to the user. 3. The system saves all changes made to the employee's benefit data.
Normal flow	**Step 1**: The HR or Admin logs into the system. **Step 2**: The HR or Admin selects the employee whose benefit information needs to be managed. **Step 3**: The HR or Admin views the current benefit information of the employee. **Step 4**: The HR or Admin selects the option to add, update, or remove benefits. ● If adding: The user enters the type of allowance (e.g., transportation, meal, etc.), the start and end dates, and other relevant details. ● If updating: The user updates any existing information such as the amount, dates, or type of allowance. ● If removing: The user selects the benefit item to remove and confirms. **Step 5**: The user saves the changes. **Step 6**: The system updates the employee's benefits information and displays a confirmation message. **Step 7**: The HR or Admin logs out of the system (optional).
Alternative flows	N/A
Exceptions	**EX 1**: Insufficient permissions ● If the HR/Admin does not have the required permissions to manage employee benefits, the system will display an error message and deny access to the benefits management page. **EX 2**: Invalid data input ● If the user enters invalid or incomplete data (e.g., missing dates, non-numeric values for allowance), the system will show a validation error and prompt the user to correct the information. **EX3**: Employee not found

	• If the employee record is not found in the system, the system will notify the user with an error message.
Priority	High
Business rules	1. Employee benefits must comply with company policies and legal regulations. 2. Benefit data must be entered and updated in the correct format (e.g., numeric values for allowances, valid date ranges). 3. Only authorized HR or Admin users can modify benefit information.

Table 3.53: Use Case Specification - Manage Employee Benefits Information

3.2.6.8. Manage Education Information

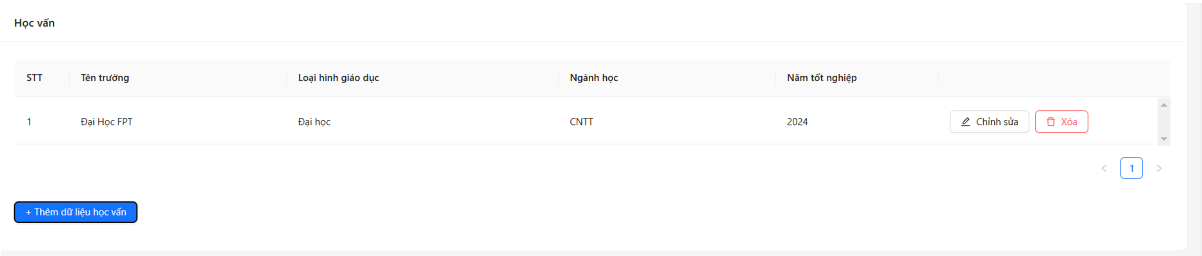


Figure 3.81:Screen - Manage Education Information

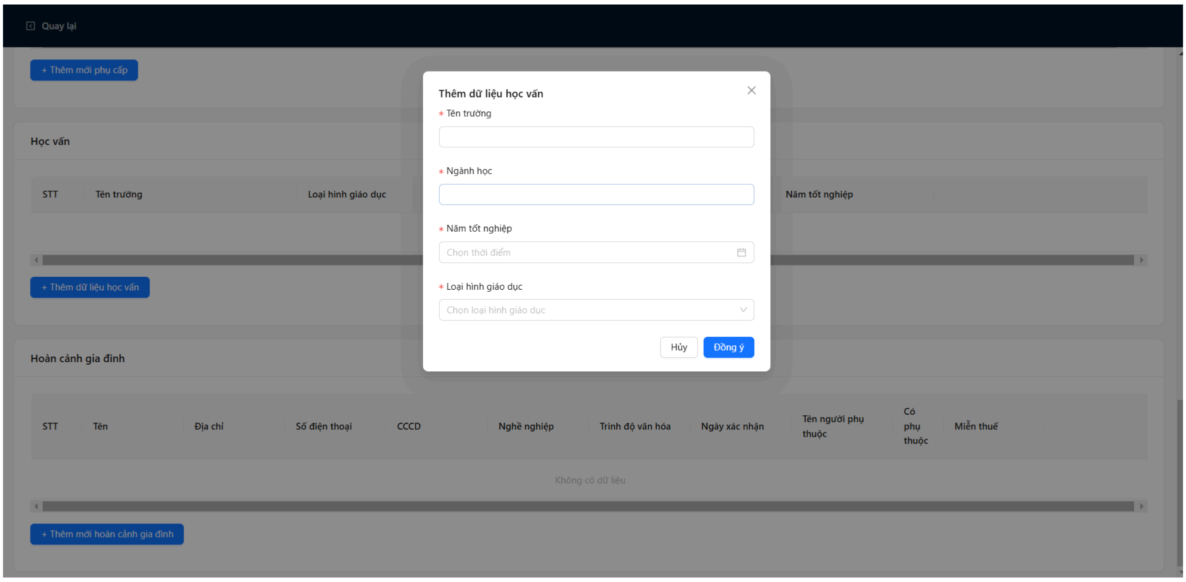


Figure 3.82: Screen - Create Educational Information

List of Education Records Screen

#	Element	Type	Validate	Description
1	STT	Text/Number	Required, Auto-increment	Serial number of the educational record for easy reference.
2	School name	Text	Required	Displays the name of the educational institution (e.g., Đại Học FPT).
3	Type of education	Text	Required	Displays the type of education (e.g., University, College).
4	Field of study	Text	Required	Displays the employee's field of study (e.g., Information Technology).
5	Year of graduation	Text/Date	Required, Numeric, Valid Year	Displays the year the employee graduated from the institution (e.g., 2024).

6	**Edit** (Edit)	Button	Enabled if records exist	Allows HR to edit an existing educational record. Opens the "Pop-up Add Education Records" form.
7	**Erase** (Delete)	Button	Enabled if records exist	Deletes the corresponding educational record.
8	+ Add educational data	Button	Always enabled	Opens the "Pop-up Add Education Records" form to add a new record.

Table 3.54:Screen Specifications - Manage Education Information

#	Element	Type	Validate	Description
1	School name	Text Field	Required	Input field for entering the name of the educational institution.
2	Field of study	Text Field	Required	Input field for entering the employee's field of study.
3	Year of graduation	Date Picker	Required, Valid year	Input field for selecting the year of graduation.
4	Type of education	Dropdown	Required	Dropdown menu for selecting the type of education (e.g., University, College).
5	Cancel	Button	Always enabled	Closes the popup form without saving any changes.
6	Confirm	Button	Enabled if all validations pass	Saves the new or edited educational record and closes the popup.

Table 3.55: Screen Specifications - Create Educational Information

UC ID	UC-29	Use Case Name	Manage Education Information
Create by	DuyenNT	Date created	11/19/2024
Primary actor	HR	Secondary actor	Admin
Trigger	When authorized HR needs to manage or update employee education information.		
Description	This use case describes the functionality to manage employee education information, allowing HR or Admin to add, edit, or delete education information. Employees can view their education information.		
Pre-conditions	Users must log in to the system with appropriate authority (HR, Admin)		
Post-conditions	Educational information has been successfully updated in the system.		
Normal flow	User logs into the system. The user navigates to the employee profile management section. The user selects the employee's profile. Users view, edit or add new educational information. The system validates information and saves changes. Updated education information is displayed on employee profiles.		
Alternative flows	The user cancels the action before saving, no changes are made. The user tries to add educational information without all the required fields, the system displays a validation error.		
Exceptions	The system cannot save changes due to a technical error and displays an error message.		

	The education record does not exist, showing an error message when trying to edit or delete.
Priority	Medium
Business rules	Employees can only view their education information and cannot edit it. Only HR and Admin users have the right to add, edit or delete educational information.

Table 3.56:Use Case Specification - Manage Education Information

3.2.7 Labour Contract Management

3.2.7.1 Create new labour contract

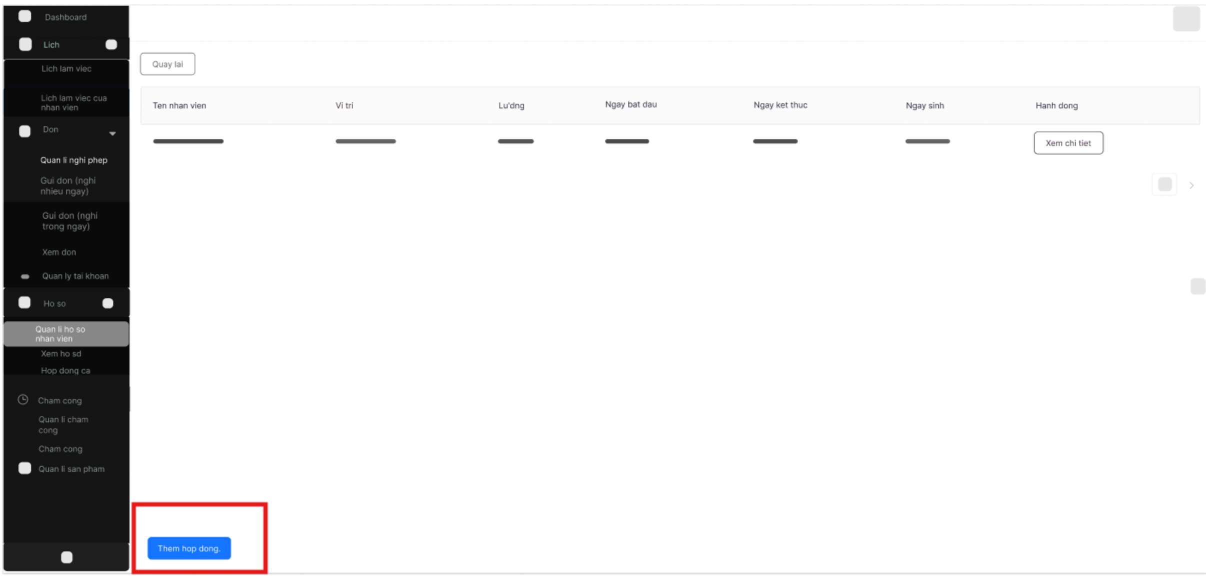


Figure 3.83: Screen - Create New Labour Contract

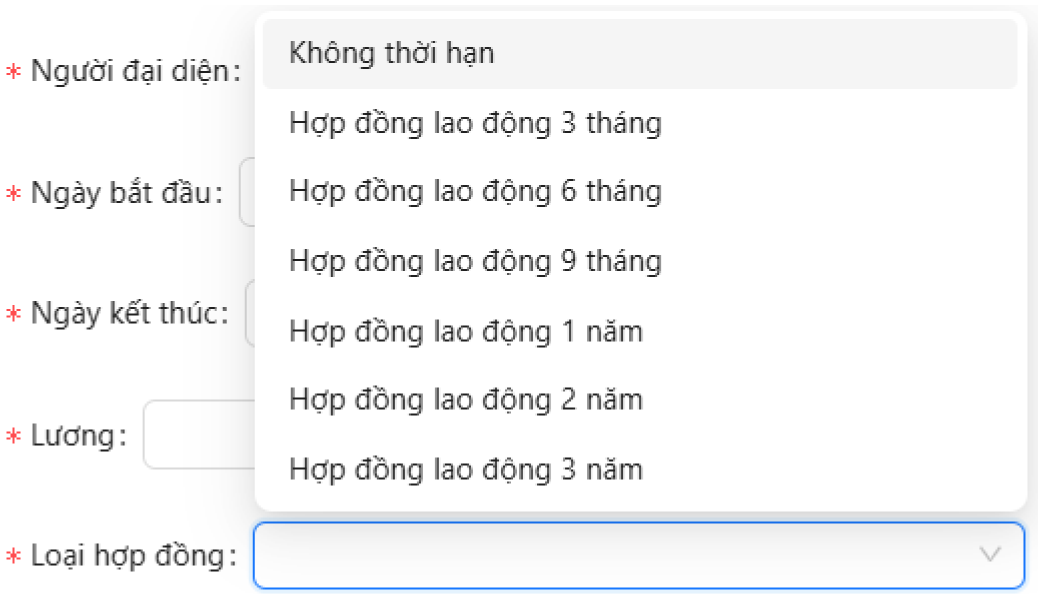


Figure 3.84: Screen - Contract Type Details

#	Element	Type	Validate	Description
1	Employee name	Text Field	Required	Input field to enter the name of the employee associated with the contract.
2	Date of birth	Date Picker	Required	Select the employee's date of birth from a calendar picker.
3	Location	Dropdown	Required	Dropdown to select the employee's job position in the company.
4	Address	Text Field	Required	Input field to specify the employee's address.
5	Phone number	Text Field	Required (numeric, format validation)	Input field to enter the employee's phone number.
6	Company name	Text Field	Required	Input field to specify the company name associated with the contract.
7	Company address	Text Field	Required	Input field for the company's address.
8	Tax code	Text Field	Required (numeric, format validation)	Input field to specify the company's tax identification number.
9	Representative	Text Field	Required	Input field for the name of the company's representative.
10	Start date	Date Picker	Required	Select the start date of the contract using a calendar picker.

11	End date	Date Picker	Required	Select the end date of the contract using a calendar picker.
12	Wage	Text Field	Required (numeric, positive values only)	Input field to specify the employee's salary.
13	Contract type	Dropdown	Required	Dropdown to select the type of contract.

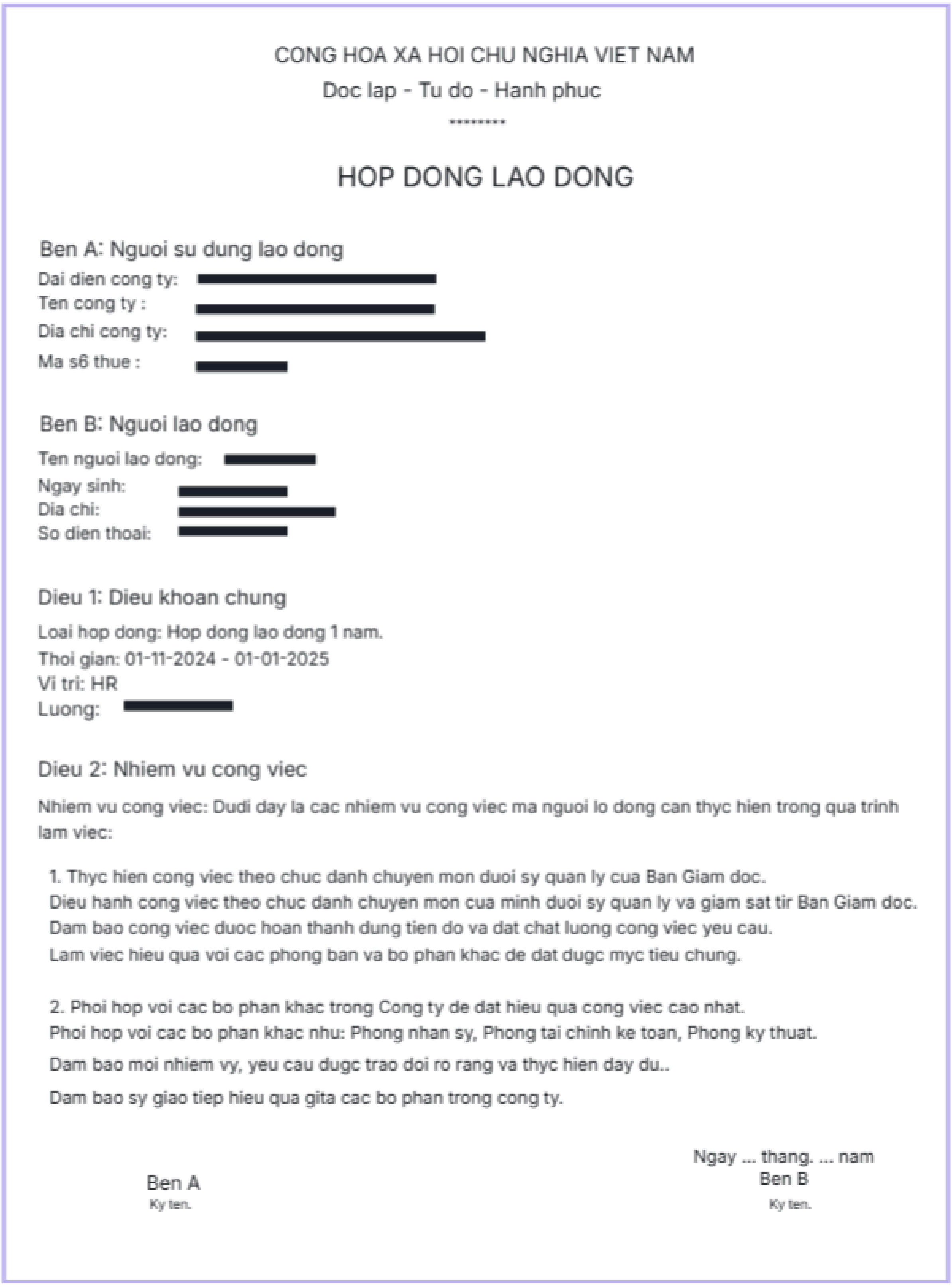
Table 3.57: Screen Specifications - Create New Labour Contract

UC ID	UC-31	Use Case Name	Create new labour contract
Create by	SyNT	Date created	09/27/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR clicks on “Tạo hợp đồng” button on Manage Profile Employee page		
Description	A pop up appears and shows many fields that need HR fills. When they done, a new contract is created and be added on database		
Pre-conditions	1. HR logged in with Manage role 2. They are on labour Management page		
Post-conditions	1. A new contract is created 2. labour Contract Management page show new contract		
Normal flow	1. HR is on Manage Profile Employee 2. HR click “Create contract” button 3. HR fill all fields of contract 4. Click “Create” button 5. Return to pages and a new contract appears.		

Alternative flows	N/A
Exceptions	E1: At step 4, if any input field is blank, the system show error message
Priority	High
Business rules	HR must be logged in with the **Manage Role** to access the "Create Contract" functionality **Employee name**: Must not be empty and should match an existing employee in the system. **Date of birth**: Must be a valid date. **Location**: Must be selected from the predefined dropdown options. **Phone number**: Must be numeric and follow the valid phone number format. **Tax code**: Must be numeric and comply with the company tax identification format. **Start date**: Must be a valid date and earlier than or equal to the **End date**. **End date**: Must be a valid date and later than or equal to the **Start date**.

Table 3.58: Use Case Specification - Create New Labour Contract

3.2.7.2 View contract details



CONG HOA XA HOI CHU NGHIA VIET NAM

Doc lap - Tu do - Hanh phuc

****

HOP DONG LAO DONG

Ben A: Nguoi su dung lao dong

Dai dien cong ty: [redacted]

Ten cong ty : [redacted]

Dia chi cong ty: [redacted]

Ma s6 thue : [redacted]

Ben B: Nguoi lao dong

Ten nguoi lao dong: [redacted]

Ngay sinh: [redacted]

Dia chi: [redacted]

So dien thoai: [redacted]

Dieu 1: Dieu khoan chung

Loai hop dong: Hop dong lao dong 1 nam.

Thoi gian: 01-11-2024 - 01-01-2025

Vi tri: HR

Luong: [redacted]

Dieu 2: Nhiem vu cong viec

Nhiem vu cong viec: Dudi day la cac nhiem vu cong viec ma nguoi lo dong can thyc hien trong qua trinh lam viec:

1. Thyc hien cong viec theo chuc danh chuyen mon duoi sy quan ly cua Ban Giam doc.
Dieu hanh cong viec theo chuc danh chuyen mon cua minh duoi sy quan ly va giam sat tir Ban Giam doc.
Dam bao cong viec duoc hoan thanh dung tien do va dat chat luong cong viec yeu cau.
Lam viec hieu qua voi cac phong ban va bo phan khac de dat dugc myc tieu chung.

2. Phoi hop voi cac bo phan khac trong Cong ty de dat hieu qua cong viec cao nhat.
Phoi hop voi cac bo phan khac nhu: Phong nhan sy, Phong tai chinh ke toan, Phong ky thuat.
Dam bao moi nhiem vy, yeu cau dugc trao doi ro rang va thyc hien day du..
Dam bao sy giao tiep hieu qua gita cac bo phan trong cong ty.

Ngay ... thang. ... nam

Ben A
Ky ten.

Ben B
Ky ten.

Figure 3.85: Screen - View Contract Details

UC ID	UC-32	Use Case Name	View contract details
Create by	SyNT	Date created	09/27/2024
Primary actor	HR,	Secondary actor	Employee, Admin
Trigger	When user click to "Details" button at contract row		
Description	Show contract details		
Pre-conditions	1. User must logged in with manage role 2. Contract must existed		
Post-conditions	1. Show contract details		
Normal flow	1. User log in 2. Choose labour Contract Management in Sidebar 3. View contract detail		
Alternative flows	N/A		
Exceptions	E1. At step 1, if not success. The system show error E2. At step 2, if system does not have any contract, it shows "There are no contract"		
Priority	High		
Business rules	N/A		

Table 3.59: Screen Specifications - View Contract Details

3.2.8 Manage employee accounts

3.2.8.1 View employee account information

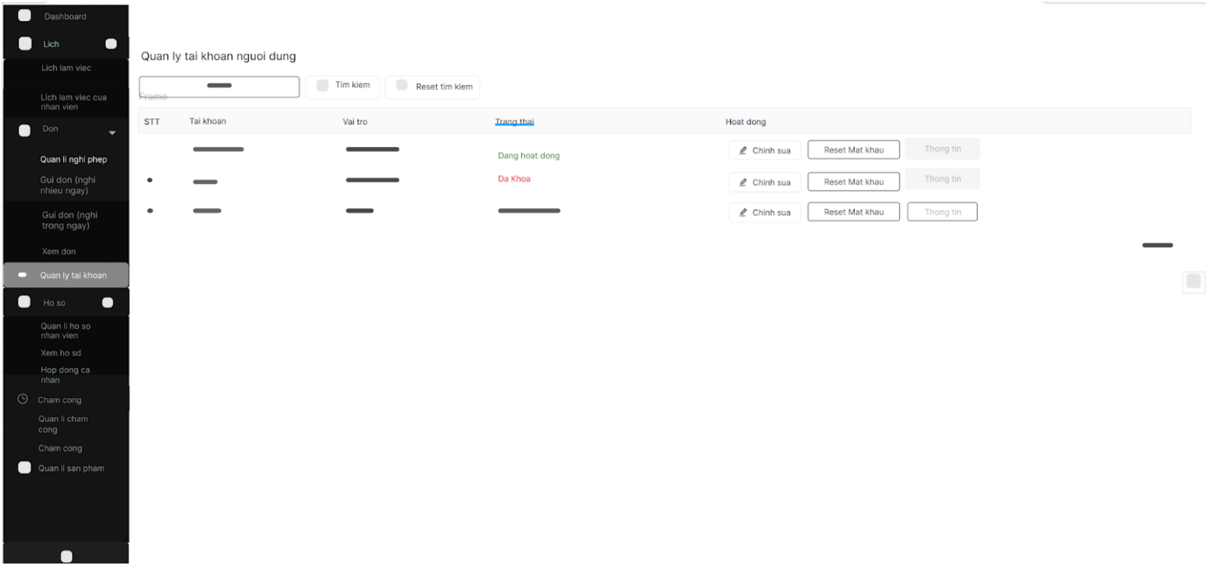


Figure 3.86: Screen - View Employee Account Information

#	Element	Type	Validate	Description
1	Account	Text	Required	Contains information about the user's account name.
2	Role	Text	Required	Determine the user's role in the system (For example: Admin, User).
3	Status	Text	Required	Determine the current status of the account (Example: Active, Inactive).
4	Edit	Button	N/A	Click button to edit account information
5	Reset Password	Button	N/A	Click the button to reset the password for the account.
6	Erase	Button	N/A	Click the button to delete the account or related data.
7	Information	Button	N/A	Click the button to display detailed account information.

Table 3.60:Screen Specifications - View employee account information

UC ID	UC-33	Use Case Name	View employee account information
Create by	DuyenNT	Date created	09/25/2024
Primary actor	HR,admin	Secondary actor	N/A
Trigger	HR or Admin requests to see employee account information.		
Description	This function allows HR and Admin to view employee account information in the system, including information such as full name, position, department, account status, and other related information.		
Pre-conditions	HR or Admin has logged into the system. HR or Admin has access to employee account information. Employees have been added to the system with complete information.		
Post-conditions	Employee account information is displayed to HR or Admin.		
Normal flow	1. HR or Admin log in to the system. 2. HR or Admin select "View account information" in the account management menu. 3. The system displays a list of employees. 4. HR or Admin searches and selects the employee who wants to view information. 5. The system displays full employee account information. 6. HR or Admin can check the information and decide whether to take further action or not.		
Alternative flows	● **If the employee is not in the system:** 1. When HR or Admin searches for an employee, if not found, the system reports "No employee found". 2. HR or Admin can re-enter search information or take other steps. ● **If information is incomplete:** 1. The system warns if an employee's account information is incomplete, but still displays the available information.		

Exceptions	**If HR or Admin does not have access:** The system rejects the request and says "You do not have permission to access this account information". **If the system has problems retrieving data:** The system displays an error message and asks to try again later.
Priority	High
Business rules	Only HR or Admin has the right to view employee account information. Employees cannot view or edit their account information through this function. Account information needs to be kept confidential, ensuring it is not disclosed to those with access rights

Table 3.61: Use Case Specification - View Employee Account Information

3.2.8.2 Edit employee personal information

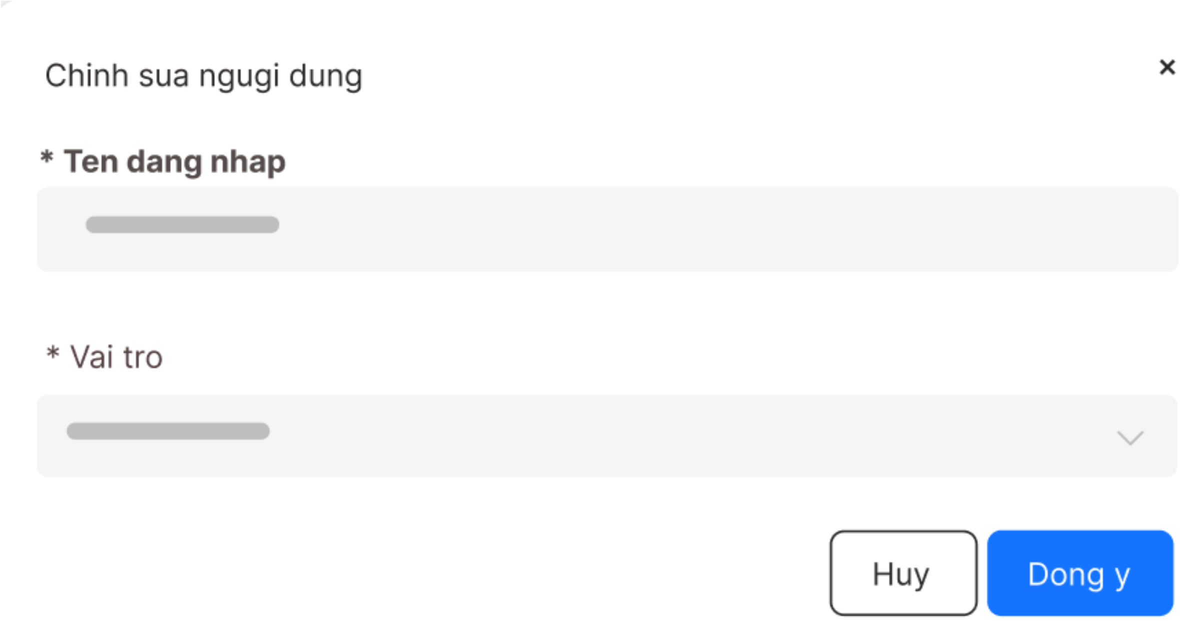


Figure 3.87: Screen - Edit Employee Personal Information

#	Element	Type	Validate	Description
1	Login name	Text	Editing is not allowed	Displays the current login name
2	Email	Email	Required, correct email format	Allows editing email addresses

3	Full Name	Text	Obligatory	Allows you to edit your first and last name
4	Role	Dropdown	Editing is not allowed	Displays the user's current role
5	Cancel button	Button	Optional	Cancel the editing operation
6	Save button	Button	Optional	Confirm and save the edited information

Table 3.62: Screen Specifications - Edit Employee Personal Information

UC ID	UC-34	Use Case Name	Edit Employee Personal Information
Create by	DuyenNT	Date created	09/25/2024
Primary actor	HR,admin	Secondary actor	N/A
Trigger	HR selects the "Edit employee personal information" function in the system.		
Description	Allow HR to edit employee personal information, including name, department, position, phone number, address and other information to ensure data is always up to date and accurate.		
Pre-conditions	HR has logged into the system with permission to edit employee information. The selected employee already has an account and personal information that already exists in the system.		
Post-conditions	The employee's personal information was successfully updated in the system.		
Normal flow	HR logs into the system. HR select "Manage employee accounts." HR select "Edit employee personal information." The system displays the edit screen with the employee's current personal information. HR makes the necessary changes and saves. The system confirms changes and updates data.		

Alternative flows	If HR chooses not to save after editing, the system will not record the changes.
Exceptions	**EX-01**: The employee code does not exist, or the employee does not have an account, the system reports an error. **EX-02**: System connection is interrupted, changes cannot be made.
Priority	High (to ensure employee information is always updated and accurate).
Business rules	Only users with edit permissions in HR can access and change employee personal information. Information change history needs to be saved for retrieval when necessary.

Table 3.63:Use Case Specification - Edit employee personal information

3.2.8.3 Change password for employees

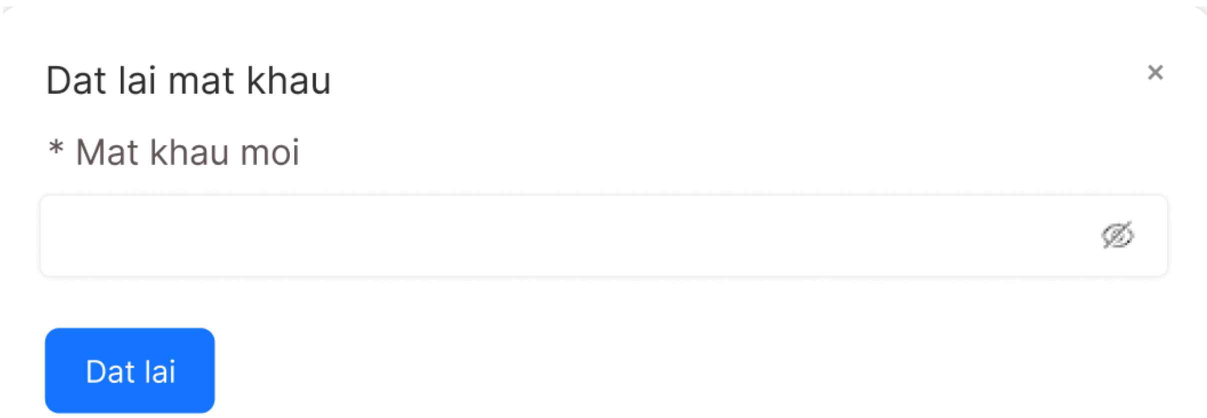


Figure 3.88: Screen -Change password for employees

UC ID	UC-35	Use Case Name	Change password for employees
Create by	Duyen	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR selects the "Change password" function in the system.		

Description	This function allows HR or system administrators to change employee account passwords, ensuring security and support in case employees forget their passwords or need to reset their passwords for security reasons.
Pre-conditions	1.HR or administrator has logged into the system with permission to change employee password. 2. The employee's account already exists in the system.
Post-conditions	The employee's password is successfully updated, and the employee can log in with the new password.
Normal flow	1.HR log in to the system. 2.HR select "Manage employee accounts." 3.HR select "Change password for employee." 4.The system requires entering the employee code or selecting the employee from the list. 5.HR enter new password and confirm. 6.The system updates the new password and confirms the successful change.
Alternative flows	If HR does not save changes after entering the new password, the system will not update the password.
Exceptions	**EX-01**: The employee does not exist in the system or the account has not been activated, the system reports an error. **EX-02**: System connection is interrupted, password change cannot be performed.
Priority	High (ensures support for employee account security).
Business rules	1.Only HR or authorized administrators can change passwords for employees. 2.The new password must follow system complexity rules (for example, at least 8 characters, including numbers and special characters). 3. Password change history needs to be saved for retrieval when necessary.

Table 3.64:Use Case Specification - Change password for employees

3.2.8.4 Create accounts for employees

Figure 3.89: Screen -Create accounts for employees

#	Element	Type	Validate	Description
1	Login Name	Text	Obligatory	User login name
2	Password	Password	Required, minimum 6 characters, with uppercase letters, lowercase letters and numbers	Password to log in
3	Email	Email	Required, correct email format	Contact email address
4	Full Name	Text	Obligatory	Username and surname
5	Role	Select	Obligatory	Select role (Admin, User)
6	Cancel button	Button	Not required	Cancel the operation
7	OK button	Button	Not required	Confirm the information entered

Table 3.65:Screen Specifications - Create accounts for employees

UC ID	UC-36	Use Case Name	Create accounts for employees
Create by	Duyen	Date created	09/25/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR selects the "Create employee account" function in the system.		
Description	This function allows HR or administrators to create new accounts for employees in the human resources management system, providing system access so employees can track and update their personal information.		
Pre-conditions	1.HR or administrator is logged in to the system with permission to create an account. 2.Employees are recruited and have complete personal information on file.		
Post-conditions	The employee account has been successfully created and can be used to log into the system.		
Normal flow	1.HR log in to the system. 2.HR select "Manage employee accounts." 3.HR select "Create employee account." 4.The system requires HR to enter basic employee information, including employee code, name, department, position, and email address. 5.HR enters information and confirms. 6.The system creates an account for employees with a login name and temporary password. 7.The system sends notifications to employees about new accounts and requests to change passwords when logging in for the first time.		
Alternative flows	If the information entered is incomplete or incorrect, the system will notify you of an error and request HR to complete the information before creating the account.		

Exceptions	**EX-01**: The employee already has an account in the system, the system reports the error "Account already exists". **EX-02**: System connection is interrupted, account creation cannot be performed.
Priority	High (important so employees can access and use the system).
Business rules	Temporary login names and passwords must comply with company identification rules. Employee accounts must be activated after the first login and the temporary password changed to ensure security. HR needs to ensure the information is correct before creating an account to avoid duplication or errors.

Table 3.66:Use Case Specification - Create accounts for employees

3.2.8.5 Deactive employee account

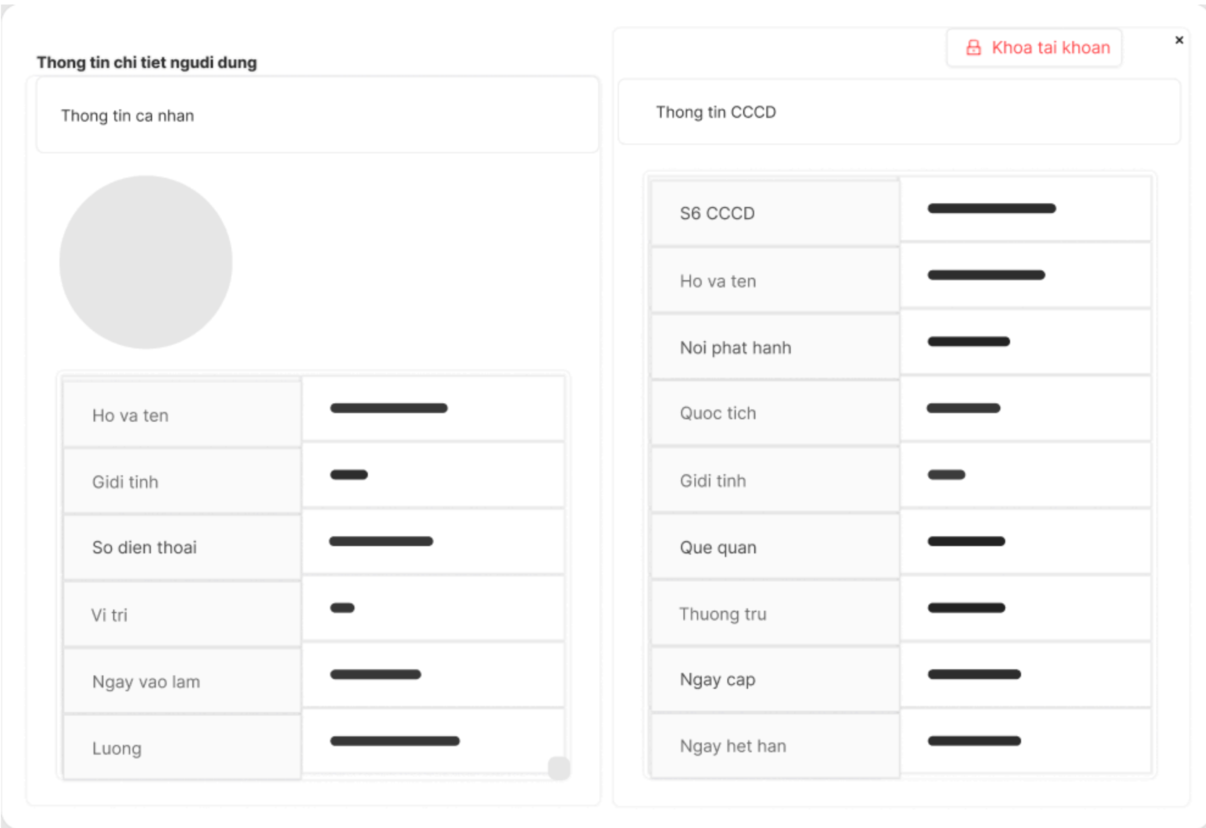


Figure 3.90: Screen -Inactive employee account

#	Element	Type	Validate	Description
1	Deactive	Button	N/A	Clicking the button triggers a confirmation window that prompts the user to confirm their intent. They can either: ● Confirm the deactivation (leads to deletion or deactivation action). ● Cancel the action (dismisses the confirmation without deactivation).

Table 3.67:Screen Specifications - Inactive employee account

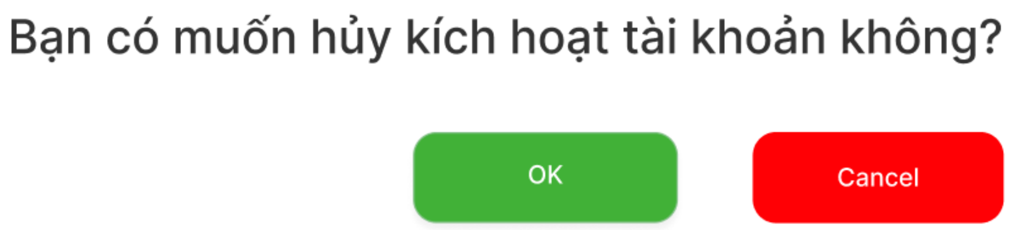


Figure 3.91: Screen -Inactive employee account

#	Element	Type	Validate	Description
1	Cancel	Button	N/A	-Event Type: Click -Cancel deactivate account -Action: The system close popup and redirect Admin/HR to “Account List” screen
2	Ok	Button	N/A	-Event Type: Click -Action: An account is deactivate from the system, can’t use account information (username, password) for login

Table 3.68:Screen Specifications - Inactive employee account

UC ID	UC-43	Use Case Name	Deactive employee account
Create by	DuyenNT	Date created	09/24/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR clicks on the “Deactivate Account” action of an account in the account list on the “Account Manager” screen.		
Description	“Deactivate Account” allows HR to update the status of an account from active to inactive.		
Pre-conditions	1. Users can access the system. 2. User is currently Logged into the system with role. 3. At least one account stored in the system's database.		
Post-conditions	1. An account is successfully updated from active to inactive in the database. 2. A new contract is still associated with the updated account.		
Normal flow	1. HR accesses the system. 2. The system displays the “Account Management” screen. 3. HR clicks on the “Deactivate Account” action of an account in the list. 4. The system displays a popup: “Are you sure you want to deactivate?” 5. If the HR clicks the “Deactivate” button: ● The system updates the account's status from active to inactive in the database. 6. The system redirects HR to the “Account Management” screen. 7. The system displays the message: “Account deactivated successfully.”		
Alternative flows	N/A		

Exceptions	If HR clicks the “Cancel” button in the popup: The system closes the popup and redirects HR to the “Account Management” screen.
Priority	High
Business rules	1.Account have status inactive can’t login to system 2.Accounts with an inactive status will not be displayed in the combobox when adding individuals to a project, assigning tasks, or assigning issues.

Table 3.69:Use Case Specification - Inactive employee account

3.2.9 Salary Management

3.2.9.1 *View employee salary list*

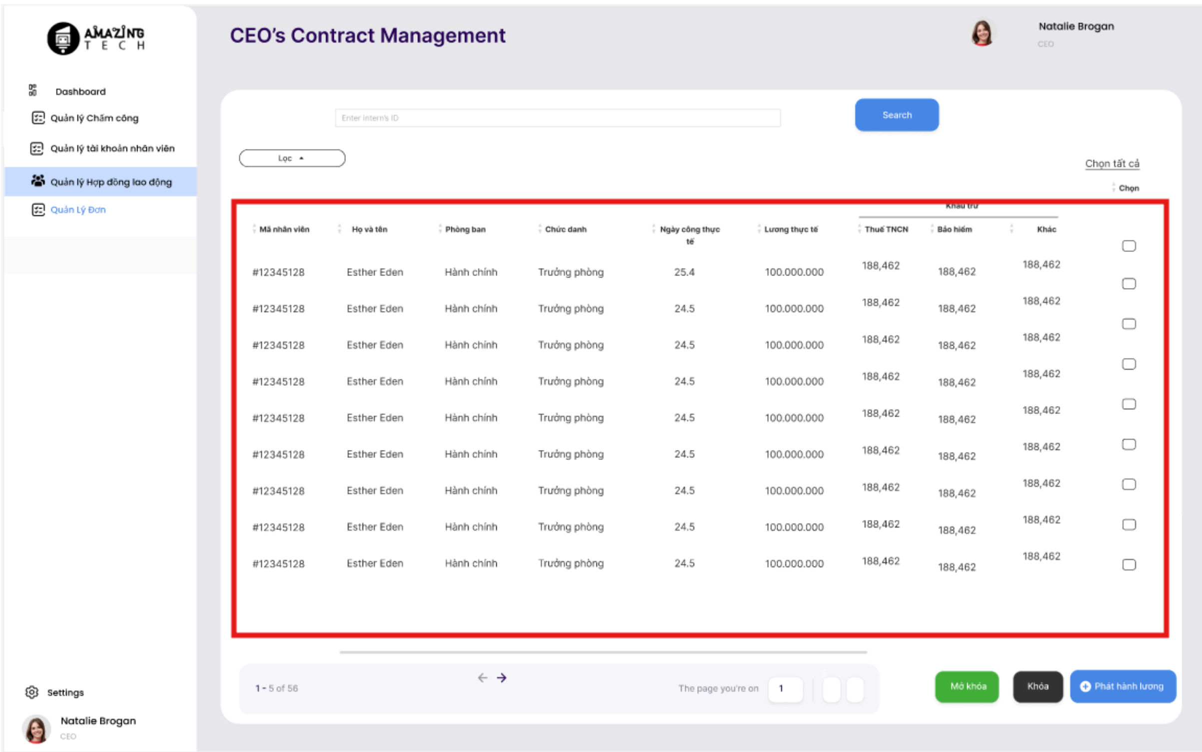


Figure 3.92: Screen -View employee salary list

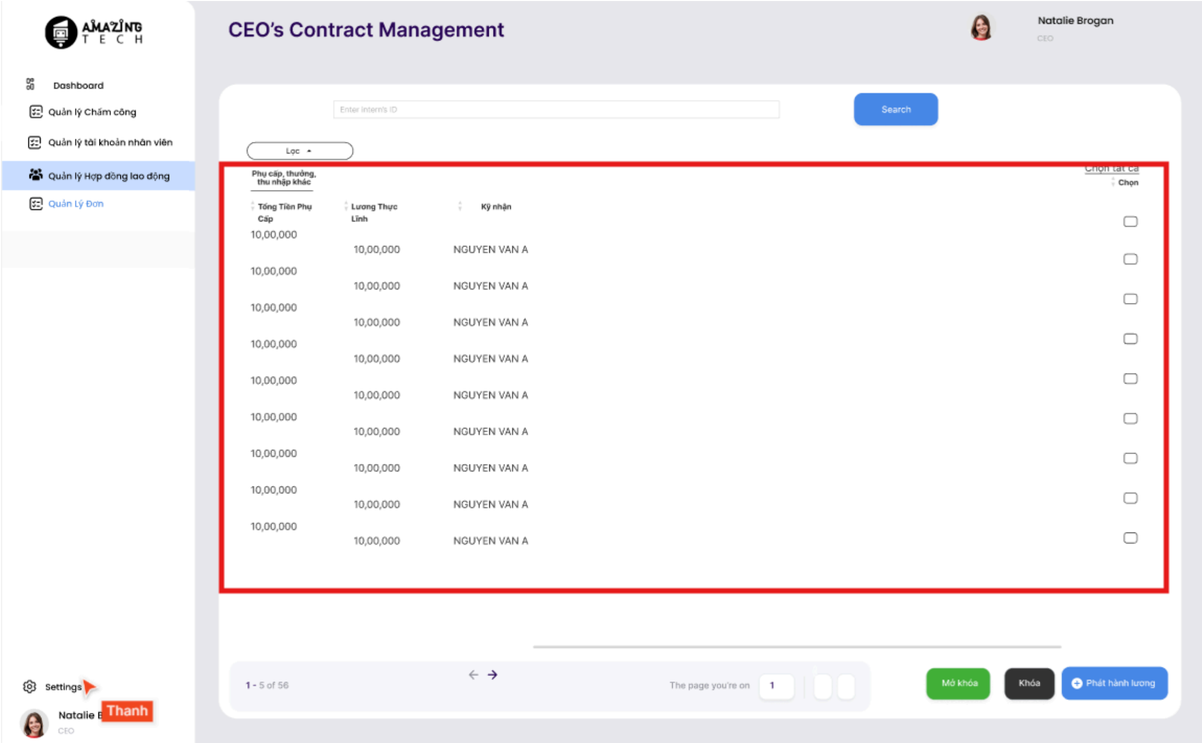
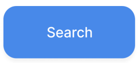
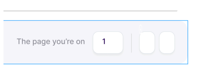
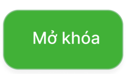


Figure 3.93: Screen - View employee salary list

#	Element	Type	Validate	Description
		Input	N/A	Enter employee ID
		Button	N/A	When clicking on the "Search" button, the system performs the search function for the user
		Select	Staff - Accounting - HR	When users click, they will be able to select available information and positions to filter data according to personal needs.
			N/A	Let the user select/enter the page for which the user wants to view data.
		Button	N/A	Lock salary data, stop allowing editing of salary information during a specific salary period.

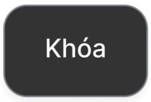
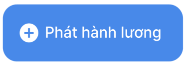
		Button	N/A	Allows unlocking and editing salary information
		Button	N/A	Issue official pay slips to employees once all salary data has been confirmed

Table 3.70:Screen Specifications - View employee salary list

UC ID	UC-38	Use Case Name	View employee salary list
Create by	DuyenNT	Date created	09/24/2024
Primary actor	HR	Secondary actor	Admin
Trigger	HR wants to see the salary list of employees in the company		
Description	Allow HR to see employee code, name, number of working days and corresponding salary		
Pre-conditions	1.Users can access the system. 2.User is currently Logged into the system with an HR , admin role.		
Post-conditions	1. View the list of employees displayed: EmployeeID, Name, number of working days, corresponding salary,...		
Normal Flow	1.HR accesses to system 2.The system displays an “Payroll Management” screen 3.Accountant views a list of information related to employee code, employee name, number of working days, salary amount,...		
Alternative flows	N/A		

Exceptions	Login with Accountant account failed
Priority	Medium
Business rules	1.HR have status inactive can’t login to system 2.HR with an 'inactive' status will not be displayed in the combobox when adding individuals to a project, assigning tasks, or assigning issues.

Table 3.71:Use Case Specification - View employee salary list

3.2.9.2 *View Payslip details*

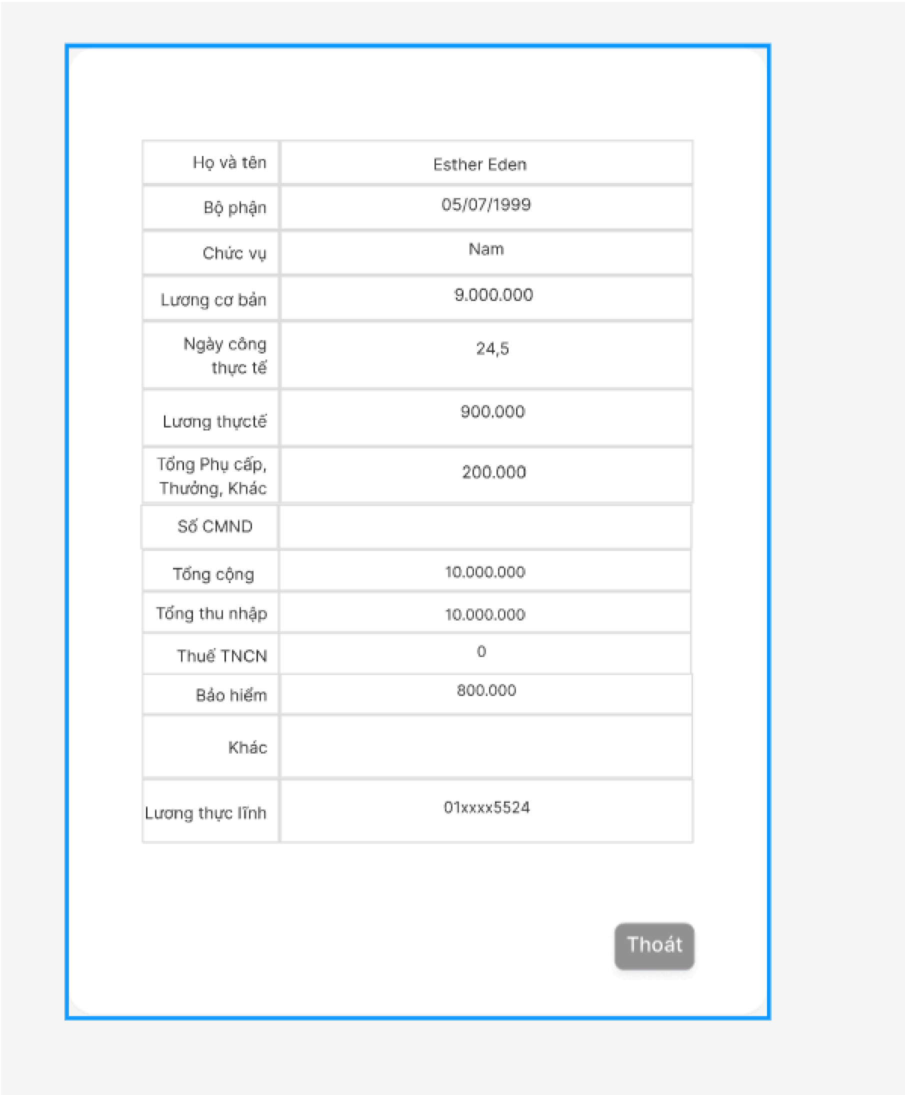


Figure 3.94: Screen -View Payslip details

#	Element	Type	Validate	Description
	Thoát	Button	N/A	When the user clicks on the button The system closes the currently displayed popup.
	Họ và tên Esther Eden	Text	N/A	Display employee name.
	Bộ phận	Text	N/A	Displays the number of workers currently working.
	Chức vụ	Text	N/A	Displays the worker's position.
	Lương cơ bản	Number	XXX.XXX.XXX	Displays the worker's basic salary.
	Ngày công thực tế	Number	0 <= X <= 31	Displays the number of working days of workers.
	Lương thựctế	Number	XXX.XXX.XXX	Shows the actual salary of workers.
	Tổng Phụ cấp, Thưởng, Khác	Number	XXX.XXX.XXX	Display amount of allowance/bonus/ Subsidies/…
	Số CMND	String	020 XXXX 232	Display ID card number
	Thuế TNCN	Number	XXX.XXX.XXX	Displays workers' personal income tax.
	Lương thực lĩnh	Number	XXX.XXX.XXX	Displays the actual salary of the worker.

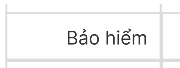
		Number	XXX.XXX.XXX	Displays the employee's insurance premium amount

Table 3.72:Screen Specifications - View Payslip details

UC ID	UC-39	Use Case Name	View Payslip details
Create by	DuyenNT	Date created	09/24/2024
Primary actor	HR,Employee	Secondary actor	Admin
Trigger	1. Employees view their payslip details including: number of working days, total salary, whether or not there is a trade-off 2. The Accountant wants to check the employee's salary details		
Description	View details of salary amounts		
Pre-conditions	1. Users can access the system. 2. User is currently Logged into the system with an HR role or Employee.		
Post-conditions	When the user clicks on an employee's information, the system will display a popup showing detailed information about that employee's salary.		
Normal Flow	Step	Actor Action	System Response
	1	HR logs into the payroll management system	The system displays the home page
	2	The accouHR tent selects Payroll Management	The system authenticates the accounting information and displays the payroll management interface.
	3	The HR clicks on an employee in the list	The system will display a popup The popup displays detailed information in the salary

Alternative flows	Step	Actor Action	System Response
	1	Employee logs into the system	The system displays the home page
	2	The system will display a popup	The popup displays detailed information in the salary
Exceptions	Login with HR account failed		
Priority	hight		
Business rules	1.HR have status inactive can't login to system 2.HR with an 'inactive' status will not be displayed in the combobox when adding individuals to a project, assigning tasks, or assigning issues. 3. Payroll must be calculated accurately and transparently to avoid errors		

Table 3.73:Use Case Specification -View Payslip details

3.2.9.3 Update Payroll

UC ID	UC-41	Use Case Name	Update Payroll
Create by	DuyenNT	Date created	09/24/2024
Primary actor	HR	Secondary actor	Admin
Trigger	When there is a change in an employee's salary (due to promotion, salary adjustment, or change in benefits), HR or Admin needs to update salary information into the system.		
Description	This function allows HR or Admin to update new salaries for employees in the salary management system. The system will automatically adjust and recalculate related items such as insurance, taxes and bonuses based on the new salary.		

<table>
<tr><td>Pre-conditions</td><td colspan="3">1. The employee's current salary information is already in the system.
2. The salary adjustment decision has been approved by the manager or supervisor.
3. The accounting account has access to the salary update function.</td></tr>
<tr><td>Post-conditions</td><td colspan="3">1. The employee's new salary has been successfully updated in the system.
2. The system will automatically adjust insurance and taxes based on the new salary.
3. The employee will receive a notification about the salary adjustment.</td></tr>
<tr><td rowspan="6">Normal Flow</td><td>Step</td><td>Actor Action</td><td>System Response</td></tr>
<tr><td>1</td><td>HR logs into the system</td><td>The system displays the Home page</td></tr>
<tr><td>2</td><td>The HR selects Salary Management</td><td>The system displays the list of Employee Salaries</td></tr>
<tr><td>3</td><td>The HR selects an employee in the list</td><td>The system verifies the popup information detailing the employee's current salary</td></tr>
<tr><td>4</td><td>The HR enters the new salary for the employee.</td><td>The system saves the new salary and recalculates related items (insurance, tax).</td></tr>
<tr><td>5</td><td>The HR confirms the change and the system updates the new salary information.</td><td>The system displays a successful update message and sends the salary change information to the employee.</td></tr>
<tr><td>Alternative flows</td><td colspan="3">N/A</td></tr>
<tr><td rowspan="2">Exceptions</td><td>Step</td><td>Actor Action</td><td>System Response</td></tr>
<tr><td>1</td><td>The HR entered incorrect salary information or the salary level is invalid.</td><td>The system displays an error and asks the accountant to check the information again.</td></tr>
<tr><td>Priority</td><td colspan="3">Hight</td></tr>
</table>

Business rules	1. Any salary changes must comply with company policies and be approved by management before being updated in the system. 2. The system must automatically recalculate insurance, taxes, and other allowances/deductions based on the new salary.

Table 3.74:Use Case Specification -Update Payroll

3.2.9.4 Lock Payroll

UC ID	UC-43	Use Case Name	Lock Payroll
Create by	DuyenNT	Date created	11/19/2024
Primary actor	HR	Secondary actor	Admin
Trigger	When it is necessary to lock salary edits to protect salary data after the calculation process is complete or when it is time to lock periodic edits.		
Description	This function allows the system to lock the salary edit feature of all employees, preventing changes to salary information after it has been finalised or calculated. The accountant or manager will activate this function when the monthly salary processing process is completed or at important times.		
Pre-conditions	1. Users can access the system. 2. User is currently Logged into the system with HR hoặc Admin.		
Post-conditions	The salary editing function is locked, and cannot edit any information about employee salary.		
Normal Flow	Step	Actor Action	System Response
	1	HR hoặc Admin logs into the system	The system displays the Home page
	2	The HR hoặc Admin selects Salary Management	The system displays the list of employee salaries

	3	The actor selects the "Lock salary editing" function.	The system displays a list of salary tables that can be locked.
	4	Select the salary table that needs to be locked and confirm the lock.	The system proceeds to lock the edit for the selected salary table.
	5	The system notifies the success and sends a notification to the relevant parties that the salary table has been locked.	Salary edit information is locked and cannot be changed.
Alternative flows	Step	Actor Action	System Response
	1	HR or Admin wants to lock salary editing for multiple payrolls at the same time.	The system allows selecting multiple payrolls and locking editing at the same time.
Exceptions	Step	Actor Action	System Response
	1	The HR hoặc Admin does not have the authority to lock salary edits.	The system displays a permission error message and requests to contact a manager with higher permissions.
	2	Some payrolls have not completed calculation or are not eligible to be locked.	The system displays a warning and requests to complete the salary processing steps before locking.
Priority	High		
Business rules	1. The salary editing lock feature can only be performed after the salary calculation and confirmation process is completed. 2. Once locked, only senior management has the right to unlock and edit salaries if necessary.		

Table 3.75:Use Case Specification - Lock Payroll

3.3 Entity Relationship Diagram

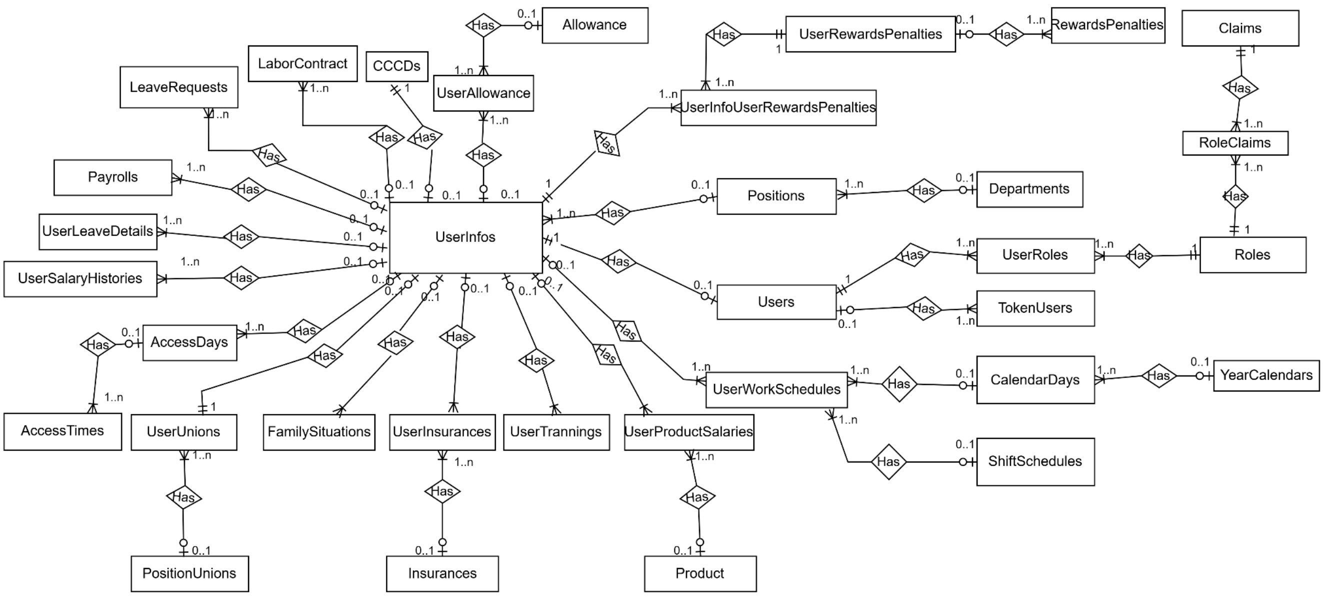


Figure 3.95: Entity Relationship Diagram

#	Entity	Description
01	AccessDays	Stores information about access days, including access date, month, year, and user information.
02	AccessTimes	Stores information about access times, including access type and related access day
03	Allowance	Stores information about allowances, including name, amount, and related details.
04	AuditLog	Stores information about user activities and requests in the system.
05	CalendarDays	Stores information about calendar days, including date, day name, and related details.
06	CCCDs	Stores information about citizen ID cards, including ID number, full name, and related details.
07	Claims	Table managing claims or rights associated with users, including types and values of claims.
08	Companies	Stores information about companies, including company name, business code, and related details.
09	Departments	Stores information about departments within the organization, including department name and code.
10	FamilySituations	Stores information about family situations, including name, relationship, address, and related details.
11	Insurances	Stores information about insurance types, including insurance name, employee and company contributions, and related details.
12	LaborContract	Stores information about labor contracts, including employee details and contract specifics.
13	LeaveRequests	Stores information about leave requests, including start date, end date, and reason for leave.
14	Payrolls	Stores information about payroll, including total work hours, total salary, and product costs.

15	Positions	Stores information about job positions, including position name, department ID, and salary.
16	PositionUnions	Stores information about union positions, including position name and insurance percentage.
17	Product	Stores information about products, including product name, price, and related details.
18	RewardsPenalties	Stores information about rewards and penalties, including name, amount, and related details.
19	RoleClaims	Stores information about the relationship between roles and claims, including role ID and claim ID.
20	Roles	Stores information about roles in the system, including role name and related details.
21	ShiftSchedules	Stores information about work shifts, including shift name, start time, and end time.
22	TimekeepingMachines	Stores information about timekeeping machines, including machine name, IP address, and related details.
23	TokenUsers	Stores information about user tokens, including token value and expiration time.
24	TypeDepenments	Stores information about dependency types, including name, dependency status, and related details.
25	UserAllowance	Table managing allowance details for users, including start and end dates, types, and amounts.
26	UserInfos	Table storing comprehensive information about users, including personal details, bank account information, and current salary.
27	UserInfoUserRewardsPenalties	Table mapping user information to rewards and penalties, indicating which rewards or penalties apply to which users.
28	UserInsurances	Table managing insurance details for users, including insurance numbers and associated user information.
29	UserLeaveDetails	Table managing leave details for users, including total and used leave hours and effective years.
30	UserProductSalaries	Table managing product-related salary details for users, including quantities, prices per quantity, and associated products.
31	UserRewardsPenalties	Table managing rewards and penalties for users, including amounts, effective dates, and associated rewards or penalties.
32	UserRoles	Table mapping roles to users, indicating which users have which roles within the system.
33	Users	Table managing user authentication details and status, including usernames, password hashes, and account lock status.
34	UserSalaryHistories	Table recording the history of salary changes for users, including previous and new salaries and reasons for changes.
35	UserTrannings	Table managing training details for users, including school names, fields of study, and years of graduation.
36	UserUnions	Table managing details about users' union memberships, including enrollment dates and positions within the union.
37	UserWorkSchedules	Table managing users' work schedules, including assigned shifts and calendar days.
38	YearCalendars	Table managing information about year-specific calendars, including year details and associated metadata.

Table 3.76:Description Entity Relationship Diagram

4. Non-Functional Requirements
4.1 External Interfaces

User Interface:

- The system must provide a user-friendly web interface that can be used on popular browsers such as Chrome, Firefox, and Edge.
- The interface must comply with accessibility standards for people with disabilities (e.g. WCAG 2.1) to ensure that everyone can use the system.

Hardware Interface:

- The system must be compatible with common devices such as desktops, laptops, and mobile devices. It must also support peripherals such as fingerprint time attendance machines.

Software/System Interface:

- The system must integrate with human resource management systems through secure API connections.
- The system must support REST web services for easy data exchange.

Communication Interface:

- The system must use HTTPS security protocol for all web transactions, ensuring data is encrypted.
- The system must also be able to send notifications via the application

4.2 Quality Attributes
4.2.1 Usability
- **User Interface Standards:**
    - The system must adhere to common standards such as Microsoft or IBM interface standards to ensure consistency and ease of use.
- **Consistency and Brand Identity:**
    - Keep a consistent look on all website pages. - Use the same colors, fonts, and visual elements throughout. (Colours, Fonts)
- **Adaptable Design:**
    - Make the design work well on different screen sizes
- **Clear Navigation**
    - Have left-sidebar menu, clear screen flow for each user
- **Interactive Parts :**
    - All search bars should show results real time when enter value
- **Fixing Mistakes :**
    - Make short, clear error messages. (Errors show in red, successful in green)

4.2.2 Reliability

- **Availability:**

    - The system must be up and running 99.95% of the time, meaning it should only be down during scheduled maintenance.
- **Accuracy:**
    - The system output data must be 99.99% accurate, especially in financial reports and calculations.

4.2.3 Performance

- **Response time:**
    - The system must respond within 2 seconds for 95% of user operations.
- **Throughput:**
    - The system must be able to process 500 transactions per second during peak hours without performance degradation.
- **Capacity:**
    - The system must support 10,000 concurrent users and 1 million transactions per day.
- **Resource usage:**
    - The system must not exceed 75% CPU and 70% memory when running at average load.
- **Scalability:**
    - The system must be able to scale both vertically and horizontally to meet future growth needs without compromising performance.

4.2.4 **Maintainability**

- ***Maintainable source code:***
    - The source code of the system must be designed in a modular manner for easy repair without affecting other parts.
- ***Upgrade process:***
    - The system must support automatic upgrades without causing disruption to users.
- ***Documentation:***
    - Detailed documentation of the system, API, and user manual is required to help with future maintenance.

5. Requirement Appendix

5.1 Business Rules

ID	Description
BR01	Password must be at least 5 digits long
BR02	Password must be encrypted
BR03	When changing password, the new password must not be the same as the current password
BR04	When creating new requests (such as creating labour contracts, requesting leave, etc.),

	the request time must be in the future to ensure reasonableness and feasibility.
BR05	Employee working hours must be automatically recorded through an integrated timekeeping system (fingerprint or mobile app).
BR06	The system must automatically store and manage personal information, including personal profile, qualifications, work experience and contact information.
BR07	Only HR and Admin have the right to update employee profile information.
BR08	Employees can only view and update their personal contact information.
BR09	Searching for HR information must be quick to support HR and management to save time
BR10	Timekeeping data must be locked after payroll processing to avoid unauthorized changes.
BR11	Night shifts and working hours violations must be automatically flagged for distinction.
BR12	Employees can view their timekeeping information but cannot edit it.
BR13	The system must automatically calculate salary based on timekeeping data, applying the correct salary for overtime, night shifts, bonuses and deductions (if any).
BR14	Only authorized users (HR, Admin) have the right to edit payroll.
BR15	Each employee is allowed only one type of insurance, one type of benefit, and one union position.
BR16	The system must ensure security and protection of employees' personal information.
BR17	The system must automatically update the number of remaining leave days of employees according to company regulations.
BR18	The system must support flexible management of work assignments according to shifts, working days and actual production requirements.
BR19	Any changes to shifts or work schedules must be immediately notified to employees by the system
BR20	Employees can view and receive notifications about their shifts through the app.
BR21	Employees can submit leave requests online through the system, and managers will review and approve the request.
BR22	Each employee is given an account to access the system to view personal information, payroll, work schedule and submit leave requests.
BR23	Employee accounts must be secure and only employees have access to their personal information.
BR24	The system supports tax calculation and management, ensuring compliance with mandatory regulations on labor and tax laws for employees.
BR25	Only HR and Admin have the right to access and edit important information related to

	employees and payroll.

Table 3.77 : Business Rules

5.2 Common Requirements

5.2.1 Scalability

- The system must be scalable to support an increasing number of users without sacrificing performance.
- The system architecture must allow for easy addition of servers or increased storage capacity as needed.

5.2.2 Compatibility

- The system must be compatible with popular browsers (Chrome, Firefox, Safari, Edge) and operating systems (Windows, macOS, Linux).
- The application must be compatible with mobile devices, including smartphones and tablets.

5.2.3 Maintainability

- The system must be designed in a modular architecture, making it easy to upgrade and repair parts without affecting the entire system.
- The source code and database must be clearly noted and organized for developers to easily access and maintain.

5.2.4 Performance

- The system must ensure that the response time for most user operations is no more than 2 seconds.
- The system must be able to process at least 500 transactions per second at peak times.
- The system must use resources (CPU, RAM) optimally, not exceeding 75% of the server capacity in normal operation.

5.2.5 Data Integrity

- Data stored and processed in the system must ensure integrity and accuracy.
- All data changes must be recorded for historical retrieval when necessary, and ensure compliance with relevant legal regulations.

5.3 Application Messages List

#	Message code	Message Type	Context	Content
1	MSG01	Toast Message	Login Successful	Welcome to System
2	MSG02	In red, under the text box	Username is empty	No input your username
3	MSG03	In red, under the text box	Password is empty	No input your password
4	MSG04	In red, under the text box	Username and password are incorrect	Username and password are incorrect
5	MSG05	Toast message	Account status is inactive	Your account is currently locked
6	MSG06	Toast message	Logout Successful	Logout Successful
7	MSG07	Toast message	Password changed successfully	Password changed successfully
8	MSG08	In red, under the text box	Not enter new password	Not enter new password
9	MSG09	In red, under the text box	Not enter repeat password	Not enter new password
10	MSG10	In red, under the text box	The password < 5 characters	The password must be at least 5 characters long
11	MSG11	In red, under the text box	Current password is incorrect	Current password is incorrect
12	MSG12	In red, under the text box	Name cannot contain special characters, Not enter name	Name cannot contain special characters, Not enter name
13	MSG13	Toast message	Update profile successful	update profile successful
14	MSG14	Toast message	Form submission successful	Form submission successful
15	MSG15	Toast Message	Employee added successfully	Employee added successfully
16	MSG16	In red, under the text box	Employee information is incomplete	Employee information is incomplete
17	MSG17	Toast Message	Employee record updated successfully	Employee record updated successfully
18	MSG18	Toast Message	Employee does not exist	Employee does not exist
19	MSG19	Toast Message	Approved Successfully	Approved Successfully
20	MSG20	Toast Message	Rejected Successfully	Rejected Successfully

Table 3.78:Application Messages List

5.4 Other Requirements…

N/A

IV. Software Design Description

1. System Design

1.1 System Architecture

1.1.1 . Design

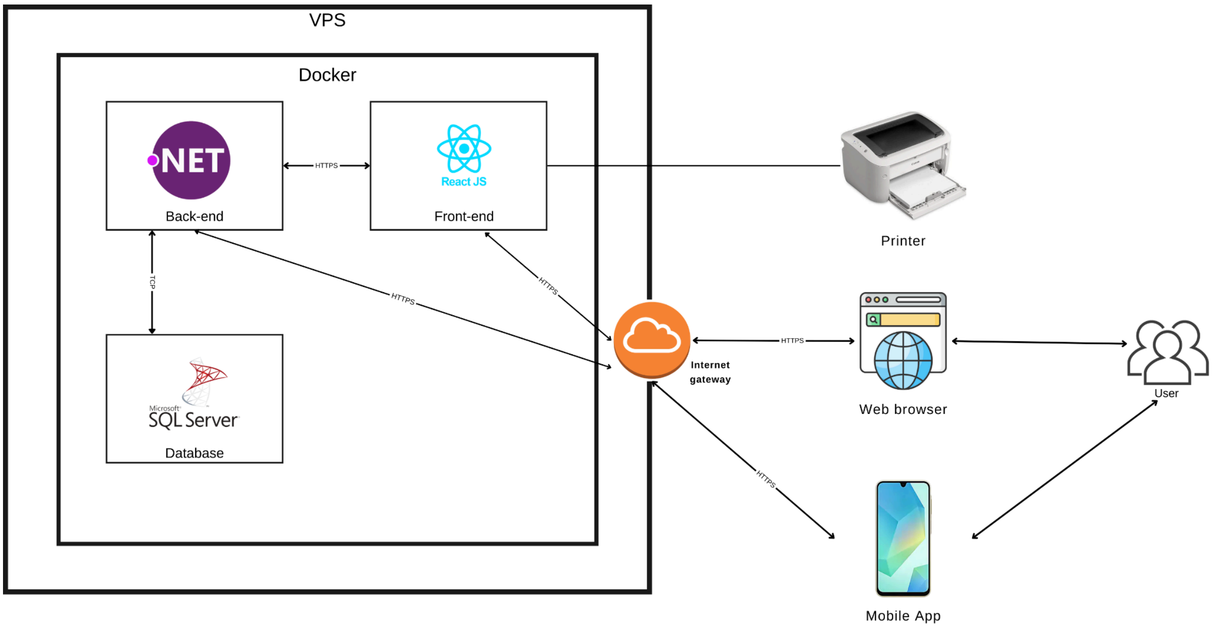


Figure 4.1: System Architecture

1.1.2 . Component Explanation

1.1.2.1 . NET

.NET is a software development framework used to build server-side HR management applications, APIs, and other back-end functions for the GF-HRMS system. It provides a powerful development environment and can run on multiple platforms.

1.1.2.2. React

React is a JavaScript library used to develop the user interface for the GF-HRMS system. It helps build dynamic web interfaces that are easy to use and responsive to users.

1.1.2.3. SQL Server

SQL Server is a relational database management system (RDBMS) used to store and manage human resources data in the GF-HRMS system. It supports complex queries, high security, and good transaction processing capabilities.

1.1.2.4. Internet gateway

Internet Gateway provides connection between the GF-HRMS system and the internet, allowing the system to communicate with external services.

1.2 Package Diagram

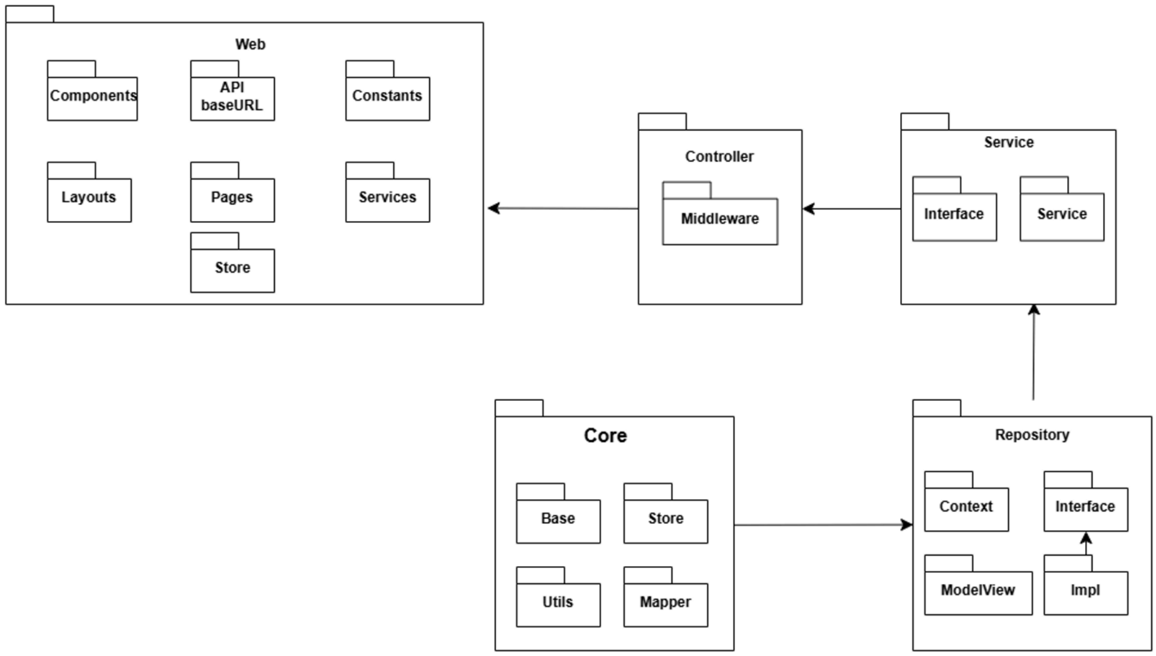


Figure 4.2: Package Diagram

Package Descriptions

No	Package	Description
01	Web	Handles the application's web interface and routing.
02	Components	Contains user interface elements that are reusable throughout the application.
03	baseURL API	Contains the base URL of the API with which the application communicates. This URL is declared as a constant and stored in the directory Constants for easy reuse. This helps manage requests to the API and can be easily changed when needed.
04	Constants	Stores constant values used throughout the application.
05	Layouts	Define layout structures for different pages (e.g. header, footer).
06	Pages	Contains the pages or views of the application.
07	Services	Provides a logic layer and communication with external services or APIs.
08	Store	Manage state throughout the application State management, which may refer to client-side storage.
09	Controller	Handles HTTP requests and response streams in the application.

10	Middleware	Intermediate functions to intercept and process requests.
11	Interface	Defines interfaces used for data type checking and abstraction.
12	Service	Manage business logic and services at the application level.
13	Repository	Manage the storage and retrieval of data from the database.
14	Context	Provides API context dependency for the application.
15	Interface	Define service interfaces and API contracts.
16	Impl	Implements the interfaces defined in the Interface package.
17	ModelView	Manage data models and their interaction with views.
18	Base	Defines basic classes and utilities used by other modules.
19	Store	State management, which may refer to client-side storage.
20	Utils	Contains utility functions and support methods.
21	Mapper	Map data between models or layers of an application.

Table 4.1: Package Descriptions

2. Database Design

Figure 4.3: Database Design

Table Descriptions

No	Table	Description
01	AccessDays	Stores information about access days, including access date, month, year, and user information. - Primary Key: Id - Foreign Key: UserInfoId (references UserInfos.Id)
02	AccessTimes	Stores information about access times, including access type and related access day - Primary Key: Id - Foreign Key: AccessDayId (references AccessDays.Id)
03	Allowance	Stores information about allowances, including name, amount, and related details. - Primary Key: Id - Foreign Key: N/A
04	Notifications	Stores information about system notifications, including message content, user details, and notification status. - Primary Key: Id - Foreign Key: N/A

05	CalendarDays	Stores information about calendar days, including date, day name, and related details. - Primary Key: Id - Foreign Key: YearCalendarId (references YearCalendars.Id)
06	CCCDs	Stores information about citizen ID cards, including ID number, full name, and related details. - Primary Key: Id - Foreign Key: UserInfoId (references UserInfos.Id)
07	Claims	Table managing claims or rights associated with users, including types and values of claims. - Primary Key: Id - Foreign Key: N/A
08	Companies	Stores information about companies, including company name, business code, and related details. - Primary Key: Id - Foreign Key: N/A
09	Departments	Stores information about departments within the organization, including department name and code. - Primary Key: Id - Foreign Key: N/A
10	FamilySituations	Stores information about family situations, including name, relationship, address, and related details. - Primary Key: Id - Foreign Keys: + TypeDepartmentId (references TypeDepenments.Id) + UserInfoId (references UserInfos.Id)
11	Insurances	Stores information about insurance types, including insurance name, employee and company contributions, and related details. - Primary Key: Id - Foreign Key: N/A
12	LaborContract	Stores information about labor contracts, including employee details and contract specifics. - Primary Key: Id - Foreign Key: UserInfoId (references UserInfos.Id)
13	LeaveRequests	Stores information about leave requests, including start date, end date, and reason for leave. - Primary Key: Id - Foreign Key: UserInfoId (references UserInfos.Id)
14	Payrolls	Stores information about payroll, including total work hours, total salary, and product costs. - Primary Key: Id - Foreign Key: UserInfoId (references UserInfos.Id)
15	Positions	Stores information about job positions, including position name, department ID, and salary. - Primary Key: Id - Foreign Key: DepartmentId (references Departments.Id)
16	PositionUnions	Stores information about union positions, including position name and insurance percentage. - Primary Key: Id - Foreign Key: N/A
17	Product	Stores information about products, including product name, price, and related details. - Primary Key: Id

		- Foreign Key: N/A
18	RewardsPenalties	Stores information about rewards and penalties, including name, amount, and related details. - Primary Key: Id -Foreign Key: UserRewardsPenaltiesId (references UserRewardsPenalties.Id)
19	RoleClaims	Stores information about the relationship between roles and claims, including role ID and claim ID. - Primary Key: N/A - Foreign Keys: + RoleId (references Roles.Id) + ClaimId (references Claims.Id)
20	Roles	Stores information about roles in the system, including role name and related details. - Primary Key: Id - Foreign Key: N/A
21	ShiftSchedules	Stores information about work shifts, including shift name, start time, and end time. - Primary Key: Id - Foreign Key: N/A
22	Subsidies	Stores information about subsidies, including name, amount, and type of subsidy. - Primary Key: Id -Foreign Key: TypeSubsidyId (references Id in table TypeSubsidies)
23	TokenUsers	Stores information about user tokens, including token value and expiration time. - Primary Key: Id - Foreign Key: UserId (references Users.Id)
24	TypeDepenments	Stores information about dependency types, including name, dependency status, and related details. - Primary Key: Id - Foreign Key: N/A
25	TypeEducationals	Stores information about educational types, including name and code - Primary Key: Id - Foreign Key: N/A
26	UserProductSalaries	Stores information about user salaries related to products, including details about the user and the product. - Primary Key: Id - Foreign Key: ProductId, UserInfoId
27	TypeWorkSalaries	Table managing types of work salaries, including start and end times, percentage rates, and holiday status. - Primary Key: Id - Foreign Key: N/A
28	UserAllowance	Table managing allowance details for users, including start and end dates, types, and amounts. - Primary Key: Id - Foreign Keys: + UserInfoId (references UserInfos.Id) + AllowanceId (references Allowance.Id)
29	UserInfos	Table storing comprehensive information about users, including personal details, bank account information, and current salary. - Primary Key: Id

		- Foreign Keys: + PositionId (references Positions.Id) + UserId (references Users.Id)
30	UserInfoUserRewardsPenalties	Table mapping user information to rewards and penalties, indicating which rewards or penalties apply to which users. - Foreign Keys: + UserInfosId (references UserInfos.Id) + UserRewardsPenaltiesId (references RewardsPenalties.Id)
31	UserInsurances	Table managing insurance details for users, including insurance numbers and associated user information. - Primary Key: Id - Foreign Keys: - InsuranceId (references Insurances.Id) - UserInfoId (references UserInfos.Id)
32	UserLeaveDetails	Table managing leave details for users, including total and used leave hours and effective years. - Primary Key: Id - Foreign Key: UserInfoId (references UserInfos.Id)
33	UserProductSalaries	Table managing product-related salary details for users, including quantities, prices per quantity, and associated products. - Primary Key: Id - Foreign Keys: + ProductId (references Product.Id) + UserInfoId (references UserInfos.Id)
34	UserRewardsPenalties	Table managing rewards and penalties for users, including amounts, effective dates, and associated rewards or penalties. - Primary Key: Id - Foreign Keys: + RewardsPenaltyId (references RewardsPenalties.Id) + UserInfoId (references UserInfos.Id)
35	UserRoles	Table mapping roles to users, indicating which users have which roles within the system. - Foreign Keys: + UserId (references Users.Id) + RoleId (references Roles.Id)
36	Users	Table managing user authentication details and status, including usernames, password hashes, and account lock status. - Primary Key: Id - Foreign Key: UserInfoId (references UserInfos.Id)
37	UserSalaryHistories	Table recording the history of salary changes for users, including previous and new salaries and reasons for changes. - Primary Key: Id - Foreign Key: UserInfoId (references UserInfos.Id)
38	UserTrannings	Table managing training details for users, including school names, fields of study, and years of graduation. - Primary Key: Id -Foreign Keys: + TypeEducationalId (references TypeEducationals.Id) + UserInfoId (references UserInfos.Id)
40	UserUnions	Table managing details about users' union memberships, including enrollment dates and positions within the union. - Primary Key: Id - Foreign Keys:

		+ PositionUnionId (references PositionUnions.Id) + UserInfoId (references UserInfos.Id)
41	UserWorkSchedules	Table managing users' work schedules, including assigned shifts and calendar days. - Primary Key: Id - Foreign Keys: + UserId (references Users.Id) + CalendarDayId (references CalendarDays.Id) + ShiftScheduleId (references ShiftSchedules.Id)
42	YearCalendars	Table managing information about year-specific calendars, including year details and associated metadata. - Primary Key: Id - Foreign Key: N/A

Table 4.2: Table Descriptions Database Design

3. Detailed Design
3.1 Login
3.1.1 Class Diagram

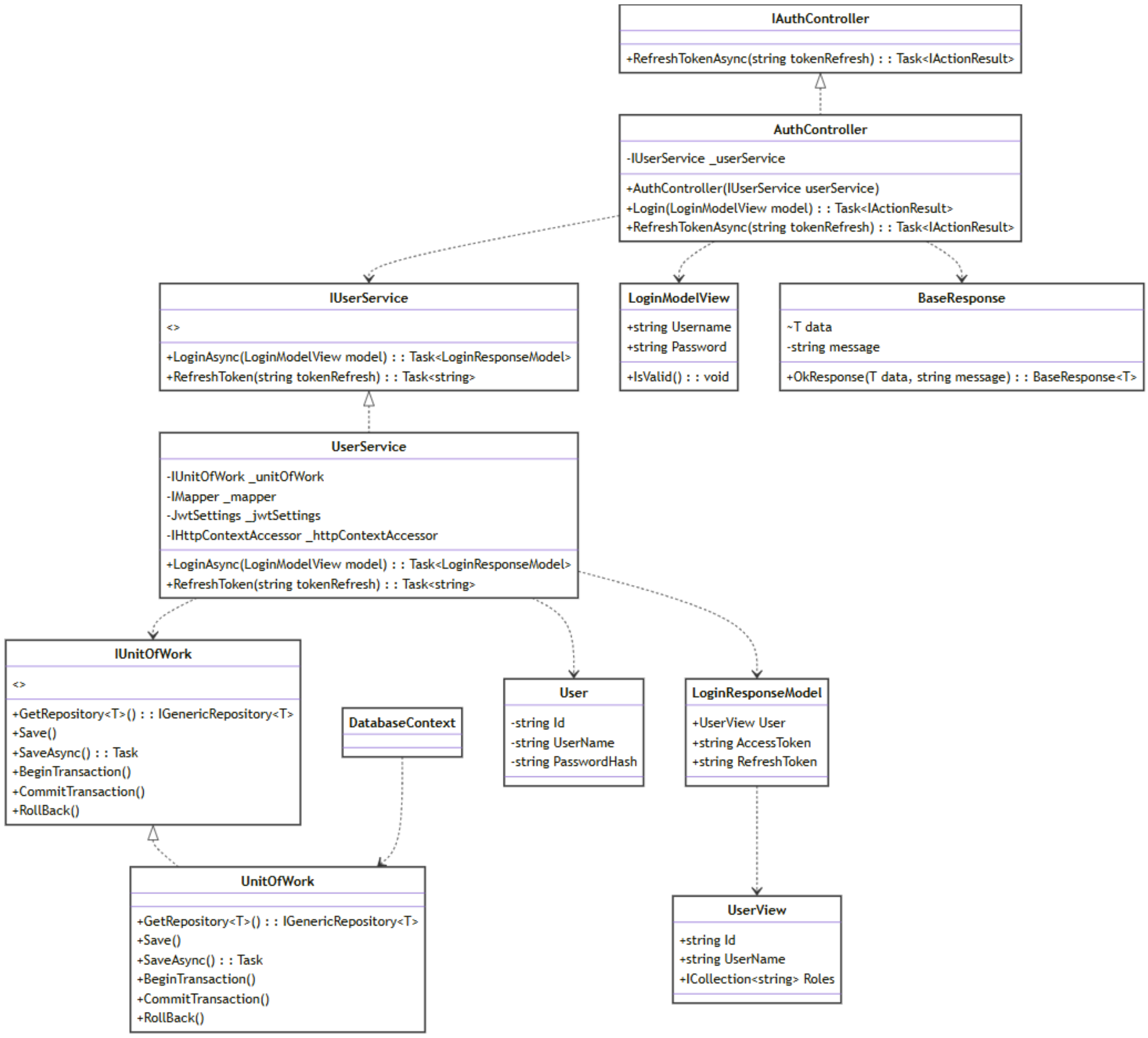


Figure 4.4: Class Diagram - Login

3.1.2 Sequence Diagram Login

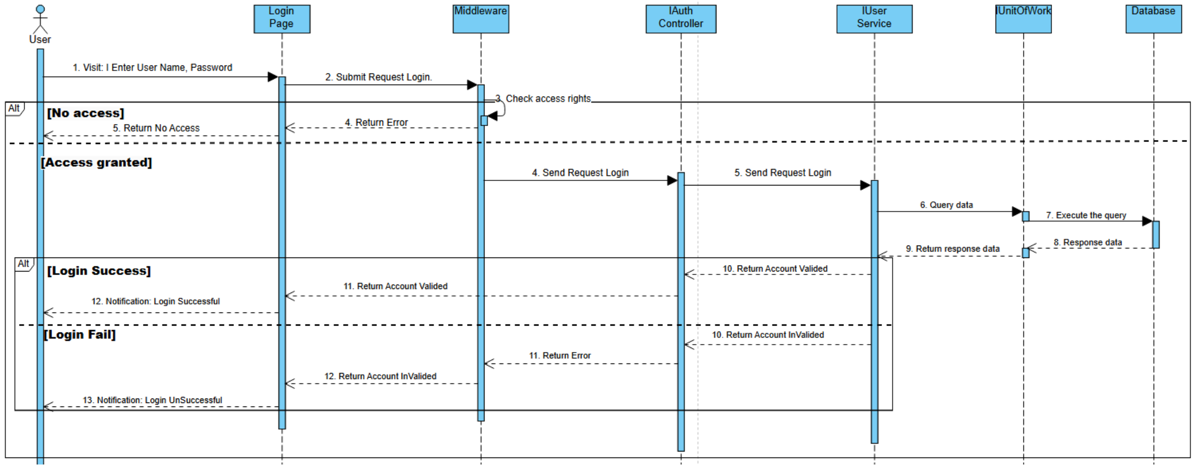


Figure 4.5: Sequence Diagram - Login

3.2 Employee Profile Management

3.2.1 View employee profile list Sequence Diagram

3.2.1.1 Class Diagram

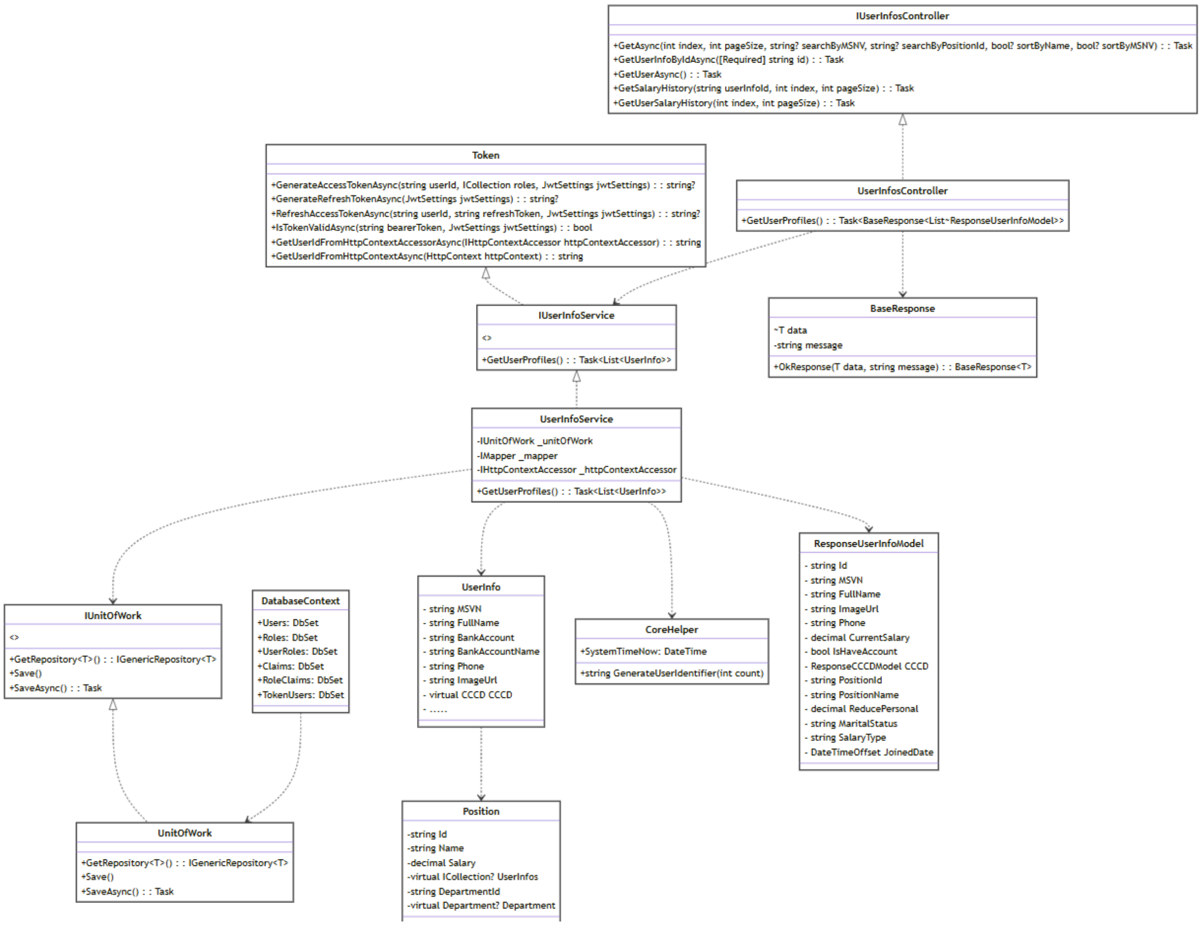


Figure 4.6: Class Diagram - View employee profile list

3.2.1.2 Sequence Diagram

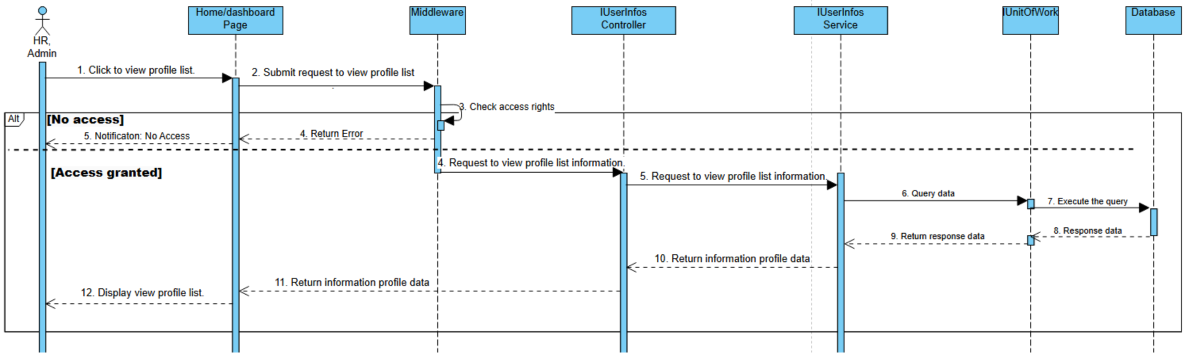


Figure 4.7: Sequence Diagram - View employee profile list

3.2.2 Create employee profile Sequence Diagram

3.2.2.1 Class Diagram

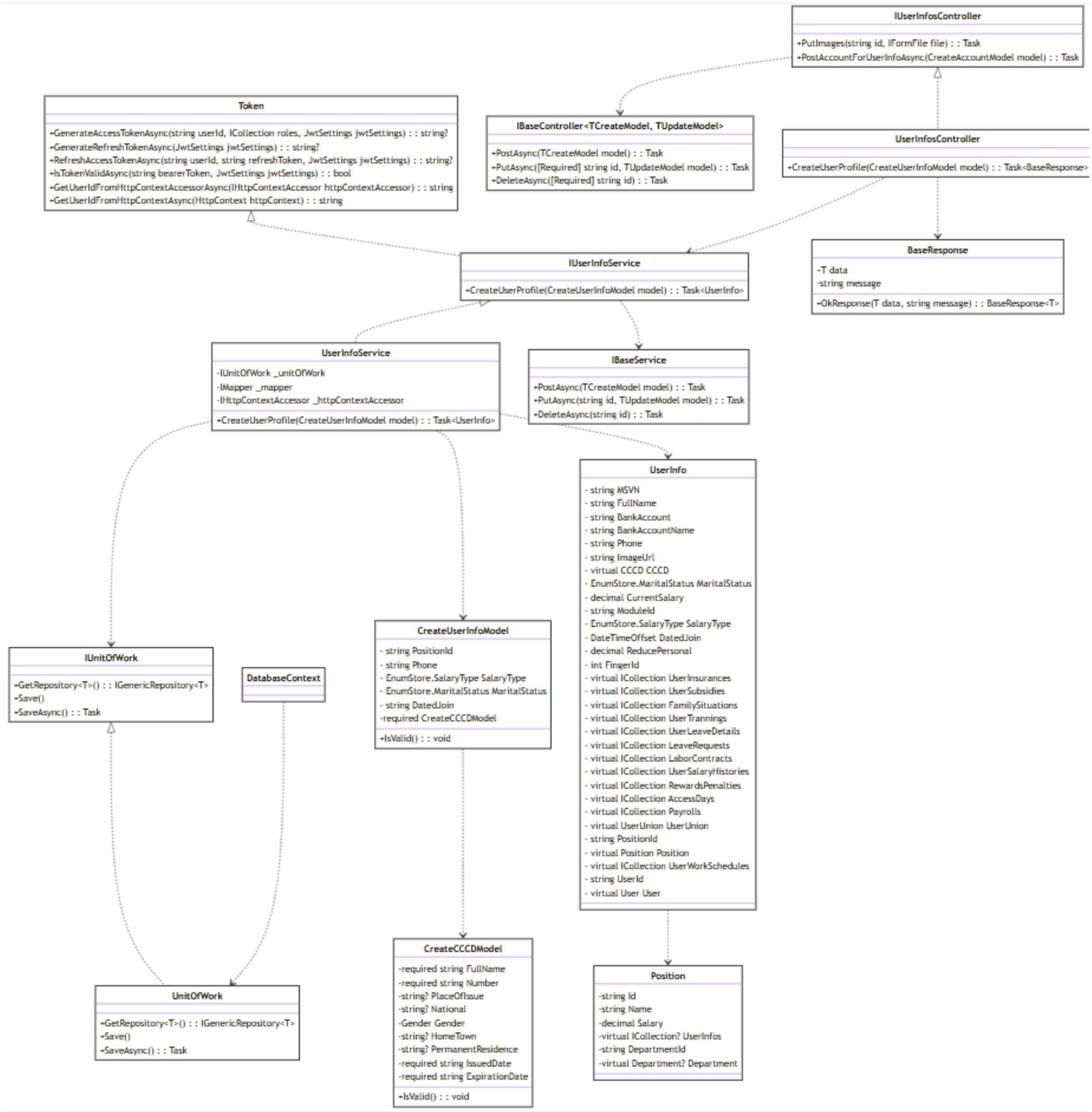


Figure 4.8: Class Diagram - Create employee profile

3.2.2.2 Create employee profile Sequence Diagram

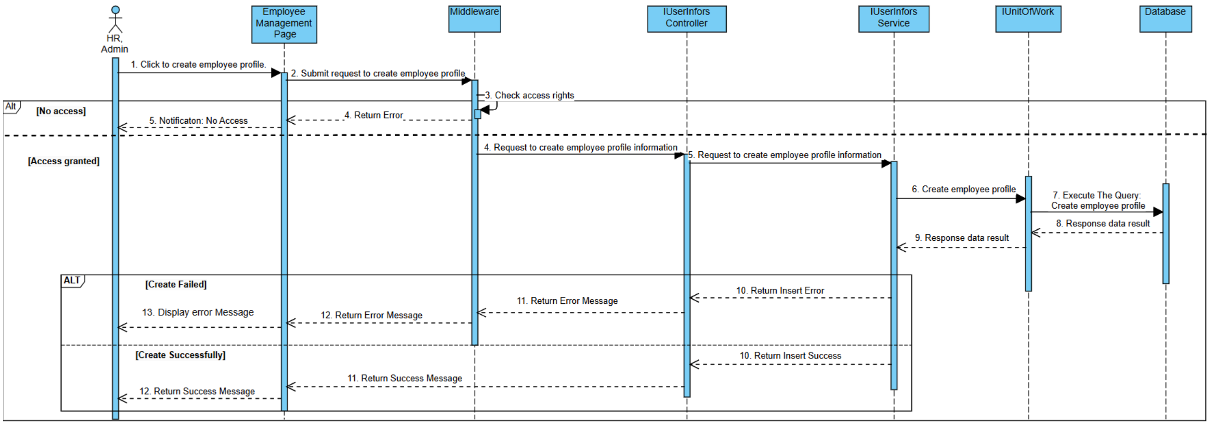


Figure 4.9: Sequence Diagram - Create employee profile

3.2.3 Edit employee records Sequence Diagram

3.2.3.1 Class Diagram

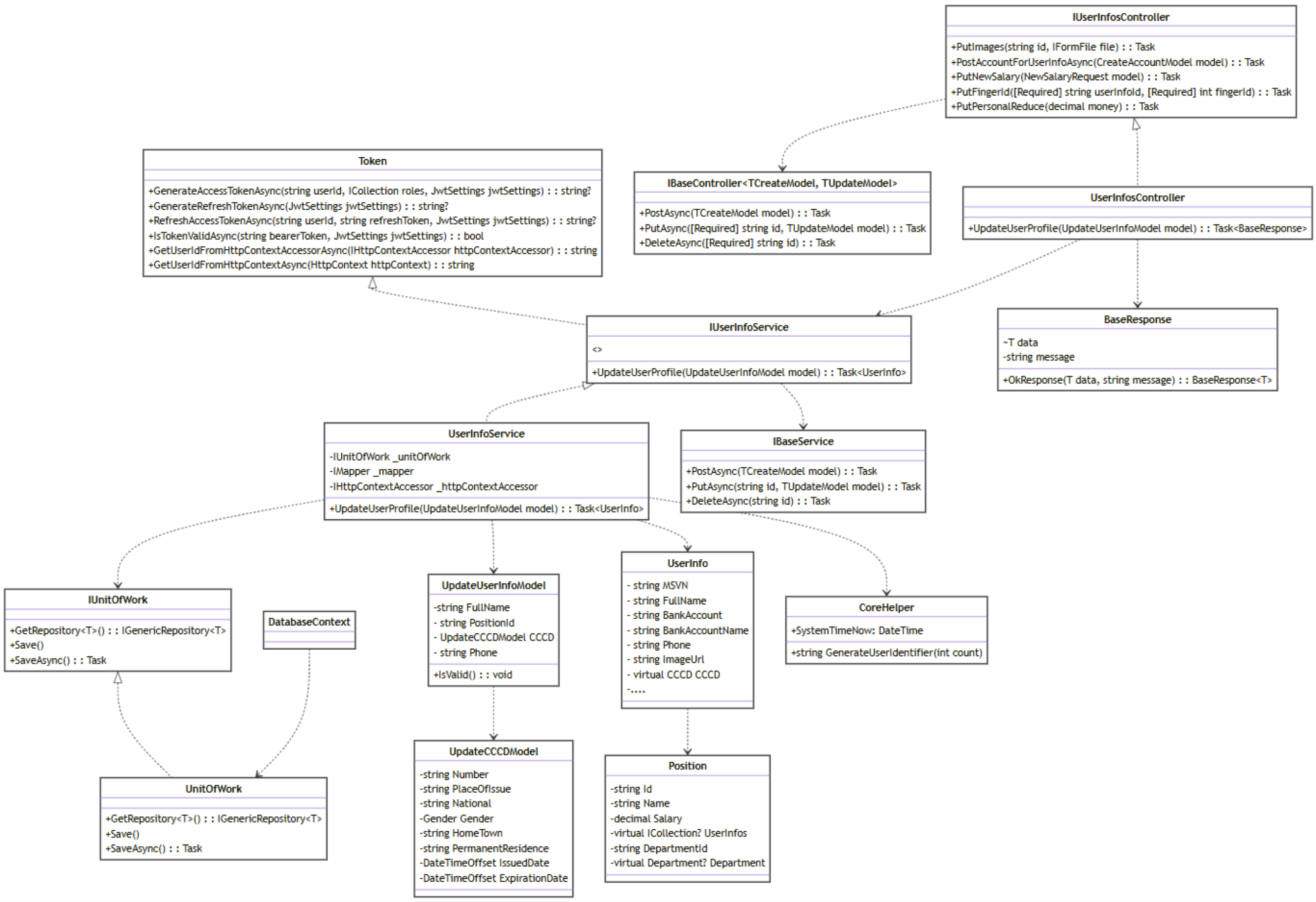


Figure 4.10: Class Diagram - Update employee profile

3.2.3.2 Edit employee profile Sequence Diagram

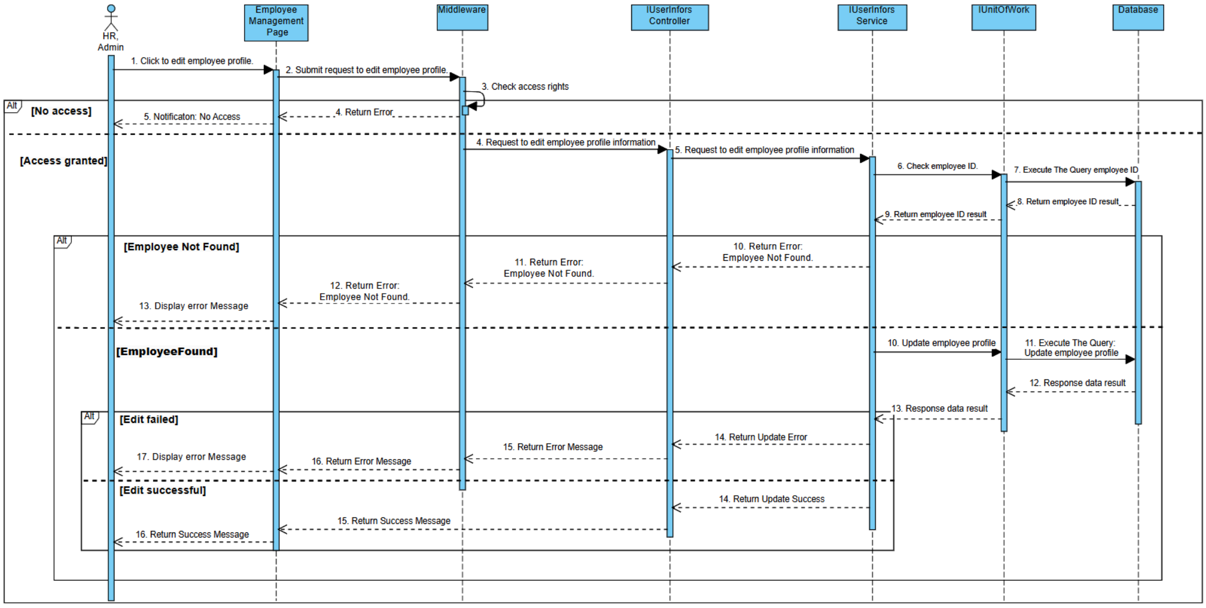


Figure 4.11: Sequence Diagram - Edit employee profile

3.2.4 *View detailed employee profile Sequence Diagram*

3.2.4.1 Manage family situation

3.2.4.1.1. Manage Family Situation

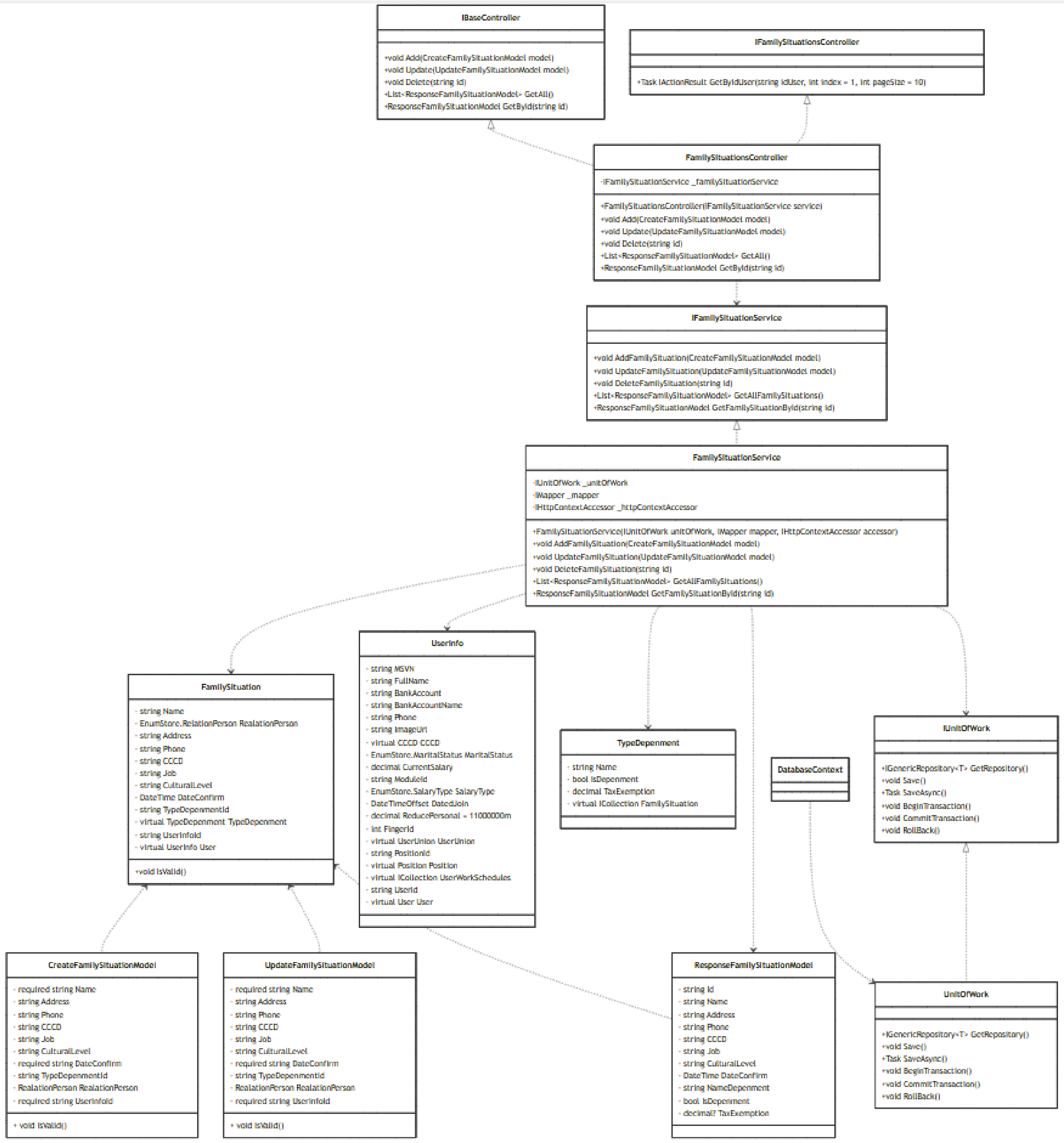


Figure 4.12: Class Diagram - Manage Family Situation

3.2.4.1.2 View family situation

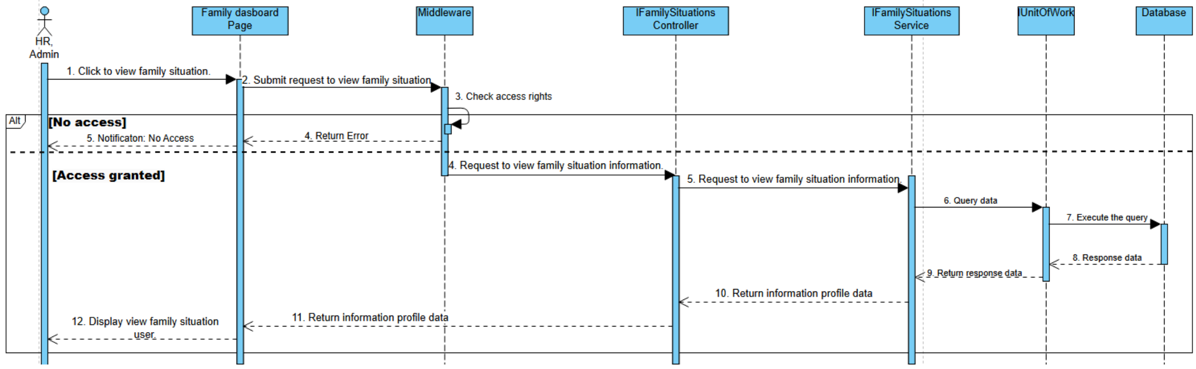


Figure 4.13: Sequence Diagram - View family situation

3.2.2.4.2 Add family situation information

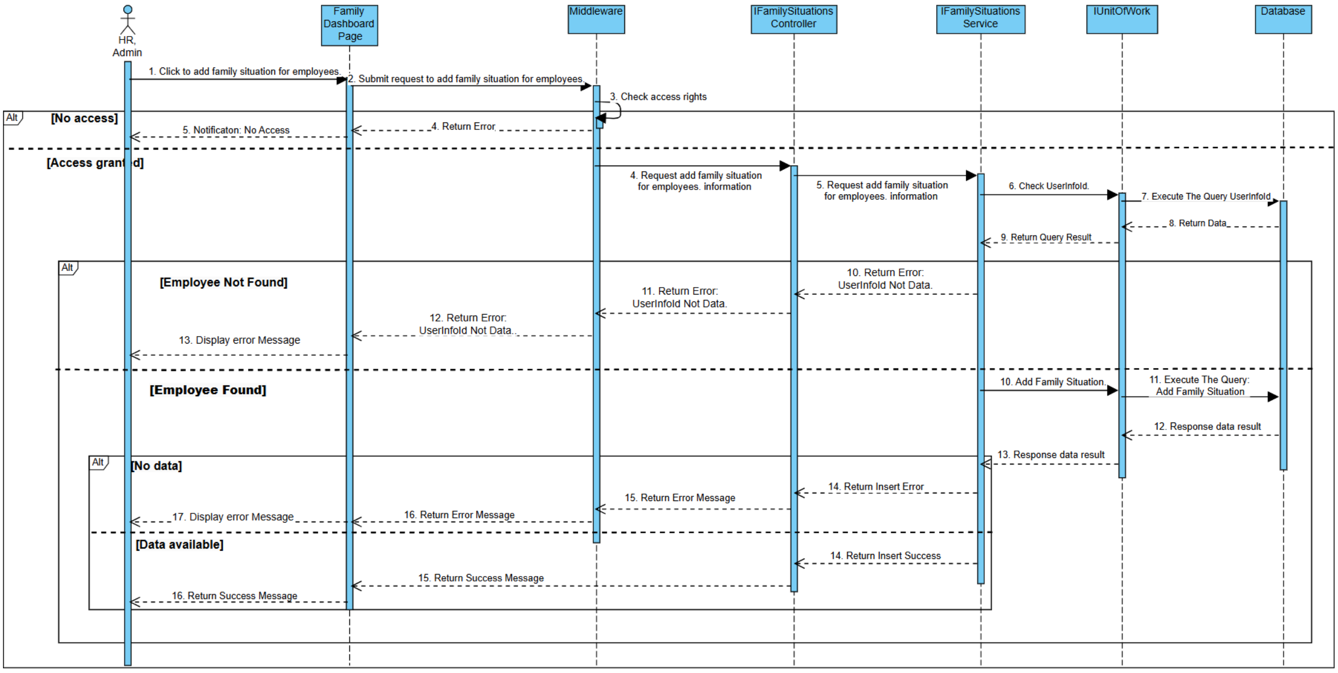


Figure 4.14: Sequence Diagram - Add family situation

3.2.2.4.3 Edit family situation information

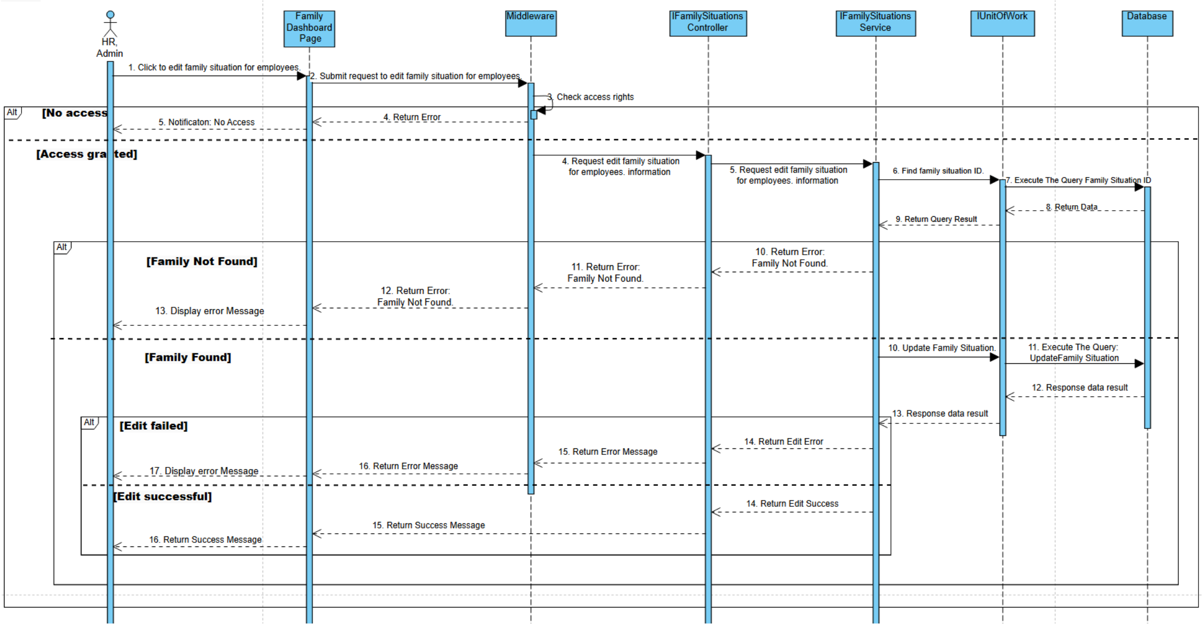


Figure 4.15: Sequence Diagram - Edit family situation

3.2.2.4.4 Delete family situation information

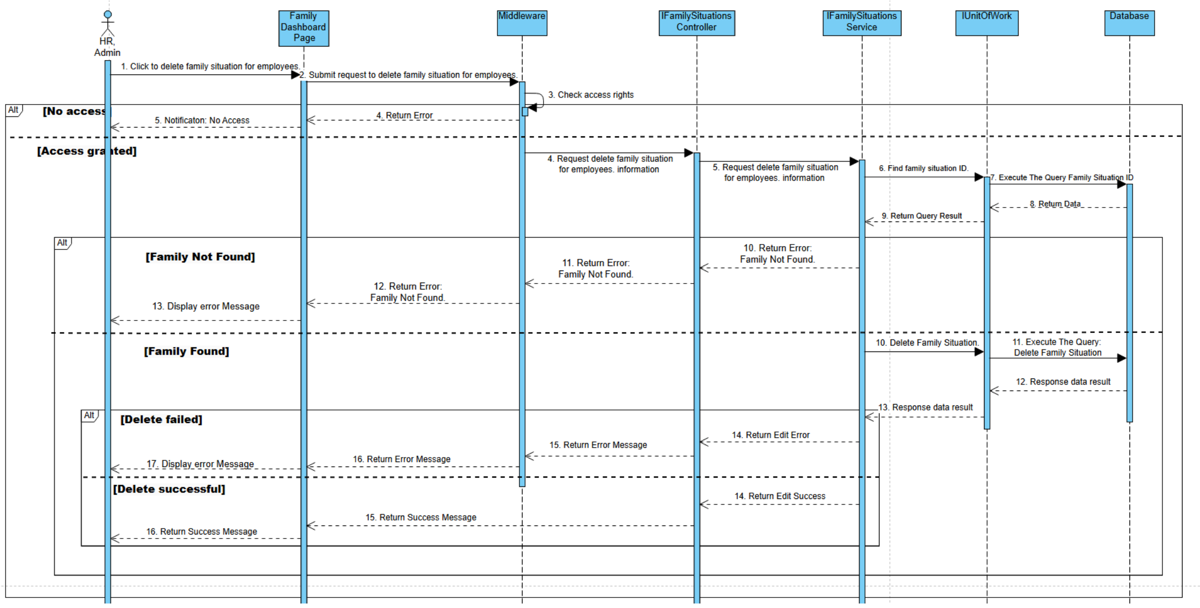


Figure 4.16 Sequence Diagram - Delete family situation

3.3 Labor contract management

3.3.1 Class Diagram

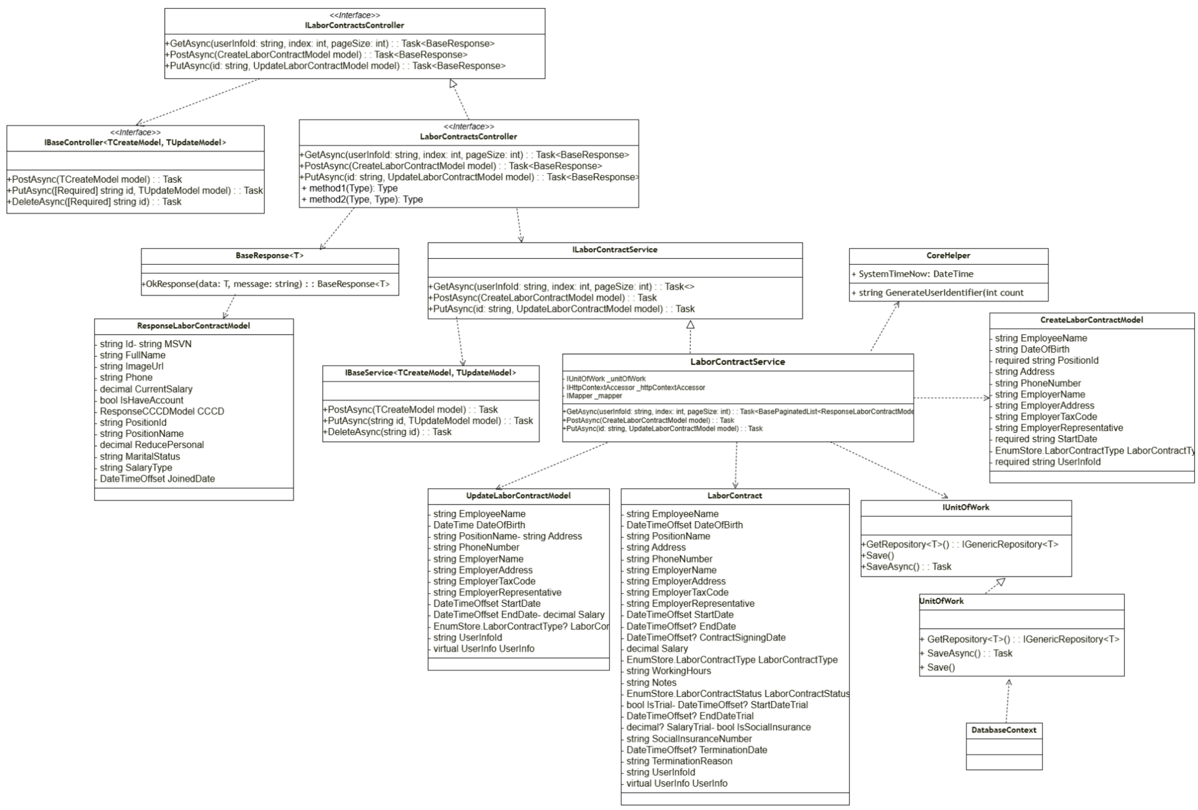


Figure 4.17 Class Diagram - Manage Labor Contract

3.3.2 Sequence Diagram

3.3.2.1 Create labour contract

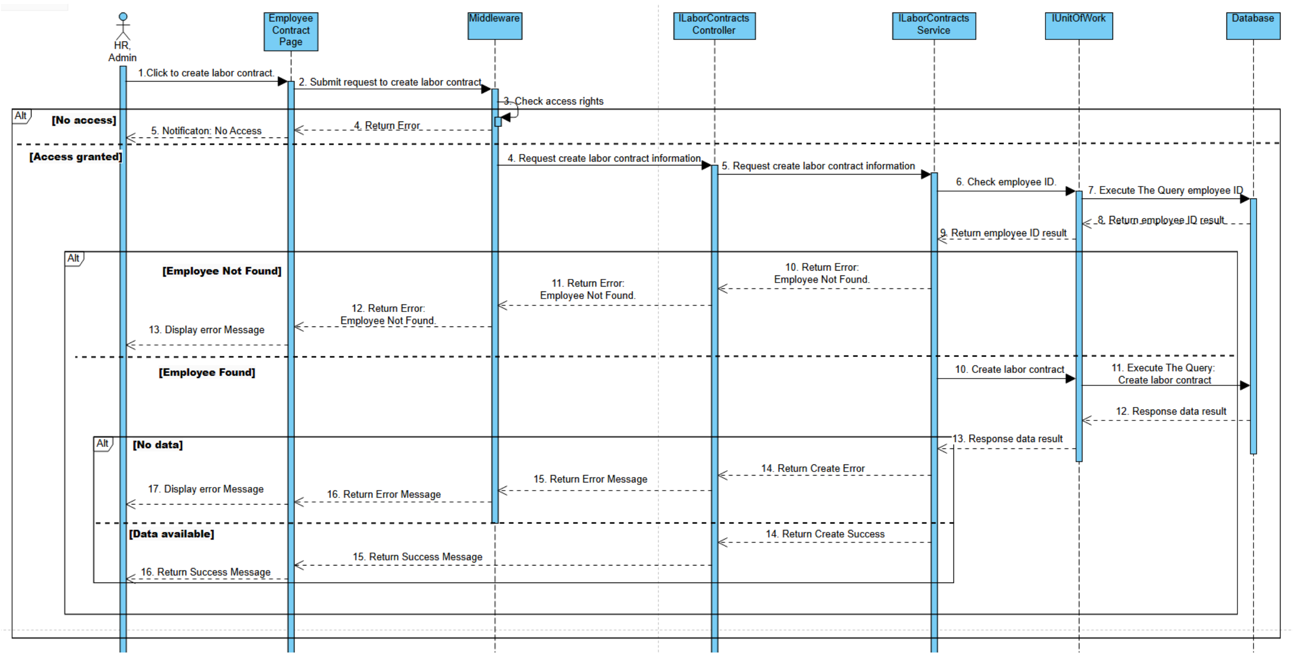


Figure 4.18: Sequence Diagram - Create labour contract

3.3.2.2 View detail labor contract

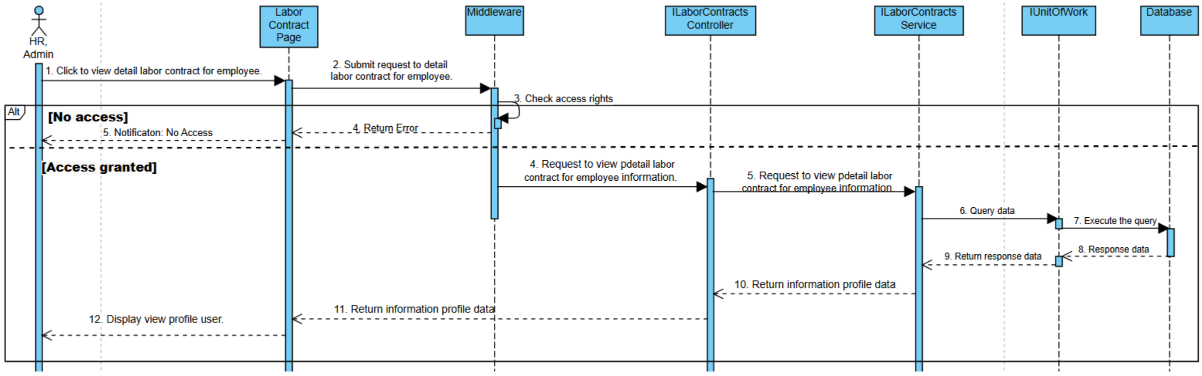


Figure 4.19: Sequence Diagram - View detail labor contract

3.3.2.3 View list of labor contracts

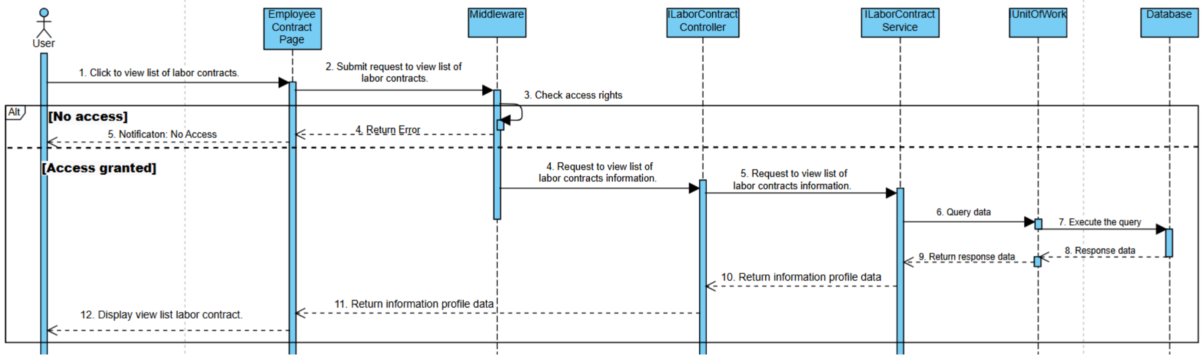


Figure 4.20: Sequence Diagram - View List Of Labor Contract

3.4 Manage Personal Profile

3.4.1 Class Diagram

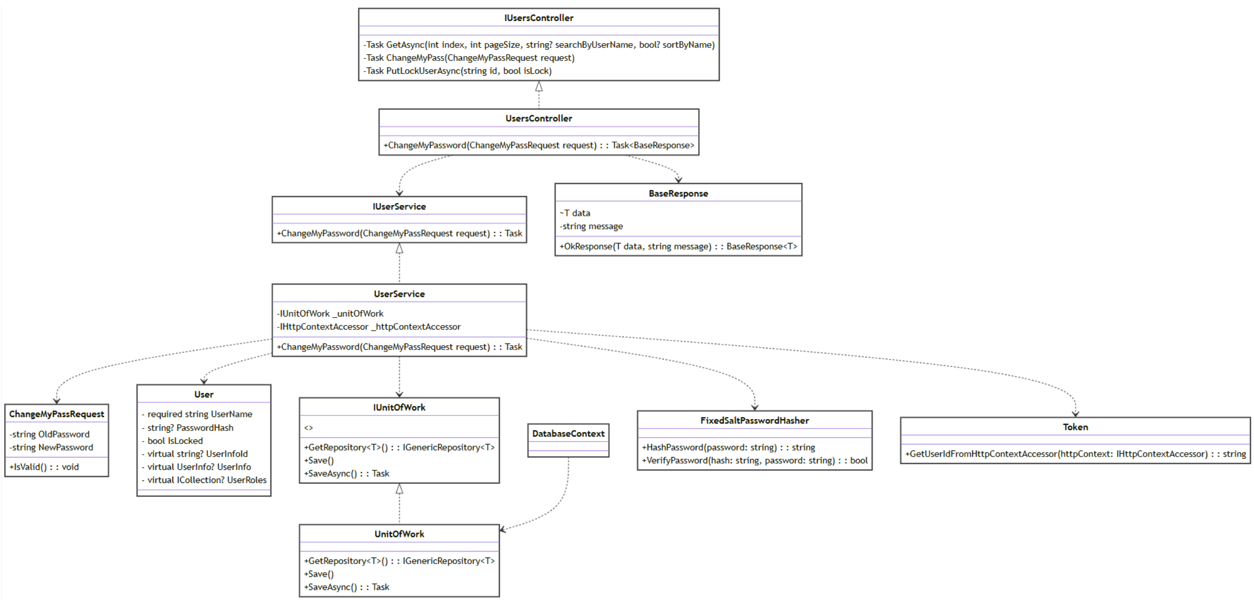


Figure 4.21: Class diagram - Manage Personal Profile

3.4.2 Sequence Diagram

3.4.2.1 Change password Sequence Diagram

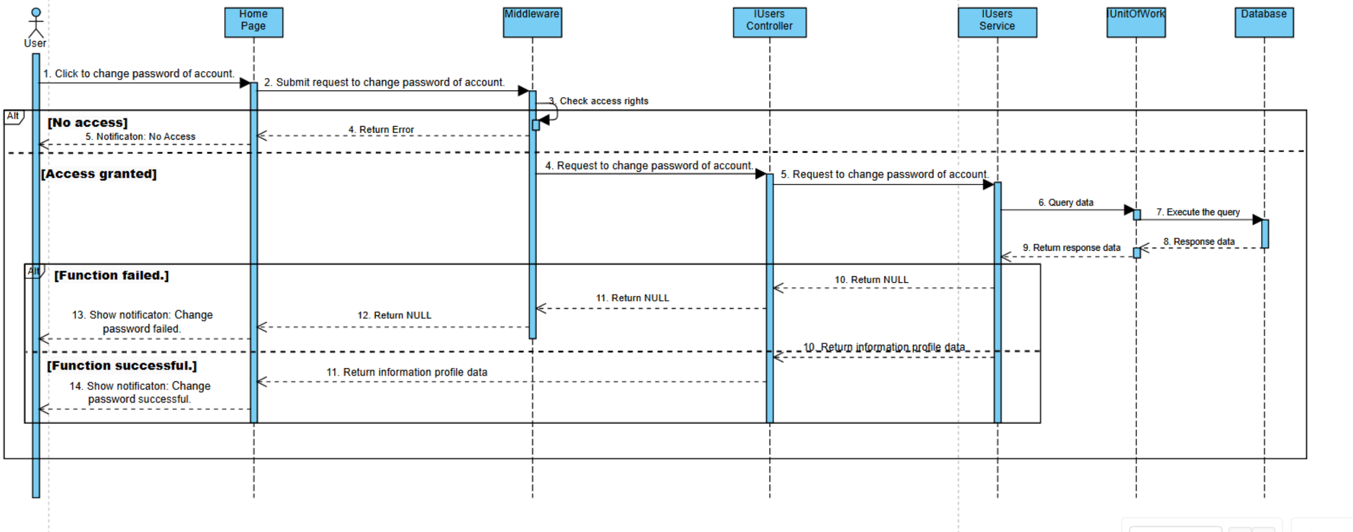


Figure 4.22: Sequence Diagram - Change Password

3.5 Employee Account Management

3.5.1 Class Diagram Employee Account Management

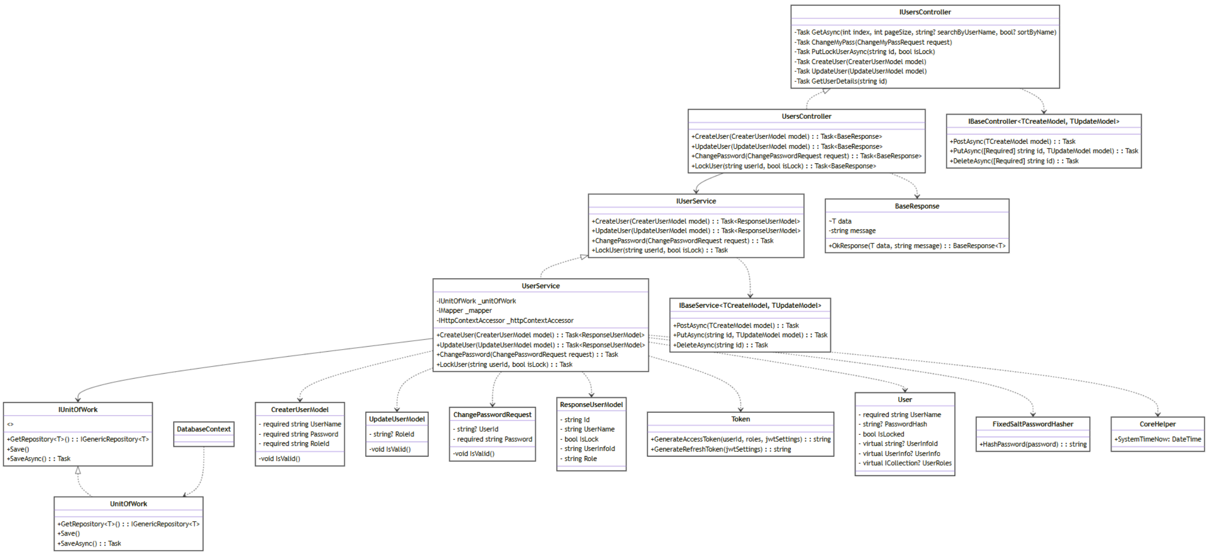


Figure 4.23: Class diagram - Employee Account Management

3.5.2 Sequence Diagram

3.5.2.1 View list of accounts

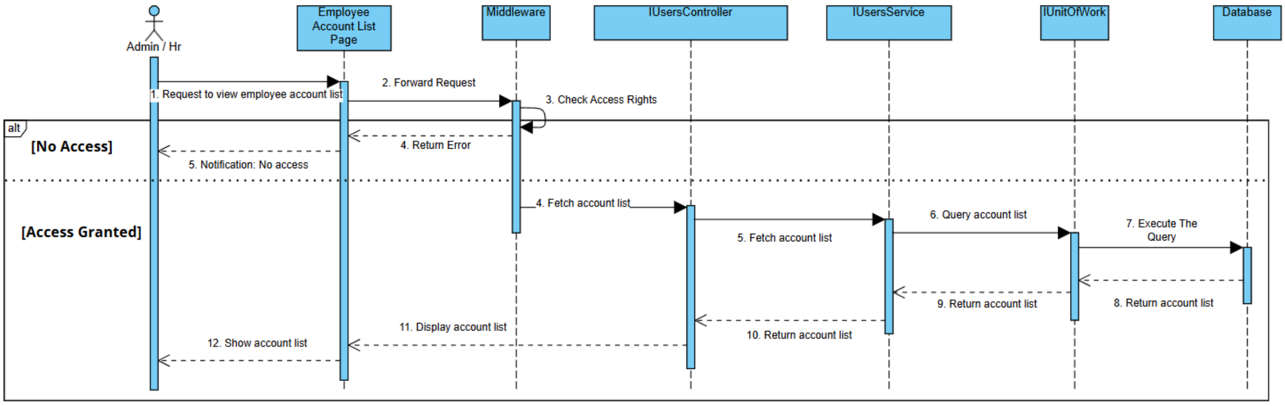


Figure 4.24: Sequence Diagram - View List Account

3.5.2.2 Edit password for employee account

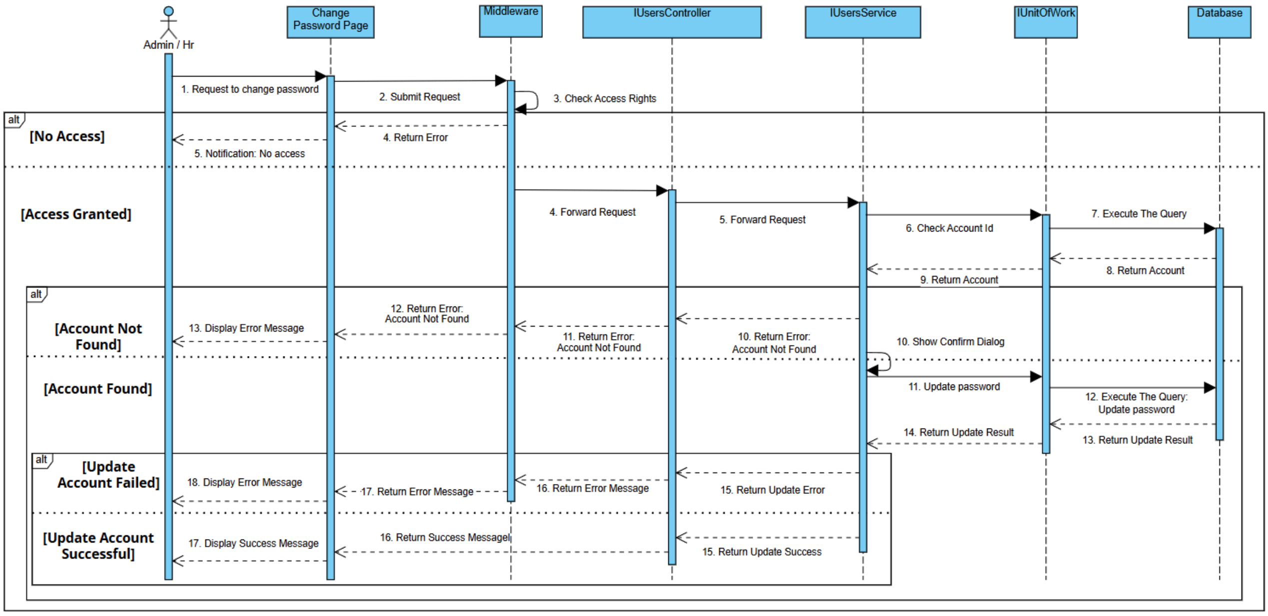


Figure 4.25: Sequence Diagram - Edit password for employee account

3.5.2.3 Create employee accounts

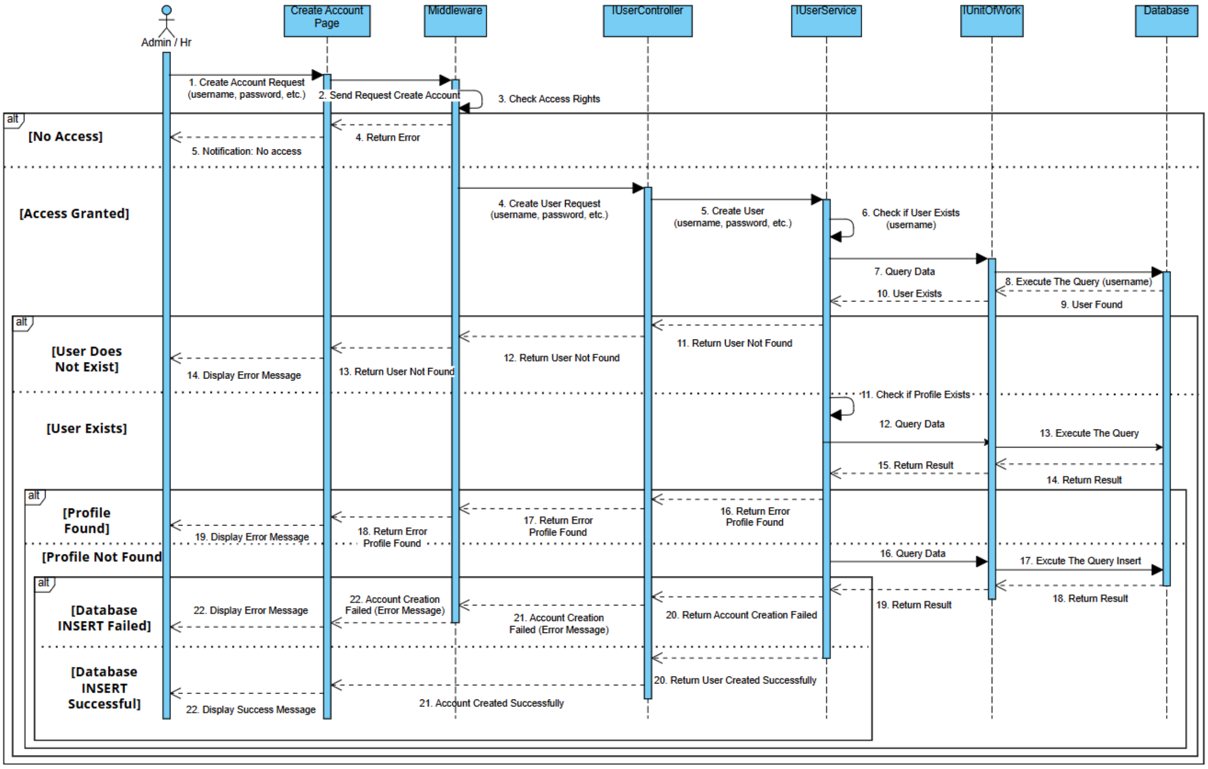


Figure 4.26: Sequence Diagram - Create employee accounts

3.5.2.4 Locked employee account

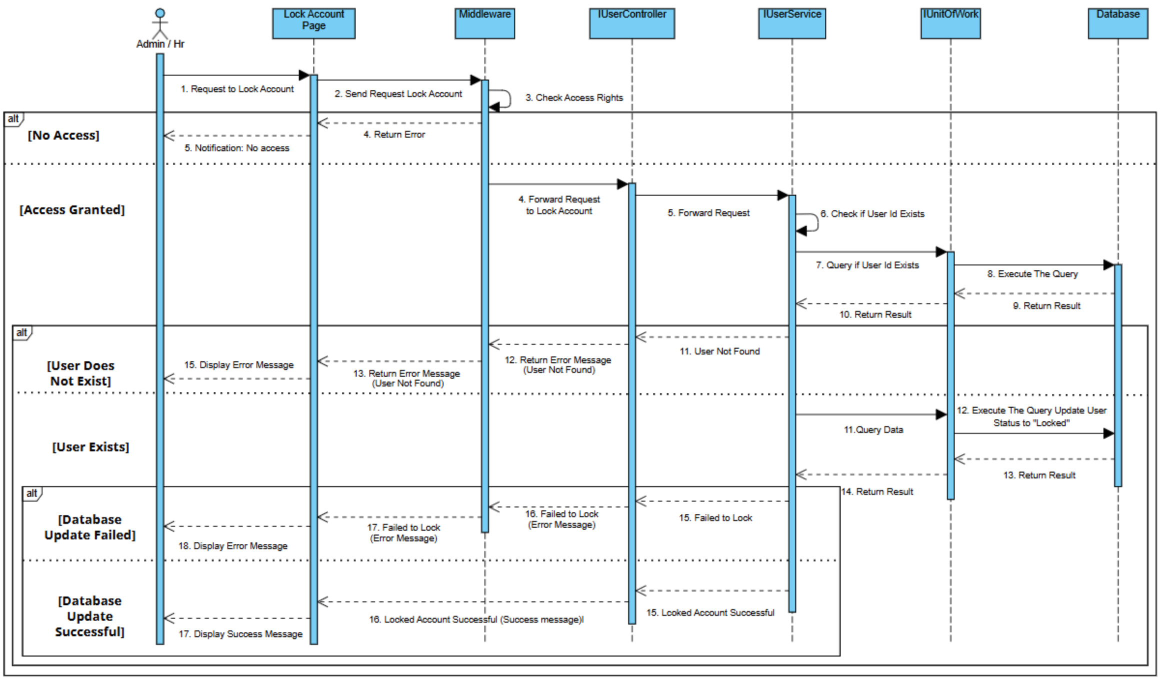


Figure 4.27: Sequence Diagram - Locked employee account

3.6 Manage Attendance

3.6.1. Class diagram Manage Attendance

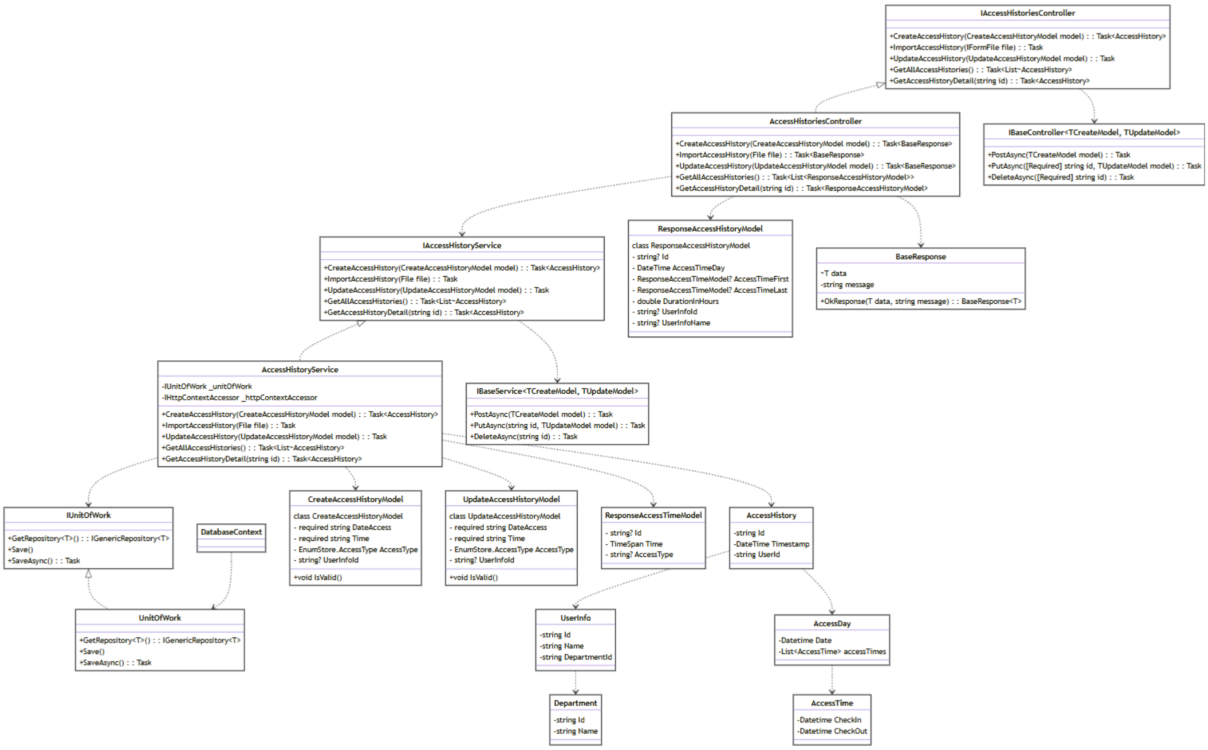


Figure 4.28: Class Diagram - Manage Attendance

3.6.2 Sequence Diagram

3.6.2.1 Actor Employee: View attendance report

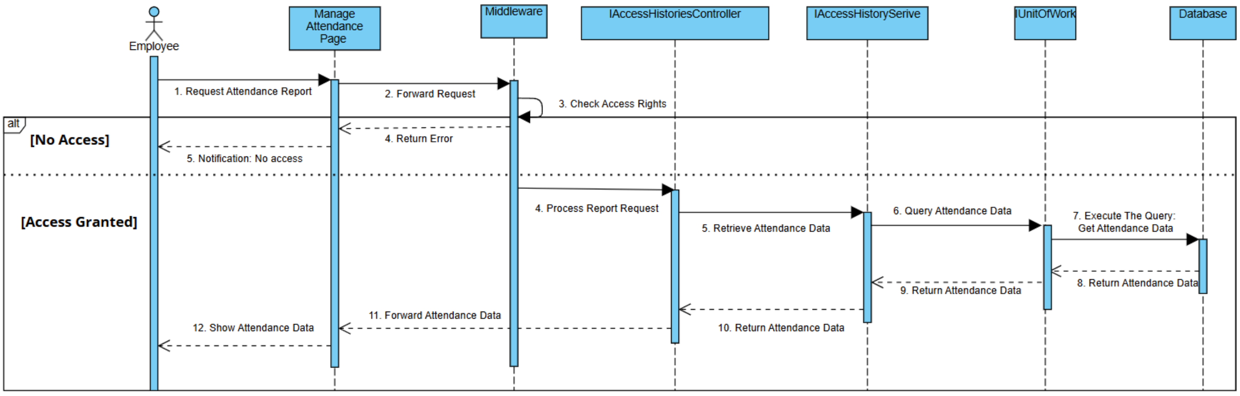


Figure 4.29: Sequence Diagram - Actor Employee: View attendance report

3.6.2.2 Actor HR: view attendance list

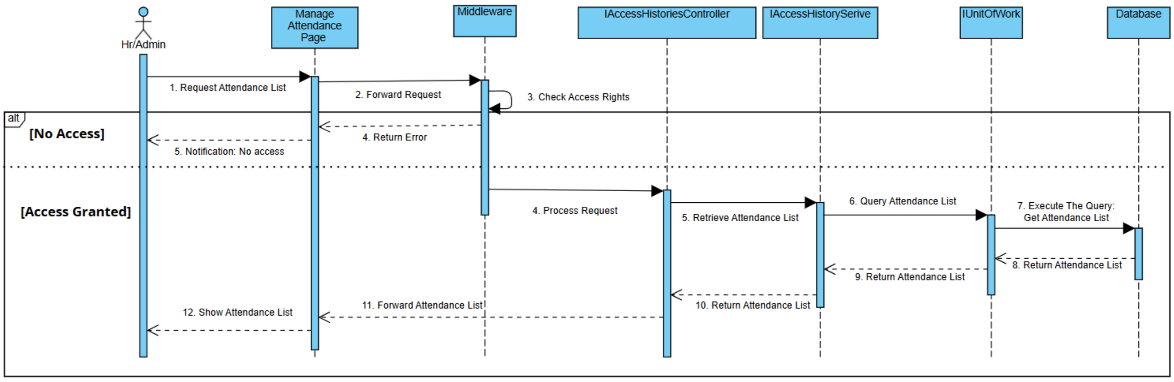


Figure 4.30: Sequence Diagram - Actor HR: view attendance list

3.6.2.3 Actor HR: View employee timekeeping

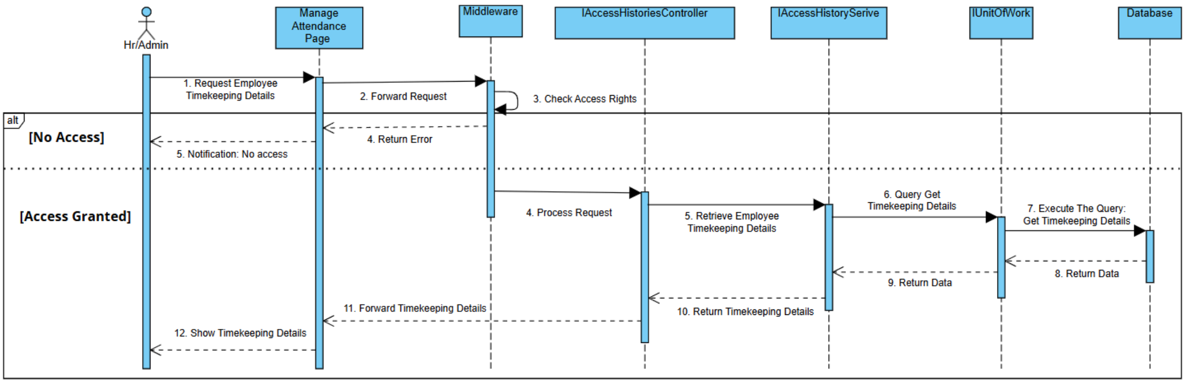


Figure 4.31: Sequence Diagram - Actor HR: View employee timekeeping

3.6.2.4 Actor HR: Edit Employee timekeeping

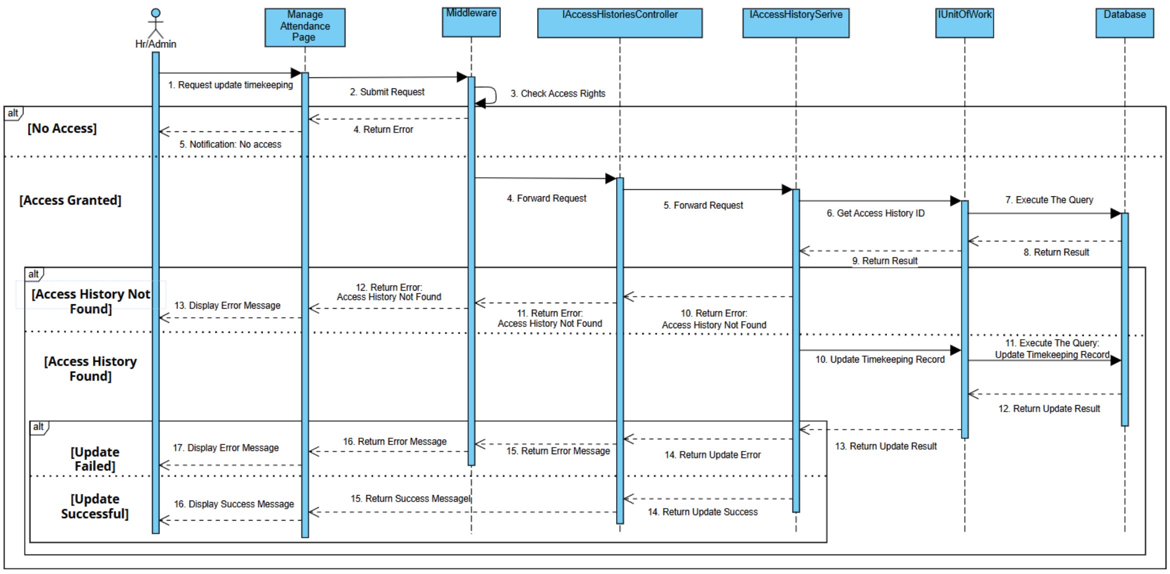


Figure 4.32: Sequence Diagram - Actor HR: Edit employee timekeeping

3.7 Payroll management

3.7.1 Class Diagram

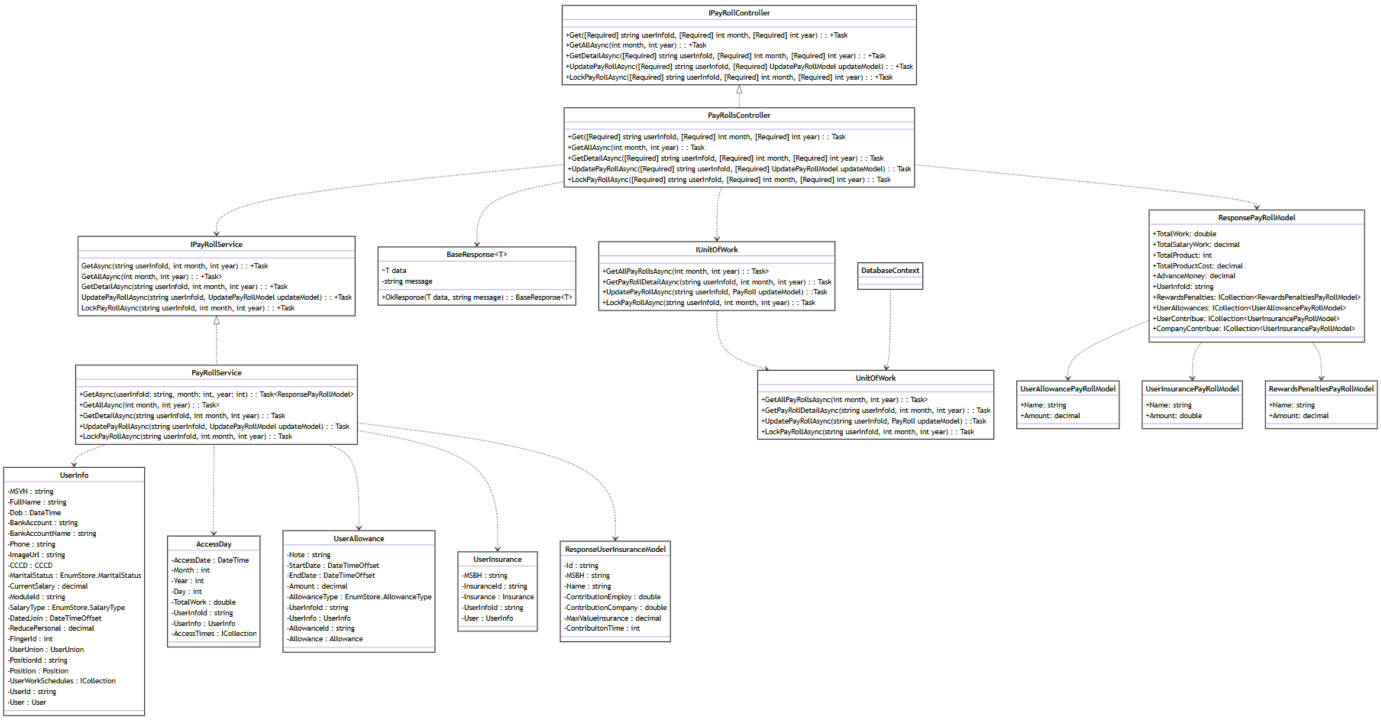


Figure 4.33: Class Diagram - Manage Payroll

3.7.2 Sequence Diagram

3.7.2.1 View employee payroll list

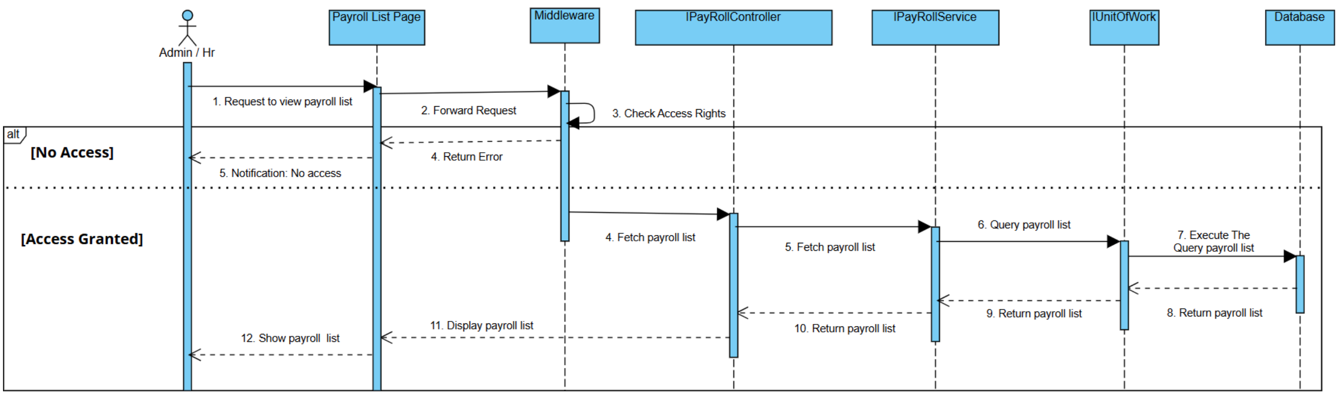


Figure 4.34: Sequence Diagram - View employee payroll list

3.7.2.2 View Payslip details

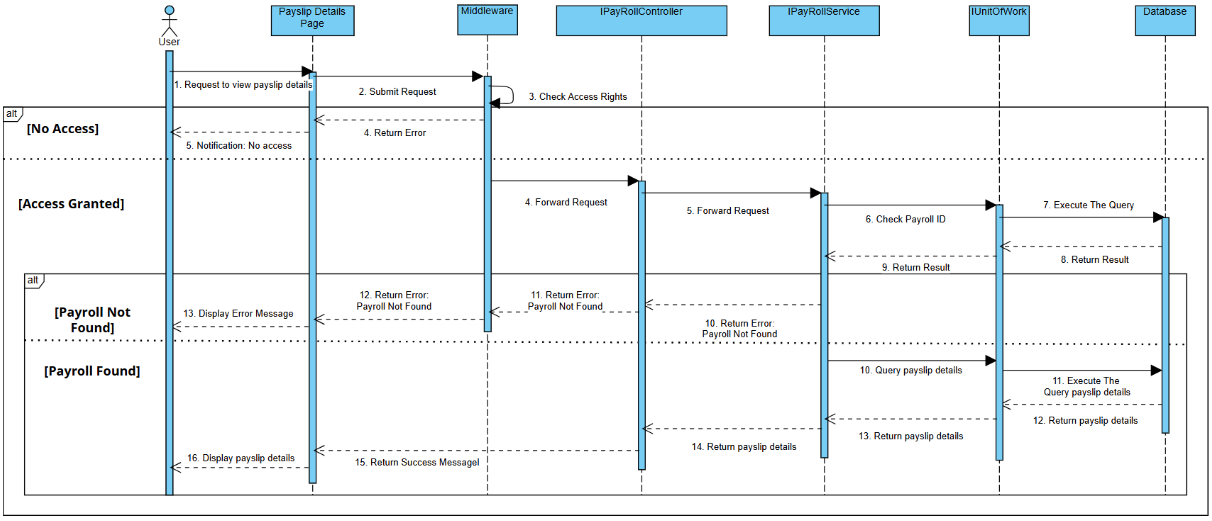


Figure 4.35: Sequence Diagram - View Payslip details

3.7.2.3 Lock Payroll

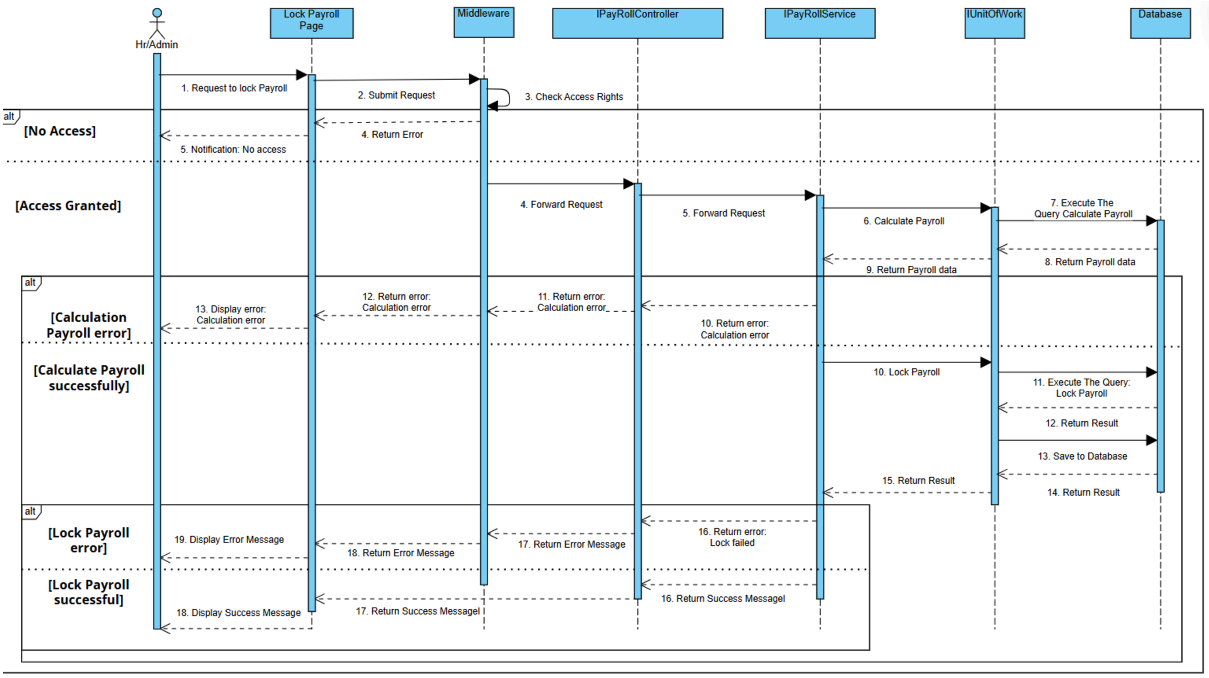


Figure 4.36: Sequence Diagram - Lock Payroll

3.7.2.4 Update payroll

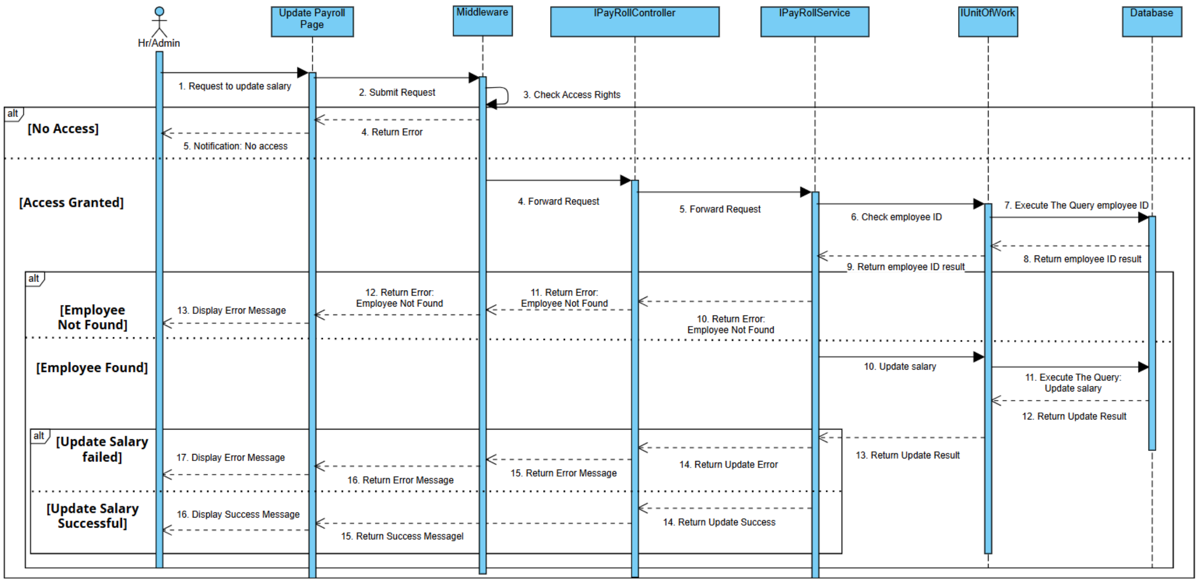


Figure 4.37: Sequence Diagram - Update Payroll

3.8 Manage work schedule

3.8.1 Work schedule management

3.8.1.1 Class diagram

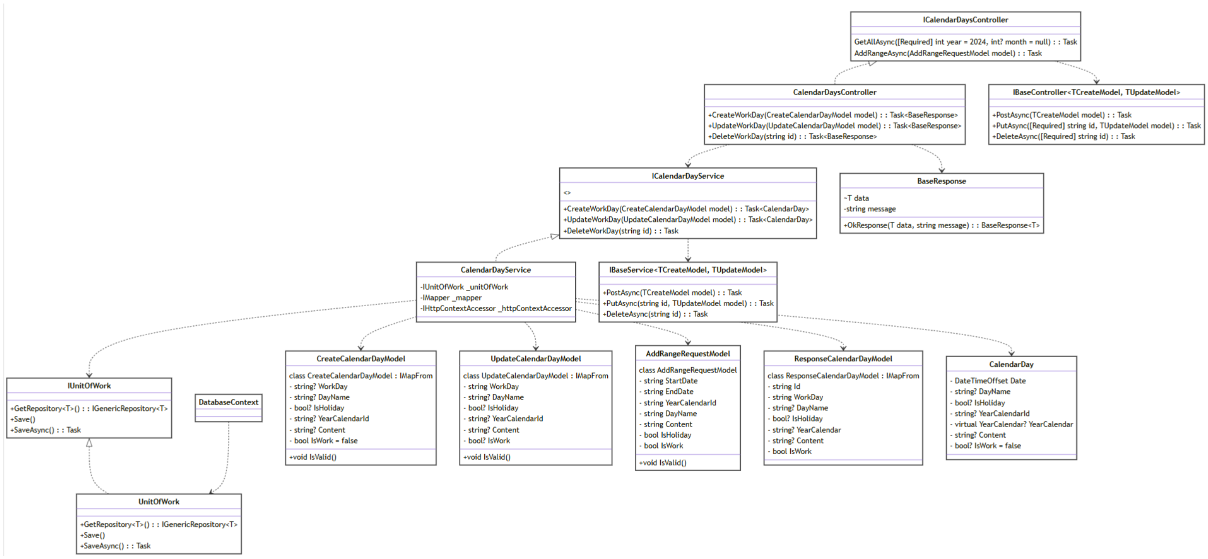


Figure 4.38 : Class Diagram - Work schedule management

3.8.1.2 Sequence diagram

3.8.1.2.1 View work schedule Sequence diagram

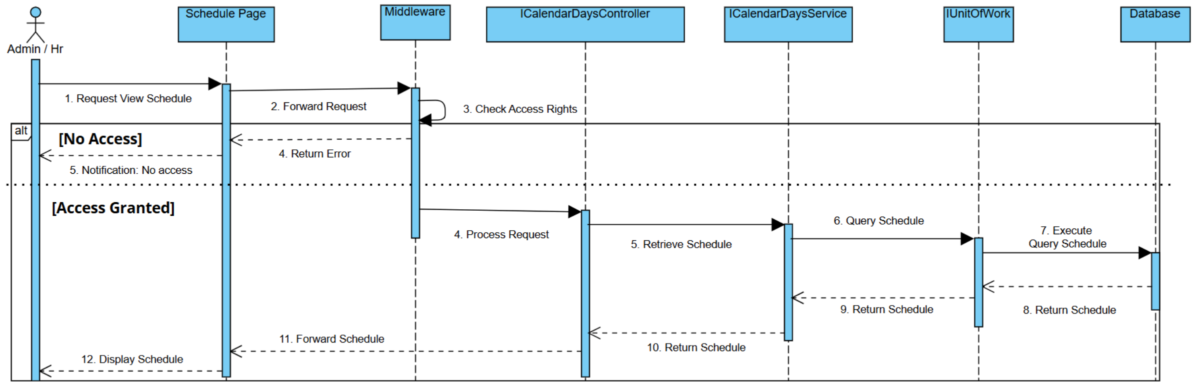


Figure 4.39: Sequence Diagram - View work schedule Sequence diagram

3.8.1.2.2 Create work schedule

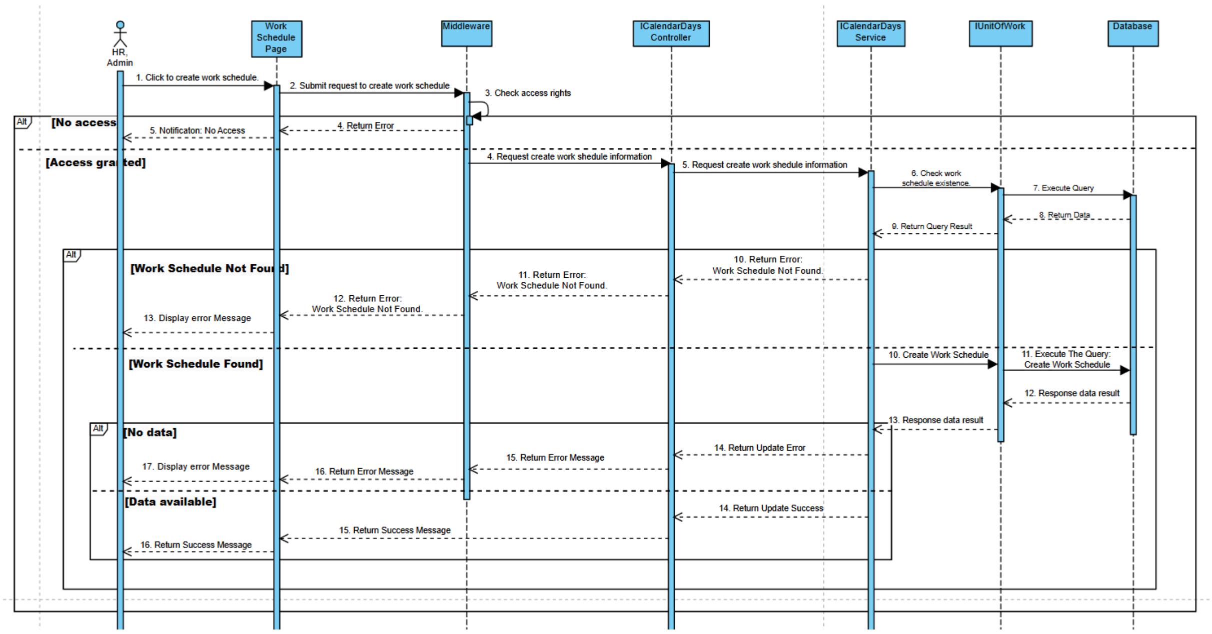


Figure 4.40: Sequence Diagram - Create work schedule

3.8.1.2.3 Edit work schedule

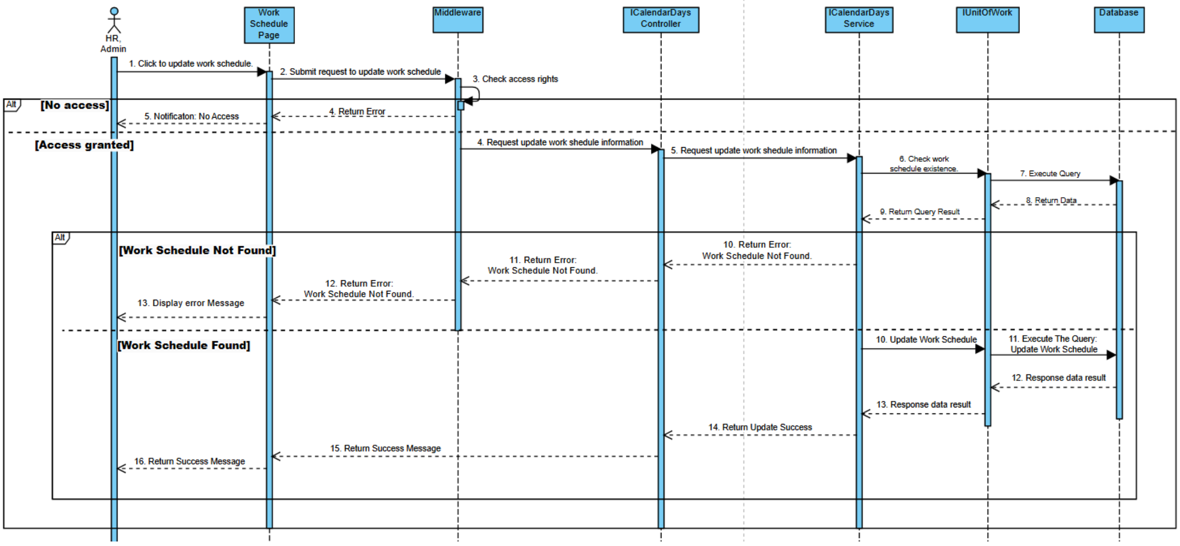


Figure 4.41: Sequence Diagram - Edit work schedule

3.8.2 Manage employee work schedules

3.8.2.1 Class diagram

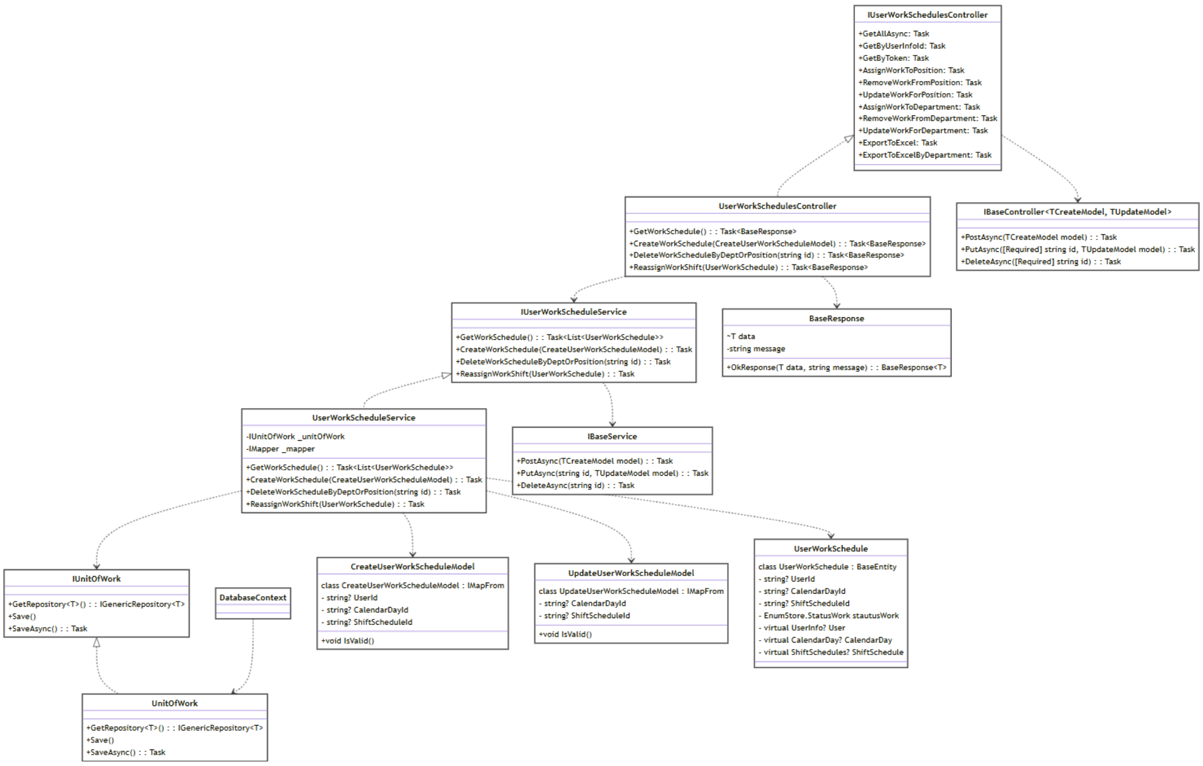


Figure 4.42 : Class Diagram - Manage employee work schedules

3.8.2.2 Sequence diagram

3.8.2.2.1 Add employee work schedule

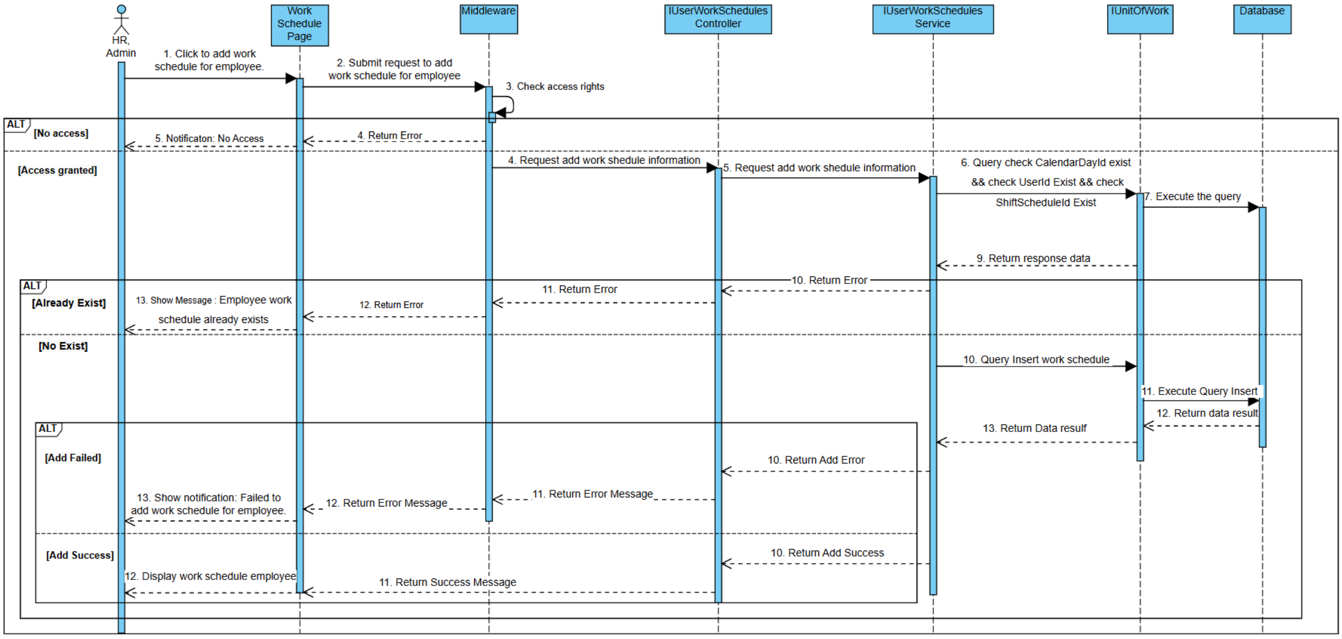


Figure 4.43: Sequence Diagram - Add employee work schedule

3.8.2.7 Delete employee work schedule

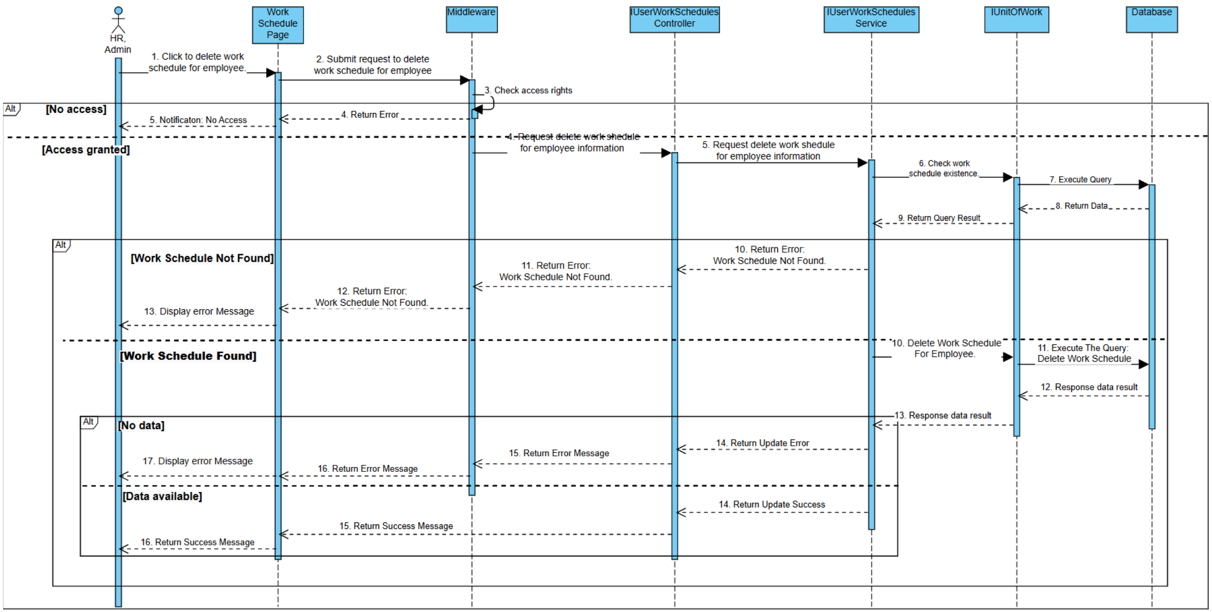


Figure 4.44: Sequence Diagram - Delete employee work schedule

3.8.2.8 Get employee work schedule data

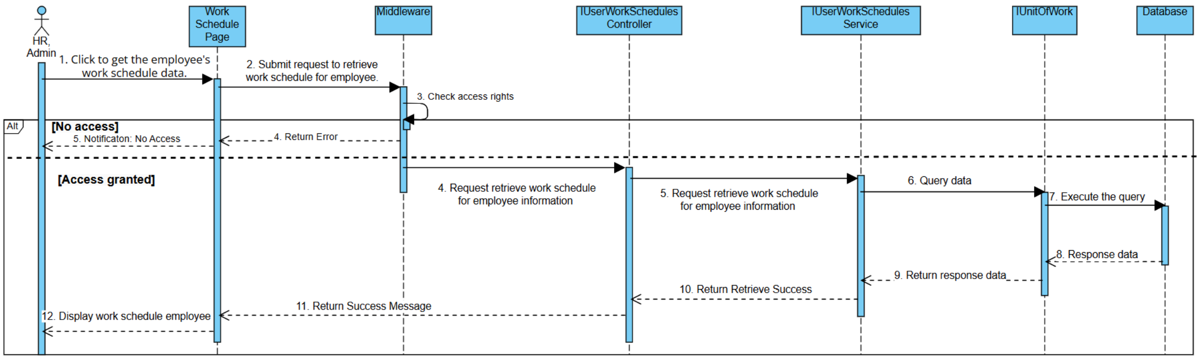


Figure 4.45: Sequence Diagram - Get employee work schedule data

3.9 Application management

3.9.1 Manage leave applications (HR, Admin See list of applications)

3.9.1.1. Class diagram

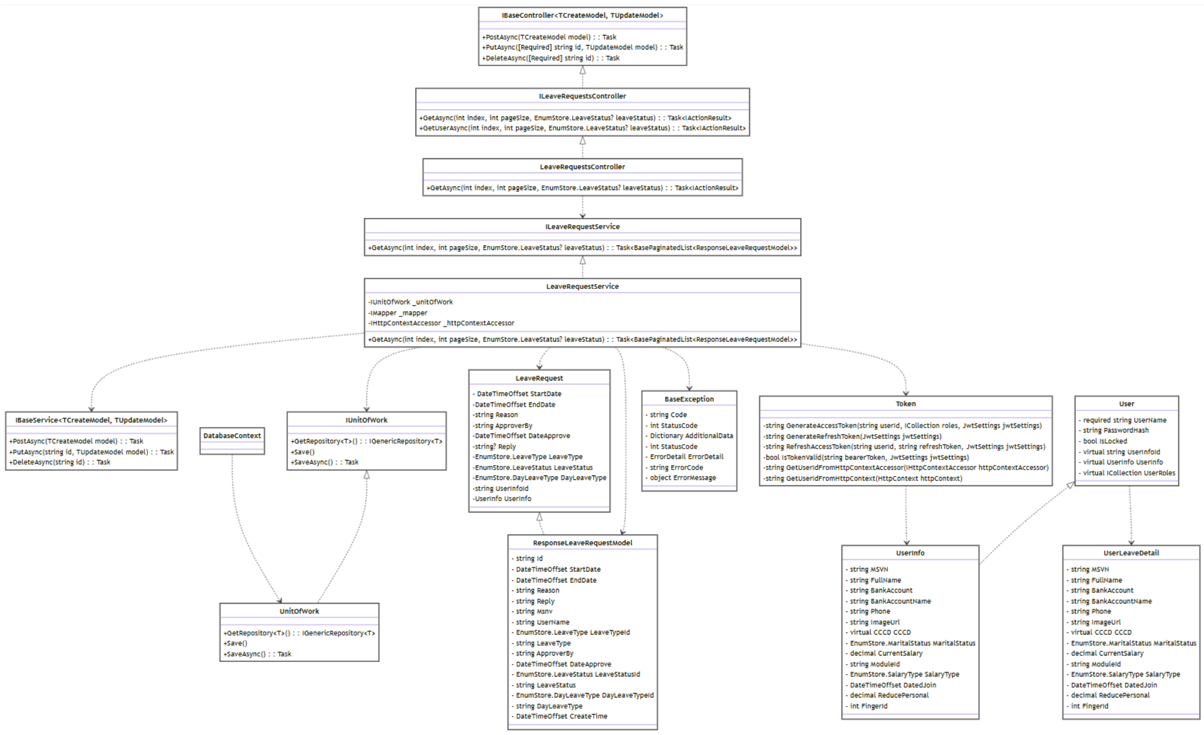


Figure 4.46 : Class Diagram - Manage leave applications (HR, Admin See list of applications)

3.9.1.2. Sequence diagram

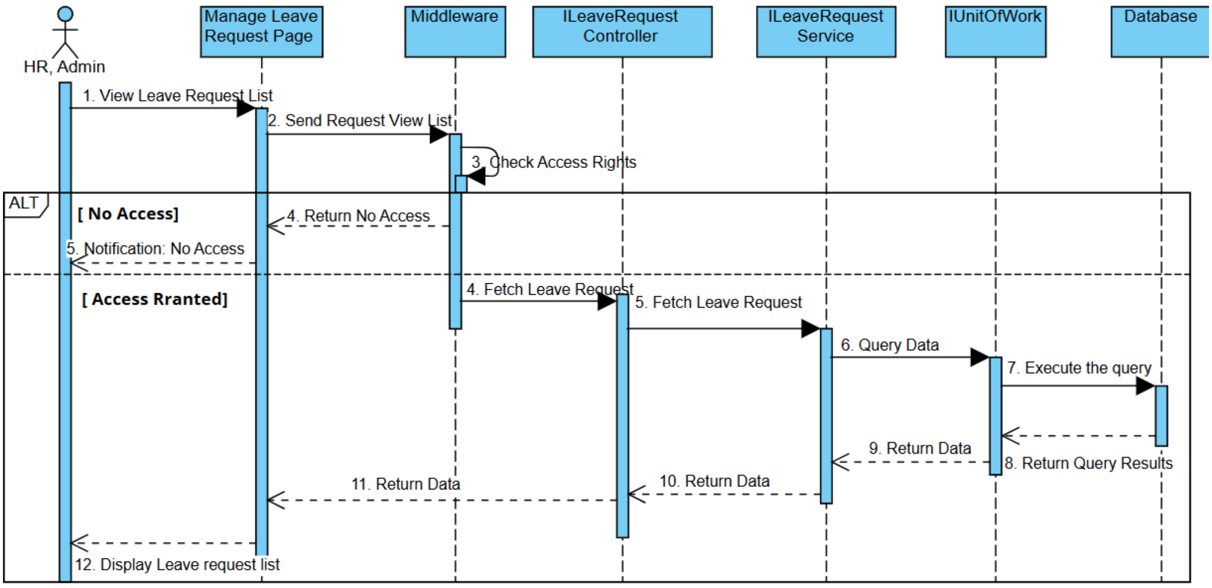


Figure 4.47: Sequence Diagram - Manage leave applications (HR, Admin See list of applications)

3.9.2 Submit leave application

3.9.2.1. Class diagram

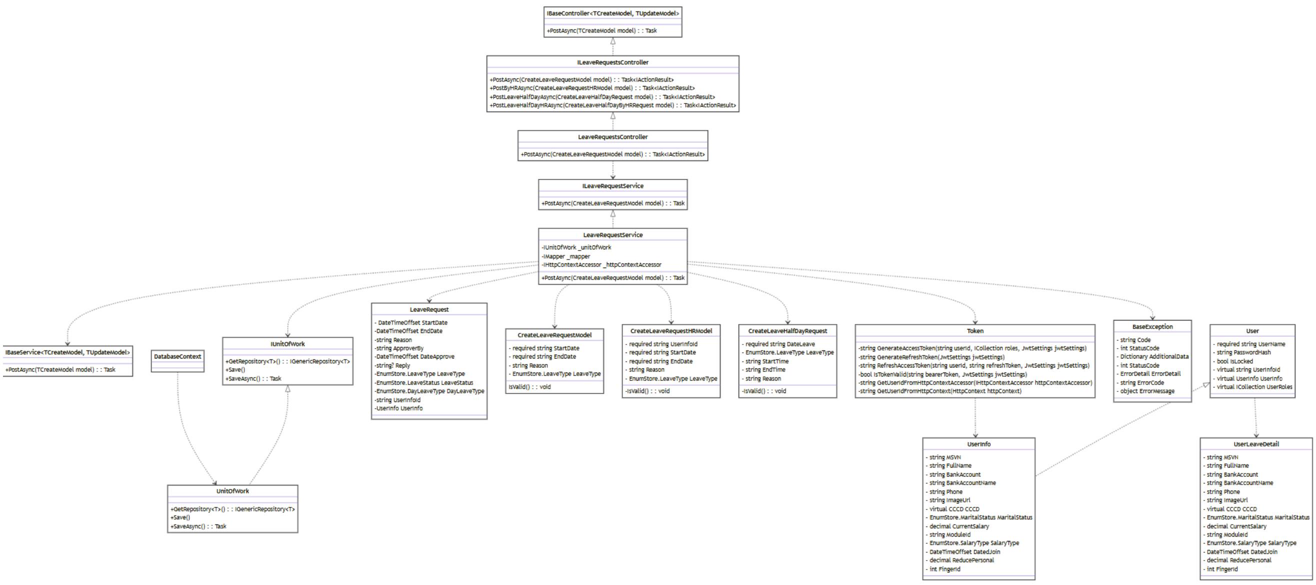


Figure 4.48 : Class Diagram - Submit leave application

3.9.2.2. Sequence diagram

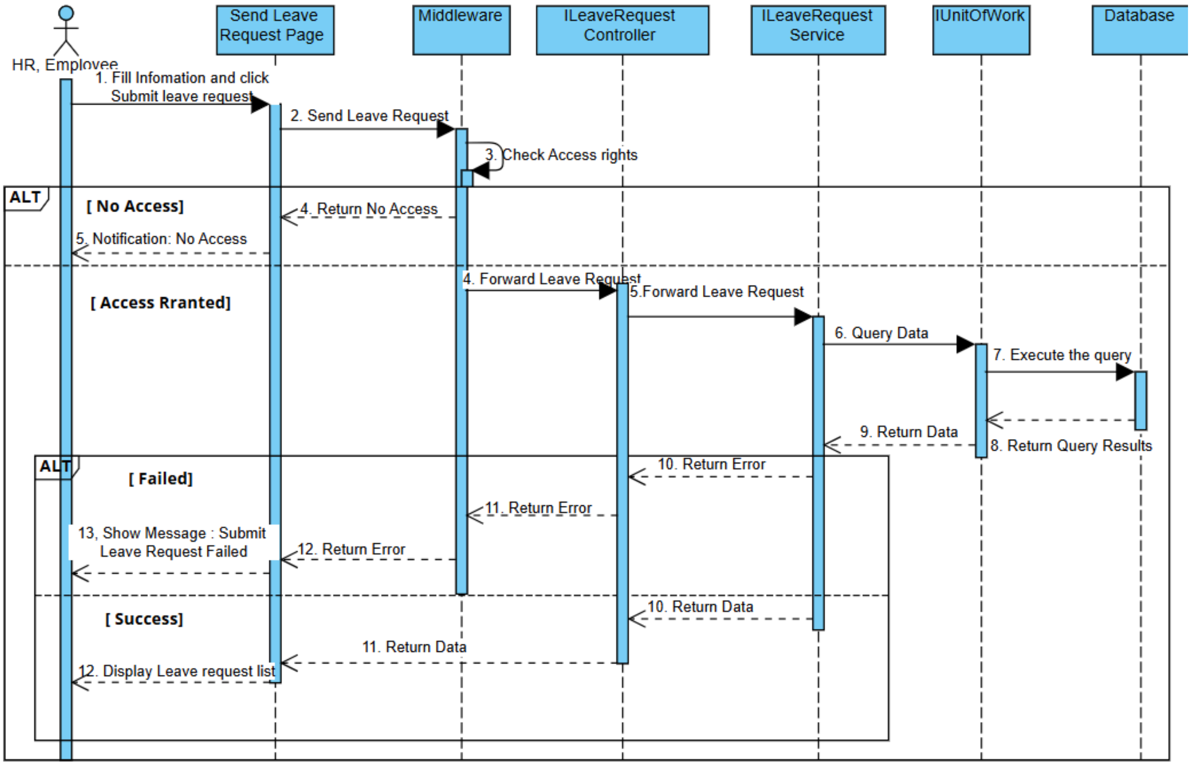


Figure 4.49: Sequence Diagram - Submit leave application

3.9.3 Application Processing

3.9.3.1. Class diagram

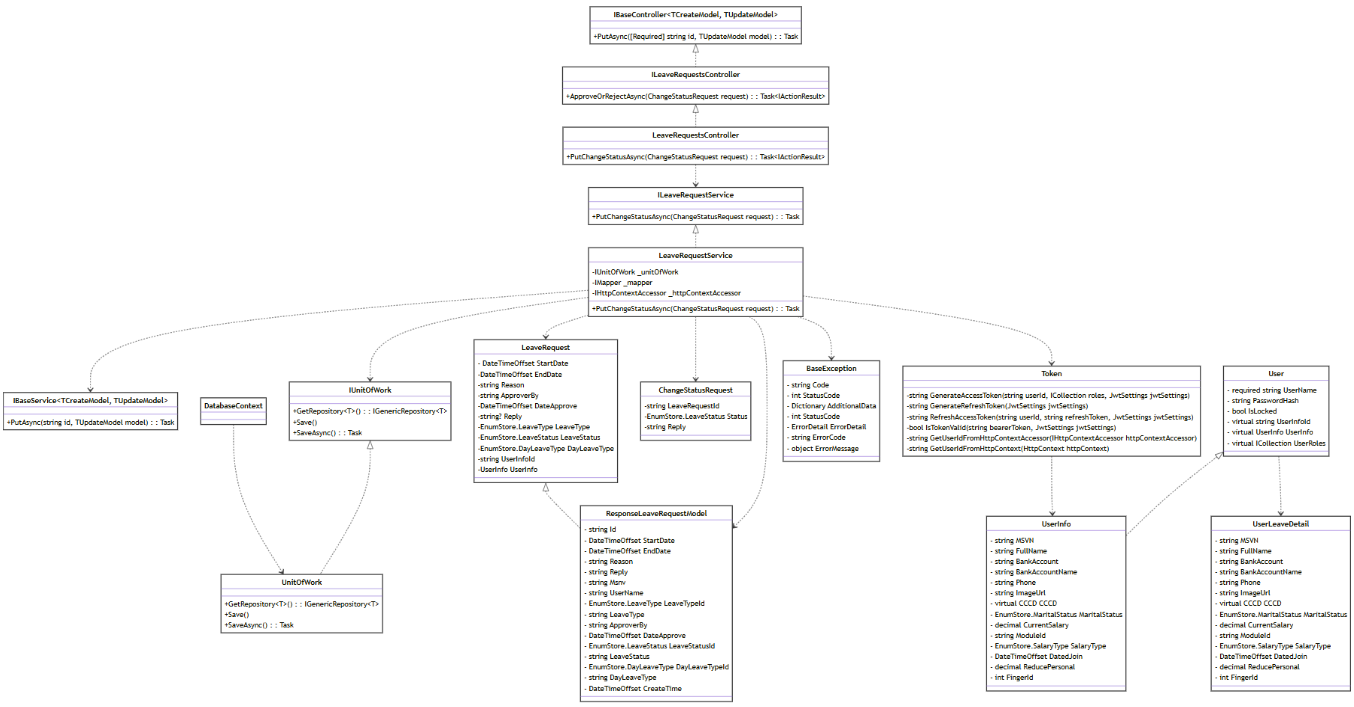


Figure 4.50 : Class Diagram - Application Processing

3.9.3.2. Sequence diagram

3.9.3.2.1 Approve leave request Sequence diagram

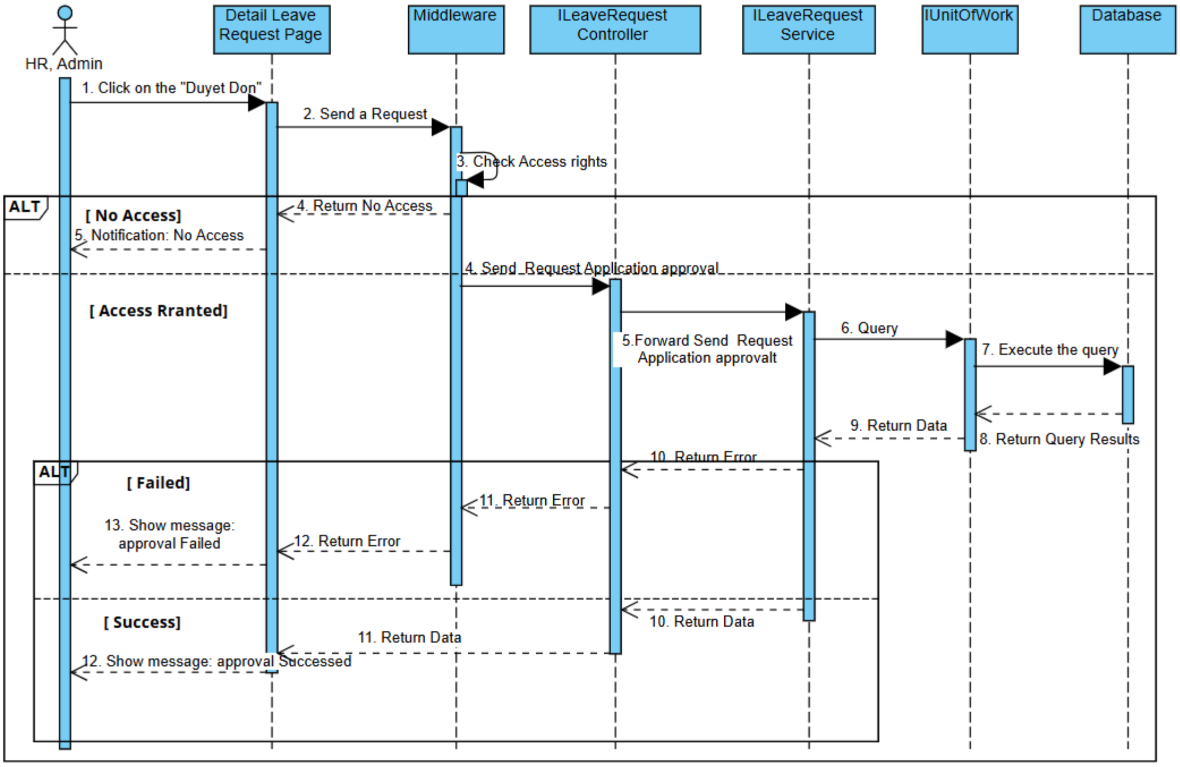


Figure 4.51: Sequence Diagram - Approve leave request Sequence diagram

3.9.3.2.1 Reject leave request Sequence diagram

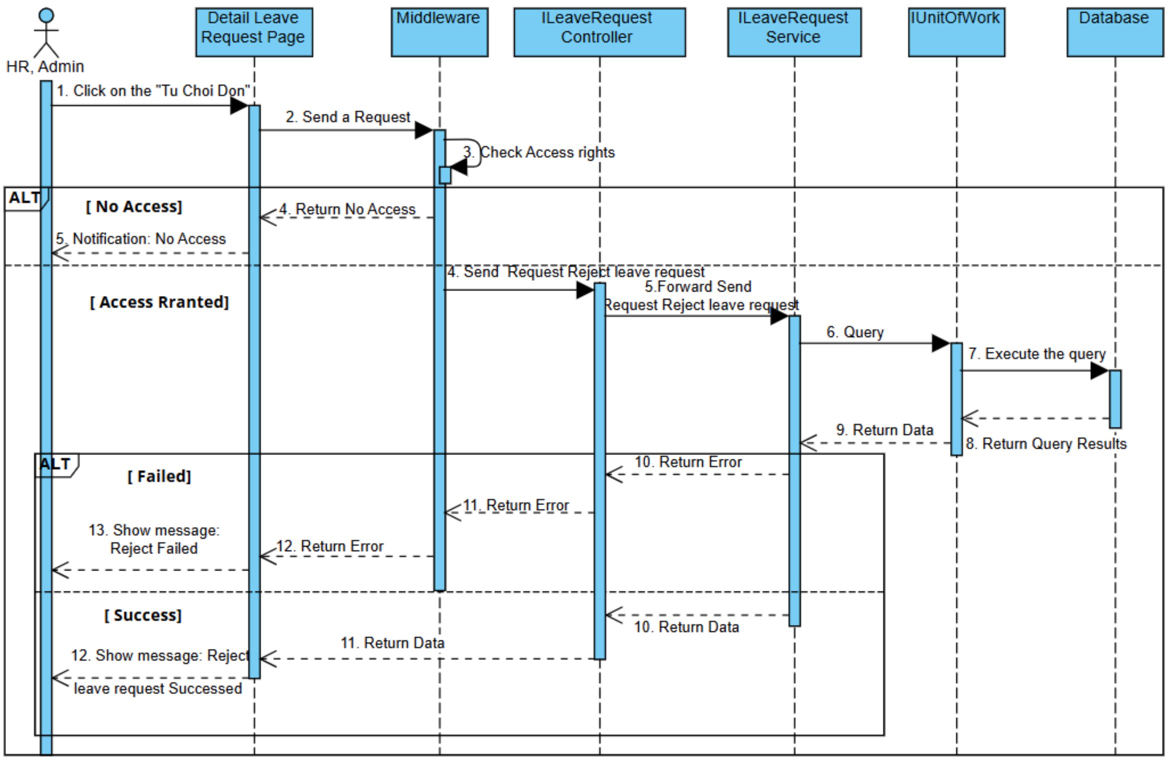


Figure 4.52: Sequence Diagram - Reject leave request Sequence diagram

3.9.4 View submitted applications

3.9.4.1. Class diagram

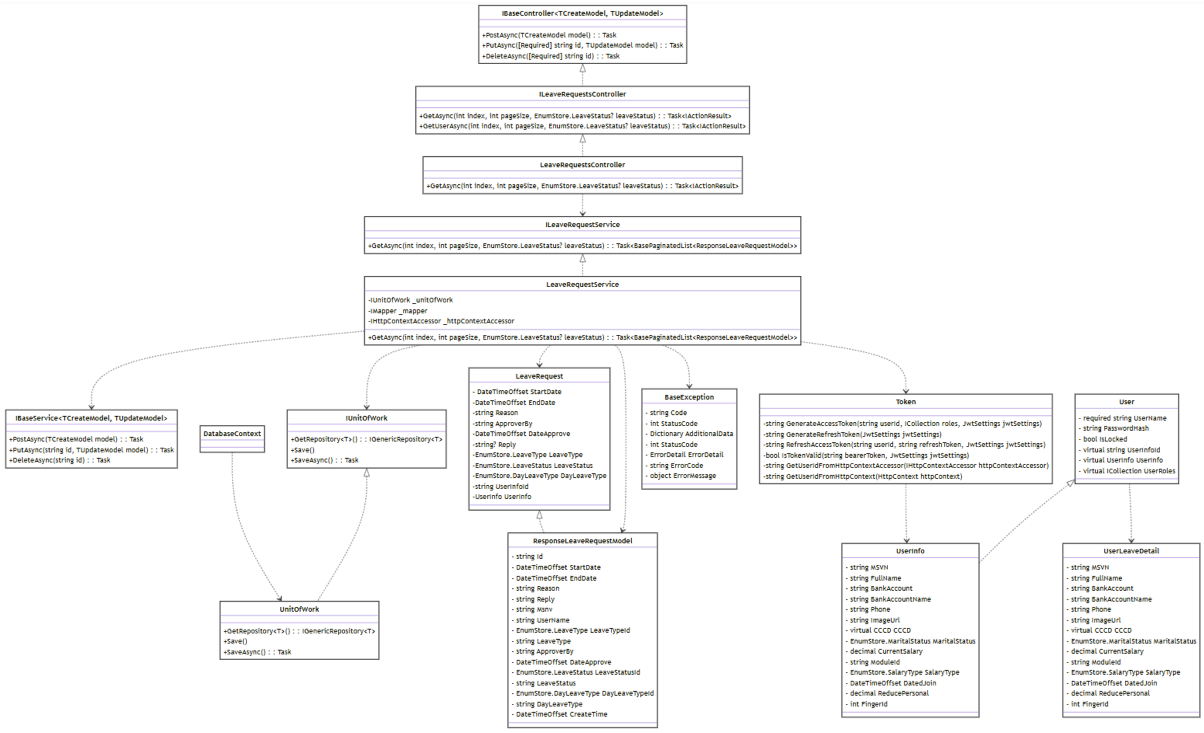


Figure 4.53 : Class Diagram - View submitted applications

3.9.4.2. Sequence diagram

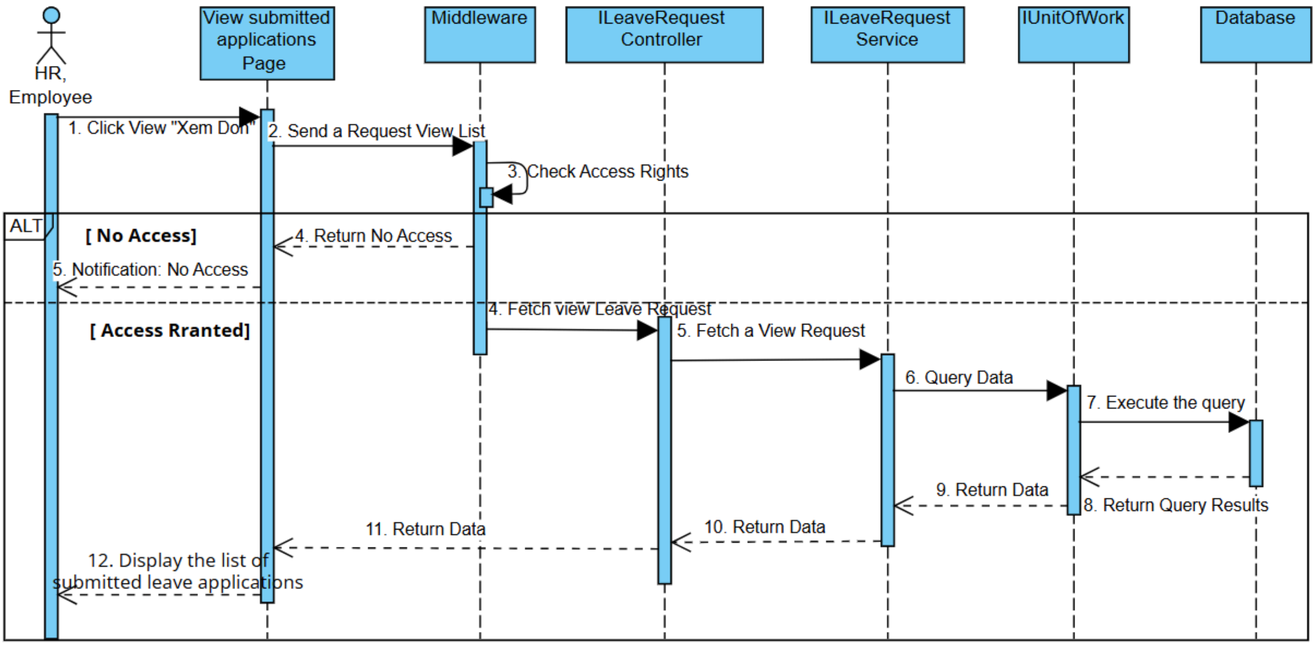


Figure 4.54: Sequence Diagram - View submitted applications

4. Class Specifications

4.1 Controller

4.1.1. AuthController

Methods		
Name	**Type**	**Description**
AuthController	N/A	Initialization function for the authentication controller
GetInfoAsync	Task<IActionResult>	Get user information asynchronously
Login	Task<IActionResult>	Handle user login asynchronously

Table 4.3:Class Specifications - AuthController

4.1.2. UserInfosController

Methods		
Name	**Type**	**Description**
UserInfosController	N/A	Initialization function for controller UserInfosController, admitted to the service IUserInfoService to manipulate user information.
DeleteAsync	Task<IActionResult>	Asynchronous method for deleting user information, receiving one id user and returns a success response.
IUserInfosController	N/A	Property has no obvious effect in the code (could be an error when declared or not yet used).
GetAsync	Task<IActionResult>	Method to get a list of users with search and pagination parameters, including: index, pageSize, searchByMSNV, searchByPositionId, sortByName, and sortByMSNV.
PostAsync	Task<IActionResult>	Method to create new user information, received into the model CreateUserInfoModel
PostAccountForUserInfoAsync	Task<IActionResult>	Method for creating accounts for new users, getting into the model CreateAccountModel

PutAsync	Task<IActionResult>	Method to update user informat
PutImages	Task<IActionResult>	Method to update photos for users, received userInfoId and file (image file).
GetUserInfoByIdAsync	Task<IActionResult>	Method to retrieve user information id.
GetSalaryHistory	Task<IActionResult>	Method to get user's salary history, received userInfoId, index, and pageSize.
PutNewSalary	Task<IActionResult>	New salary update method for users, received into the model NewSalaryRequest.
GetUserSalaryHistory	Task<IActionResult>	Method to get salary history of all users with paging parameters index, pageSize.
PutPersonalReduce	Task<IActionResult>	Method for updating personal deductions for users, received money (deducted amount).
PutFingerId	Task<IActionResult>	Method to update fingerprint information for users, received userInfoId and fingerId.

Table 4.4:Class Specifications - UserInfosController

4.1.3. LaborContractsController

Methods		
Name	**Type**	**Description**
LaborContractsController	N/A	Initialization function for controller LaborContractsController, admitted to the service ILaborContractService to manipulate labor contracts.
DeleteAsync	Task<IActionResult>	Asynchronous method of deleting labor contracts, receiving one id contract and returns a success response
GetAsync	Task<IActionResult>	Method to get labor contract information asynchronously, receive userInfoId (user id) and

		return contract information.
GetUserAsync	Task<IActionResult>	Method to get list of labor contracts with pagination and admission index and pageSize.
PostAsync	Task<IActionResult>	Method to create a new asynchronous labor contract, receiving an object CreateLaborContractModel contains contract information to be created.
PutAsync	Task<IActionResult>	Method to update labor contract asynchronously, receive id contract and subject UpdateLaborContractModel to update contact information. Returns a success response when the update is successful.

Table 4.5:Class Specifications - LaborContractsController

4.1.4. UsersController

Methods		
Name	**Type**	**Description**
UsersController	N/A	Manage user information in the system
DeleteAsync	Task<IActionResult>	Delete user information asynchronously
GetAsync	Task<IActionResult>	Get all user information asynchronously
PostAsync	Task<IActionResult>	Add new user information asynchronously
PutAsync	Task<IActionResult>	Update user information asynchronously

Table 4.6: Class Specifications - UsersController

4.1.5. LeaveRequestsController

Methods		
Name	**Type**	**Description**
LeaveRequestsController	N/A	Initialization function for controller LeaveRequestsController, admitted to the service ILeaveRequestService to process the leave application.

GetAsync	Task<IActionResult>	Method to get list of leave applications with pagination and leave status (optional), taking parameters index, pageSize and leaveStatus. Returns a list of leave applications.
GetUserAsync	Task<IActionResult>	Method to get a list of the user's leave applications, with pagination and leave status (optional).
PostAsync	Task<IActionResult>	Method to create a new asynchronous leave application, receiving leave application information from CreateLeaveRequestModel. Returns a success response.
PostByHRAsync	Task<IActionResult>	Method to create a new leave application from the human resources department, receive leave application information from CreateLeaveRequestHRModel. Returns a success response.
PostLeaveHalfDayAsync	Task<IActionResult>	Method to create an application for half-day leave and receive it CreateLeaveHalfDayRequest and returns a success response.
PostLeaveHalfDayHRAsync	Task<IActionResult>	Method to create a half-day leave application from the human resources department and receive it CreateLeaveHalfDayByHRRequest and returns a success response.
PutChangeStatusAsync	Task<IActionResult>	Method to update status of leave application and receive request ChangeStatusRequest and returns a success response.
TotalStatusRequest	Task<IActionResult>	Method to retrieve status data of leave applications, returning status information via ResponseLeaveRequestStatus.

Table 4.7: Class Specifications - LeaveRequestsController

4.1.6. CalendarDaysController

Methods		
Name	**Type**	**Description**
CalendarDaysController	N/A	Create a controller to manage daily schedules and service usage ICalendarDayService.
DeleteAsync	Task<IActionResult>	Delete a calendar date using id, returns successful deletion results.

GetAllAsync	Task<IActionResult>	Get all calendar dates of the year, filterable by month.
PostAsync	Task<IActionResult>	Create a new calendar with word information CreateCalendarDayModel.
AddRangeAsync	Task<IActionResult>	Add multiple calendars to the system at the same time. Gets an object AddRangeRequestModel and returns a success response when the add is complete.

Table 4.8: Class Specifications - CalendarDaysController

4.1.7. UserWorkSchedulesController

Methods		
Name	**Type**	**Description**
PostAsync	Task<IActionResult>	Assign a work schedule to an employee based on the provided model. Returns a success response.
GetAllAsync	Task<IActionResult>	Gets a paged list of employee schedules, filterable by parameters such as location, department, and date.
GetByUserInfoId	Task<IActionResult>	Gets the work schedule for a specific user identified by userInfoId, supports paging.
GetByToken	Task<IActionResult>	Get the work schedule for the current authenticated user, support paging.
PutAsync	Task<IActionResult>	Update work schedule for an employee identified by id with the model provided. Returns a success response.
DeleteAsync	Task<IActionResult>	Delete the work schedule associated with id has specified. Returns a success response
AssignWorkToPosition	Task<IActionResult>	Assign work to all employees in a specific location for a day and shift. Returns a success response.
RemoveWorkFromPosition	Task<IActionResult>	Delete jobs for all employees in a specific location on the specified day and shift. Returns a success response.
UpdateWorkForPosition	Task<IActionResult>	Update jobs for all employees in a specific location on specified days and shifts. Returns a success response.
AssignWorkToDepartment	Task<IActionResult>	Assign work to all employees in a specific department. Returns a success response.

RemoveWorkFromDepartment	Task<IActionResult>	Delete jobs for all employees in a specific department on the specified day and shift. Returns a success response.
UpdateWorkForDepartment	Task<IActionResult>	Update work for all employees in a specific department on specified days and shifts. Returns a success response
ExportToExcel	Task<IActionResult>	Export work schedule to Excel file for the specified week or month of a specific year.
ExportToExcelByDepartment	Task<IActionResult>	Export work schedules by department to an Excel file for the specified week or month of a specific year.

Table 4.9: Class Specifications - UserWorkSchedulesController

4.1.8.AccessHistoriesController

Methods		
Name	**Type**	**Description**
DeleteAsync	Task<IActionResult>	Delete an access history record based on id. Returns a success response.
Get	Task<IActionResult>	Get access history data by year, month and userInfoId. Returns a paginated list.
GetUser	Task<IActionResult>	Get user access history data by year and month. Returns a paginated list.
PostAsync	Task<IActionResult>	Create a new access history record based on the provided model. Returns a success response.
PostByFileExcel	Task<IActionResult>	Upload Excel file to create new access history records. Returns a success response.
PostGetTimeSheetExcel	Task<IActionResult>	Export timesheet data to Excel file by month, year and department options.
PutAsync	Task<IActionResult>	Updates an access history record based on id and model provided. Returns a success response.

Table 4.10: Class Specifications - AccessHistoriesController

4.1.9.FamilySituationsController

Methods		
Name	**Type**	**Description**
DeleteAsync	Task<IActionResult>	Clear based family circumstances id. Returns a success response.

GetByIdUser	Task<IActionResult>	Take your family situation accordingly userInfoId, paging support with index and pageSize.
PostAsync	Task<IActionResult>	Create new family situation information for users based on the provided model. Returns a success response.
PutAsync	Task<IActionResult>	Update family situation information based on id and model provided. Returns a success response.

Table 4.11: Class Specifications - FamilySituationsController

4.1.10. TypeEducationalsController

Methods		
Name	**Type**	**Description**
DeleteAsync	Task<IActionResult>	Delete education type based on id. Returns a success response.
GetByIdUser	Task<IActionResult>	Get the list of education types. Returns a paginated list.
PostAsync	Task<IActionResult>	Create a new education type based on the provided model. Returns a success response.
PutAsync	Task<IActionResult>	Update based education type id and model provided. Returns a success response.

Table 4.12: Class Specifications - TypeEducationalsController

4.2 Service

4.2.1. UserService

Methods		
Name	**Type**	**Description**
ChangeMyPassword	Task	Change the current user's password.
ChangePass	Task	Change passwords for users based on requirements.
DeleteAsync	Task	Delete a user based on id.
GetAsync	Task<BasePaginatedList<ResponseUserModel>>	Get a list of users with pagination and search options
LoginAsync	Task<LoginResponseModel>	Login and generate tokens for users.
PostAsync	Task	Create a new user based on the provided

		model.
PutAsync	Task	Update user information based on id and model provided.
PutLockAsync	Task	Lock or unlock a user.
RefreshToken	Task<string>	Refresh access token for users.

Table 4.13: Class Specifications - UserService

4.2.2. UserInfoService

Methods		
Name	**Type**	**Description**
DeleteAsync	Task	Delete user-based information id.
GetAsync	Task<BasePaginatedList<ResponseUserInfoModel>>	Get a list of user information with pagination and search options.
GetSalaryHistory	Task<BasePaginatedList<ResponseUserSalaryHistory>>	Get the user's salary history based on userInfoId
GetUserAsync	Task<ResponseUserInfoModel>	Get current user information.
GetUserInfoByIdAsync	Task<ResponseUserInfoModel>	Get user based information id.
GetUserSalaryHistory	Task<BasePaginatedList<ResponseUserSalaryHistory>>	Get the current user's salary history.
PutFingerId	Task	Update fingerprint ID for users.
PostAccountUserInfo	Task	Create a new user account.
PostAsync	Task	Create new user information
PutAsync	Task	Update user information based on id.
PutImage	Task	Update user's image.
PutNewSalary	Task	Update new salaries for users and record salary history.
PutPersonalReduceAsync	Task	Update individual discount values.

Table 4.14: Class Specifications - UserInfoService

4.2.3. LaborContractService

Methods		
Name	**Type**	**Description**
DeleteAsync	Task	Delete based employment contract id.
GetAsync	Task<BasePaginatedList<Response LaborContractModel>>	Get the list of employment contracts for a user based on userInfoId with pagination.
GetUserAsync	Task<BasePaginatedList<Response LaborContractModel>>	Get the list of current user's employment contracts with pagination.
PostAsync	Task	Create a new labor contract based on information from the provided model.
PutAsync	Task	Update employment contracts based on id and new model (not yet implemented).

Table 4.15: Class Specifications - LaborContractService

4.2.4. LeaveRequestService

Methods		
Name	**Type**	**Description**
DeleteAsync	Task	Not yet implemented.
GetAsync	Task<BasePaginatedList<Respon seLeaveRequestModel>>	Get a list of leave requests with pagination and filtering by leave status
GetStatusAsync	Task<ResponseLeaveRequestStat us>	Get the number of leave requests by each status (Pending, Approved, Rejected).
GetUserAsync	Task<BasePaginatedList<Respon seLeaveRequestModel>>	Get the current user's list of leave requests.
PostAsync	Task	Create a new leave request from the user.
PostByHR	Task	Create a new leave request from HR and update the user's leave information.
PostLeaveHalfDayAsy nc	Task	Create a new half-day leave request from the user.
PostLeaveHalfDayHR	Task	Create a new half-day leave request

Async		from HR and update the leave information.
PutAsync	Task	Not yet implemented.
PutChangeStatusAsync	Task	Update the status of leave requests and approval information.

Table 4.16: Class Specifications - LeaveRequestService

4.2.5. CalendarDaysController

Methods		
Name	**Type**	**Description**
DeleteAsync	Task<IActionResult>	Delete a date-based calendar id.
GetAllAsync	Task<IActionResult>	Gets a list of all calendar dates by year and month (default is 2024).
PostAsync	Task<IActionResult>	Create a new calendar from the provided model.
PutAsync	Task<IActionResult>	Updates the information of a date-based calendar id and updated model.
AddRangeAsync	Task<IActionResult>	Add multiple calendar dates within the specified time period

Table 4.17: Class Specifications - CalendarDaysController

4.2.6. UserWorkSchedulesController

Methods		
Name	**Type**	**Description**
PostAsync	Task<IActionResult>	Assign work to employees.
GetAllAsync	Task<IActionResult>	Get a list of employee work assignments with pagination and filtering options.
GetByUserInfoId	Task<IActionResult>	Get employee job assignment list based on userInfoId.
GetByToken	Task<IActionResult>	Get a list of work assignments based on the user's token.
PutAsync	Task<IActionResult>	Update employee work assignments based on id.
DeleteAsync	Task<IActionResult>	Delete employee work assignments based on id.

AssignWorkToPosition	Task<IActionResult>	Assign work to all employees by location on specific days and shifts.
RemoveWorkFromPosition	Task<IActionResult>	Delete work assignments for all employees of a location on a specific day and shift.
UpdateWorkForPosition	Task<IActionResult>	Update work for all employees of the position on specific days and shifts.
AssignWorkToDepartment	Task<IActionResult>	Assign work to all employees in the department.
RemoveWorkFromDepartment	Task<IActionResult>	Delete work assignments for all employees in a department on a specific day and shift.
UpdateWorkForDepartment	Task<IActionResult>	Update work for all employees in the department on specific days and shifts.
ExportToExcel	Task<IActionResult>	Export work assignment list to Excel file according to weekly, monthly and yearly criteria.
ExportToExcelByDepartment	Task<IActionResult>	Export list of work assignments by department to Excel file.

Table 4.18: Class Specifications - UserWorkSchedulesController

4.2.7. AccessHistoriesController

Methods		
Name	**Type**	**Description**
DeleteAsync	Task<IActionResult>	Delete access history based on id.
Get	Task<IActionResult>	Get access history data by year, month and userInfoId.
GetUser	Task<IActionResult>	Get user access history data by year and month.
PostAsync	Task<IActionResult>	Create a new access history entry.
PostByFileExcel	Task<IActionResult>	Upload Excel file to create new access history.
PostGetTimeSheetExcel	Task<IActionResult>	Upload Excel file to create new access history.
PutAsync	Task<IActionResult>	Update access history information based on id.

Table 4.19: Class Specifications - AccessHistoriesController

4.2.8. FamilySituationService

Methods		
Name	**Type**	**Description**
DeleteAsync	Task	Delete family-based status information id.
GetByIdUserAsync	Task<BasePaginatedList<ResponseFamilySituationModel>>	Get a list of the user's family status according to userInfoId.
PostAsync	Task	Create a new family status.
PutAsync	Task	Updated family status information based on id.

Table 4.20: Class Specifications - FamilySituationService

4.2.9. TypeEducationalService

Methods		
Name	**Type**	**Description**
DeleteAsync	Task	Delete a type of education based on id.
GetAsync	Task<BasePaginatedList<ResponseTypeEducationalModel>>	Get the list of education form types that have not been deleted, with pagination.
PostAsync	Task	Create a new type of education form from the information provided.
PutAsync	Task	Update information on type of education based on id.

Table 4.21: Class Specifications - TypeEducationalService

4.3 Interface

4.3.1. IAuthController

Methods		
Name	**Type**	**Description**
RefreshTokenAsync	Task<IActionResult>	Refresh the access token based on the provided refresh token.

Table 4.22: Class Specifications - IAuthController

4.3.2. IUserService

Methods		
Name	**Type**	**Description**
LoginAsync	Task<LoginResponseModel>	Login user with LoginModelView, returns the login result as LoginResponseModel.
GetAsync	Task<BasePaginatedList <ResponseUserModel>>	Get a list of users with pagination, searchable by username (searchByUserName) and sort by name.
RefreshToken	Task<string>	Refresh the user's token with the provided refresh token.
PutLockAsync	Task	Set locked or unlocked status for users based on userId and isLock.
ChangePass	Task	Change the user's password via request ChangePasswordRequest
ChangeMyPassword	Task	Change the user's own password via request ChangeMyPassRequest.

Table 4.23: Class Specifications - IUserService

4.3.3. IUnitOfWork

Methods		
Name	**Type**	**Description**
GetRepository<T>	GenericRepository<T>	Get a common repository for all types of objects (generic form), with T is the type of object class to be manipulated.
Save	void	Save changes to the database in the current transaction (asynchronously).
SaveAsync	Task	Save changes to the database in the current transaction (asynchronously).
BeginTransaction	void	Start a new transaction.
CommitTransaction	void	Commit changes in the transaction.
RollBack	void	Cancel (rollback) the transaction if there is an error or want to cancel changes.
ExecuteStoredProcedure Async	Task	Execute the stored procedure in the database asynchronously, receiving the procedure name and parameters
ExecuteStoredProcedure	void	Executes the stored procedure in the database, receiving the procedure name and parameters (not asynchronously).

Table 4.24: Class Specifications - IUnitOfWork

4.3.4. IGenericRepository<T>

Methods		
Name	**Type**	**Description**
Entities	IQueryable<T>	Query objects T form IQueryable, helps perform data query operations
GetAll	IEnumerable<T>	Get all objects T from the database.
GetById	T?	Get an object T according to id. Return null if not found.
Insert	void	Add an object T into the database.
InsertRange	void	Add more objects T into the database.
Update	void	Update information of an object T in the database.
Delete	void	Delete an object T according to id.
DeleteRange	void	Delete multiple objects T from database.
Save	void	Save changes to the database immediately.
GetAllAsync	Task<IList<T>>	Get all objects T from the database asynchronously
GetPagging	Task<BasePaginatedList<T>>	Get the objects T by pagination, and return a list with pagination information.
GetByIdAsync	Task<T?>	Get an object T according to id asynchronously. Return null if not found.
InsertAsync	Task	Add an object T to the database asynchronously.
InsertRangeAsync	Task	Add more objects T into the database asynchronously.
UpdateAsync	Task	Update information of an object T in the database asynchronously.
DeleteAsync	Task	Delete an object T according to id asynchronously.
SaveAsync	Task	Save changes to the database asynchronously.

Table 4.25: Class Specifications - GenericRepository<T>

4.3.5. IUserInfoService

Methods		
Name	**Type**	**Description**
GetAsync	Task<IActionResult>	Get user information with pagination and can filter by employee code (searchByMSNV), position code (searchByPositionId), and sort by name or employee code.
GetUserInfoByIdAsync	Task<IActionResult>	Get the user's details according to id.
GetUserAsync	Task<IActionResult>	Get user information for one or more objects.
PutImages	Task<IActionResult>	Update user's image with id and photos uploaded through IFormFile.
PostAccountForUserInfoAsync	Task<IActionResult>	Create a new account for the user with information from CreateAccountModel
PutNewSalary	Task<IActionResult>	Update new salary information for users with information from NewSalaryRequest.
GetSalaryHistory	Task<IActionResult>	Get the user's salary history accordingly userInfoId with pagination.
GetUserSalaryHistory	Task<IActionResult>	Get user's salary history with pagination.
PutFingerId	Task<IActionResult>	Update fingerprint code information for users userInfoId and fingerId.
PutPersonalReduce	Task<IActionResult>	Updates personal deductions for users with value money.

Table 4.26: Class Specifications - IUserInfoService

4.3.6. ILaborContractService

Methods		
Name	**Type**	**Description**
GetAsync	Task<BasePaginatedList<ResponseLaborContractModel>>	Get the list of user's labor contracts with userInfoId, pagination and page count (index, pageSize).
GetUserAsync	Task<BasePaginatedList<ResponseLaborContractModel>>	Get the list of user's employment contracts, pagination and number of pages (index, pageSize).

Table 4.27: Class Specifications - ILaborContractService

4.3.7.ILaborContractsController

Methods		
Name	**Type**	**Description**
GetAsync	Task<IActionResult>	Get the list of user's labor contracts with userInfoId, pagination and page count (index, pageSize).
GetUserAsync	Task<IActionResult>	Get the list of user's employment contracts, pagination and number of pages (index, pageSize).

Table 4.28: Class Specifications - ILaborContractsController

4.3.8. ILeaveRequestService

Methods		
Name	**Type**	**Description**
PutChangeStatusAsync	Task	Change the status of a leave request.
GetUserAsync	Task<BasePaginatedList<ResponseLeaveRequestModel>>	Get a list of user leave requests with pagination.
GetAsync	Task<BasePaginatedList<ResponseLeaveRequestModel>>	Get a list of all leave requests with pagination.
GetStatusAsync	Task<ResponseLeaveRequestStatus>	Get the current status of the leave request.
PostByHR	Task	Create a leave request from the human resources department.
PostLeaveHalfDayAsync	Task	Create a half-day leave request.
PostLeaveHalfDayHRAsync	Task	Create a half-day leave request from the human resources department.

Table 4.29: Class Specifications - ILeaveRequestService

4.3.9. ILeaveRequestController

Methods		
Name	**Type**	**Description**
GetAsync	Task<IActionResult>	Get a list of leave requests with pagination and filtering by status.
GetUserAsync	Task<IActionResult>	Get a list of user leave requests with pagination.
PostAsync	Task<IActionResult>	Create a new leave request from the user.

PostByHRAsync	Task<IActionResult>	Create a new leave request from the human resources department.
PutChangeStatusAsync	Task<IActionResult>	Change the status of a leave request.
TotalStatusRequest	Task<IActionResult>	Get the total status of leave requests.
PostLeaveHalfDayAsync	Task<IActionResult>	Create a half-day leave request from a user.
PostLeaveHalfDayHRAsync	Task<IActionResult>	Create a half-day leave request from the human resources department.

Table 4.30: Class Specifications - ILeaveRequestController

4.3.10. ICalendarDayService

Methods		
Name	**Type**	**Description**
DeleteAsync	Task	Delete a date in the based calendar id.
GetAllAsync	Task<BasePaginatedList<ResponseCalendarDayModel>>	Get all days in a given year, possibly by month.
PostAsync	Task	Create a new calendar date from the provided model.
PutAsync	Task	Updates a day's information in a calendar based on id.
AddRangeAsync	Task	Add a series of dates to the calendar from the request model.

Table 4.31: Class Specifications - ICalendarDayService

4.3.11.ICalendarDaysController

Methods		
Name	**Type**	**Description**
GetAllAsync	Task<IActionResult>	Get a list of all days of the year, filterable by month.
AddRangeAsync	Task<IActionResult>	Add a series of dates to the calendar from the request model.

Table 4.32: Class Specifications - ICalendarDaysController

4.3.12.IUserWorkSchedulesController

Methods		
Name	**Type**	**Description**
GetAllAsync	Task<IActionResult>	Get a list of all calendars with paging and filtering capabilities.
GetByUserInfoId	Task<IActionResult>	Get the user's work schedule according to userInfoId.
GetByToken	Task<IActionResult>	Get the user's work schedule based on the current token.
AssignWorkToPosition	Task<IActionResult>	Assign jobs to positions according to the model AssignWorkToPositionModel.
RemoveWorkFromPosition	Task<IActionResult>	Remove work from location by positionId, calendarDayId, and shiftScheduleId.
UpdateWorkForPosition	Task<IActionResult>	Update jobs for positions with new information.
AssignWorkToDepartment	Task<IActionResult>	Assign work to departments according to the model AssignWorkToDepartmentModel.
RemoveWorkFromDepartment	Task<IActionResult>	Delete work from the following department departmentId, calendarDayId, and shiftScheduleId.
UpdateWorkForDepartment	Task<IActionResult>	Update department work with new information.
ExportToExcel	Task<IActionResult>	Export work schedule to Excel file for specific weeks or months in 2024.
ExportToExcelByDepartment	Task<IActionResult>	Export work schedules by department to an Excel file for a specific week or month in 2024.

Table 4.33: Class Specifications - IUserWorkSchedulesController

4.3.13.IUserWorkScheduleService

Methods		
Name	**Type**	**Description**
GetAllAsync	Task<BasePaginatedList <ResponseUserWorkSch eduleModel>>	Get all your calendars with paging and filtering capabilities.
GetByToken	Task<BasePaginatedList <ResponseUserWorkSch	Get the user's work schedule by token.

	eduleModel>>	
RemoveWorkFromPositionAsync	Task	Remove work from a specific location.
UpdateWorkForPositionAsync	Task	Update jobs for specific positions.
AssignWorkToDepartmentAsync	Task	Assign work to departments according to the model.
AssignWorkToPositionAsync	Task	Assign jobs to positions according to the model.
RemoveWorkFromDepartmentAsync	Task	Delete work from the department.
UpdateWorkForDepartmentAsync	Task	Update work for the department.
GetById	Task<BasePaginatedList<ResponseUserWorkScheduleModel>>	Get the user's work schedule according to userInfoId
UpdateLeaveStatus	Task<IActionResult>	Update leave status for a job.
ExportToExcelAsync	Task<IActionResult>	Export work schedule to Excel file for a specific week or month.
ExportToExcelByDepartmentAsync	Task<IActionResult>	Export work schedules by department to an Excel file for a specific week or month.

Table 4.34: Class Specifications - IUserWorkScheduleService

4.3.14.IAccessHistoriesController

Methods		
Name	**Type**	**Description**
Get	Task<IActionResult>	Get access history by year, month and userInfoId.
GetUser	Task<IActionResult>	Get user access history by year and month.
PostByFileExcel	Task<IActionResult>	Import access history from Excel file.
PostGetTimeSheetExcel	Task<IActionResult>	Export timesheets to Excel files by month, year and department options.

Table 4.35: Class Specifications - IAccessHistoriesController

4.3.15.IAccessHistoryService

Methods		
Name	**Type**	**Description**
GetUserAsync	Task<BasePaginatedList<ResponseAccessHistoryModel>> Get access history of	Get user access history by year and month.
GetAsync	Task<BasePaginatedList<ResponseAccessHistoryModel>> Get access history of	Get access history by year, month and userInfoId.
PostByFileExcel	Task	Import access history from Excel file.
GetExcel	Task<ExcelFile>	Export access history to Excel file by month, year and department options

Table 4.36: Class Specifications - IAccessHistoryService

4.4 Entity

4.4.1 CCCD

Attributes		
Name	**Type**	**Description**
Number	string?	CCCD number (Citizen identification card).
FullName	string?	Full name.
PlaceOfIssue	string?	Place of issue.
National	string?	Nationality.
Gender	Gender	Sex.
HomeTown	string?	Hometown.
PermanentResidence	string?	Permanent residence.
IssuedDate	DateTimeOffset	Date of issue.
ExpirationDate	DateTimeOffset	Expiration date.
UserInfoId	string?	User information ID.

UserInfo	virtual UserInfo?	User information (object UserInfo).

Table 4.37: Class Specifications - CCCD

4.4. 2 Department

Attributes		
Name	**Type**	**Description**
Name	string?	Department name.
Positions	ICollection<Position>?	Collection of job positions (object Position).

Table 4.38: Class Specifications - Department

4.4.3 FamilySituation

Attributes		
Name	**Type**	**Description**
Name	string	Name of family situation.
Address	string	Address.
Phone	string	Phone number.
CCCD	string	CCCD number of family members.
Job	string	Job.
CulturalLevel	string	Cultural level.
DateConfirm	string	Date of confirmation of the situation.
TypeDepementId	string	Allowance type ID.
TypeDepenment	TypeDepenment?	Information about allowance type (subject TypeDepenment).
UserId	string	User ID.
User	UserInfo?	User information (object UserInfo).

Table 4.39: Class Specifications - FamilySituation

4.4.4 . Position

Attributes		
Name	**Type**	**Description**
Department	Department?	Department (object Department).
DepartmentId	string	Department ID.
Name	string	Location name.
TypeRank	TypeRank?	Class type (object TypeRank).
TypeRankId	string?	Class type ID.
UserInfo	ICollection<UserInfo>?	User information (object UserInfo).

Table 4.40: Class Specifications - Position

4.4.5 UserContract

Attributes		
Name	**Type**	**Description**
BasicSalary	decimal	Basic salary.
CCCD	string	CCCD number.
ContractStatus	EnumStore.StatusContract?	Contract status.
Dob	DateTime	Date of birth.
EndDateContract	DateTimeOffset?	Contract end date.
Gender	Gender	Sex.
Position	Position?	Location (object Position).
PositionId	string	Location ID.
StartDateContract	DateTimeOffset?	Contract start date.

TypeContract	TypeContract?	Contract type (object TypeContract).
TypeContractId	string	Contract type ID.
UserInfo	UserInfo?	User information (object UserInfo).
UserInfoId	string	User information ID.
WorkerName	string	Worker name.
Workplace	string	Workplace.

Table 4.41: Class Specifications - UserContract

4.4.6 UserInfo

Attributes		
Name	**Type**	**Description**
BankAccount	string	Bank account number.
BankAccountName	string	Bank account name.
CCCD	CCCD?	CCCD information (object CCCD).
ContractUsers	ICollection<UserContract>?	User contract (object UserContract).
CurrentSalary	decimal?	Current salary.
FamilySituations	ICollection<FamilySituation>?	Family status (subject FamilySituation).
FullName	string	Full name and surname.
HistoryMisions	ICollection<HistoryMision>?	Task history (object HistoryMision).
HRProcesses	ICollection<HRProcess>?	HR process (object HRProcess).
Image	string	Personal image.
MSVN	string	Officer code.
Position	Position?	Location (object Position).

PositionId	string?	Location ID.
ReducePersonal	decimal?	Personal deductions.
SalaryIncreaseHistories	ICollection<SalaryIncreaseHistory>?	Salary increases history (subject SalaryIncreaseHistory).
SalaryInfos	ICollection<SalaryInfo>?	Salary information (object SalaryInfo).
User	ApplicationUser?	User information (object ApplicationUser).
UserId	Guid?	User ID.
UserInsurances	ICollection<UserInsurance>?	User coverage (object UserInsurance).
UserLeaveDetails	ICollection<UserLeaveDetail>?	Leave information (subject UserLeaveDetail).
UserSubsidies	ICollection<UserSubsidy>?	User allowance (object UserSubsidy).
UserTrannings	ICollection<UserTranning>?	User training information (object UserTranning).
UserUnion	UserUnion?	Federation information (subject UserUnion).
WorkHistories	ICollection<WorkHistory>?	Job history collection (object WorkHistory).

Table 4.42: Class Specifications - UserInfo

4.4.7 UserLeaveDetail

Attributes		
Name	**Type**	**Description**
LeaveRequest	ICollection<LeaveRequest>?	Leave request (object LeaveRequest).
LeaveRequestId	string	Leave request ID.
RemainingHours	double	Hours remaining.

TotalHours	double	Total leave hours.
User	UserInfo?	User information (object UserInfo).
UserId	string	User ID.
YearEffect	int	Effective year.

Table 4.43: Class Specifications - UserLeaveDetail

4.4.8 WorkHistory

Attributes		
Name	**Type**	**Description**
CheckInTime	TimeSpan	Time to get to work.
CheckOutTime	TimeSpan	Time to leave.
TypeWorkSalaryId	string?	Job salary type ID.
TypeWorkSalary	TypeWorkSalary?	Job salary type (object TypeWorkSalary).
UserId	string?	User ID.
User	UserInfo?	User information (object UserInfo).

Table 4.44: Class Specifications - WorkHistory

4.4.9 LeaveRequest

Attributes		
Name	**Type**	**Description**
ApprovedBy	string	The person approves the leave request.
IsMinusYear	bool	Is there a deduction from the year?
Reason	string	Reason for leave.
StartDate	DateTime	Vacation start date.
Total	int	Total number of days off.

Type	int	Type of leave request.
TypeLeave	TypeLeave?	Break type (object TypeLeave).
TypeLeaveId	string	Break type ID.
UserLeaveDetail	UserLeaveDetail?	User leave details (object UserLeaveDetail)
UserLeaveDetailId	string	User's break detail ID.

Table 4.45: Class Specifications - LeaveRequest

V. Software Testing Documentation

1. Scope of Testing

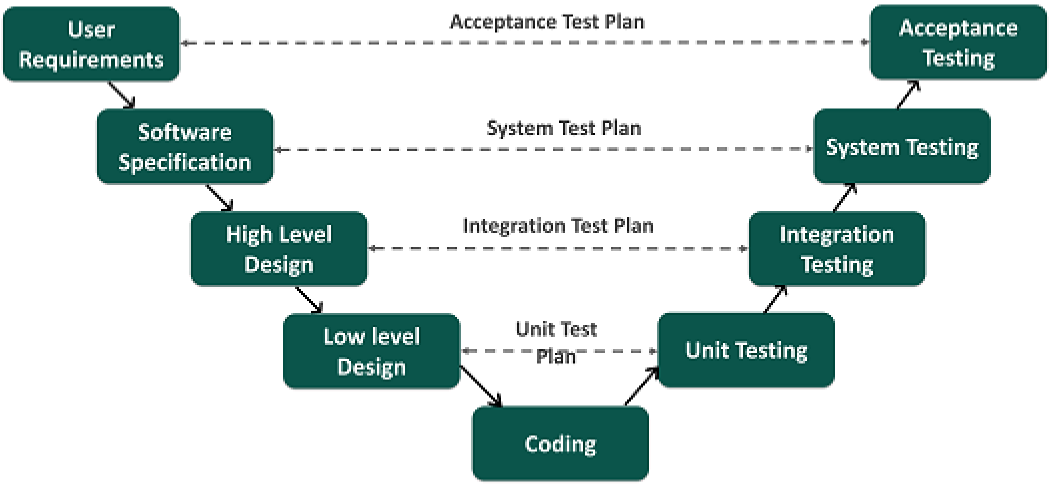


Figure 5.1: Test Model

1.1. Target Features and Functions to be Tested

- **Employee Management**: Ensure correct functionality in adding, editing, deleting, and managing employee records.
- **Attendance Tracking**: Test the accuracy and performance of employee attendance records.
- **Payroll System**: Validate the correct calculation and generation of payroll reports.
- **Leave Management**: Test the system's ability to handle leave requests, approvals, and accruals.
- **Reports and Analytics**: Ensure accurate data extraction and report generation capabilities.
- **Employee File Management**: Validate the system's ability to store, update, and retrieve employee documents and personal files securely.
- **Contract Management**: Ensure functionality for creating, updating, and terminating employee contracts, including compliance checks.

- **Employee Account Management**: Test the ability to create and manage employee accounts, including login credentials and user roles.
- **Overtime Request Management**: Verify the system's ability to handle overtime requests, approvals, and tracking.
- **Working and Break Time Viewing**: Ensure that employees and administrators can view detailed records of working hours

1.2. Non-Functional Requirements to be Tested:
1.2.1. Usability

● Consistency and Brand Identity:

- Keep a consistent look on all website pages.

- Use the same colours, fonts, and visual elements throughout. (Colours, Fonts)

● Adaptable Design:

- Make the design work well on different screen sizes

● Clear Navigation:

- Have left-sidebar menu, clear screen flow for each user

● Interactive Parts :

- All search bars should show results real time when enter value

● Fixing Mistakes :

- Make short, clear error messages. (Errors show in red, successful in green)

1.2.2 Security

- Utilising Token-Based Authentication for security, the client sends a token through requests to the server for verification.

- User credentials should be hashed before being stored in the server's cache.

- User passwords must be hashed before being stored in the database.

1.3. Non-Functional Requirements Not to be Tested:
1.3.1. Performance

By setting the core and maximum pool size to 5, the requirement is to efficiently manage concurrent tasks and ensure performance as well as scalability under heavy loads.

1.3.2. Concurrency:

Handling of concurrent tasks, possibly to improve responsiveness and resource utilisation

2. Test Strategy

2.1 Testing Types

No	Type of Testing	Description
1	Integration Testing	Ensures that different modules or components of the application interact correctly with each other after integration.
2	API Testing	Directly examine API returns to determine if they meet functional, reliability, and security expectations.
3	Regression Testing	Retest the entire system or specific part after source code changes, to ensure there are no errors arising from those changes.
4	System Test	Validates the entire application/system as a whole, ensuring that it meets the specified requirements in an end-to-end testing environment.
5	Acceptance Testing (UAT)	Testing allows users to confirm that the system meets their requirements and expectations. This process is performed in a near-real-world environment to detect errors and unusual behavior, and the development team improves the system based on user feedback.

Table 5.1: Testing Types

2.1.1. Integration Testing

Test Objective	To ensure that integrated modules or components in the system work together as expected and exchange data correctly.
Technique	Incremental testing methods such as Top-Down, Bottom-Up, or Hybrid Integration Testing can be used.
Completion criteria	All integration-related test cases are passed, and data is successfully transferred and processed across modules.
Special Consideration	Test critical paths and ensure that all interfaces between components handle failures and exceptions gracefully.

Table 5.2: Integration Testing

2.1.2 API Testing

Test Objective	Ensure that APIs perform according to functional requirements, are highly reliable, and are well-secured.
Technique	Use API testing tools like Postman or Swagger to perform testing. Test different scenarios, including valid and invalid requests.
Completion criteria	The API returns correct results in all test cases. No security vulnerabilities or connection errors were detected.
Special	Make sure the API performs well when handling large amounts of data or

Consideration	concurrent access.

Table 5.3: API Testing

2.1.3. System Testing

Test Objective	Ensure that the entire system operates in accordance with functional and non-functional requirements, and check compatibility between components in the system. Verify that the system is ready for deployment in a live environment.
Technique	Perform comprehensive end-to-end testing, including system functionality, performance, security, and compatibility. Use test cases that cover all components of the system. Simulates realistic scenarios, including large user volumes, complex input data, and concurrent access. Use automated and manual testing tools to ensure all test scenarios are covered.
Completion criteria	The system has completed all tests and meets the requirements for functionality, performance, security and compatibility. There are no critical or critical errors remaining in the system. The system is ready to deploy in production environments.
Special Consideration	Test the system in a simulated environment similar to the real environment to detect potential problems. Focus on key risks such as load capacity, concurrency, and data security. Ensure different components in the system integrate together smoothly and without conflicts.

Table 5.4: System Testing

2.2 Test Levels

Type of Tests	Test Level			
	Unit	Integration	System	Acceptance
Integration Test	X			
API Testing		X		
System Testing	X	X	X	X

Table 5.5: Test Levels

2.3 Supporting Tools

Purpose	Tool	Vendor/In-house	Version
This is the place to manage error status updates	Microsoft Excel Online	Microsoft	Microsoft 365
This is where test cases are written	Microsoft Excel Office	Microsoft	Microsoft Excel 2021
API testing	Postman	Postman, Inc	Postman 10.x
Interaction with APIs	Swagger UI	SmartBear Software	Swagger UI 4.x
Integrated Testing, System Testing	Android Studio, IOS	Mobile , Visual studio 2022	
	Google Chrome	Google	Latest Version
	Visual Studio 2022	Microsoft	Latest Version

Table 5.6: Supporting Tools

3. Test Plan

3.1 Human Resources

Worker/Doer	Role	Specific Responsibilities/Comments
Nguyen Thi Duyen	Testing Lead	Manage test resources and assign test tasks - Create Test Plan, Test Cases (IT, ST) - Create Test Reports - Perform IT, ST - Review test-cases, test reports
Nguyen Tung Lam	Testing , BE	- Create UT Test Case, Test Data - Execute UT tests - Log test - Write UT report - Fix bugs
Tran Vi Quang	Testing , BE	
Nguyen Xuan Thanh	Testing , FE	
Nguyen Tien Sy	Testing , FE	

Table 5.7: Human Resources

3.2 Test Environment

<table>
<tr><th>Purpose</th><th>Tool</th><th>Provider</th><th>Version</th></tr>
<tr><td>Unit Testing</td><td>Visual Studio 2022</td><td>Microsoft Corporation</td><td rowspan="4">Personal computer with minimum configuration:
-Windows 10,11 Professional 32-bit
- Intel (R) Core i5
- RAM: 8GB or
- MacOS Sonoma 14.2.1
-- RAM: 8GB</td></tr>
<tr><td>Integration Testing</td><td>Chrome</td><td>Google</td></tr>
<tr><td>System Testing</td><td>Chrome</td><td>Google</td></tr>
<tr><td>Acceptance Testing</td><td>Chrome</td><td>Google</td></tr>
</table>

Table 5.8: Testing Environment

3.3 Test Milestones

Milestone Task	Start Date	End Date
Sprint 1: Create Testing	10/10/2024	31/10/2024
Create Test Plan	11/10/2024	14/10/2024
Create Unit Test Case	11/10/2024	15/10/2024
Create Test Case sprint 1	11/10/2024	15/10/2024
Test sprint 1	12/10/2024	17/10/2024
Verify Test sprint 1	18/10/2024	24/10/2024
Fix Bug sprint 1	18/10/2024	24/10/2024
Test Document	15/10/2024	31/10/2024
Create Test Case	15/10/2024	25/10/2024
Execute Test Case	15/10/2024	25/10/2024
Acceptance Test	25/10/2024	31/10/2024
Sprint 2: Testing	1/11/2024	15/11/2024
Create Test Case Iteration 2	1/11/2024	15/11/2024
Test sprint 2	1/11/2024	15/11/2024
Verify Test Iteration 2	1/11/2024	15/11/2024
Sprint 3 : Test Report	16/11/2024	30/11/2024
Fix Bug sprint 3	16/11/2024	30/11/2024

Table 5.9 Test Milestones

4. Test Cases

4.1 Unit Test

All unit tests are located in the folder XuongMay.UnitTest in source code. Here is an example of unit test cases: SE490_G5_HRMS_Report5_Unit_Testing.xlsx

			UTCID01	UTCID02	UTCID03	UTCID04	UTCID05	UTCID06	UTCID07	UTCID08	UTCID09	UTCID10	UTCID11	UTCID12	UTCID13	UTCID14	UTCID15
Condition	Precondition																
		Login Success wirh account HR or Admin															
	Position ID																
		Nhân viên hành chính	O	O					O	O	O				O		
		Công Nhân			O							O				O	O
		HR				O							O				
		Leader Line A					O	O						O			
	Phone	0975755495	O		O	O	O	O	O	O	O					O	
		null		O								O			O		
		09879883764											O				O
		098787764												O			
	DateJoin																
		2024-11-01	O	O		O	O	O	O	O	O		O				O
		null			O							O		O	O	O	
	CCCD																
	FullName																
		Nguyen Thi Duyen	O	O	O		O	O	O	O	O		O				
		null				O						O		O	O	O	O
	Number	125950052785	O	O	O					O	O			O			
		12595005212					O										
		1259500521226											O			O	
		null						O				O			O		O
		12595005278@							O								
	PlaceOfIssue																
		Hà Nội	O	O	O	O	O	O	O				O	O		O	
		Null								O	O	O			O		O
	PermanentResidence , HomeTown	Bac Ning	O	O	O	O	O	O	O	O			O	O			
		null									O	O			O	O	O

Figure 5.2: Unit Test Example

4.2 Integration Test & System Test

Detailed test cases of these types of testing are described in 2 files:SE490_G5_HRMS_Report5_Integration_Test.xlsx

and SE490_G5_HRMS_Report5_SystemTest.xlsx(for System Testing).

As a standard definition, the **Garment Factory Human Resource Management System** project defines that a test case is:

- A set of test data and test programs (test scripts) and their expected results. A test case validates one or more system requirements and generates a pass or fail result.
- A good test case should follow two basic aspects: **content** and **style**. Test cases for functional testing are derived from the target of the test's use cases. Test cases should be developed for each use case scenario. The use case scenarios are identified by describing the paths through the use case that traverse both the **basic flow** and **alternate flows** from start to finish through the use case.

Integration testing and system testing are done by testers to ensure that each high-level module and the whole system work properly. In integration testing, testers test each module function according to each screen in the system, and in system testing, testers follow the use case list to carry out the testing process. If any bugs or defects are found, testers are responsible for creating an issue in **Google Sheets** and reporting it to developers to fix as soon as possible.

Test Case ID	Test Case Description	Test Case Procedure	Expected Results	Pre-conditions	Round 1	Test date	Tester	PIC	Round 2	Te
QLHS_TC01	Test viewing "Employee profile management" form.	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu.	The "Employee profile management" view form is displayed with the folowing informations: - STT - Employee code - Full name - Image - Job location - Current salary -CCCD number	Visit the website https://xongmayhr-dev.bancantoi.site/ and log in successfully	Passed	04/11/2024	DuyenNT		Passed	
QLHS_TC02	Check that the image is displayed correctly and completely	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu.	Images are displayed correctly and completely	Visit the website https://xuongmayhr-dev.bancantoi.site/ and log in successfully	Failed	04/11/2024	DuyenNT		Failed	
QLHS_TC03	Check to see when clicking "Add new employee profile"	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu. 3. Select the button "Add new employee profile"	From New is displayed	Visit the website https://xuongmayhr-dev.bancantoi.site/ and log in successfully	Passed	04/11/2024	DuyenNT		Passed	
QLHS_TC04	Check that all fields are entered	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu. 3. Select the button "Add new employee profile" 4. Enter all fields 5. Select "Create"	Display the message: "New addition successful" and the newly created information is added to the table	Visit the website https://xuongmayhr-dev.bancantoi.site/ and log in successfully	Failed	04/11/2024	DuyenNT		Failed	
QLHS_TC05	Check that when entering fields and ring "Cancel"	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu. 3. Select the button "Add new employee profile" 4. Enter fields 5. Select "Cancel"	Exit the input form	Visit the website https://xuongmayhr-dev.bancantoi.site/ and log in successfully	Passed	04/11/2024	DuyenNT		Passed	

Figure 5.3: Integrated Test Example

Test Case ID	Test Case Description	Test Case Procedure	Expected Results	Pre-conditions	Round 1	Test date	Tester	PIC
Lich&HoSo_ST_01	Check shift updates	1. Log in with your HR account 2. Access Employee Work Schedule. 3. Enter the information to retrieve data:{ - Select date: November 26, 2024 - Ca schedule: All - Garment worker position - Department: Production department 4. Click the "Get data" button 5. Find employee name: Tran Tien Manh 6. Select date "November 26, 2024" to switch from "Evening" shift to "Morning" shift 7. Click the "Update" button 8. Access Employee Profile Management 9. Find employee: Tran Tien Manh, Select "View schedule" 10. The system has updated the records when changing shifts in the employee work schedule	1. The system allows data to be retrieved according to set conditions. 2. The system allows updating employee information 3. After clicking update information to switch from "Evening shift" to "Morning shift" for employee "Tran Tien Manh", the information in the "View calendar" section of Employee Profile Management has been updated.	An HR account has been created and has access to the system.	Passed	26/11/2024	DuyenNT	
Lich&HoSo_ST_02	Check shift updates	1. Log in with your HR account 2. Access Employee Work Schedule. 3. Enter the information to retrieve data:{ - Select date: November 26, 2024 - Shift schedule: Morning shift (08:00 - 12:00) - Garment worker position 4. Click the "Get data" button 5. Find employee name: Tran Tien Manh 6. Click the "Delete" button 7. Access Employee Profile Management 8. Find employee: Tran Tien Manh, Select "View schedule" 9. The system has updated records when changing shifts in the employee's work schedule	1. The system allows data to be retrieved according to set conditions. 2. The system allows updating employee information 3. After clicking to delete the "Morning shift" information of employee "Tran Tien Manh", the information in the "View calendar" section of Employee Profile Management has been updated.	An HR account has been created and has access to the system.	Passed	26/11/2024	DuyenNT	
Lich&HoSo_ST_03	Check shift updates	1. Log in with your HR account 2. Access Employee Work Schedule. 3. Enter the information to retrieve data:{ - Select date: November 26, 2024 - Shift schedule: Morning shift (08:00 - 12:00) - Position: HR - Department: Office 4. Click the "Get data" button 5. Click "Change shifts by department" 6. In the "Shift change by department" form, enter information "Current shift: Morning shift (08:00-12:00), "New shift: Afternoon shift (13:00-17:00)" 7. Click the "Update shift" button 8. Access Employee Profile Management	1. The system allows data to be retrieved according to set conditions. 2. The system allows updating employee information by Department 3. After clicking "Change shift by department", all information of employees in the "Office" department will be updated in the "Employee profile management"	An HR account has been created and has access to the system.	Passed	26/11/2024	DuyenNT	

Figure 5.4: System Test Example

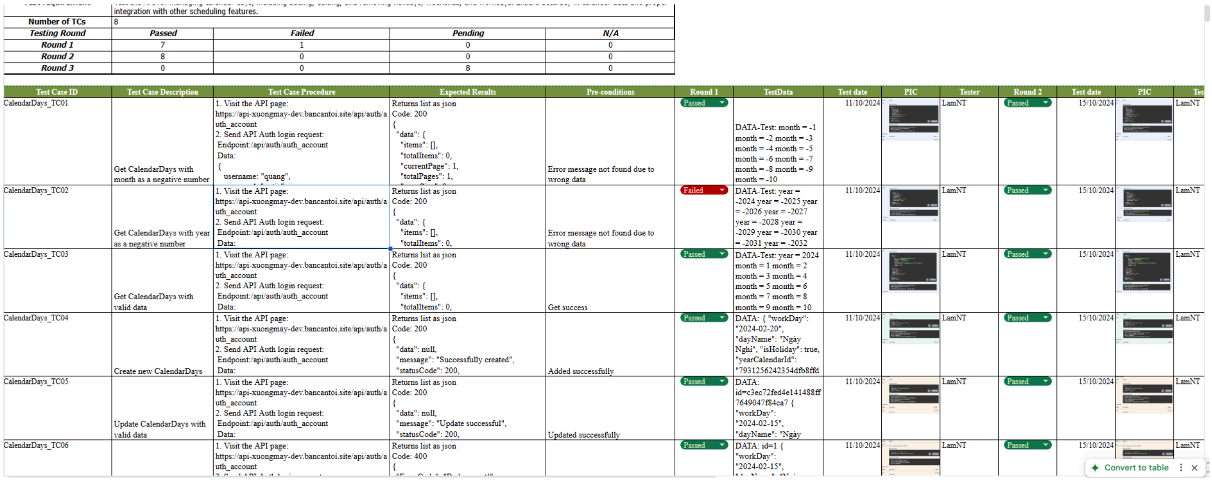
4.3 API Testing

Detailed test cases for API testing are described in the file **SE490_G5_HRMS_Report5_Test API.xlsx**

API testing ensures that a system's application programming interfaces (APIs) function correctly, including testing server-to-client API requests and responses. This test helps confirm that the API returns the correct results as requested and can handle all expected scenarios during communication with other systems.

Test cases for API testing are typically built from API request documents and describe in detail the inputs, outputs, and HTTP status codes that the API will return. Testers will make the corresponding API calls and check the returned results to ensure that the system processes requests properly.

If a bug or problem is detected, testers are responsible for creating the problem within **Google Sheets** and report to the developers to fix as soon as possible.



	integration with other scheduling features.
Number of TCs	8

Testing Round	Passed	Failed	Pending	N/A
Round 1	7	1	0	0
Round 2	8	0	0	0
Round 3	0	0	8	0

Test Case ID	Test Case Description	Test Case Procedure	Expected Results	Pre-conditions	Round 1	TestData	Test date	PIC	Tester	Round 2	Test date	PIC	Tes
CalendarDays_TC01	Get CalendarDays with month as a negative number	1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/api/auth/auth_account 2. Send API Auth login request: Endpoint:/api/auth/auth_account Data: { username: "quang",	Returns list as json Code: 200 { "data": { "items": [], "totalItems": 0, "currentPage": 1, "totalPages": 1,	Error message not found due to wrong data	Passed	DATA-Test: month = -1 month = -2 month = -3 month = -4 month = -5 month = -6 month = -7 month = -8 month = -9 month = -10	11/10/2024		LamNT	Passed	15/10/2024		LamNT
CalendarDays_TC02	Get CalendarDays with year as a negative number	1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/api/auth/auth_account 2. Send API Auth login request: Endpoint:/api/auth/auth_account Data:	Returns list as json Code: 200 { "data": { "items": [], "totalItems": 0,	Error message not found due to wrong data	Failed	DATA-Test: year = -2024 year = -2025 year = -2026 year = -2027 year = -2028 year = -2029 year = -2030 year = -2031 year = -2032	11/10/2024		LamNT	Passed	15/10/2024		LamNT
CalendarDays_TC03	Get CalendarDays with valid data	1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/api/auth/auth_account 2. Send API Auth login request: Endpoint:/api/auth/auth_account Data:	Returns list as json Code: 200 { "data": { "items": [], "totalItems": 0,	Get success	Passed	DATA-Test: year = 2024 month = 1 month = 2 month = 3 month = 4 month = 5 month = 6 month = 7 month = 8 month = 9 month = 10	11/10/2024		LamNT	Passed	15/10/2024		LamNT
CalendarDays_TC04	Create new CalendarDays	1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/api/auth/auth_account 2. Send API Auth login request: Endpoint:/api/auth/auth_account Data:	Returns list as json Code: 200 { "data": null, "message": "Successfully created", "statusCode": 200,	Added successfully	Passed	DATA: { "workDay": "2024-02-20", "dayName": "Ngày Nghi", "isHoliday": true, "yearCalendarId": "7931256242354dfb8ffd	11/10/2024		LamNT	Passed	15/10/2024		LamNT
CalendarDays_TC05	Update CalendarDays with valid data	1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/api/auth/auth_account 2. Send API Auth login request: Endpoint:/api/auth/auth_account Data:	Returns list as json Code: 200 { "data": null, "message": "Update successful", "statusCode": 200,	Updated successfully	Passed	DATA: id=c3ec72fed4e141488ff7649047f84ca7 { "workDay": "2024-02-15", "dayName": "Ngày	11/10/2024		LamNT	Passed	15/10/2024		LamNT
CalendarDays_TC06		1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/api/auth/auth_account	Returns list as json Code: 400 {		Passed	DATA: id=1 { "workDay": "2024-02-15",	11/10/2024		LamNT	Passed	15/10/2024		LamNT

Figure 5.5: API Test Example

4.4 Acceptance Testing

Acceptance testing is a level of the software testing process where a system is tested for acceptability. The purpose of this test is to evaluate the system's compliance with the business requirements and assess whether it is acceptable for delivery. But our project will use the checklist as a substitute for acceptance testing. Detailed checklists are described in SE490_G5_HRMS_Report5_Acceptance_Testing file.

1	ID	Checklist	Yes	No
2		**GUI and Usability**		
3	1	The website design is inspired by the following design	☑	
4	2	The screen is well organized and easy to use.	☑	
5	3	The steps are short and easy to understand so that the user can interact with the application without training	☑	
6	4	Main functions are organized into tabs for easier access.	☑	
7	5	Links, buttons, and checkboxes are easily clickable.	☑	
8	6	Important commands are displayed as buttons with distinct background colors.	☑	
9	7	The displayed text is in Vietnamese for the convenience of most employees	☑	
10	8	The static text is clear, concise, and meaningful.	☑	
11	9	Pop-up menus are provided for the user to access information about an object's properties or perform specific tasks on the object.	☑	
12	10	System display notification message when meet trouble, error.	☑	
13		**Security**		
14	11	The system must use token-based authentication, in which the authentication server returns an access token user logged in	☑	
15		**Performance**		
16	12	Any pages in the system shall fully load in at maximum of 20 seconds in normal condition. Except upload documentation page when upload many file or big size file or sending multiple email for multiple user.	☑	
17	13	Website can hold at least 200 people at the same time	☑	
18		**Feature**		
19	14	Manage employee profiles	☑	

Figure 5.6: Acceptance Testing

4.5 Issue Log

Project **Garment Factory Human Resource Management System** uses **Google Sheets** to manage problems. Google Sheets makes it easy for developers and testers to track and participate in activities like fixing bugs, retesting, and closing issues. Issues will be logged by testers or developers throughout the system development process.

ID bug	Screen	Subject	Description	Picture	Status	Priority	Assignee
LLV_TC07	Work schedule	Leave some fields blank but you can still add them	1. Login the system with Manager role. 2. Select the "Calendar" drop-down tab in the left menu. 3. Select "Employee work schedule" 4. Leave all fields blank 5. Click the "Add by Position" button		Closed	High	ThanhNX
QLHS_TC02	Manage employee records	Check if the image displayed is not correct or complete	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu.		Closed	Medium	ThanhNX
QLHS_TC04	Manage employee records	Incomplete fields were entered but Create was still possible	1. Login the system with Manager role. 2. Click "Manage employee records" tab in the left menu. 3. Select the button "Add new employee profile" 4. Enter all fields 5. Select "Create"		Closed	High	ThanhNX
QLHS_TC14	Manage employee records	Notice: Failed to delete employee profile	1. Login the system with Manager role. 2. Click "Manage Personnel Profile" tab in the left menu. 3. Select the button "Add new personnel profile" 4. Select the "Delete" button 5. Select "Yes"		In_progress	Medium	ThanhNX
QLHS_TC19	Manage employee records	Reality: Failed to update employee profile	1. Login the system with Manager role. 2. Click "Manage Personnel Profile" tab in the left menu. 3. Select the "Details" button 4. Select the "Edit" button 5. Enter all fields that need to be updated 6. Click update		Closed	High	ThanhNX
QLHS_TC28	Manage employee records	Do not display a red error when entering the incorrect format of the "CCCD" field as 12 numbers	1. Login the system with Manager role. 2. Click "Manage Personnel Profile" tab in the left menu. 3. Select the "Details" button 4. Select the "Edit" button 5. Enter "CCCD Number": 032165498		In_progress	Medium	SyNT
QLHS_TC40	Employee profile management (Trade union management)	Message: "Operation failed"	"1. Login the system with Manager role. 2. Click ""Manage employee records"" tab in the left menu. 3. Select the ""Details"" button 4. Select ""Add union 5. Enter all fields 6. Select ""OK"""		Closed	High	SyNT

ID bug	API	Subject	Description	Picture	Status	Priority	Assignee
Get_TypeSubsidies_01	TypeSubsidies	Tea about error 403	1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/swagger/index.html 2. Send API Auth login request: Method: GET Endpoint:/api/auth/auth_account. Content-Type:application/json Data:{"username":"quang", "password":"quang"} Get the access token and put it into authorize 3. Get TypeSubsidies and click try it out: Method: GET Endpoint:/api/TypeSubsidies Content-Type:application/json 4. Click execute to see the results		Closed	High	QuangTV
Get_TypeSubsidies_02	TypeSubsidies	Tea about error 403	1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/swagger/index.html 2. Get TypeSubsidies and click try it out: Method: GET Endpoint:/api/TypeSubsidies Content-Type:application/json 3. Click execute to see the results		Closed	High	QuangTV
POST_TypeSubsidies_03	TypeSubsidies	Tea about error 403	1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/swagger/index.html 2. Send API Auth login request: Method: GET Endpoint:/api/auth/auth_account. Content-Type:application/json Data:{"username":"quang", "password":"quang"} Get the access token and put it into authorize 3. Add TypeSubsidies and click try it out: Method: POST Endpoint:/api/TypeSubsidies Content-Type:application/json 4. Enter required field data 5. Click execute to see the results		Closed	High	QuangTV
Get_TypeSubsidies_05			1. Visit the API page: https://api-xuongmay-dev.bancantoi.site/swagger/index.html 2. Send API Auth login request: Method: GET Endpoint:/api/auth/auth_account. Content-Type:application/json Data:{"username":"quang", "password":"quang"} Get the access token and put it into authorize 3. Edit TypeSubsidies and click try it out: Method: PUT Endpoint:/api/TypeSubsidies Content-Type:application/json 4. Enter the "id" field:				

Figure 5.7:Issue Integration Test Log in Sheet & Issue API Test Log in Sheet

5. Test Reports

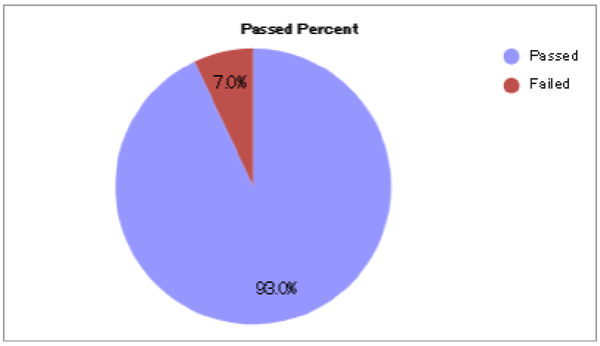
5.1 Unit Test report

UNIT TEST REPORT

Project Name	*<Project Name>*	**Creator**	
Project Code	*<Project Code>*	**Reviewer/Approver**	
Document Code	*<Project Code>_Test Report_vx.x*	**Issue Date**	*<Date when this test report is created>*
Notes	*<List modules included in this release> ex: Release 1 includes 2 modules: Module1 and Module2*		

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
1	Create Employee Profile	14	1	0	14	1	0	15
2	Update Employee Profile	15	0	0	15	0	0	15
3	Login	8	2	0	8	2	0	10
4	Create employee accounts	11	4	0	11	4	0	15
5	Update employee accounts	5	0	0	5	0	0	5
6	Change employee account password	8	0	0	8	0	0	8
7	Create a work schedule	12	0	0	12	0	0	12
8	Update work schedule	5	0	0	5	0	0	5
9	Create Leave Application	15	0	0	15	0	0	15
	Sub total	93	7	0	93	7	0	100

Test coverage	**100.00**	%
Test successful coverage	**93.00**	%
Normal case	**93.00**	%
Abnormal case	**7.00**	%
Boundary case	**0.00**	%



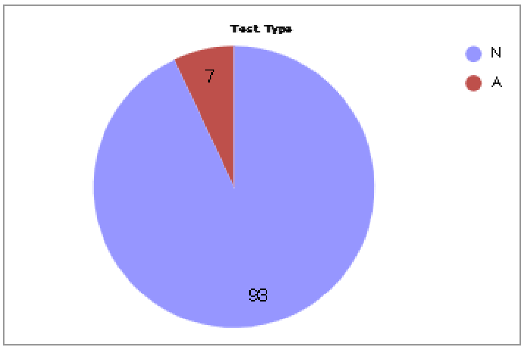


Figure 5.8: Unit Test Report

5.2 Integration Test Report

No	Module code	Passed	Failed	Pending	N/A	Number of test cases
1	Education level	12	0	0	0	15
2	Rank	20	0	0	0	20
3	Manage personnel profiles	60	7	0	6	73
4	Position	19	0	0	0	19
5	Title - Position	23	0	0	0	23
6	Type of allowance	16	0	0	0	16
7	Departments	12	0	0	0	12
8	Position - Department	13	0	0	0	13
9	Job title - Union position	18	0	0	0	18
10	Insurance	19	0	0	0	19
11	Allowances	88	2	0	0	90
12	Dependent type	16	0	0	0	16
13	Role	33	0	0	32	33
14	Type of allowance	16	0	0	0	16
15	Employee work schedule	16	0	0	0	16
16	Account Management	25	0	0	0	25
17	Install year	10	0	0	0	10
18	Shift	8	0	0	0	8
19	Labor Contract Management	24	0	0	0	24
20	Access history	5	1	0	0	6
	Sub total	448	9	0	38	466

Test coverage	**106.78**	%
Test successful coverage	**104.67**	%

Figure 5.9: Integration Test Report

5.3 System Test Report

No	Module code	Passed	Failed	Pending	N/A	Number of test cases
1	Work schedule Management process	6	0	0	0	6
2	Process for managing work schedules	8	1	0	0	9
3	Check the account management process	1	1	0	0	2
4	Check the employee records	12	1	0	0	13
5	Check the Education Management	1	1	0	0	2
6	Check the Allowance Type Setting	4	0	0	0	4
7	Check the Access History process	1	1	0	0	2
8	Check out the Roles Management	1	1	0	0	2
9	Check the Allowance_Allowance	3	0	0	0	3
10	Check the Insurance Management	1	0	0	0	1
	Sub total	38	6	0	0	44

Test coverage	100.00	%
Test successful coverage	86.36	%

Figure 5.10: System Test Report

5.4 API Test Report

No	Module code	Passed	Failed	Pending	N/A	Number of test cases
1	TypeSubsidies	0	6	5	0	11
2	TypeSubsidies	0	6	5	0	11
3	Users	0	6	13	0	19
4	UserInfos	0	6	17	1	24
5	UserInsurances	14	2	0	0	14
6	RoleClaims	6	5	0	0	11
7	CalendarDays	7	1	0	0	8
8	Claims	4	0	0	0	4
9	Departments	6	3	0	0	9
10	YearCalendars	5	4	0	0	9
11	UserWorkSchedules	9	12	6	0	27
12	FamilySituations	0	8	0	0	8
13	Insurances	11	0	0	0	11
14	LeaveRequest	4	6	0	0	10
15	Position	9	2	0	0	11
16	PositionsUnions	9	2	0	0	11
17	UserSubsidies	3	1	1	0	5
	Sub total	87	70	47	1	203

Test coverage	77.72	%
Test successful coverage	43.07	%

Figure 5.11: API Test Report

VI. Release Package & User Guides

1. Deliverable Package

1.1 Documents

No.	Deliverable Item	Description
1	Final Project	The complete final version of the **Garment Factory Human Resource Management System** project, including all features and functionality.
2	Unit Test Report	A detailed report of all unit tests performed, including test cases, results, and coverage for individual components of the system.

No.	Deliverable Item	Description
3	API Test Report	A report of all API tests conducted to ensure that the system's API endpoints function as expected, including request/response validation and error handling.
4	Integration Test Report	A report documenting the results of integration testing, validating the interaction between different modules or systems within the project.
5	System Test Report	A comprehensive report on system testing, which includes tests conducted on the entire system to ensure it meets the business and functional requirements.

Table 6.1: Documents deliverable package

1.2 Source codes

No.	Deliverable Item	Description
1	XuongMayBE	The source code for the backend (XuongMayBE) of the **Garment Factory Human Resource Management System** project, including all server-side logic and API implementations.
2	XuongMayFE	The source code for the frontend (XuongMayFE) of the system, including user interfaces and client-side logic
3	XuongMayMobile	The source code for the mobile version of the system, including mobile-responsive UI and functionalities.
4	UnitTest	The source code for unit tests that ensure the functionality of individual components and modules in the system.

Table 6.2: Source codes deliverable package

2. Installation Guides

2.1 System Requirements

Windows 10 Professional 64-bit
Intel® Core™ i5
RAM: 8.00GB
Visual Studio 2022 Version="1.20.1"
SQL Server 2022
Visual Studio Code Version 1.32

2.2 Installation Instruction

2.2.1 Install XuongMayBE Project & Install XuongMayMobile Project

Install Visual Studio 2022 (.NET 8)

- Download Visual Studio 2022 from the official website: [Download Visual Studio 2022]
- Follow the on-screen instructions to complete the installation.

Install SQL Server 2022

- Download SQL Server 2022 from the official website: [Download SQL Server 2022]

- Follow the installation guide on the website, ensuring you select the appropriate edition (Developer or Express, depending on your needs).
- After installation, configure the SQL Server as per the system requirements.
- Open XuongMayBE project with Visual studio 2022
- Create project in SQL Server 2022
- Go to file appsettings.Developmentrename.json, appsettings.Product.json, appsettings.Staging.json database name with the created database, username & password with username & password

Figure 6.1: Database config guideline

2.2.2 Install XuongMayFE Project

Install Visual Studio Code version 1.92 by following the instruction at: https://code.visualstudio.com/

Open XuongmayFE project with Visual Studio Code.

Open terminal in project folder and run: npm run dev

3. User Manual

3.1 Overview

3.1.1 Admin

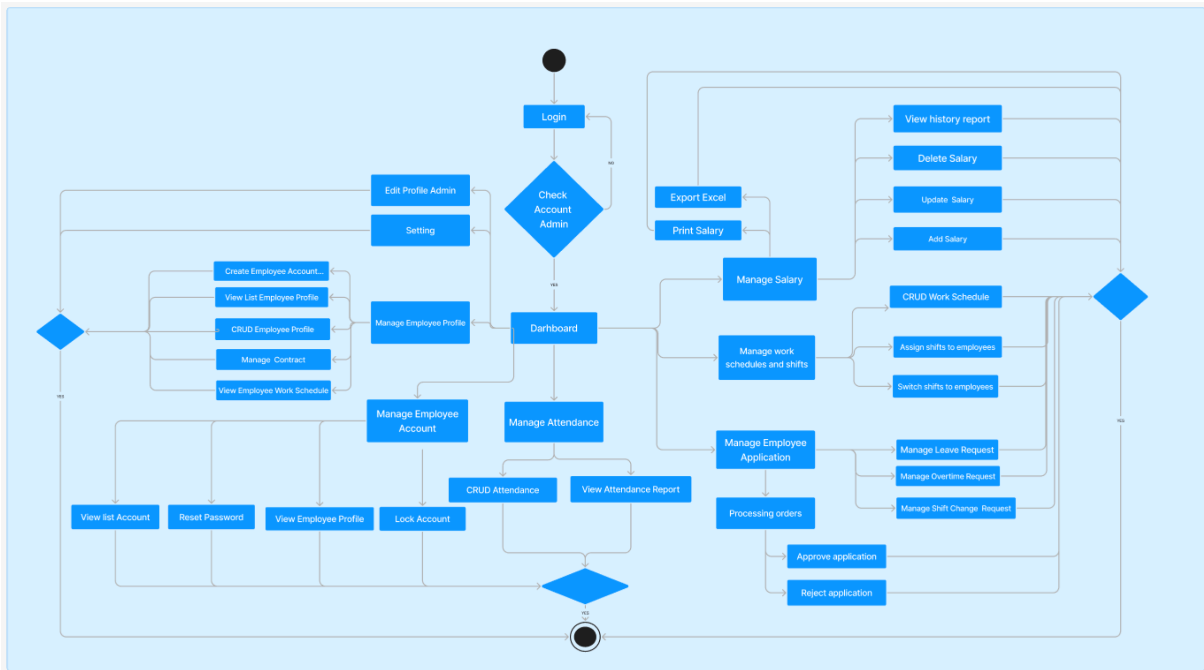


Figure 6.2: Workflow - Actor Admin

3.1.2 HR

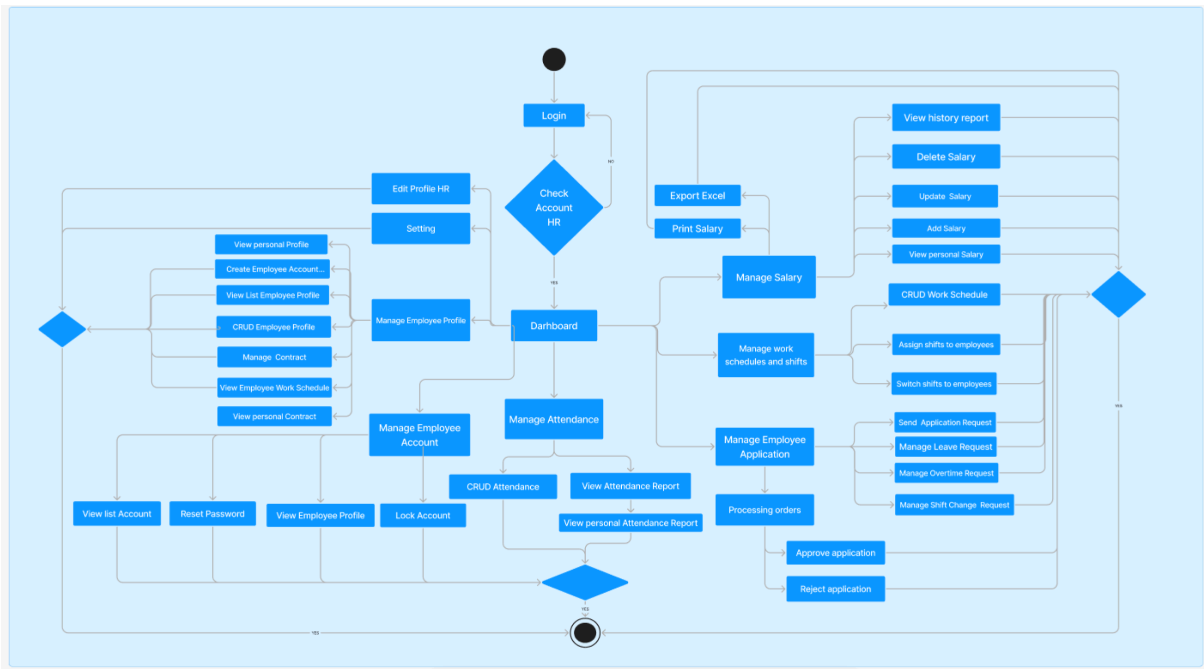


Figure 6.3: Workflow - Actor HR

3.1.3 Employee

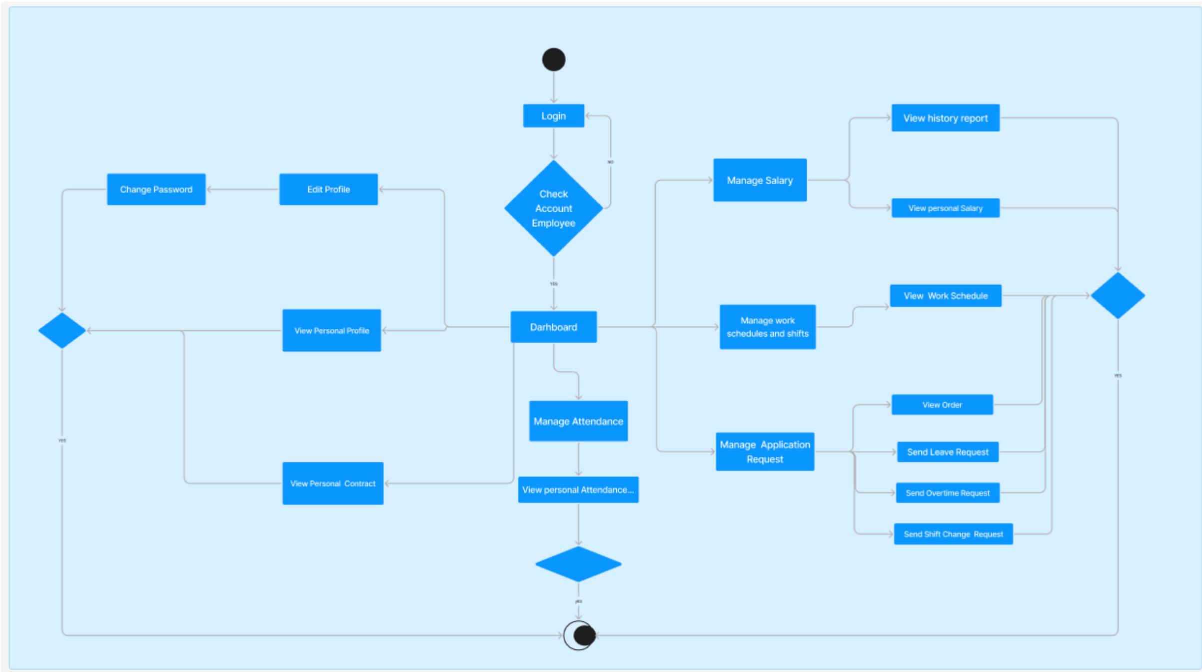


Figure 6.4: Workflow - Actor Employee

3.2 Workflow

3.2.1 Login

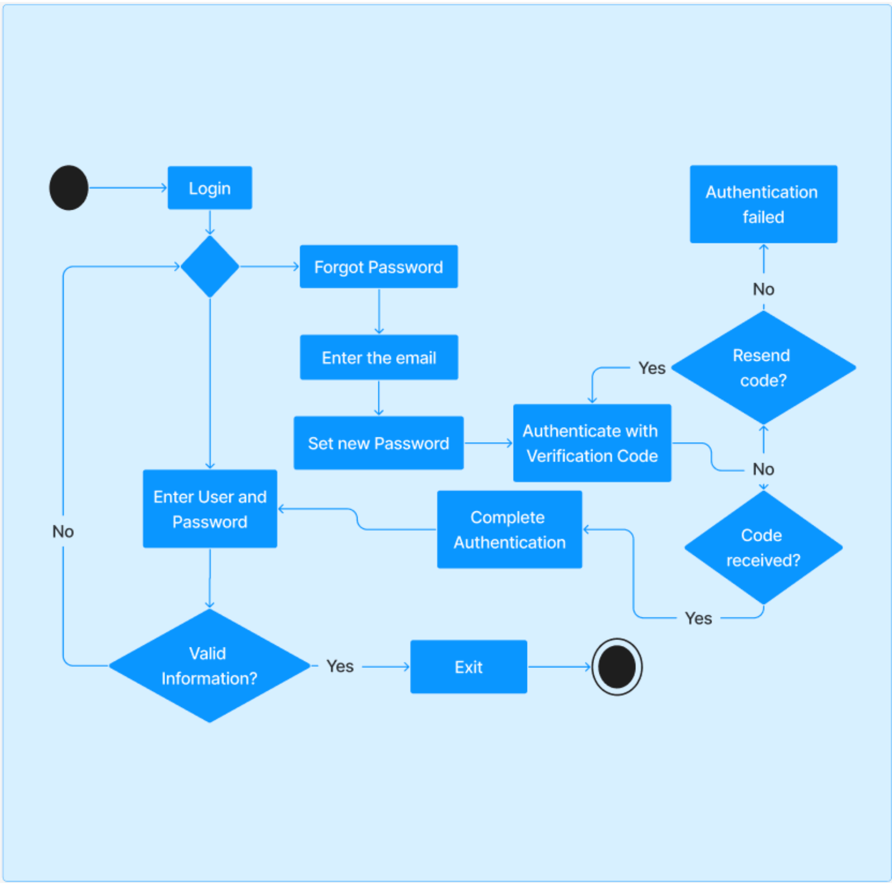


Figure 6.5: Workflow - Login

3.2.2. Log out

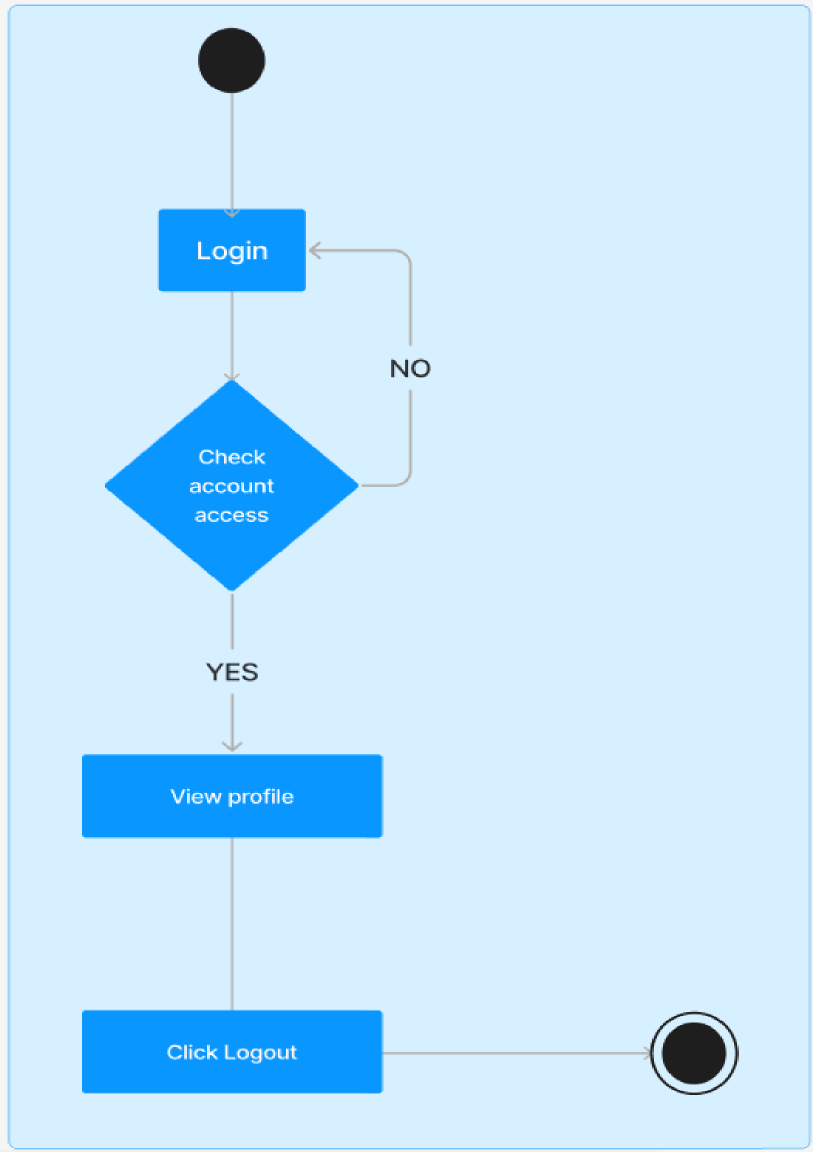


Figure 6.6: Workflow - Log out

3.2.3. Manage personal profile

3.2.3.1. View Profile

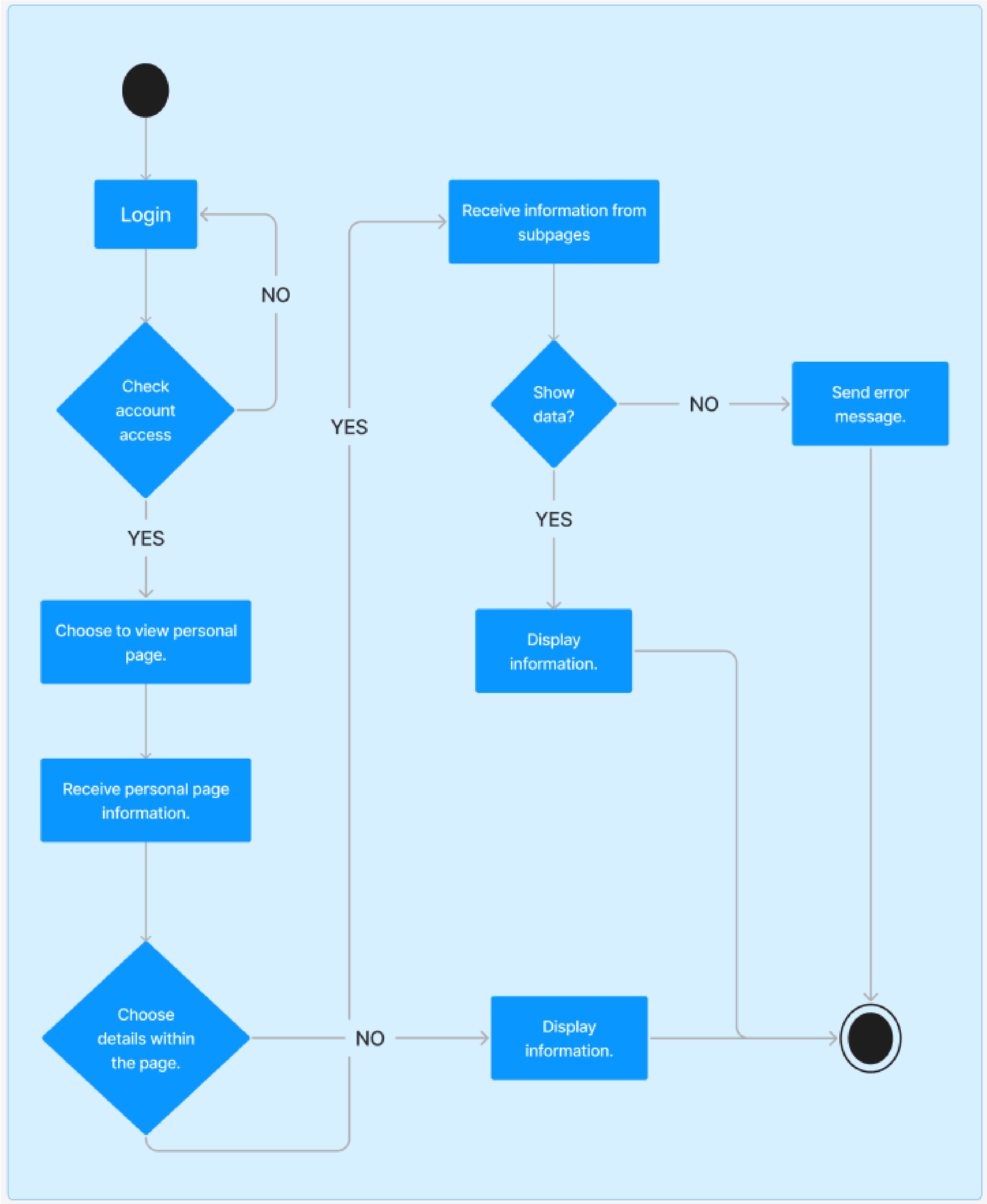


Figure 6.7: Workflow - View Profile

3.2.3.2. Change password

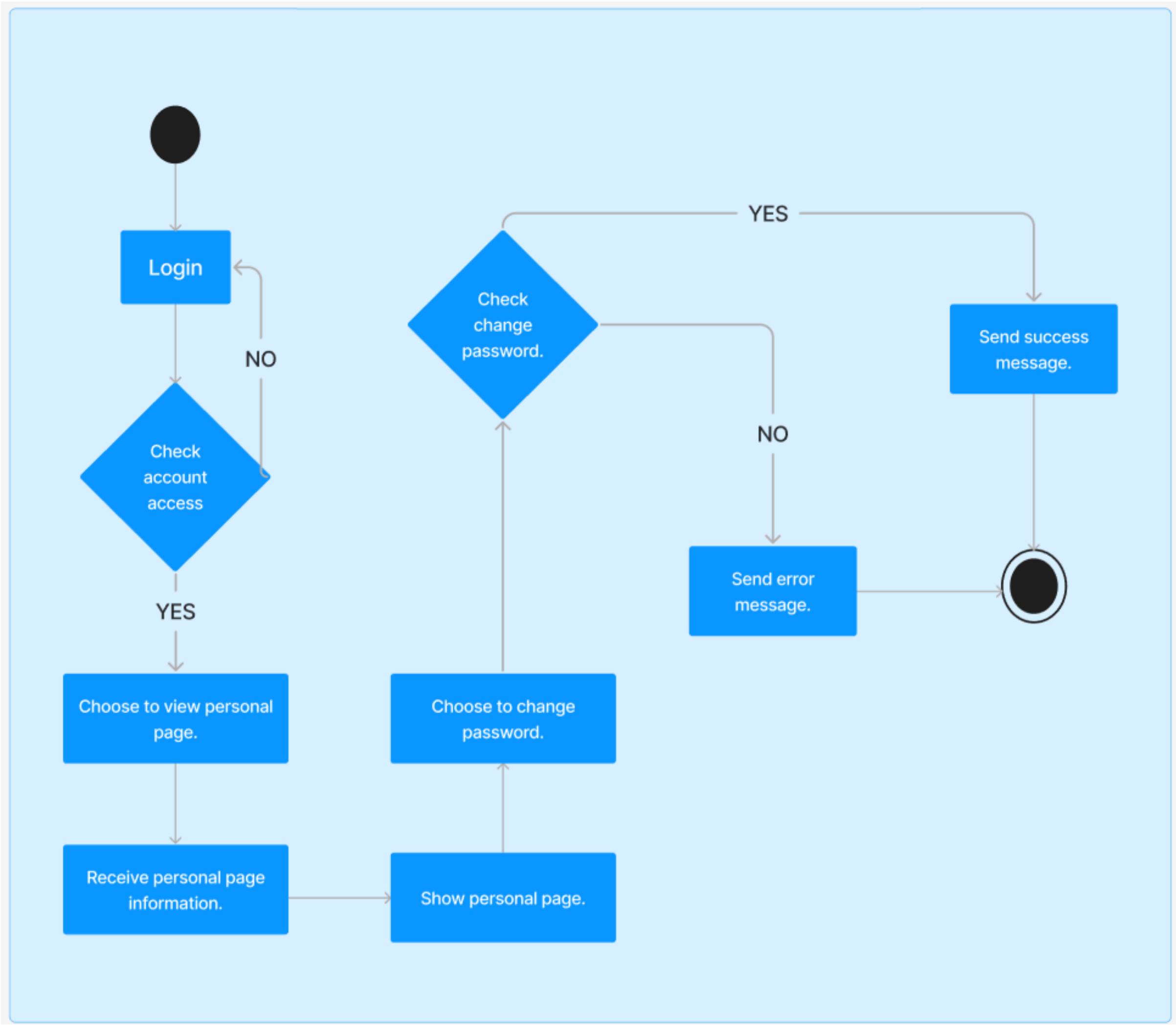


Figure 6.7: Workflow - Change Password

3.2.3.3. View individual labor contracts

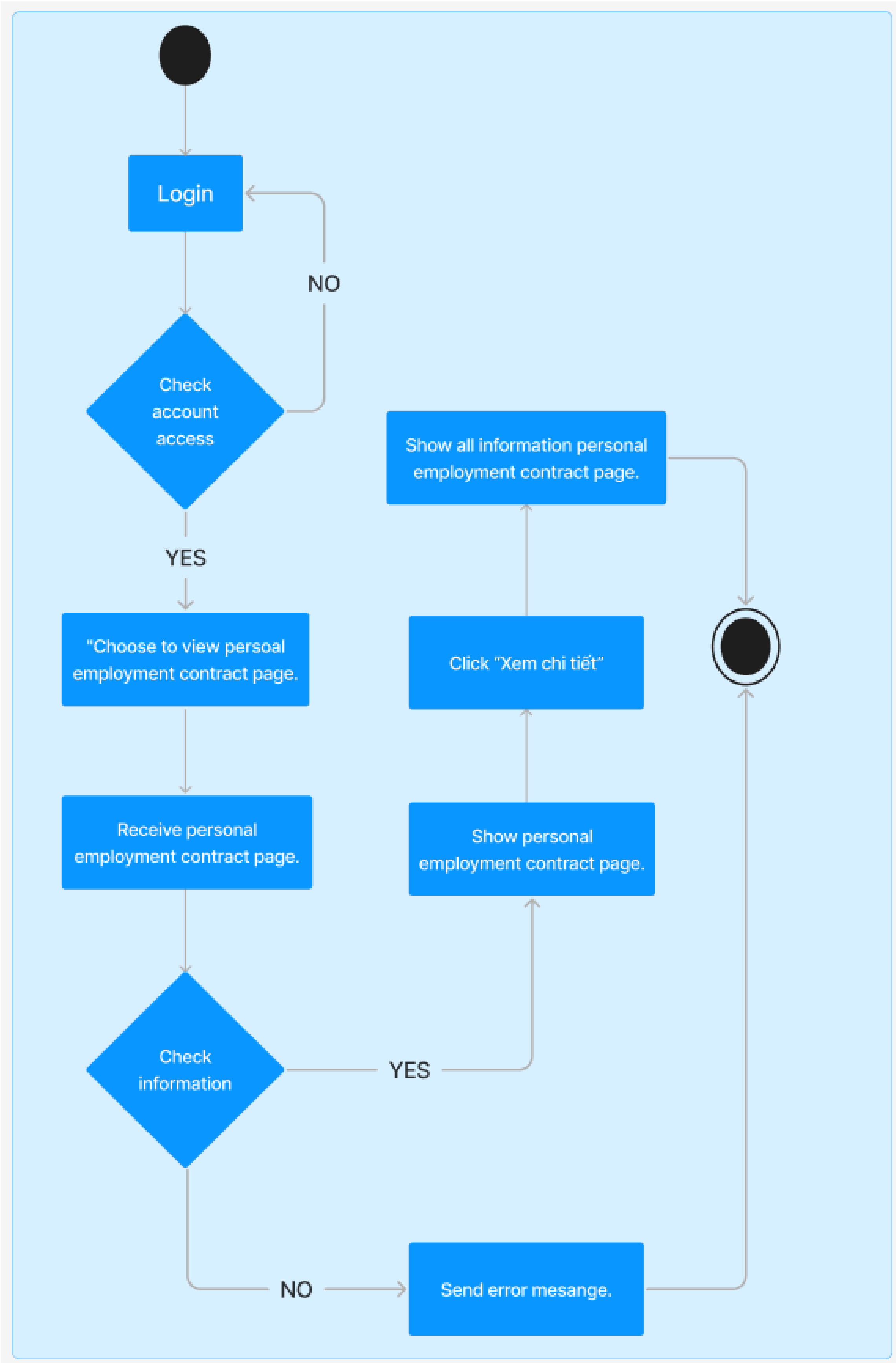


Figure 6.8: Workflow - View individual labor contracts

3.2.4 Manage employee records

3.2.4.1 View employee profile list

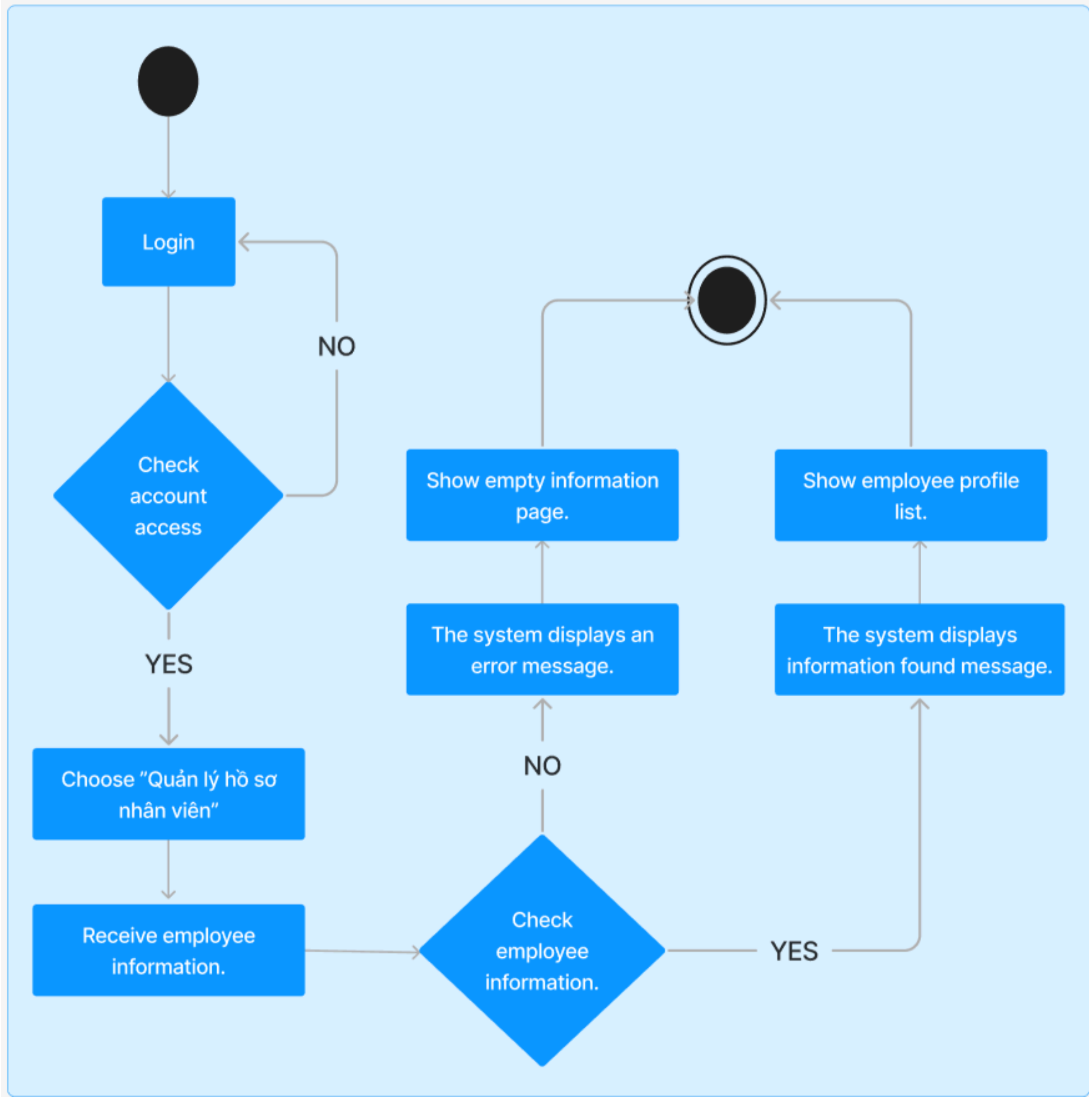


Figure 6.9: Workflow - View employee profile list

3.2.4.2 Create employee profiles

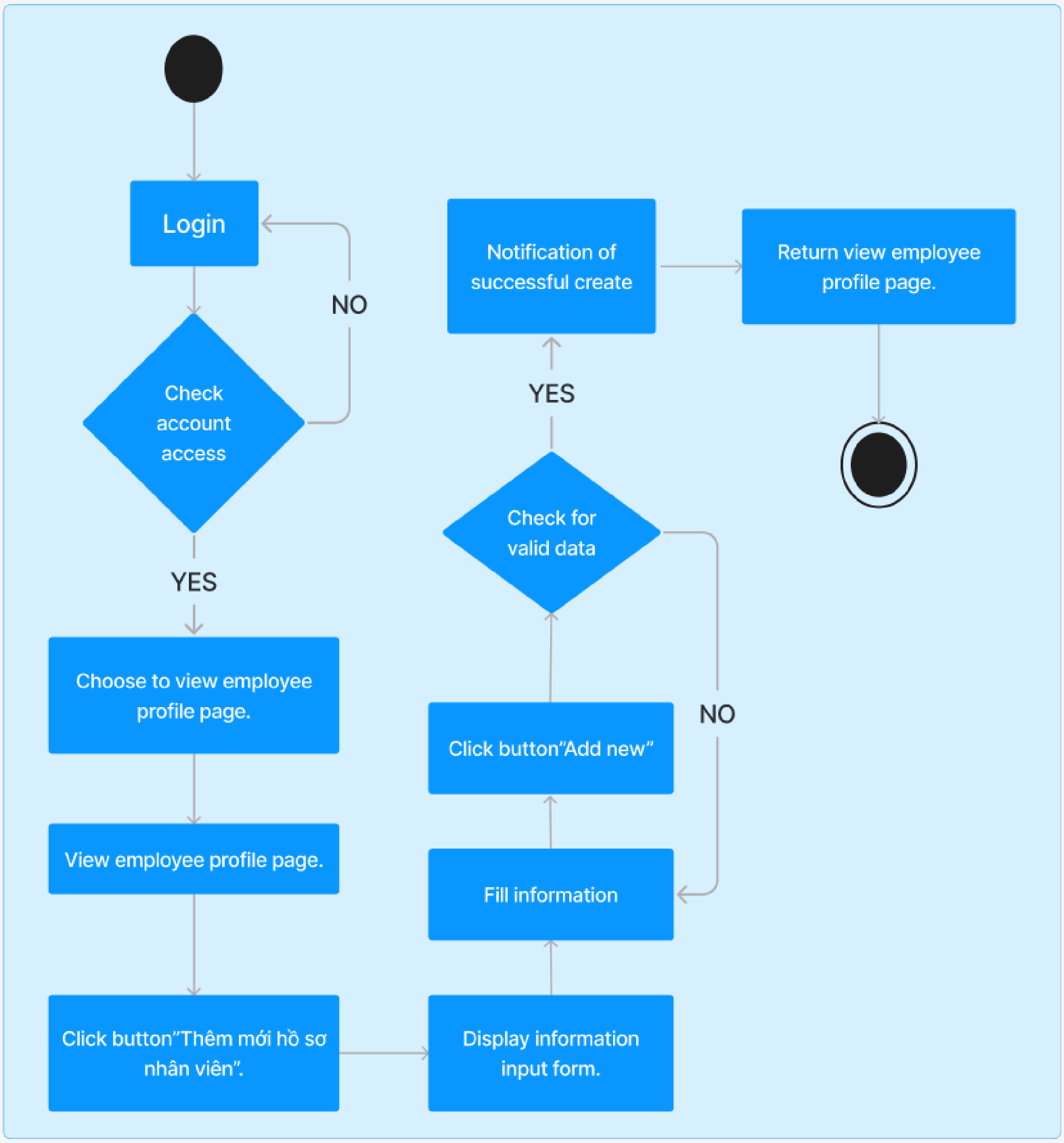


Figure 6.10: Workflow - Create employee profiles

3.2.4.3 Update employee Profile

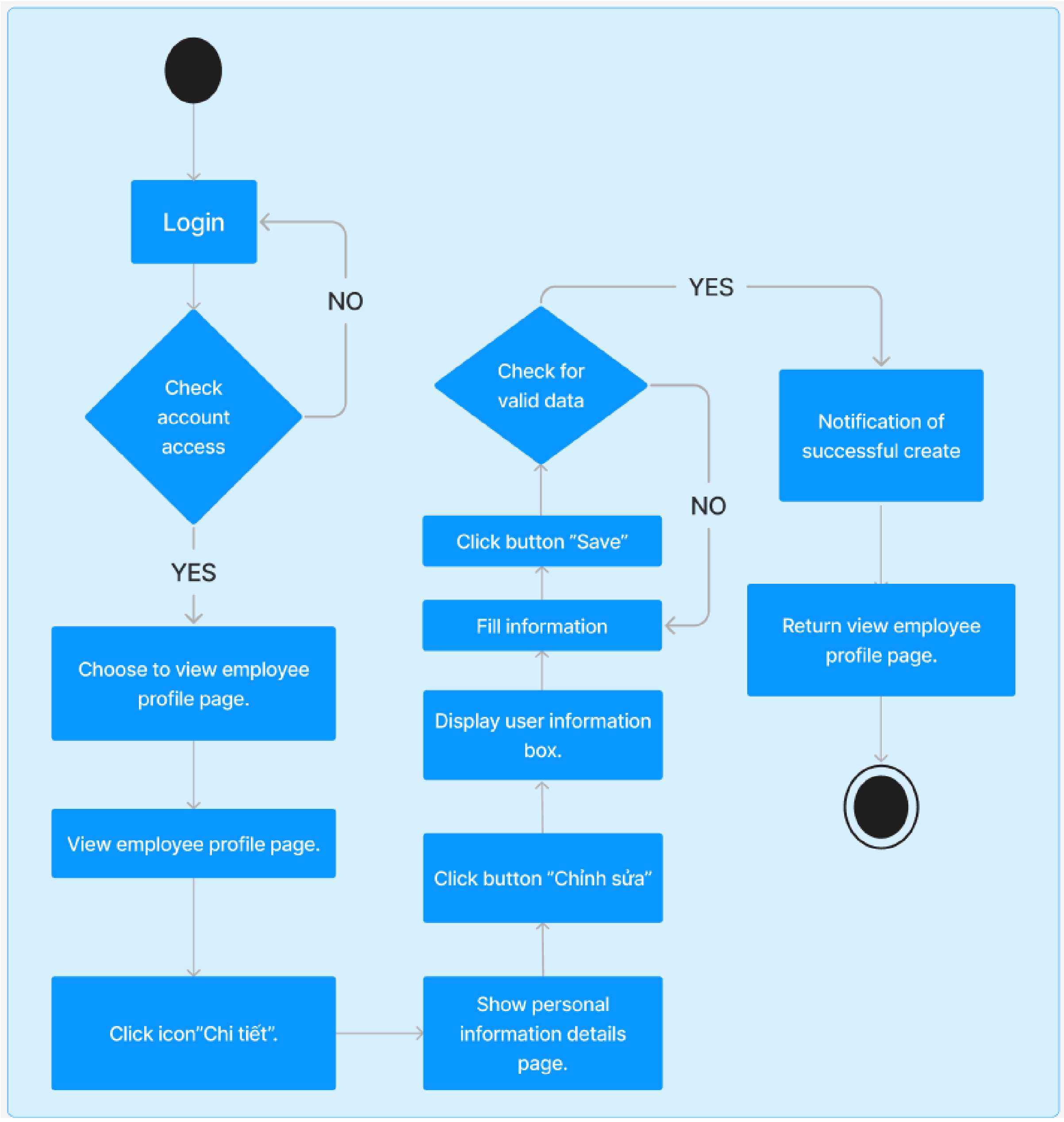


Figure 6.11: Workflow - Update employee profiles

3.2.4.4 View their own profile information

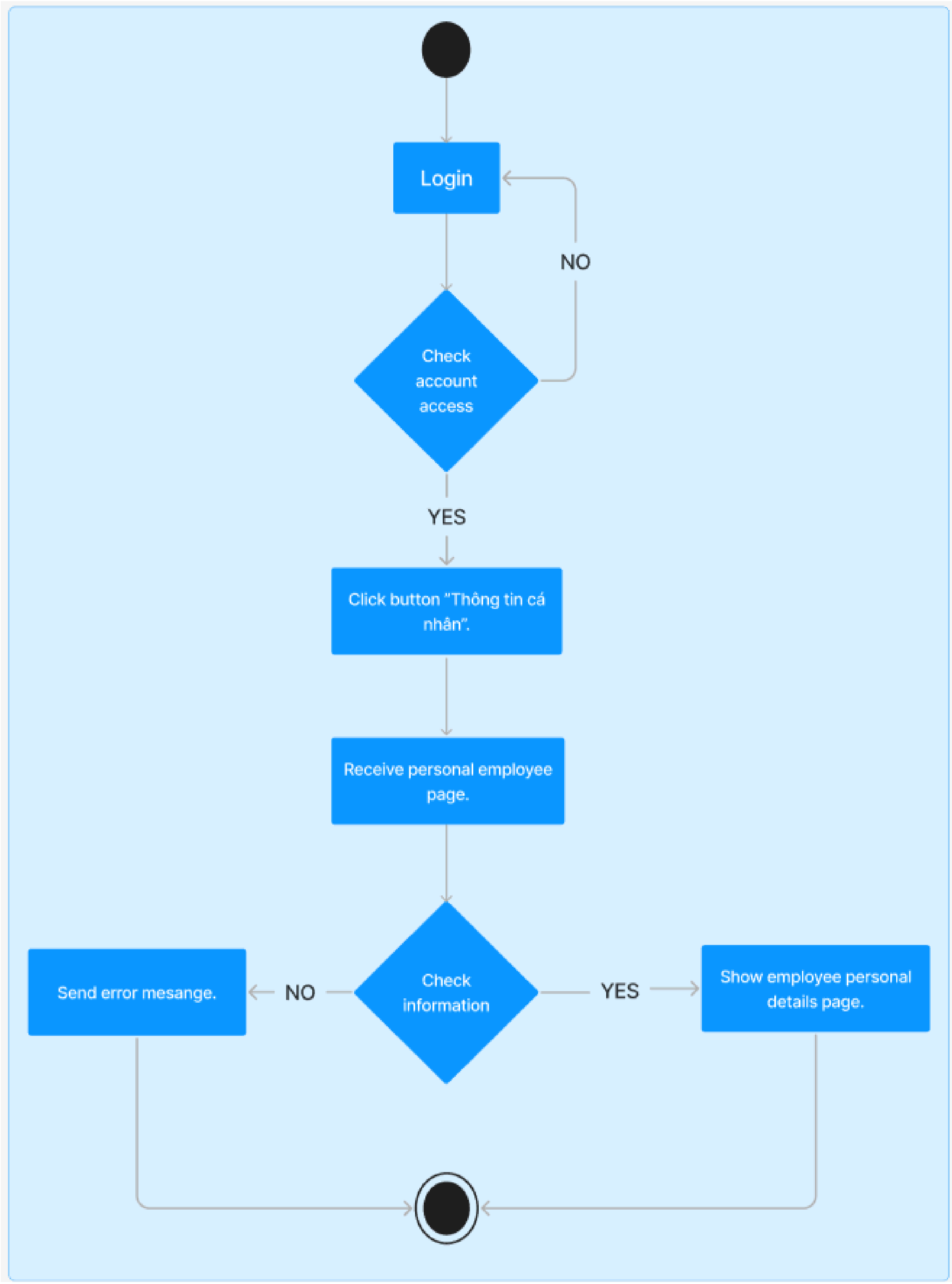


Figure 6.12: Workflow - View their own profile information

3.2.4.5 View their own contract information

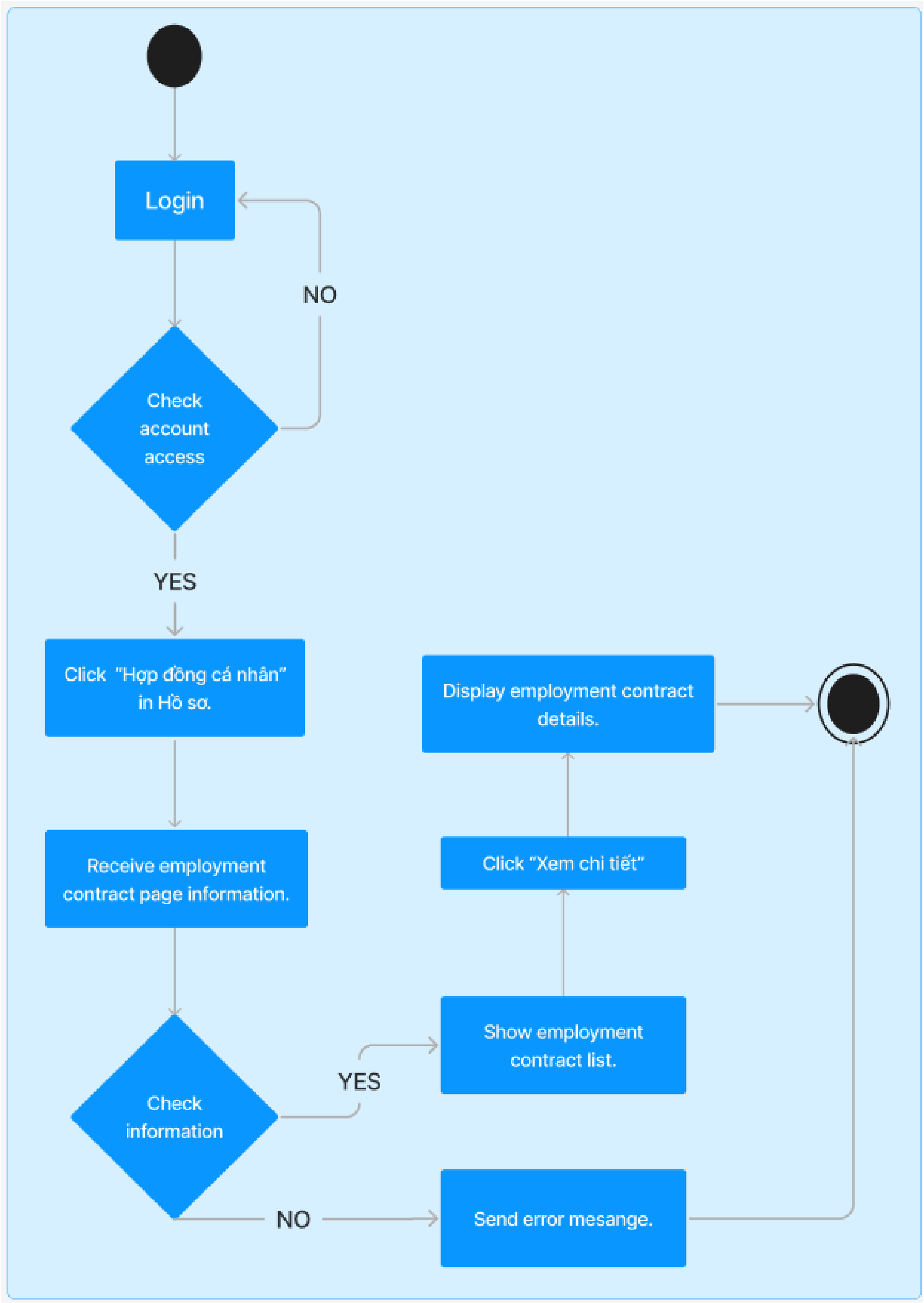


Figure 6.13: Workflow - View their own contract information

3.2.4.6 View employee profile details

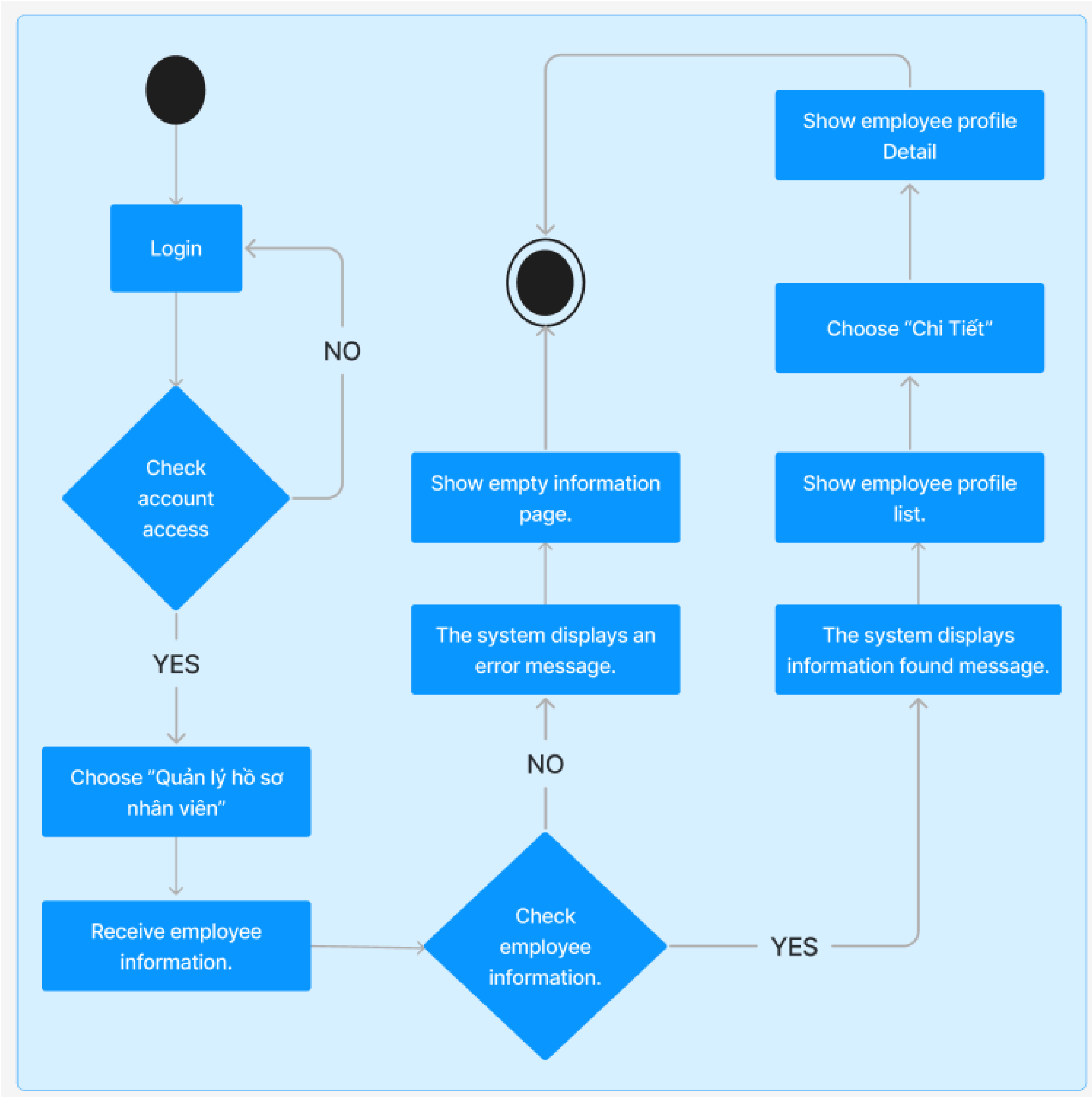


Figure 6.14: Workflow - View employee profile details

3.2.4.7 Create labor contract

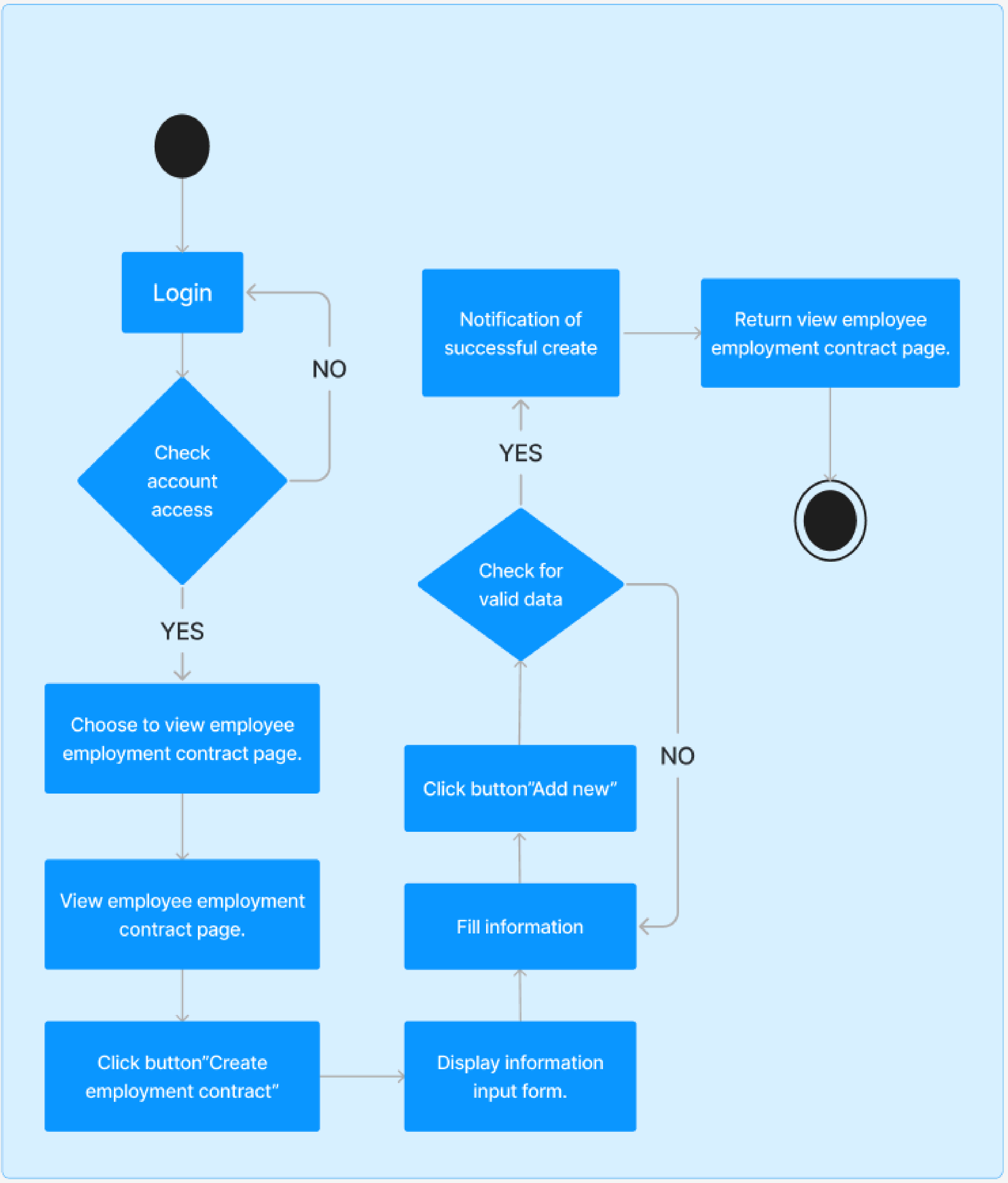


Figure 6.15: Workflow - Create labor contract

3.2.5 Manage Employee Accounts

3.2.5.1 View list of Employee accounts and Employee account details

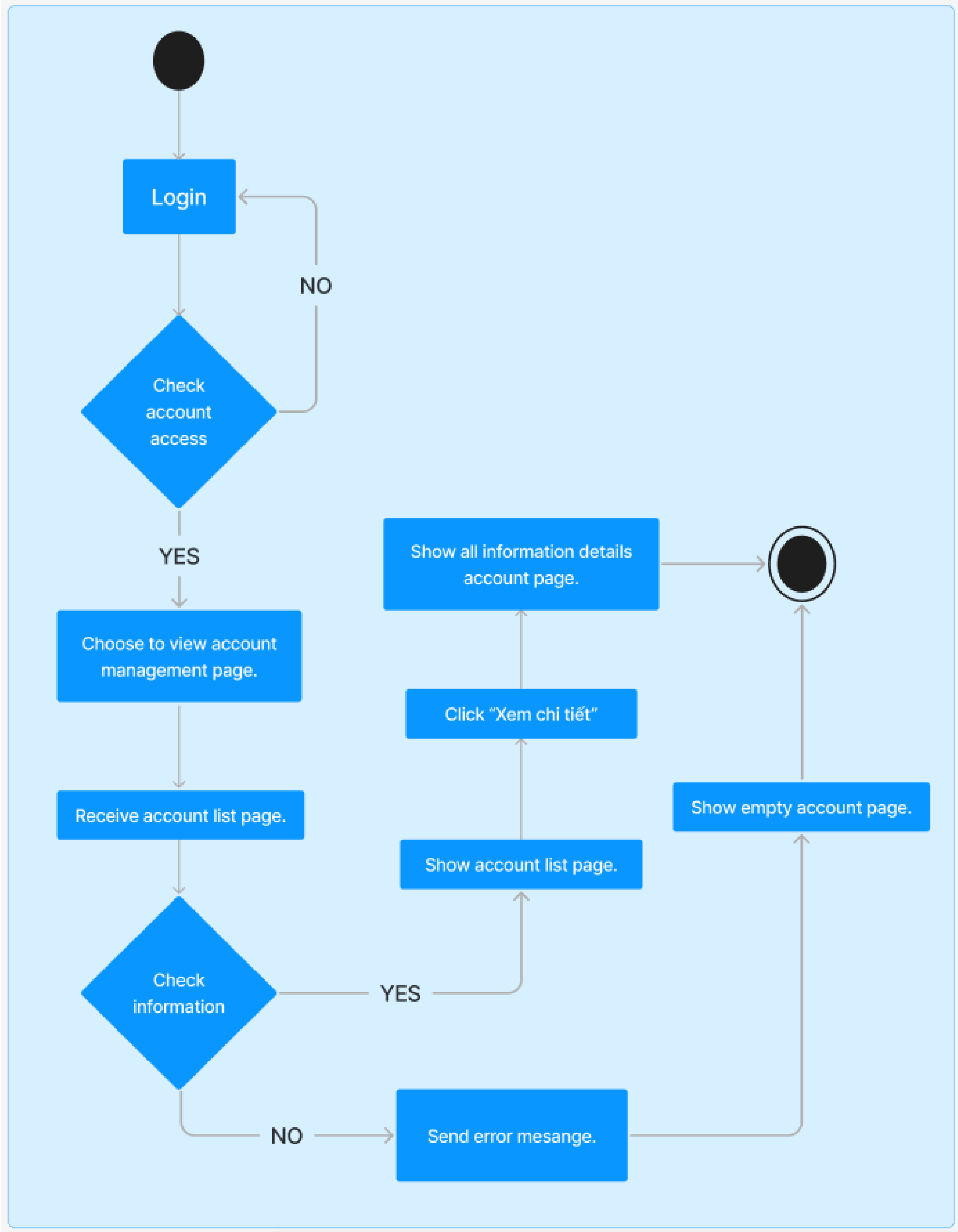


Figure 6.16: Workflow - View list of Employee accounts and Employee account details

3.2.5.2 Edit password for employee account

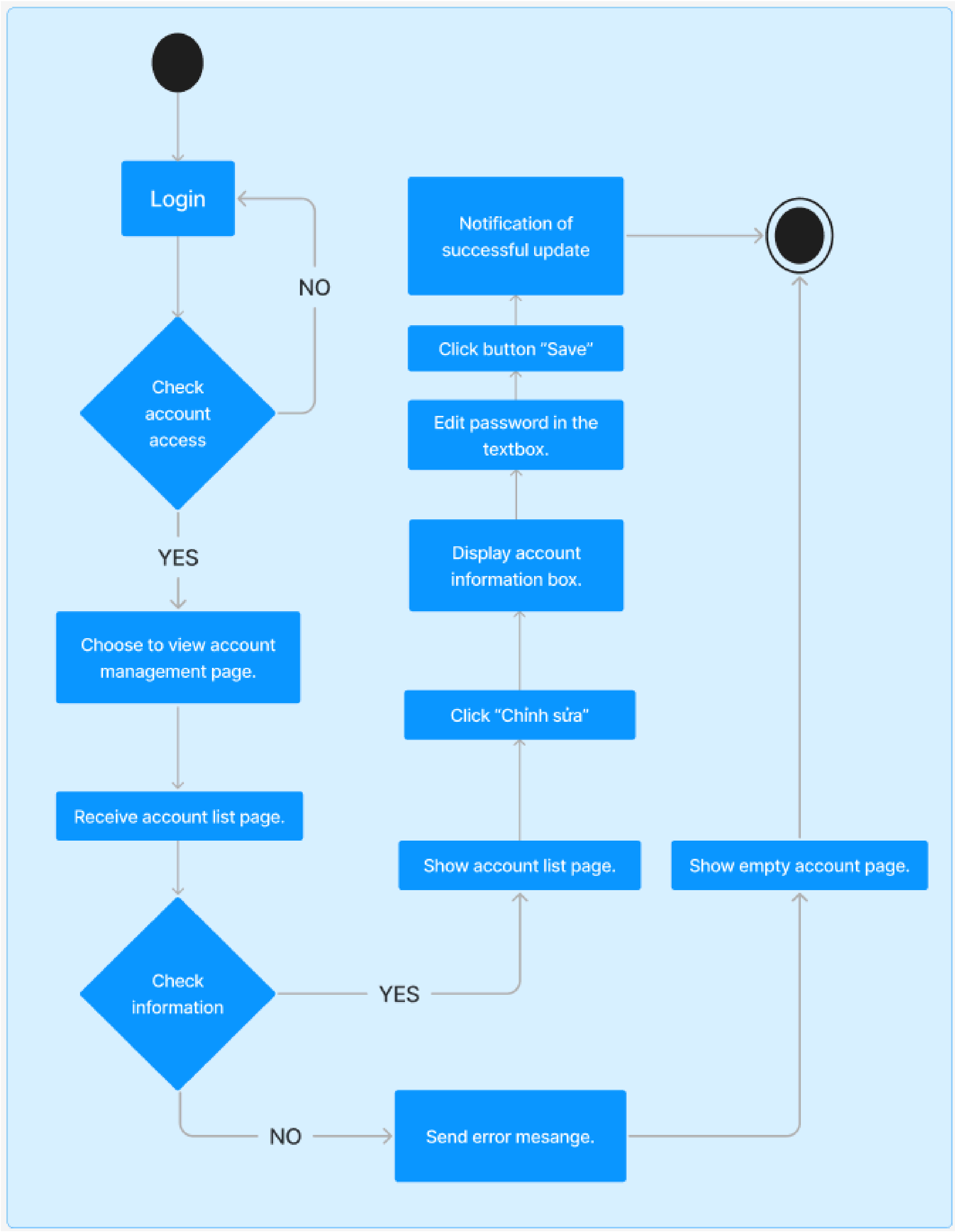


Figure 6.17: Workflow - Edit password for employee account

3.2.5.3 Create employee accounts

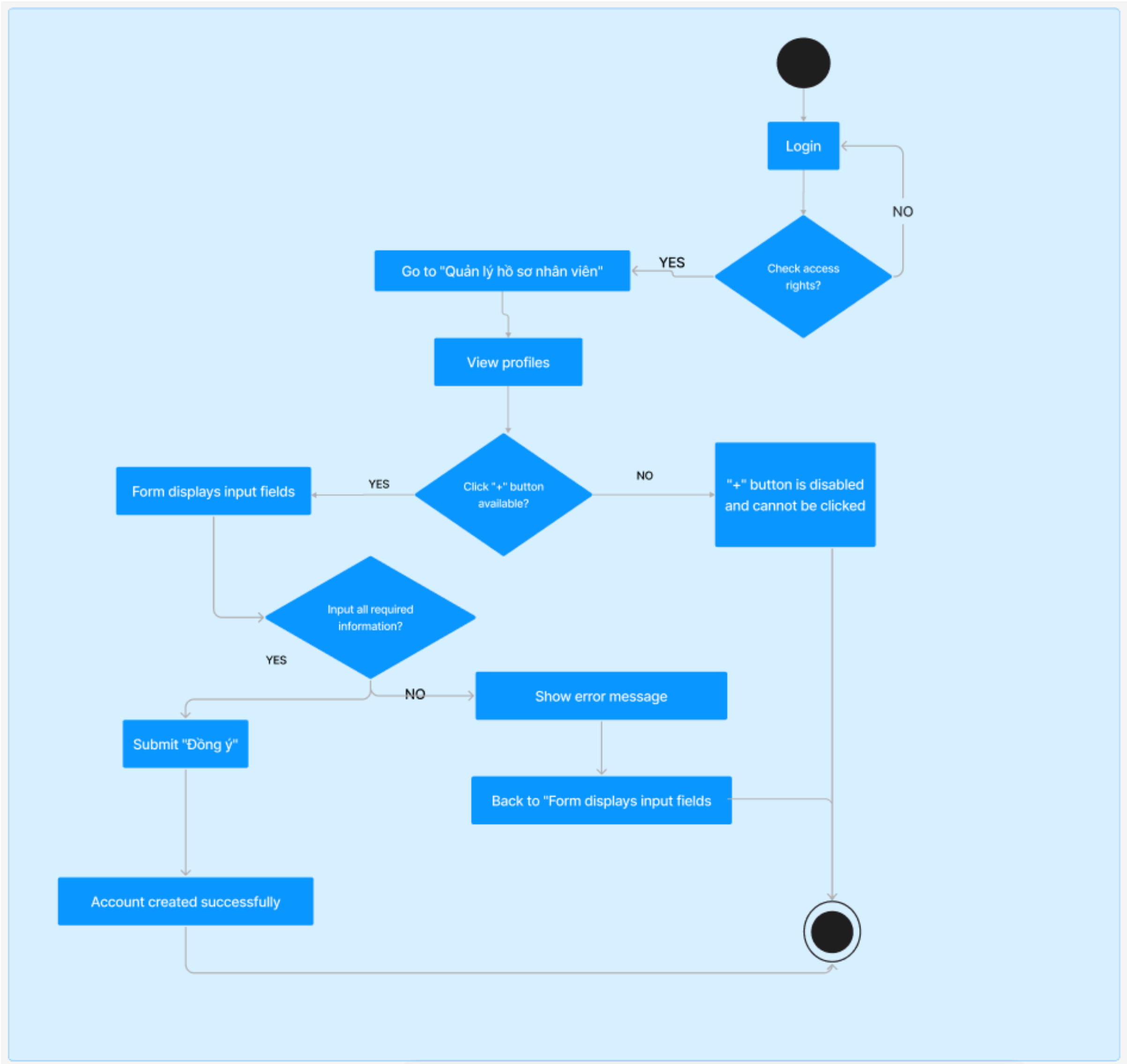


Figure 6.18: Workflow - Create employee accounts

3.2.5.4 Deactivate employee account

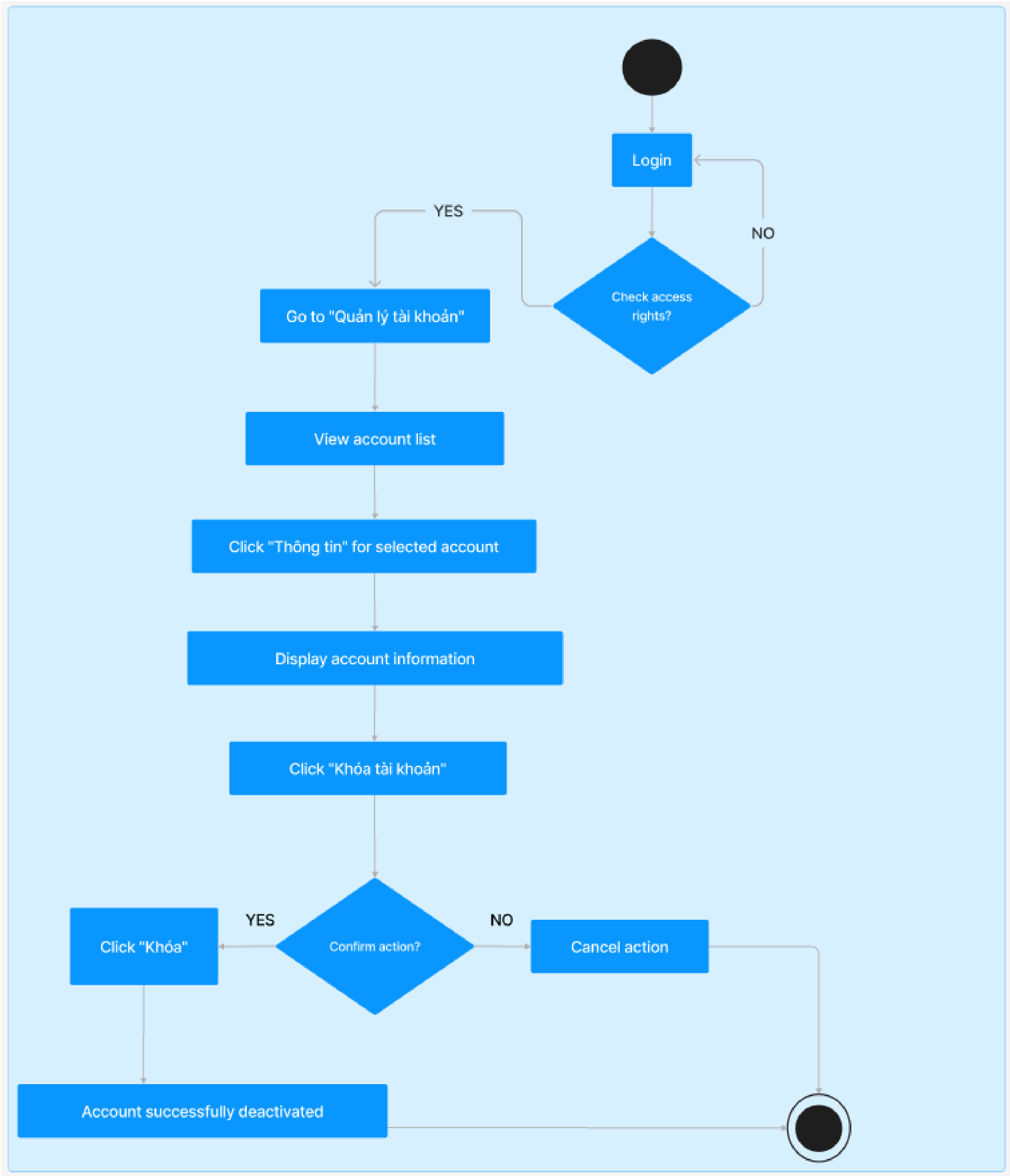


Figure 6.19: Workflow - Deactivate employee account

3.2.6 Timekeeping management

3.2.6.1 Perform timekeeping using timekeeping machine

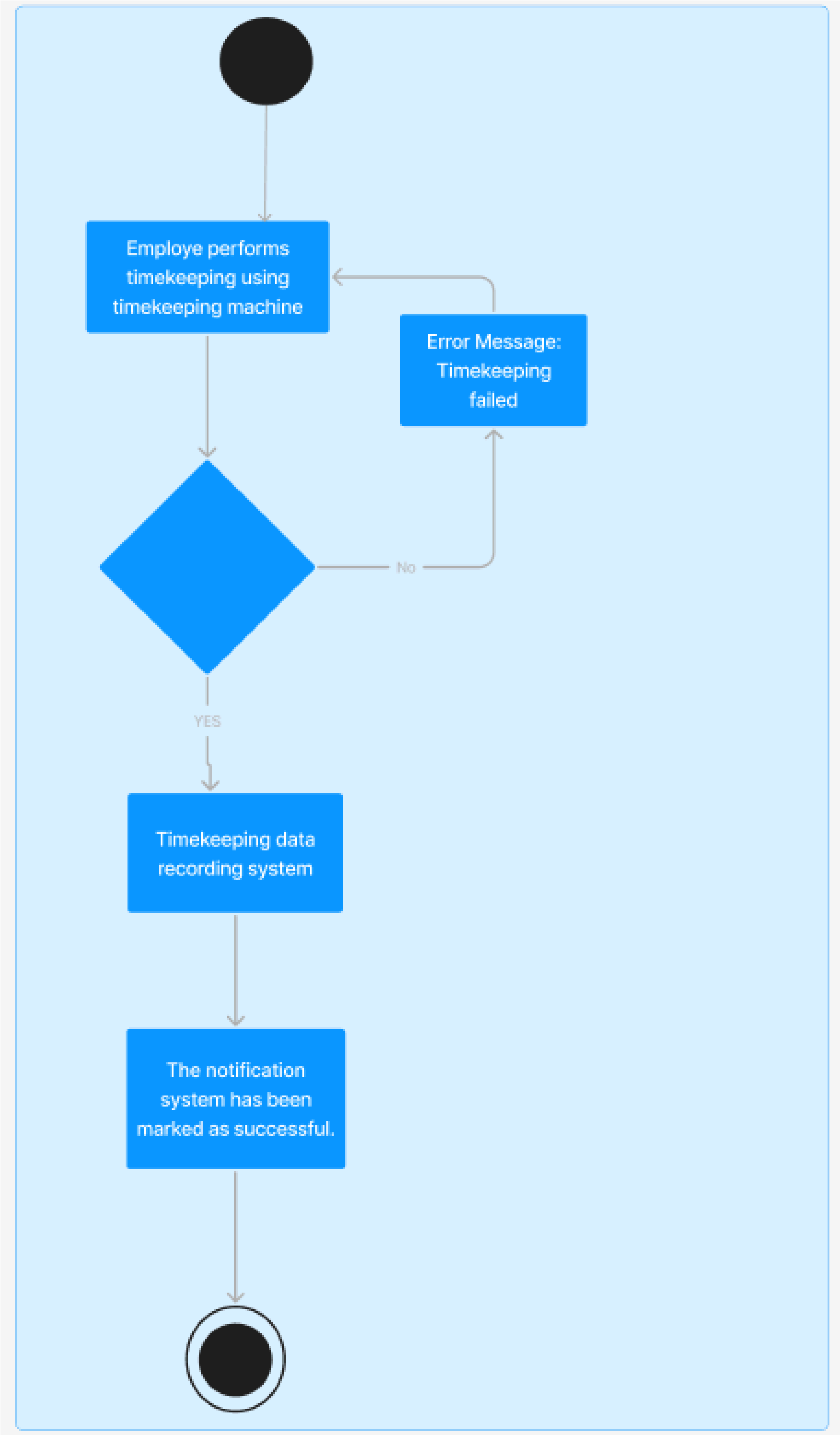


Figure 6.20: Workflow - Perform timekeeping using timekeeping machine

3.2.6.2 View their own attendance reports

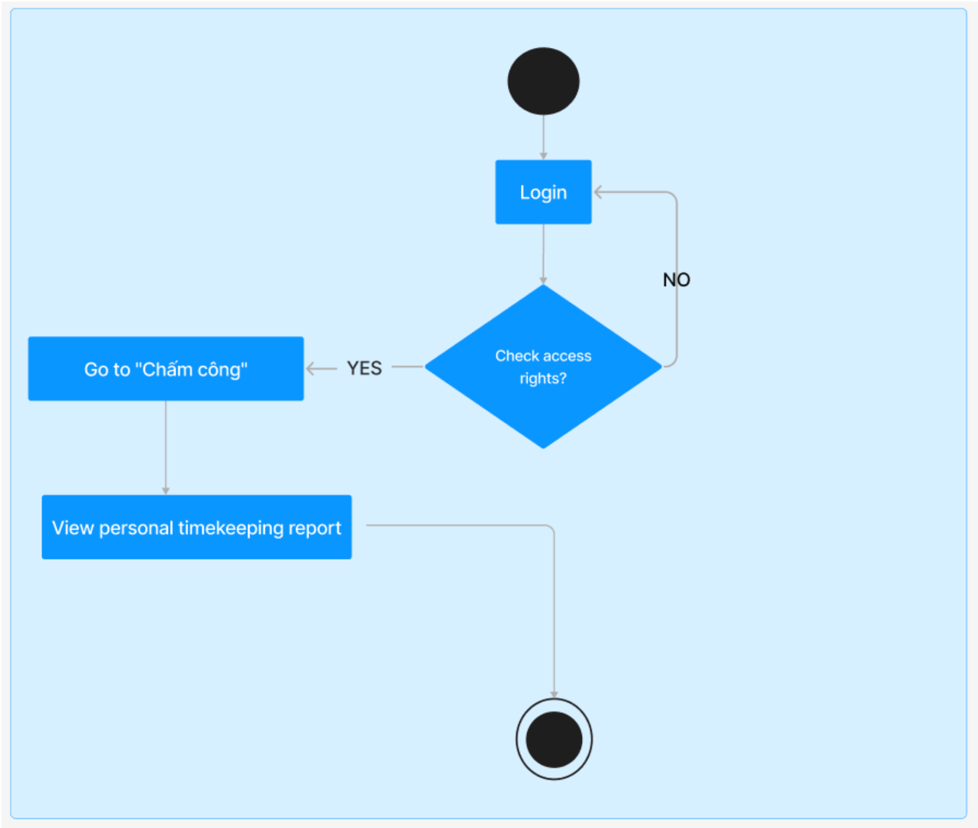


Figure 6.21: Workflow - View their own attendance reports

3.2.6.3 View attendance report

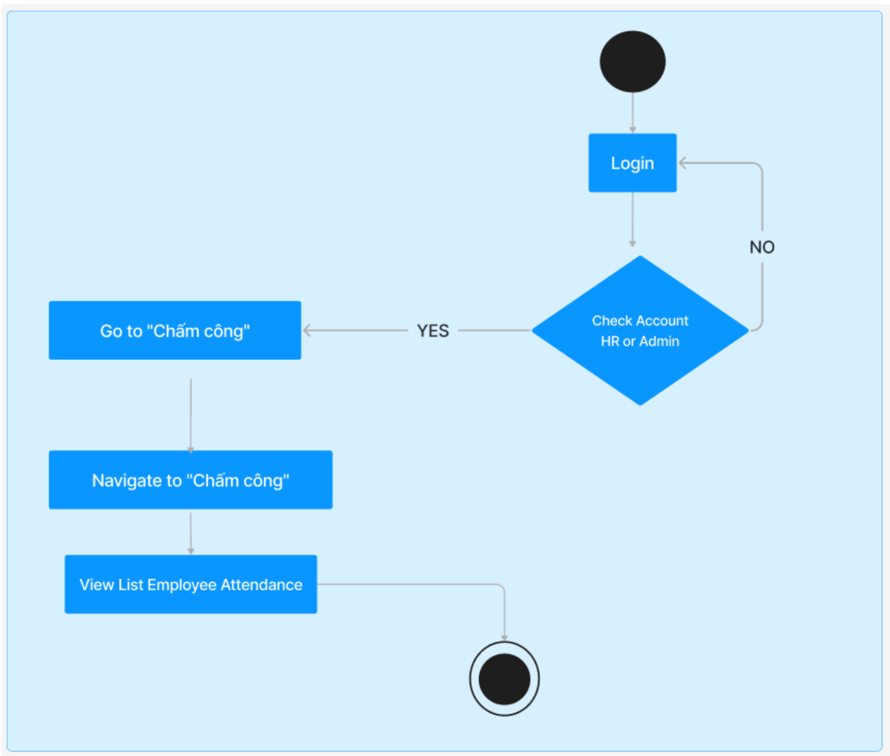


Figure 6.22: Workflow - View attendance report

3.2.6.4 Check employee attendance

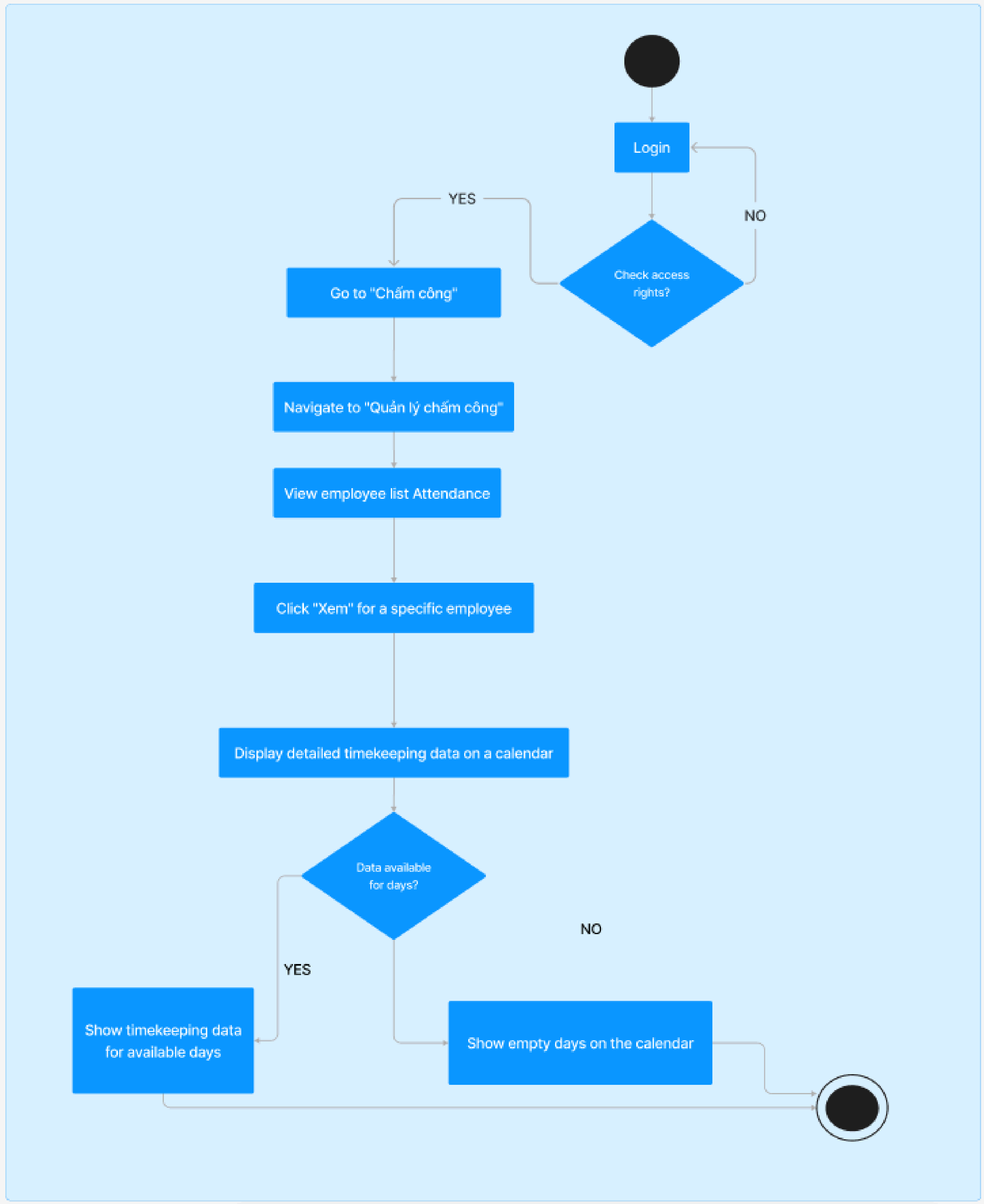


Figure 6.23: Workflow - Check employee attendance

3.2.6.5 Create time attendance, Edit time attendance

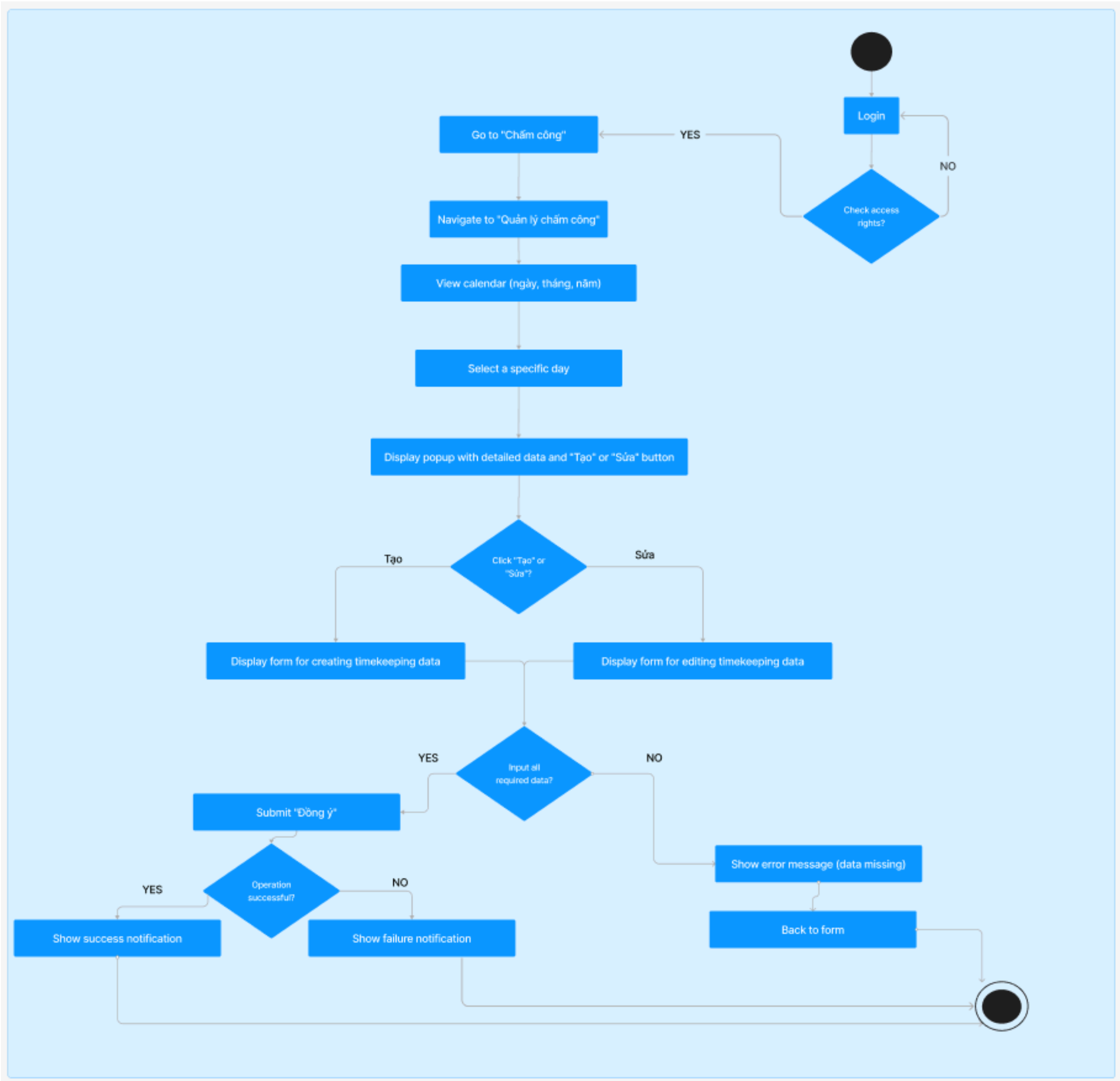


Figure 6.24: Workflow - Create time attendance, Edit time attendance

3.2.7 Manage working time, working day

3.2.7.1 View work schedule & View work shift

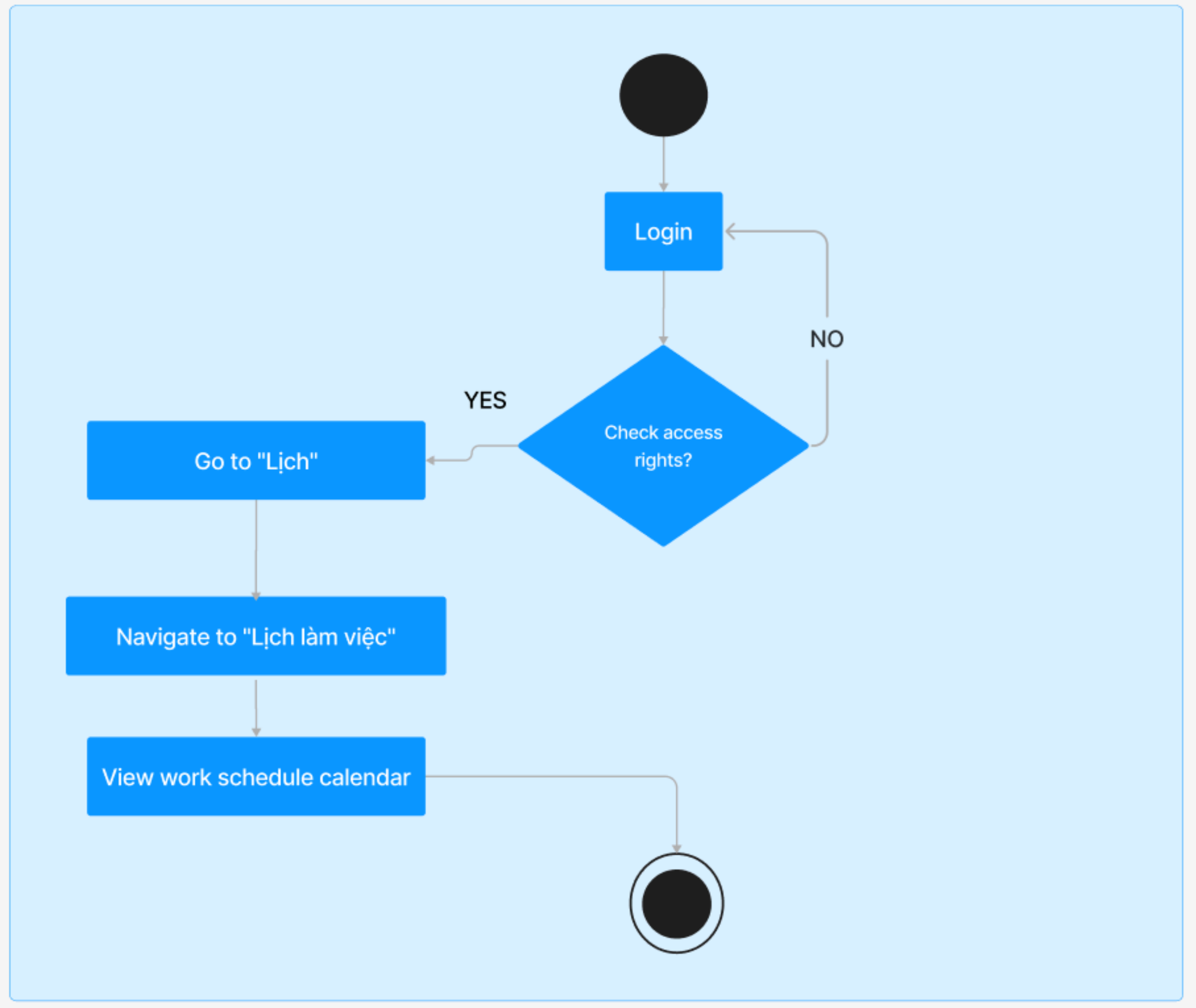


Figure 6.25: Workflow - View work schedule & View work shift

3.2.7.2 Create work schedule

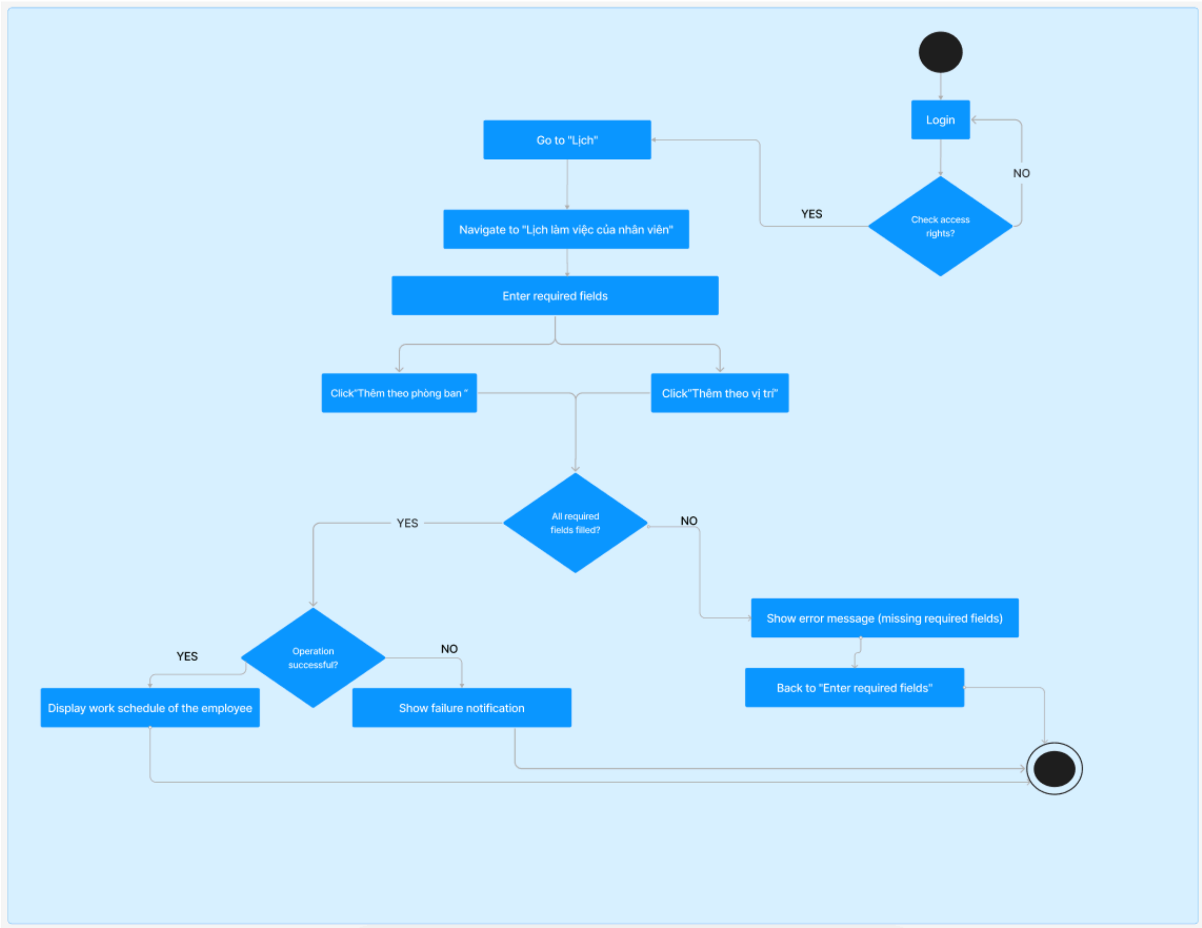


Figure 6.26: Workflow - Create work schedule

3.2.7.3 Edit work schedule, Delete work schedule

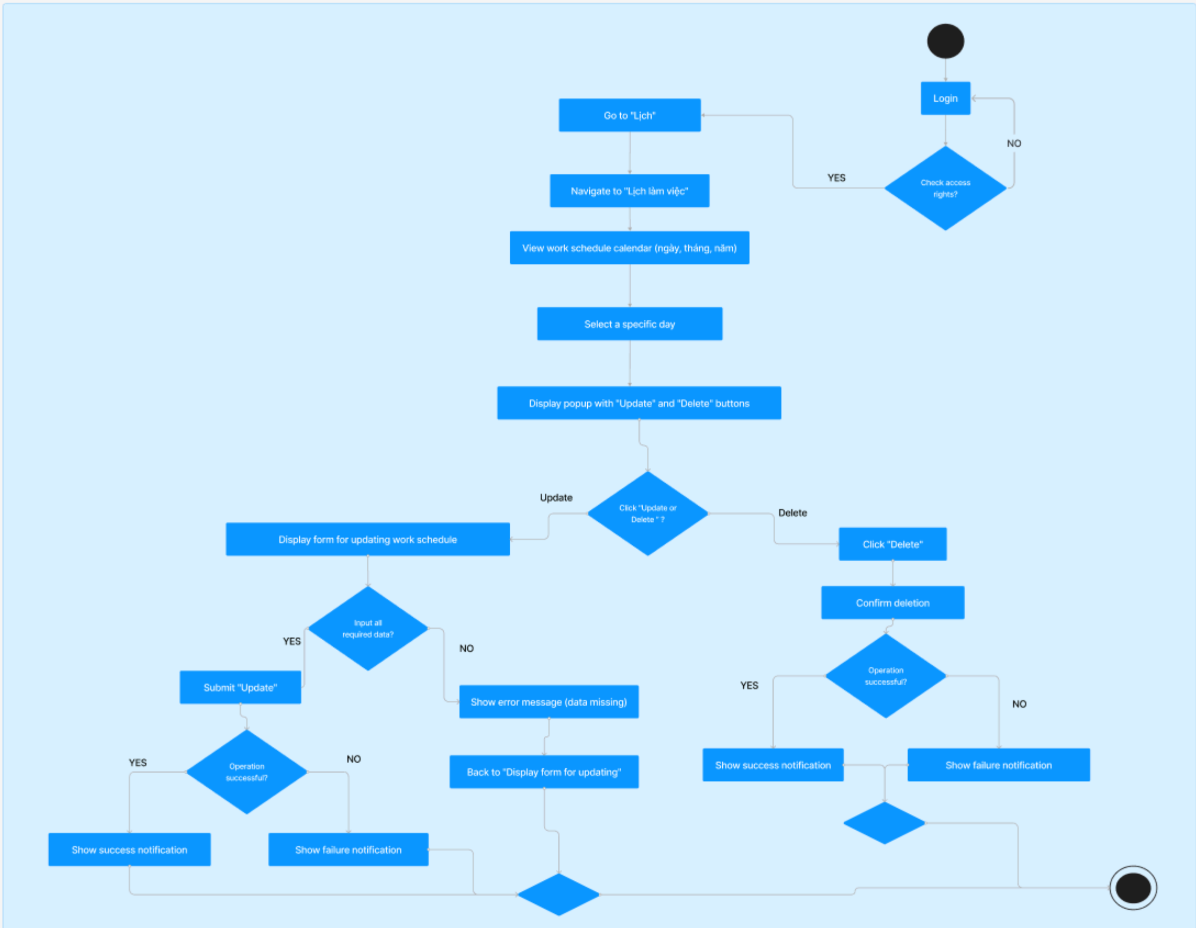


Figure 6.27: Workflow - Edit work schedule, Delete work schedule

3.2.7.4 Add employee work schedule

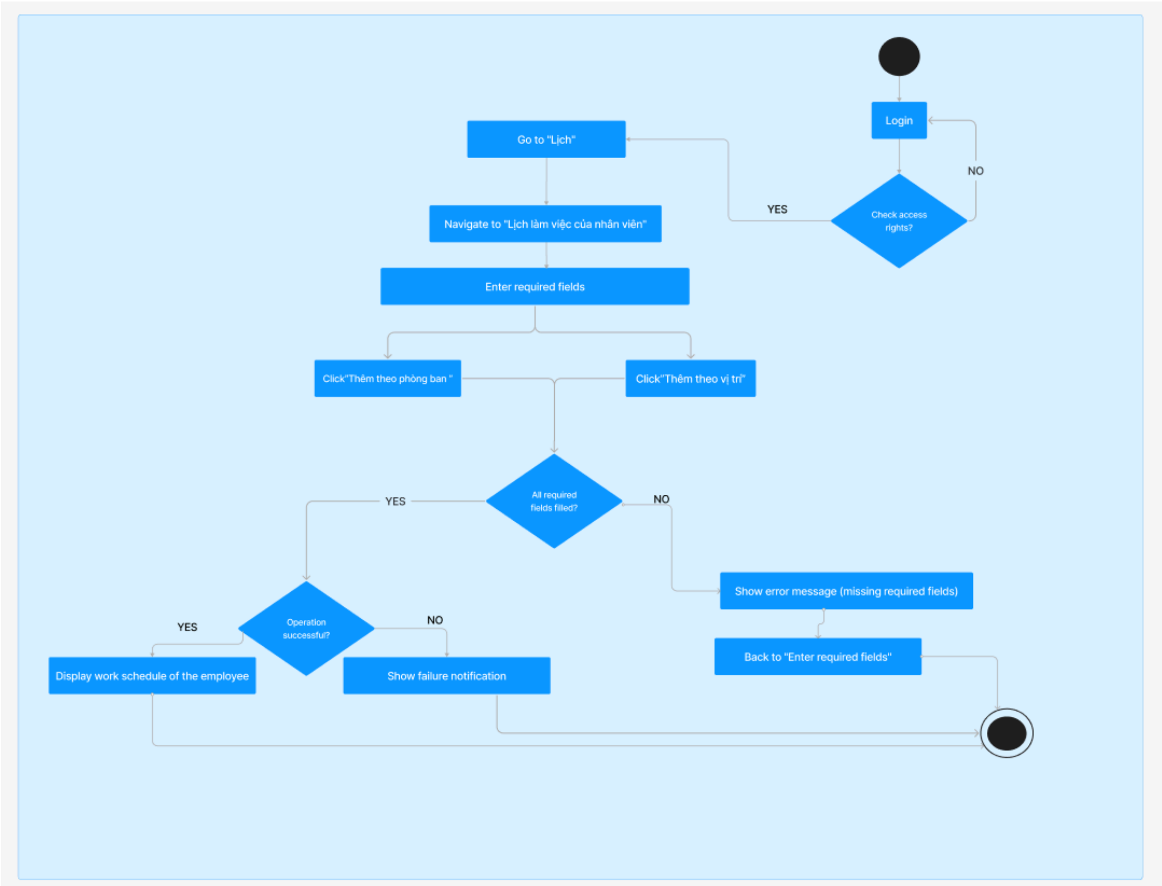


Figure 6.28: Workflow - Add employee work schedule

3.2.7.5 Get employee work schedule data

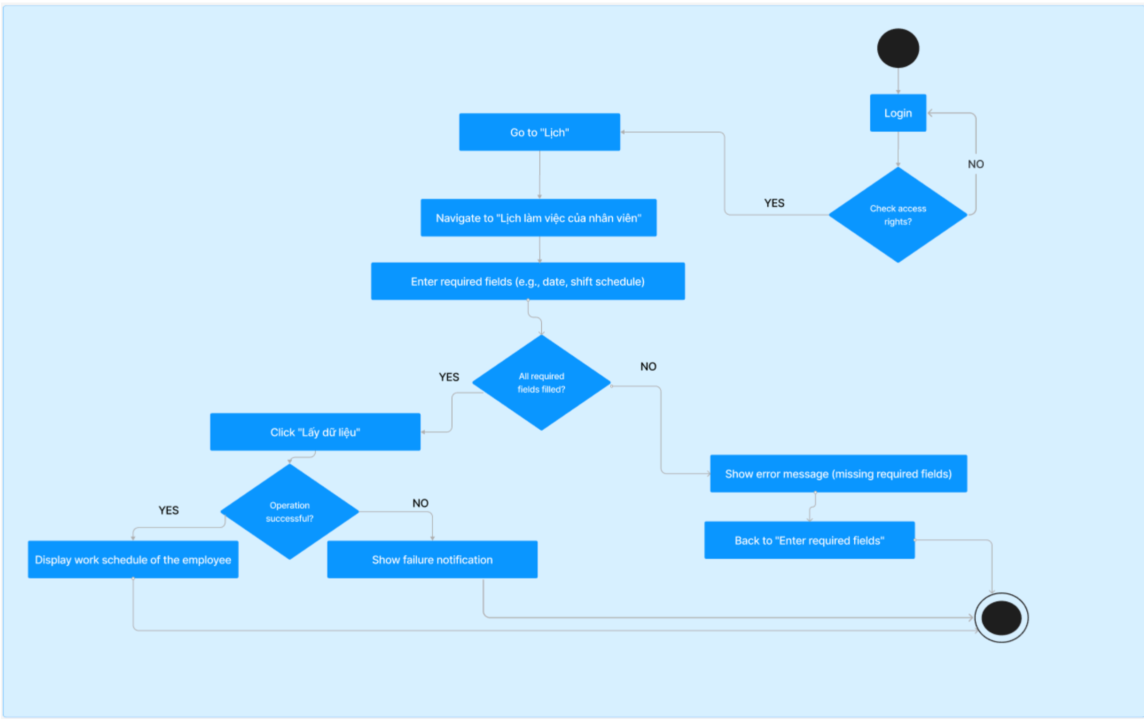


Figure 6.29: Workflow - Get employee work schedule data

3.2.8 Application management

3.2.8.1 Submit application

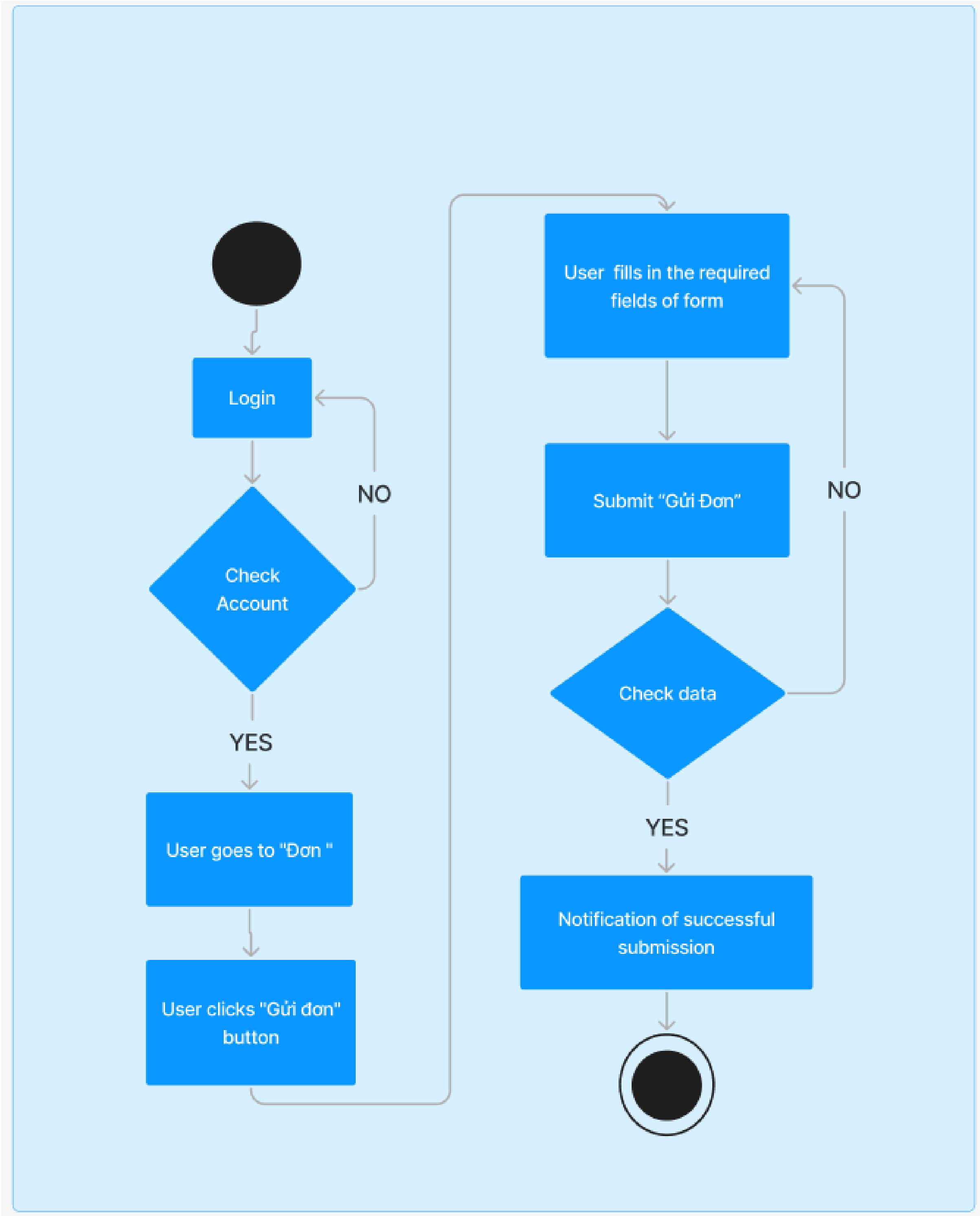


Figure 6.30: Workflow - Submit application

3.2.8.2 View application

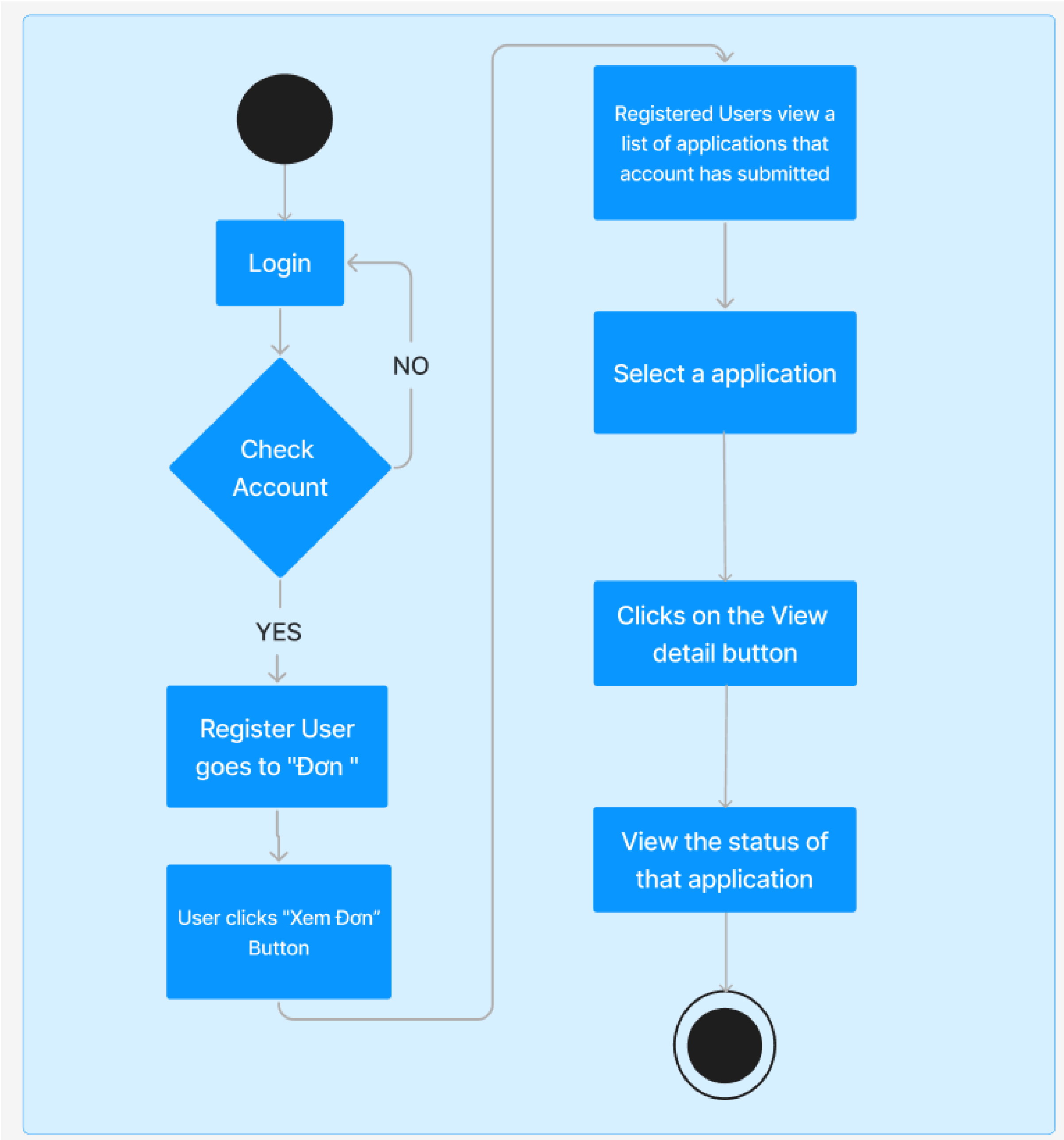


Figure 6.31: Workflow - View application

3.2.8.3 View application details

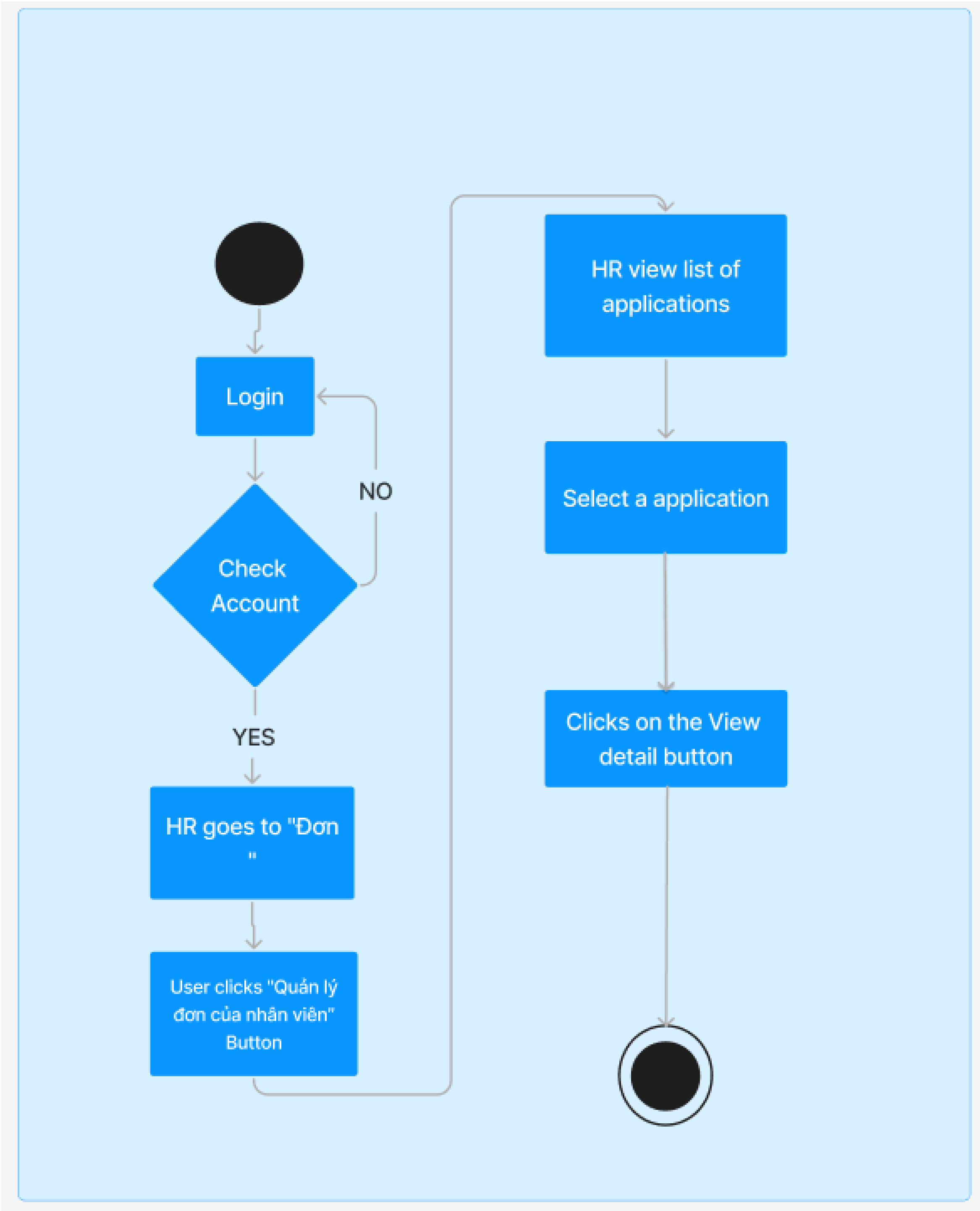


Figure 6.32: Workflow - View application details

3.2.8.4 Approve application / Reject application

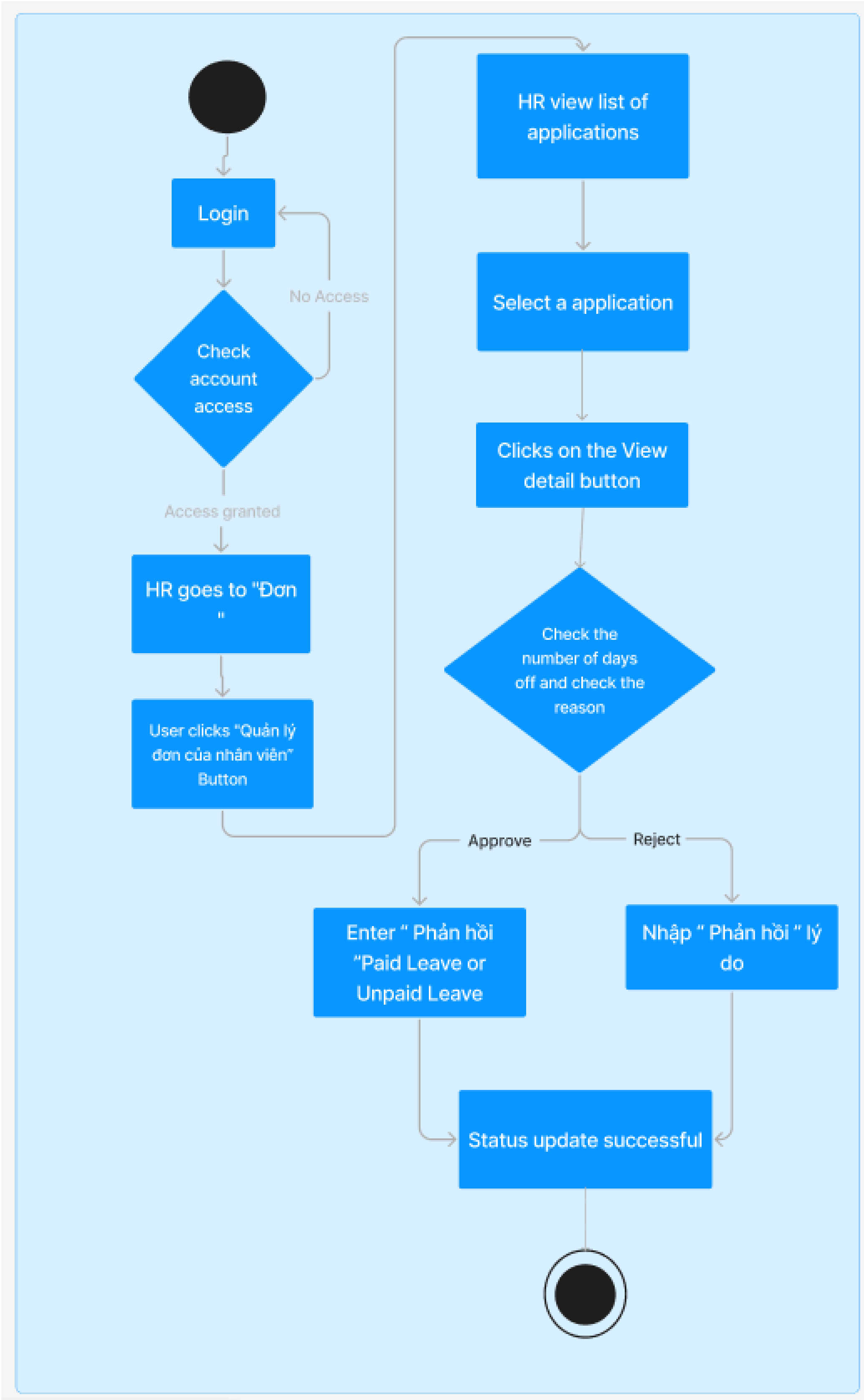


Figure 6.33: Workflow -Approve application / Reject application

3.2.9 Payroll management

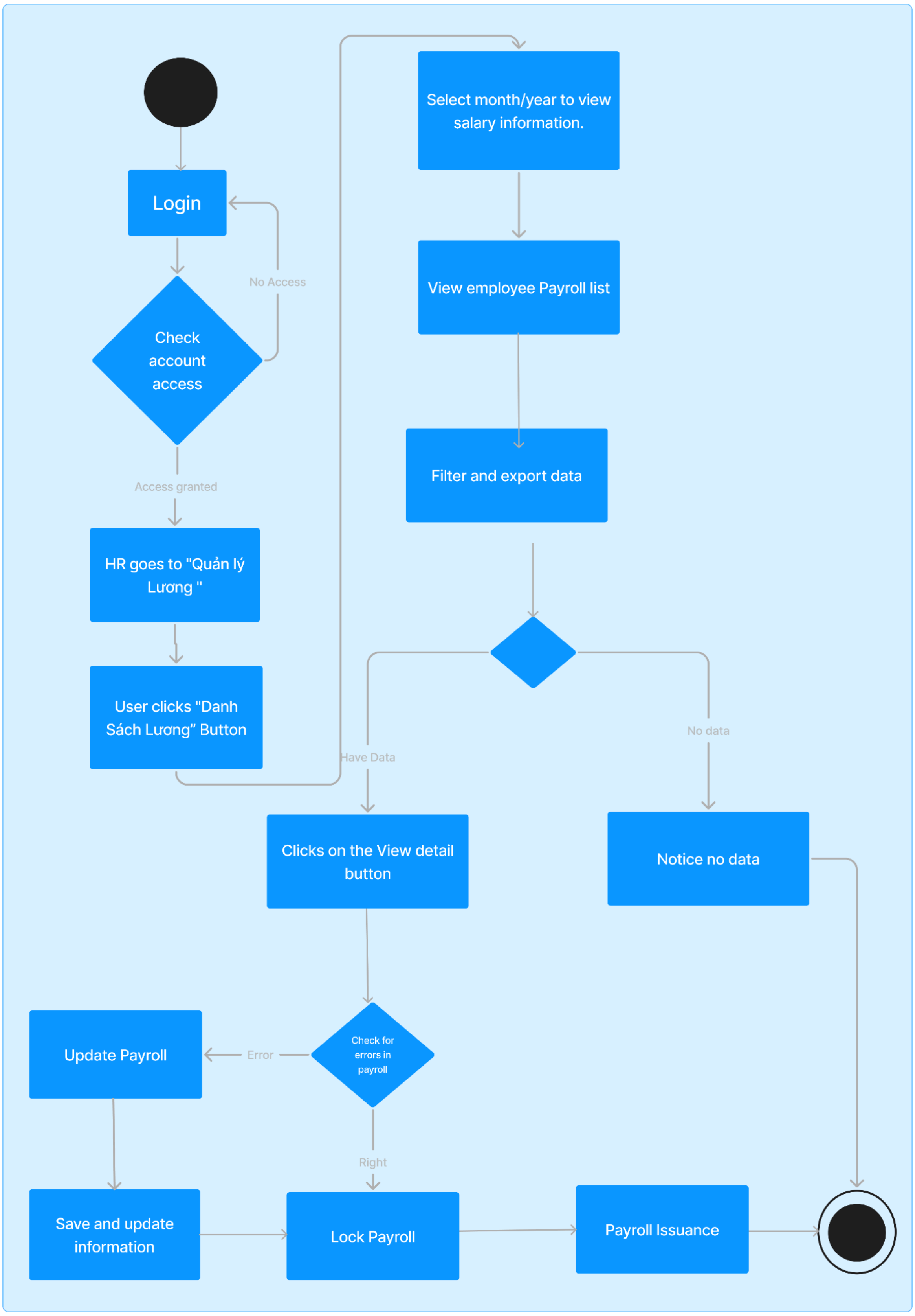


Figure 6.34: Workflow -Approve application / Reject application

3.3. User Manual (Website)

3.1.1 User

- **Login**
  - Step 1: Access the Login Page
    - Navigate to the system's login page. This page will be titled "Human Resources Login" and will contain a form for entering your login credentials.
  - Step 2: Enter Your Login Credentials
    - Username: Enter your username in the "Username" field. This is the username you used when you registered your account.
    - Password: Enter your password in the "Password" field. Your password must match the password you used during registration.
  - Step 3: Remember Me (Optional)
    - Check the "Remember me" box to have the system store your password on this device. This will save you time logging in on subsequent visits.

      Caution: Exercise caution when using this feature, especially on public computers or computers shared with others.
  - Step 4: Log In
    - Click the "Login" button to access the system. If your login information is correct, you will be redirected to the system's home page.

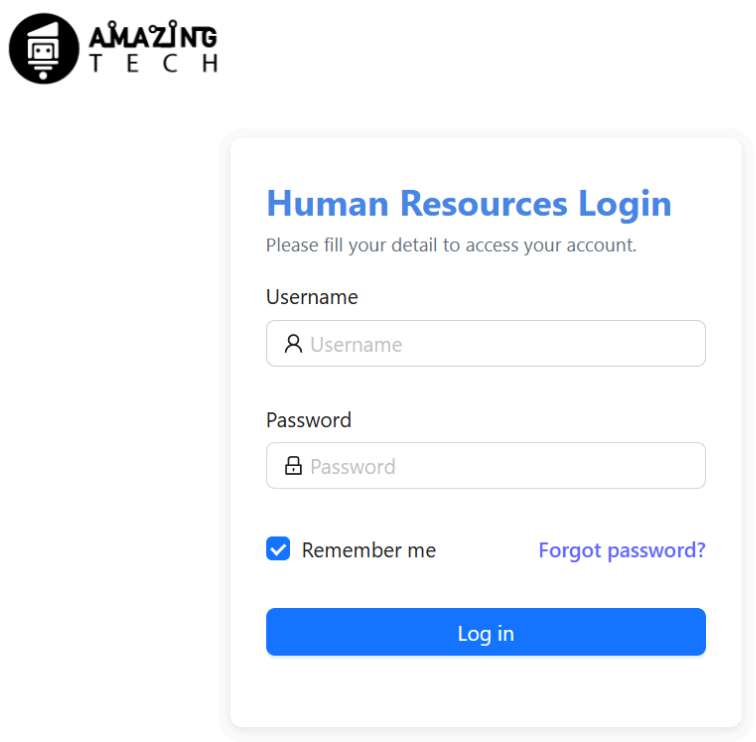


Figure 6.35: Login Screen

3.1.2 HR

3.1.2.1. Login

After logging in HR will : Go to Home Page

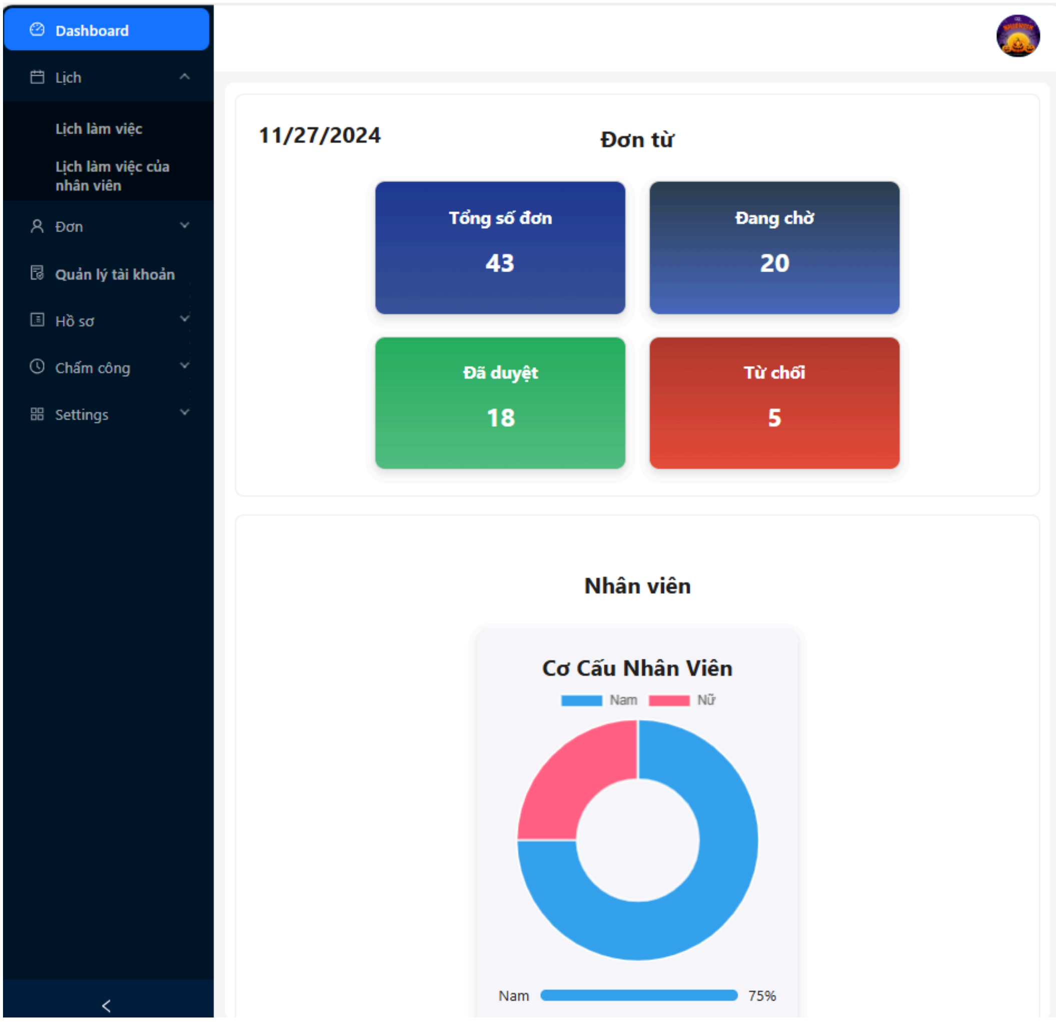
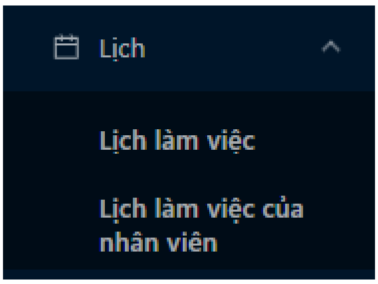


Figure 6.36: Home Page Screen

3.1.2.2. Manage work schedules and shifts

- HR Click "Lịch" on the right menu bar of the website.



- **Create Schedule**

When HR selects "Lịch Làm Việc", the website will display the calendar of the current month.

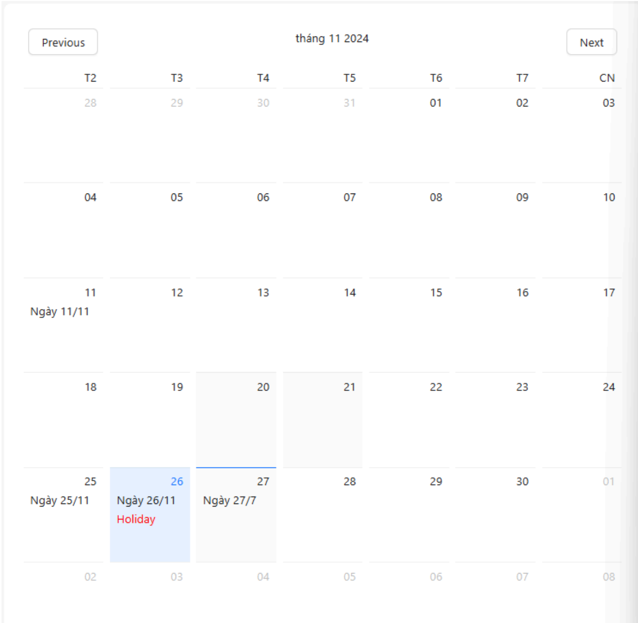


Figure 6.37: Work schedule Screen

- **Create a work schedule**
  - Step 1: Access the Work Schedule Page
    - On the main interface, locate and click on the "Lịch làm việc" item in the left-hand menu.
  - Step 2: Select the Day to Create a Schedule
    - On the calendar, click on the date for which you want to create a work schedule.
  - Step 3: Fill in the "Add Calendar Day" Form

    A pop-up window titled "Add Calendar Day" will appear. Fill in the following information:

    - Day Name: Enter a name for this workday (e.g., "Team Meeting," "Training Session," "Vacation"). This field is required (*).
    - Content: Provide a detailed description of the work or event taking place on this day.
    - Work Day: Select the date using the date picker or by typing it in YYYY-MM-DD format (e.g., 2024-11-28).
    - Holiday/Work: Select the status of this day: "Holiday" or "Work."
  - Step 4: Create the Schedule
    - After filling in all the information, click the "Tao" button to save the work schedule.

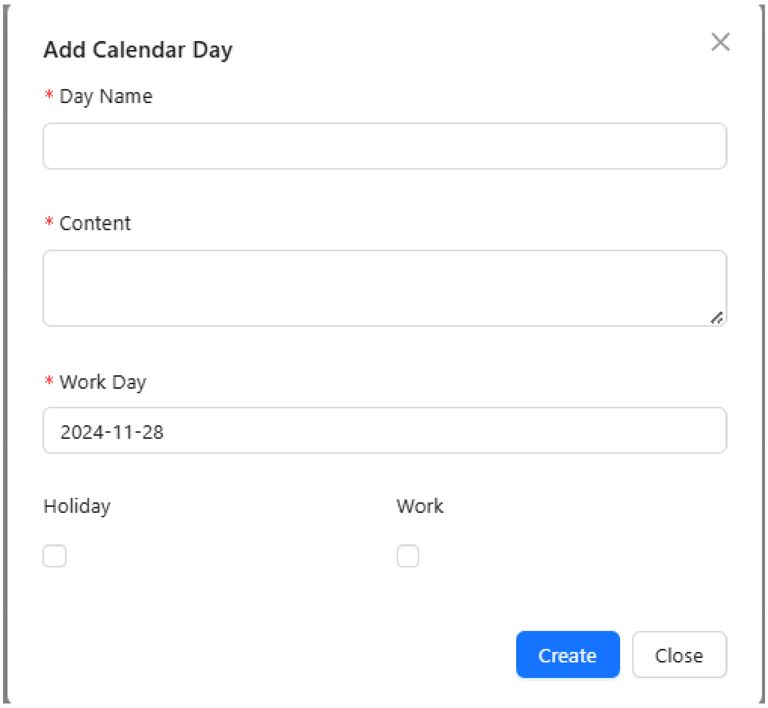
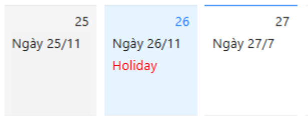


Figure 6.38: Pop-up Add Calendar Day

● `**Edit, Delete Working Day**

Once the working day has been added, HR clicks on 

→ Show Pop-up so that HR can edit or delete the created day

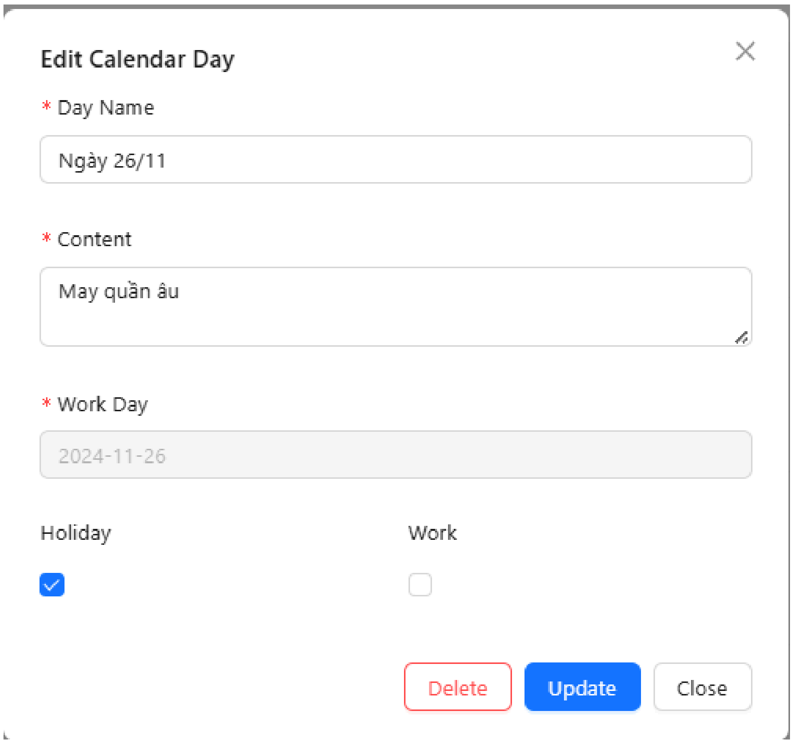


Figure 6.39: Pop-up Update/ Delete Calendar Day

- **Add, Delete, Change Shifts by Position or Department**

  After creating a working day or day off, HR will Click on "Lich Lam Viec Cho Nhan Vien" to create a Shift for the employee or other departments

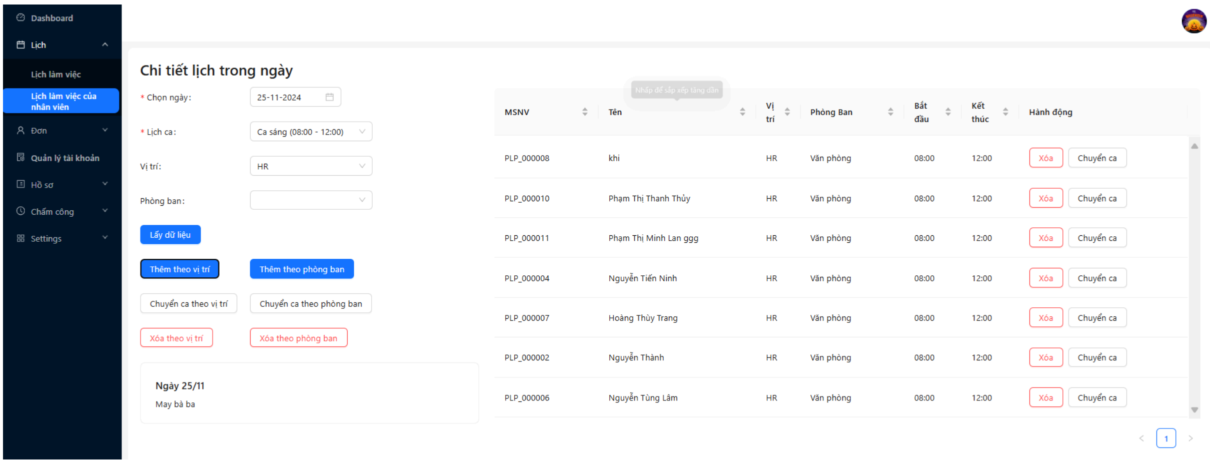


Figure 6.40: Screen Employee Work Schedule

Step 1: Select the workday by clicking on a day from the calendar.

Step 2: Choose the **shift** for the selected day.

Step 3: HR will then select either **"Vị trí "** or **"Phòng Ban"** to assign the shift.

- HR can click on one of the following buttons to proceed:
  - **"Thêm Theo Vị Trí"**: Assign shifts to employees based on their job positions.
  - **"Thêm Theo Phòng Ban"**: Assign shifts to employees based on their department.
- **Shift change**
  - If an employee requests a shift change, HR can modify the assigned shift by clicking on **"Chuyển Ca"** (Shift Change) → A pop-up window will appear, allowing HR to:
  - **Change the shift** for the selected employee.
  - **Delete the shift** if necessary.

Figure 6.41: Pop-up: Update Employee Work Schedule

3.1.2.3. Employee Profile Management

From Home HR select “Hồ sơ” on the right menu bar of the website.

Click “ Quản Lý Hồ Sơ Nhân Viên”:

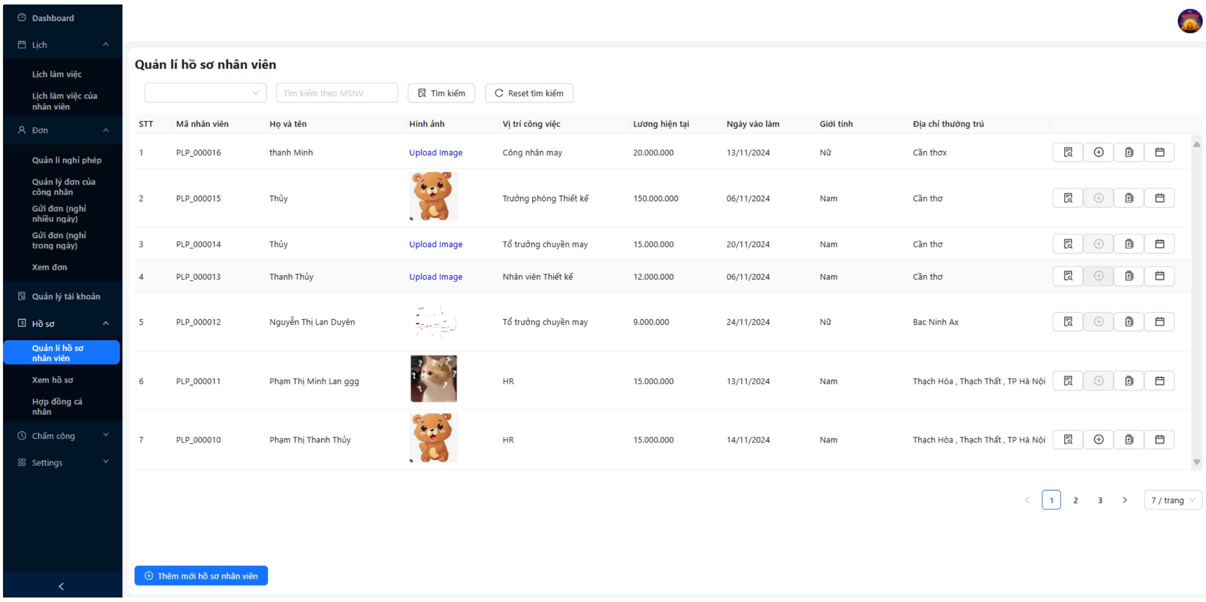


Figure 6.42: Screen Employee Profile Management

- **View employee profile details**
  - Select  → Show all employee profile details:
  - Click on the following button.

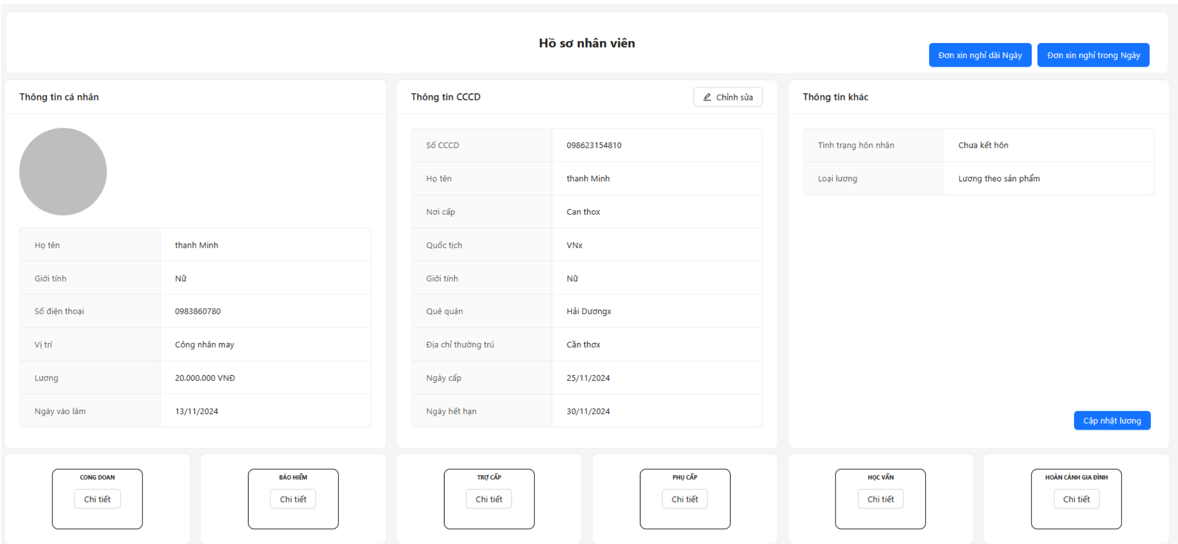


Figure 6.43: Screen View Employee Profile Detail

- **Salary update**
    - Select 

→Show details pop-up allows HR to update employee salary:

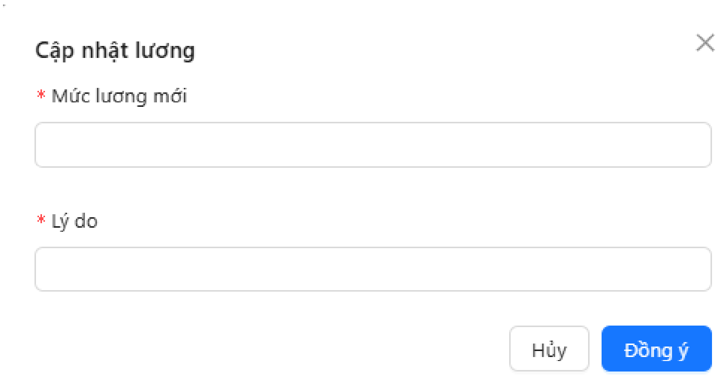


Figure 6.44: Pop-up Update Payroll

- **Create an account for the profile**
    - Step 1: click  →Web will display a pop-up allowing HR to create an account for the employee profile:
    - step 2 : Input “ Tên đăng nhập” → Make sure the username is not duplicated
    - Step 3 :Input “Mật Khẩu” → (>=8 characters)
    - Step 4 : Select “ Vai Trò”
    - Step 5 : Click button “Đồng Ý”

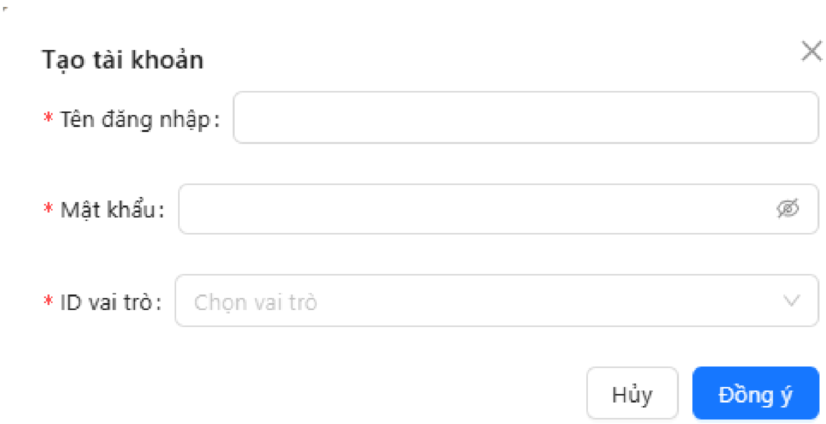
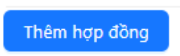


Figure 6.45: Pop-up Create Account for the profile

- **Labor Contract Management**
    - Step 1: click  →Web will display the employee's labor contract (If any):
    - step 2 : Click button 

→System will display pop-up allowing user to create new contract

- Step 3 : Input information
- Step 4 : Click button “Đồng Ý”

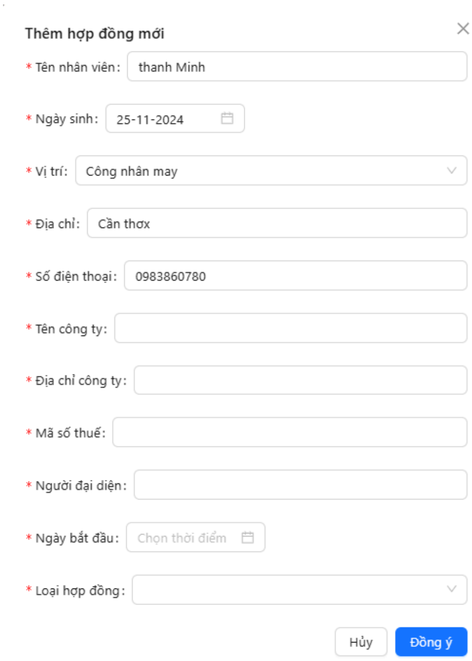


Figure 6.46: Pop-up Create Add new Labor Contract

- **View their own profile**
  - Step 1: On the main interface, locate and click on the "Xem Hồ Sơ" item in the left-hand menu → The system will display the profile information of that account.
  - Step 2: Click on each button to track detailed information

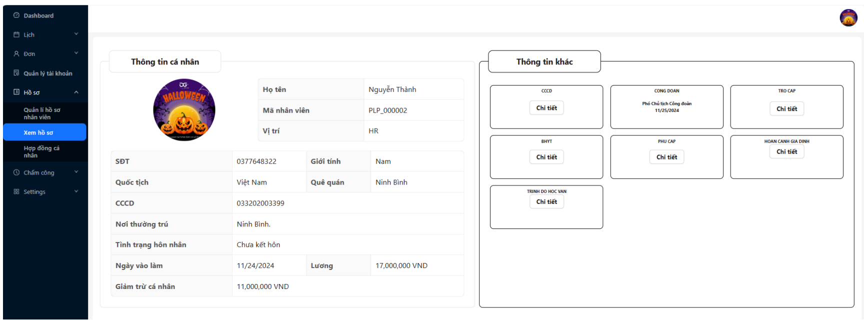


Figure 6.47: Screen view Own Profile

- **View their own employment contract**
  - Step 1: click on the "Xem Hợp Đồng Cá Nhân" item in the left-hand menu → The system will display the contract information of that account.

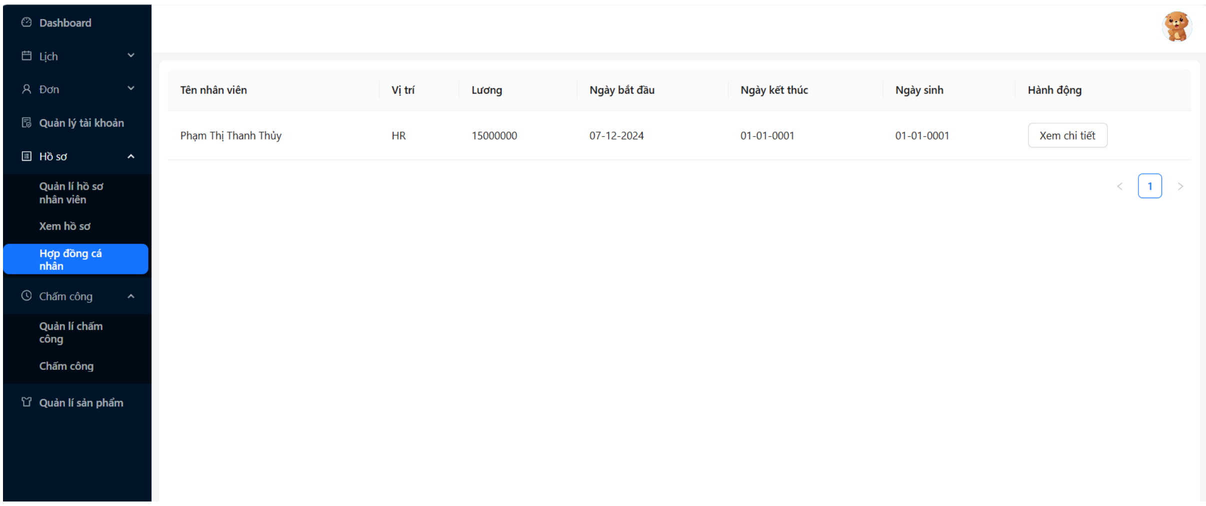


Figure 6.48: Signed contracts list screen

- Step 2: Click on "xem chi tiết"to view the contract details. → The system will display details of your contract.

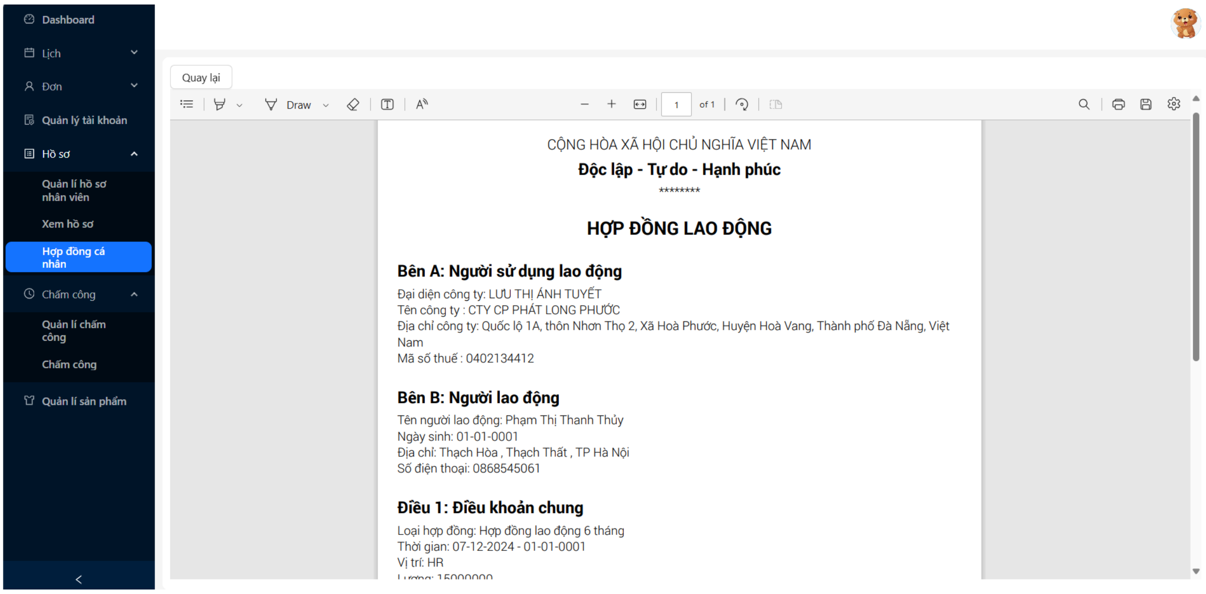


Figure 6.49: View Labor Contract detail

3.1.2.4. Employee Account Management

- **View account list**
  - Click on the "Quản lý tài khoản" item in the left-hand menu → The system will display the list of registered accounts on the system

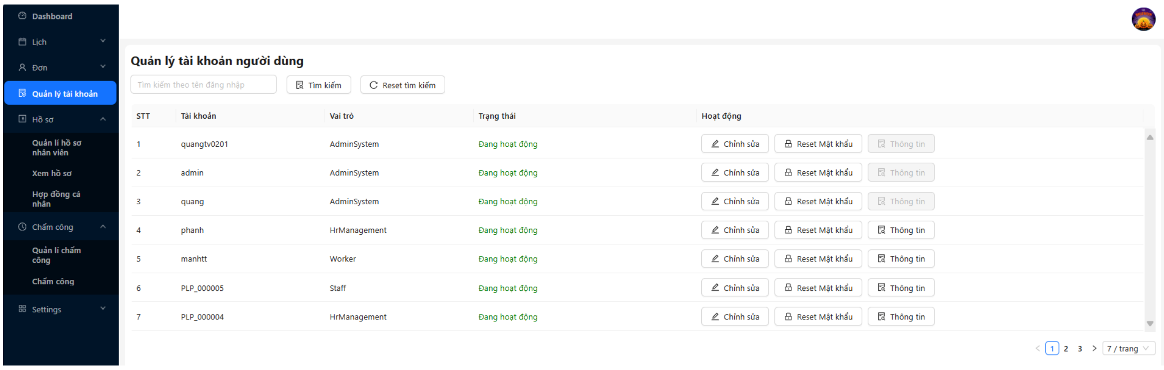
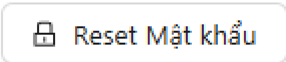


Figure 6.50: User account management screen

- **Reset Password**
  - Step 1: Click 

→The system will display a pop-up allowing HR to recreate a new password for an employee who forgot their password.
  - Step 2: Click button 

to open the new password reset pop-up
  - Step 3 : Input "Mật khẩu mới"

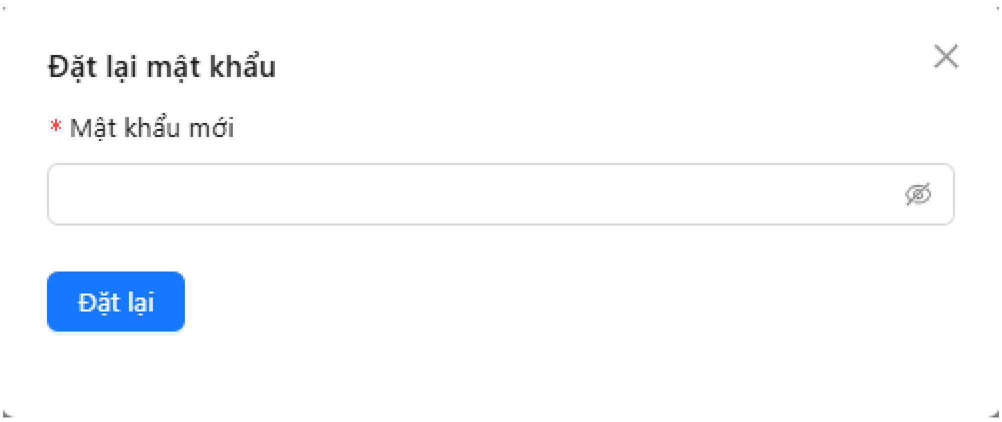


Figure 6.51: Pop-up Reset Password

- **Lock account**
  - Step 1: Click 

on the screen displaying the account list → The system will display a pop-up allowing HR to track the profile information of that account
  - Step 2: Click button 

to lock When that employee is no longer working in the garment factory
  - Step 3 :Confirm Lock

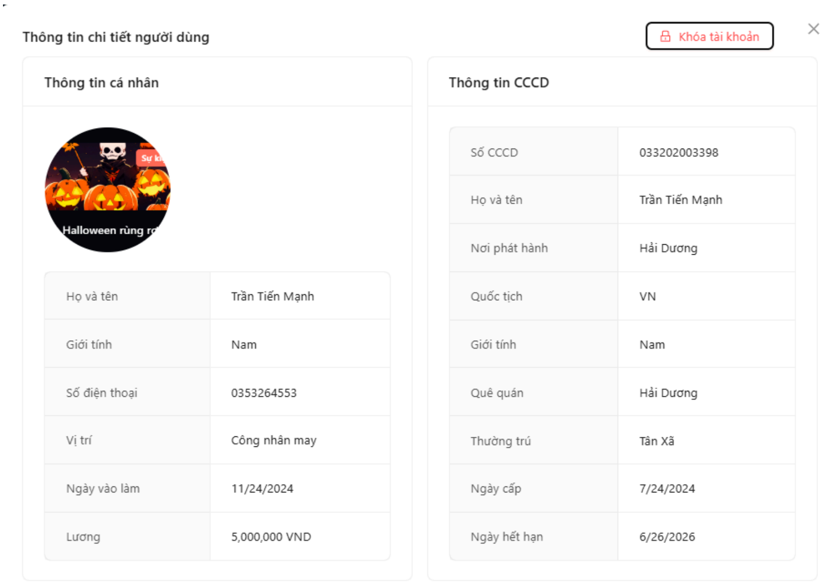


Figure 6.52: Pop-up Lock Account

3.1.2.5. Application management

- **Submit application**
  - Step 1: click on the "Gửi đơn(Nghỉ Nhiều Ngày)" or "Gửi đơn(Nghỉ Trong Ngày)" item in the left-hand menu →The system will display the application form.
  - Step 2: Fill in the required information
  - Step 3 : Submit application → The application will be sent to the manager for approval
  - When the submission is successful, the system will send a notification

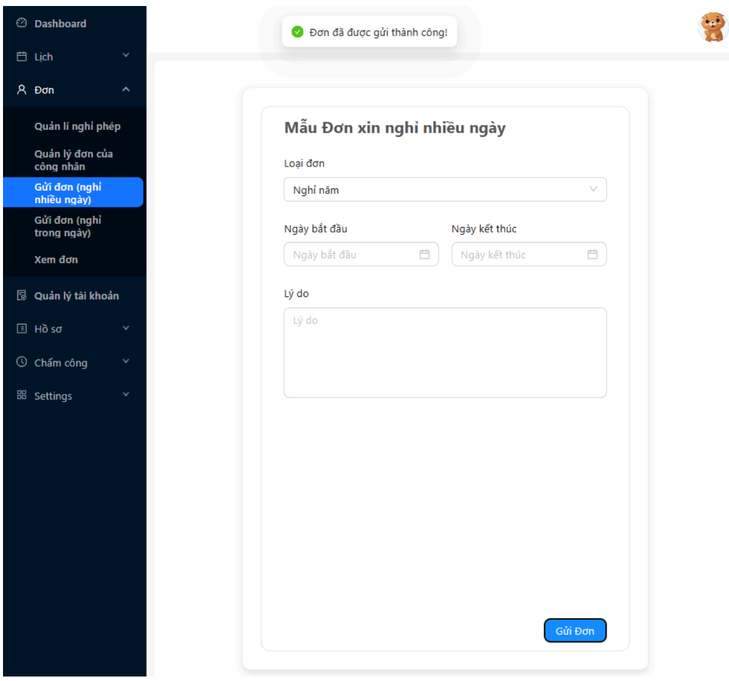


Figure 6.53: Screen Send Leave Request

- **View the order list**
  - Step 1: click on the "Quản lý nghỉ phép" item in the left-hand menu → The system will display the order list.
  - Step 2: Click vào "Chi tiết" to view detailed information about the leave date, leave time and reason for leave

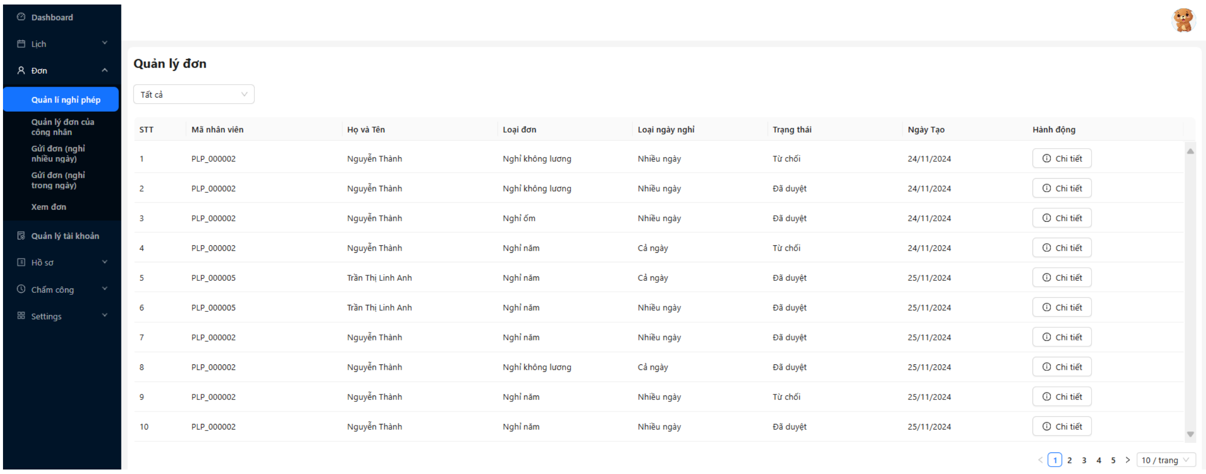


Figure 6.54: Screen Manage leave requests

- **Approve/Reject application**
  - Step 1: Click on the "Chi Tiết"
  - Step 2 :Read the application content, HR will check if the employee has any days off, if yes → Approve Allow them to take paid leave, No days off → can consider giving them unpaid leave Or reject
  - Step 3: Click " Phê Duyệt" or " Từ chối" must enter feedback

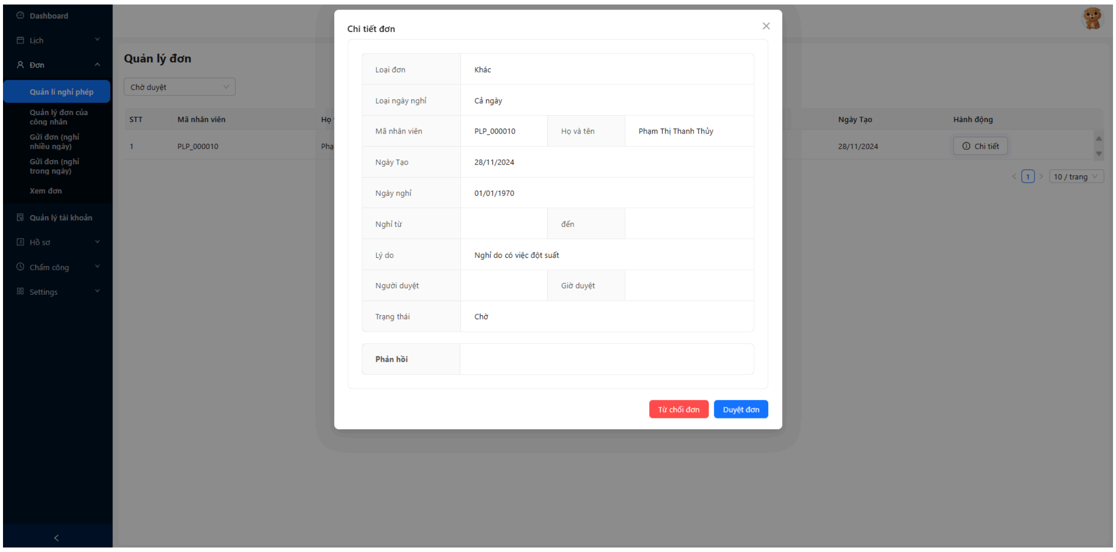


Figure 6.55: Pop-up Leave Request Details

- **View application (Application that account has sent)**
  - Step 1: click on the "Xem đơn" item in the left-hand menu → The system will display a list of applications that have been sent and display the approval status of that application.

- Step 2: Click on“Chi tiết” to view detailed information about the day off, time off and reason for the leave. In addition, you can view the history of applications you have sent

Thông tin xử lý đơn từ

Loại đơn	Lý do	Phản hồi	Trạng thái
Nghỉ ốm	Do bị covid		Chờ
Khác	Nghỉ do có việc đột suất		Chờ
Nghỉ ốm	Duyên xin nghỉ ốm	Đơn của bạn đã được chấp nhận	Đã duyệt
Khác	Nhà có hỷ		Đã duyệt
Nghỉ năm	Xin nghỉ ca sáng ngày 27		Đã duyệt
Nghỉ năm	string1		Đã duyệt

Figure 6.56: Screen View submitted leave requests

3.1.2.6. Timekeeping Management

- View employee timekeeping reports by month
  - Step 1: click on the "Quản lý chấm công" item in the left-hand menu → The system will display a list of employees.
  - Step 2: Click”Xem ” on an employee to see their detailed timekeeping

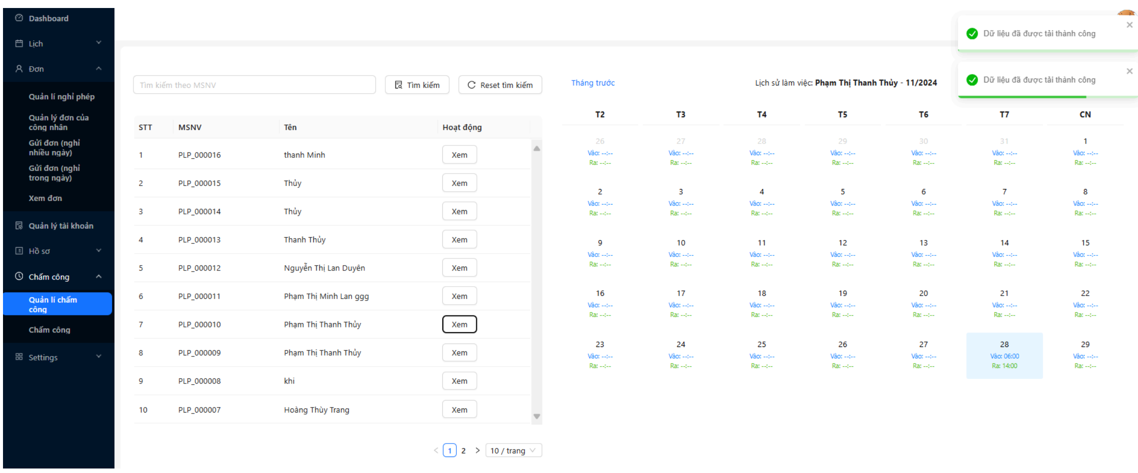


Figure 6.57: Screen Timekeeping Management

- **Create/Edit Manual Timekeeping**

- Step 1: Click on the day you want to create manual timekeeping → the system displays a Pop-up allowing HR to select "Tạo" or "Xóa"

- Step 2:
  - If you want to Create → Click the "Tạo" → The system will display a pop-up allowing the user to enter relevant information
  - If you want to Edit → Click the "Sửa" → Editing is only allowed when that timekeeping date already exists
- Step 3: Click button "Đồng ý"

→ If successful, a success message will be displayed to the user

→ If Failed, a failure message will be displayed to the user

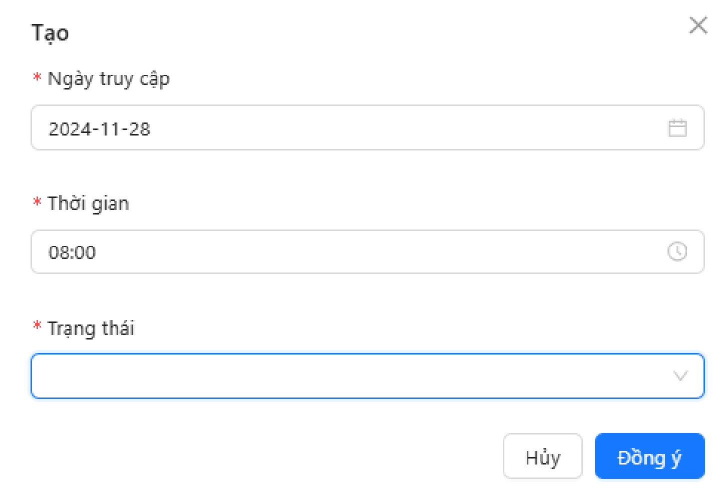


Figure 6.58: Pop-up Create timekeeping

- **HR can manage their own attendance**
  - Step 1: click on the "Chấm công"item in the left-hand menu → The system will display the current month attendance list of the account

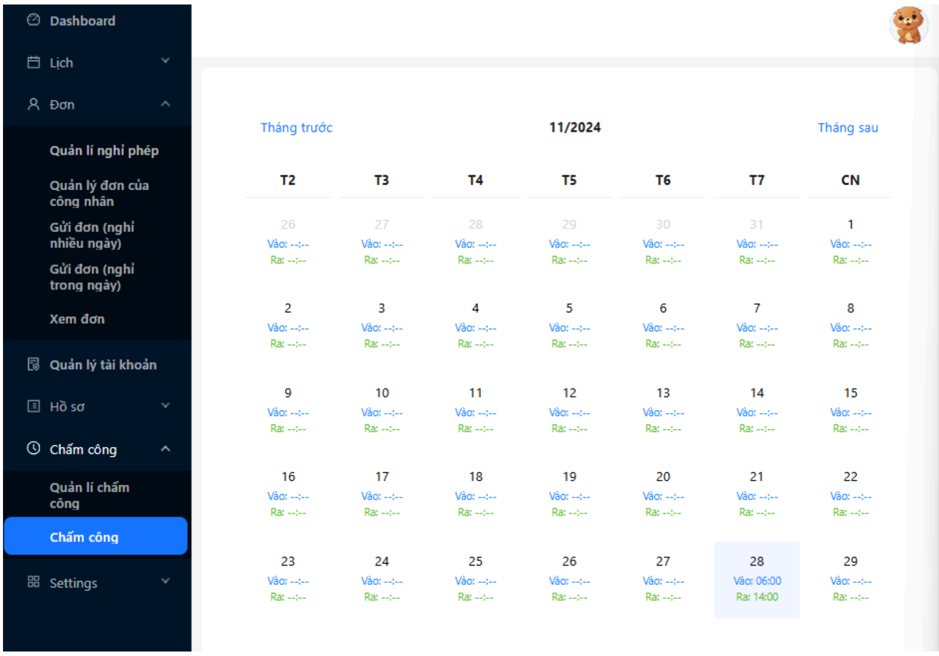


Figure 6.59: Screen View own timekeeping

3.4. User Manual (Mobile)

In Mobile Role Admin, HR, Employee all have the same rights

- Login
  - Step 1: Open the application: Open the application on your mobile device.
  - Step 2: Enter your Email: Enter your email address in the field labeled "EMAIL".
  - Step 3: Enter your Password: Enter your password in the field labeled "PASSWORD".
  - Step 4: Tap the Login button: Tap the "Login" button to log in.

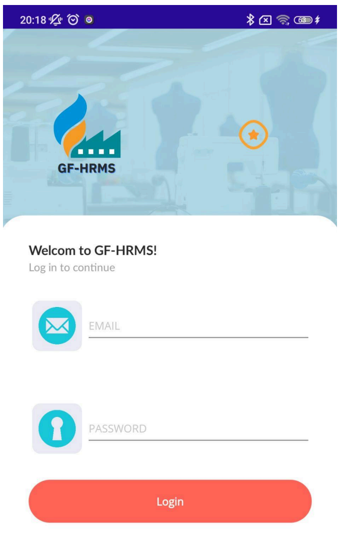


Figure 6.60: Screen Login

- **View Home Page (Dashboard)**
  - Step 1: Successful Login: Successfully log in to the application.
  - Step 2: Access Home Page: The Home Page will automatically be displayed after login.
  - Step 3: View Details: Tap on buttons such as "Thông báo", "Đơn", "Lịch", "Hợp đồng", ... to view details.

Figure 6.61: Screen Home Page

- **View detail personal information**
  - Step 1: Successful Login: Successfully log in to the application.
  - Step 2: Access Profile: Tap the profile icon (a person symbol) located in the bottom right corner of the screen. 
  - Step 3: View Details: Your detailed personal information will be displayed.

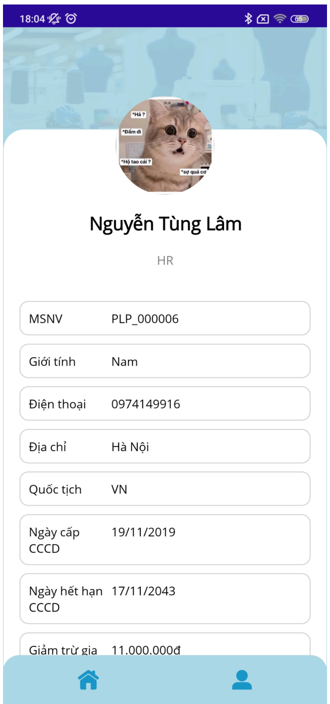


Figure 6.62: Screen View detail personal information

- **View list of submitted applications**
  - Step 1: Successful Login: Successfully log in to the application.
  - Step 2: Access Applications: Tap the "Đơn" icon on the Home Page.

  - Step 3: View Applications: A list of submitted applications will appear, showing details for each application, including: "Tình trạng đơn: Đã duyệt, Từ chối, ...", "Loại đơn", "Ngày gửi", ...

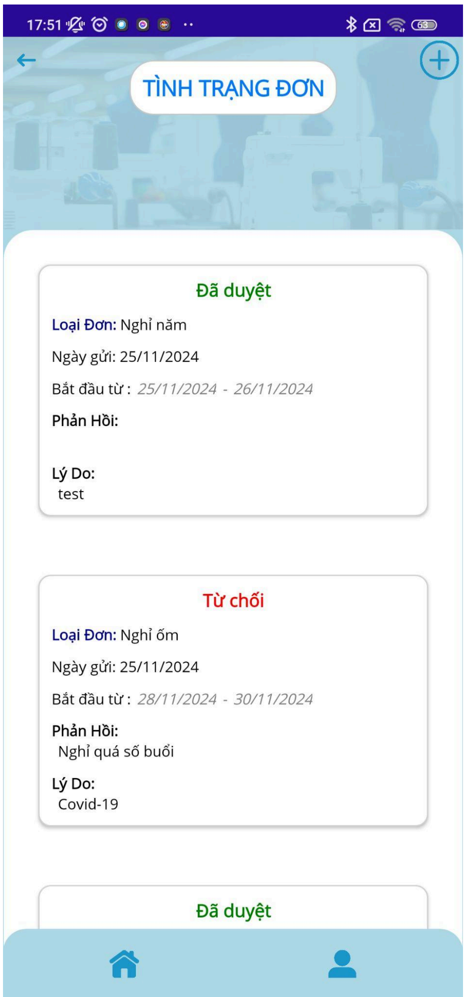


Figure 6.63: Screen View list of submitted applications

- **Create an Application Form**
  - Step 1: Access the Application Interface
    - Log in successfully to the application.
    - Tap the "Đơn" icon on the Home Page to access the application list.

    - A list of submitted applications will be displayed.
  - Step 2: Open the Create Form Interface
    - Tap the "+" button located at the top-right corner of the screen. 

        - A menu will appear, showing different types of forms available to create, such as: "Đơn nghỉ phép", "Đơn chuyển ca", ... (other form 

options).
    - Step 3: Select and Fill the Form
        - Tap on the desired form type (e.g., Đơn nghỉ phép).
        - The corresponding form interface will appear. For example: Đơn nghỉ phép, fill in the following fields:
            - Select Leave Type (Chọn loại đơn nghỉ): Choose the type of leave (e.g., annual leave, sick leave).
            - Start and End Date (Ngày bắt đầu / Ngày kết thúc): Select the starting and ending dates for the leave.
            - Reason (Lý do nghỉ phép): Enter the reason for the leave in the provided text box.

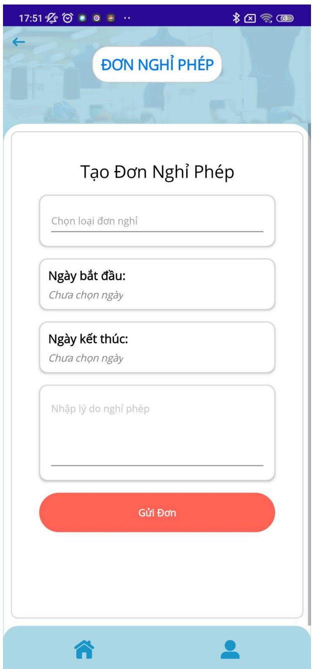


Figure 6.64: Screen Send Leave Request

    - Step 4: Submit the Form
        - After filling out all the required fields, tap the "Gửi đơn" button. 

        - A confirmation message will appear to indicate that the application has been successfully created.

- **View Work Schedule**
  - Step 1: Access the Schedule Interface
    - Log in successfully to the application.
    - Tap the "Lịch" icon on the Home Page to access the work schedule.

    - The calendar will display, showing all days of the current month.

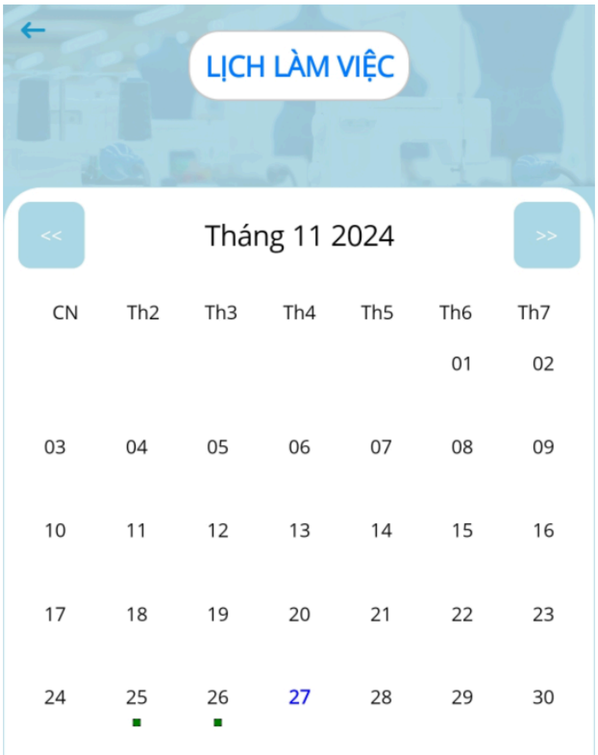


Figure 6.65: Screen View Work Schedule

  - Step 2: Identify Scheduled Days
    - Look for days marked with a green dot. These indicate days with 

scheduled work.
  - Step 3: View the Schedule for a Specific Day
    - Tap on a day with a green dot (e.g., 25th).
    - The detailed schedule for that day will appear, including:
      - Date: The selected day (e.g., "Lịch trình ngày 25").
      - Time: The working hours (e.g., "08:00 - 12:00").
      - Task Details: The content of the work (e.g., "Nội dung: May bà ba").

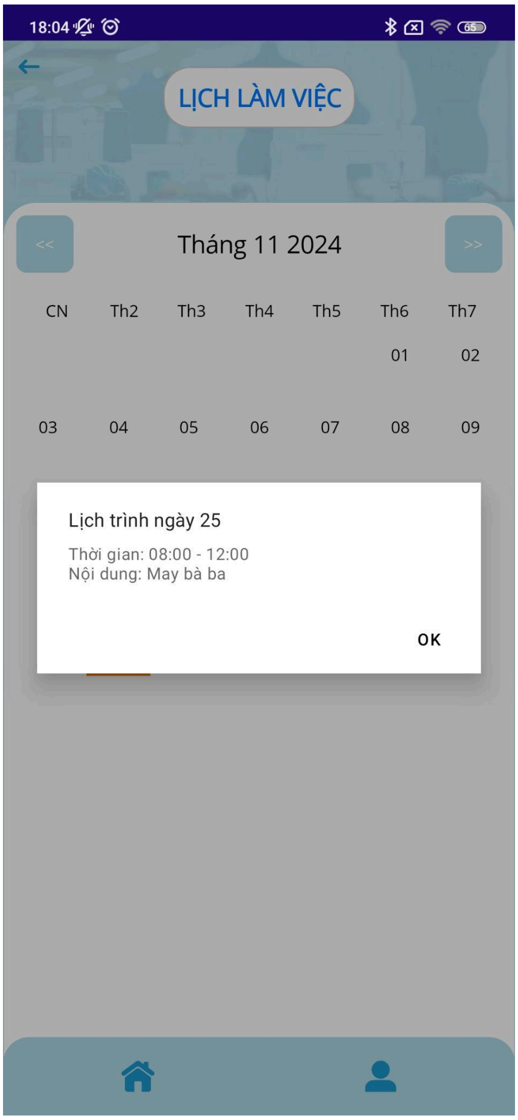
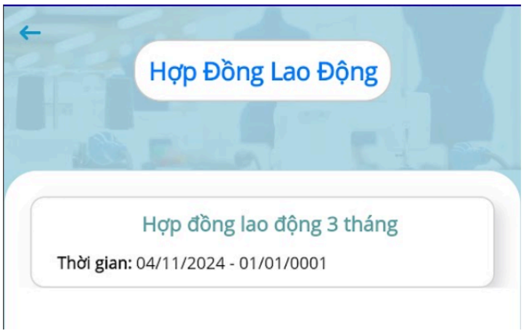


Figure 6.66: Screen View Work Schedule Detail

- **View Individual Employment Contract**
  - Step 1: Access the Contract Interface
    - Log in successfully to the application.
    - Tap the "Hợp đồng" icon on the Homepage to view employment 

contracts.
  - Step 2: View the List of Contracts
    - A list of contracts will display, showing:
      - Contract Name: For example, “Hợp đồng lao động 3 tháng.”
      - Contract Duration: The start and end dates (e.g., 04/11/2024 - 04/02/2025).



- Step 3: View Contract Details
  - Tap on a specific contract from the list.
  - The detailed information of the selected contract will appear, including all terms and conditions.

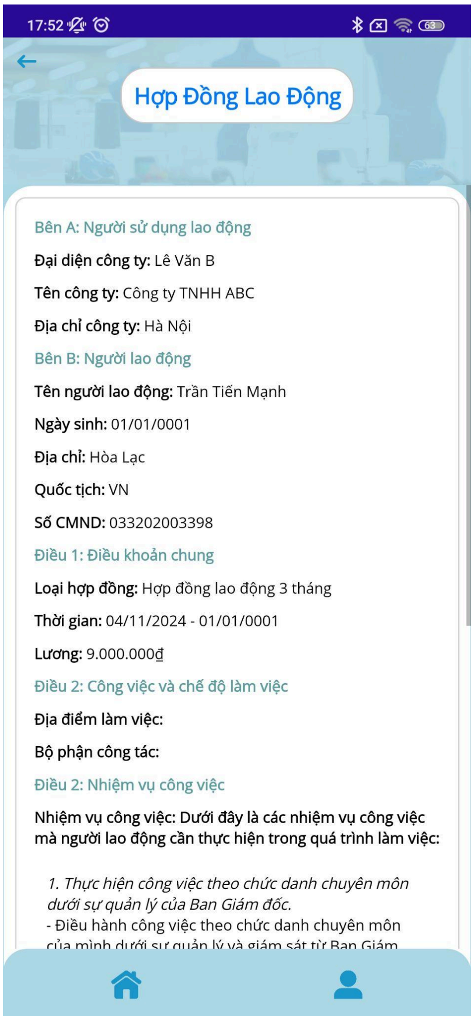
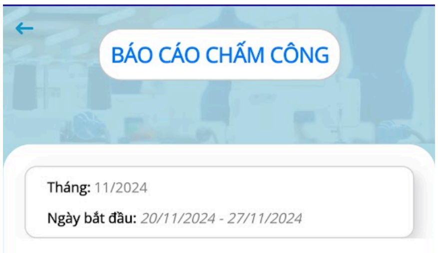


Figure 6.67: Screen View Contract Details

- **View Attendance History**
  - Step 1: Access the Attendance Interface
    - Log in successfully to the application.
    - Tap the "Chấm công" icon on the Homepage to access the attendance history. 

  - Step 2: View the Attendance History List
    - A list of attendance reports will display, showing:
      - Month: For example, Tháng: 11/2024.
      - Attendance Period: Start and end dates for each report (e.g., Ngày bắt đầu: 20/11/2024 - 27/11/2024).



  - Step 3: View Attendance Report Details
    - Tap on an attendance report from the list (e.g., the one for 20/11/2024 - 27/11/2024).
    - The detailed information of the selected report will appear, allowing you to review all recorded attendance data for that period.

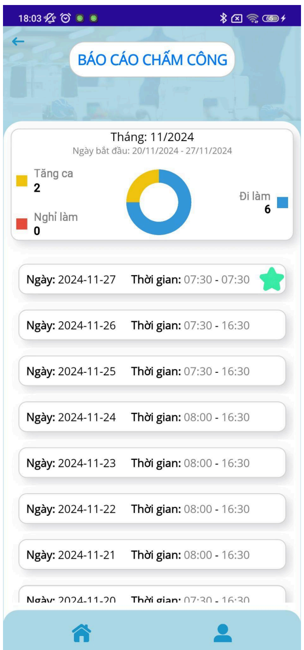


Figure 6.68: Screen View *Attendance Report Details*