People's Democratic Republic of Algeria Ministry of Higher Education and Scientific Research

M'hamed Bougara University - Boumerdès



Faculty of Sciences
Department of Computer Science

Domain : Mathematics and Computer Science
Field : Computer Science
Speciality : SI
ORDER N°.872 OF 26/07/2016 ACCREDITING THE SPECIALITY

Final thesis submitted for the purpose of obtaining the Academic Bachelor's Degree

Theme

Digitalization of HR processes using Bonita BPM

Presented by :
BERLAT RAFIK
BOUKRABA ABDERRAFAA
HEDIR MOHAMED YACINE
ZEMMOUCHE AHMED

Practical training carried out at : Mobilis ATM

Defended on …../…./ ….. Before the jury composed of :
Dr MESBAH Abdelhak : Examiner
Dr SABBA-Chehbour Fairouz : Supervisor
Ms DIFALLAH Nardjesse : Promotor

Acknowledgements

First and foremost, we would like to express our deep gratitude to ALLAH, the Almighty for giving us the strength, courage, and patience needed to complete this modest work.

We would like to extend our warmest thanks to our supervisor Dr Sabba Fairouz for his valuable advice and constant support throughout this project.

We are also sincerely grateful to our co-supervisor Ms Diffallah Nardjesse, whose contributions and dedicated efforts were of great help. Her encouragement and constructive comments played an important role in achieving our objectives.

We would also like to thank Dr Mesbah for accepting to examine and evaluate our work.

We express our gratitude to all our teachers at the faculty of Science of M'hamed Bougara University of Boumerdes, for the training and guidance they provided us throughout our university studies.

Finally, our sincere thanks go to our parents for their help, advice, and above all their constant support and trust.

To everyone who contributed directly or indirectly to the preparation of this work, we express our highest consideration.

Thank you all for everything.

Abstract:

As part of the digital transformation of companies, the digitalization of HR processes represents an essential lever for improving administrative efficiency and reducing paper use. Our project aims to implement a solution based on Bonita BPM in order to automate several internal requests, such as leave requests, work certificates, exit authorizations, and compensatory rest requests .Our solution ensures better tracking, faster processing, and improved traceability of information. It will therefore contribute to modernizing human resources management and strengthening the overall efficiency of the organization.

Résumé:

Dans le cadre de la transformation numérique des entreprises, la digitalisation des processus RH représente une solution essentielle pour améliorer l'efficacité administrative et réduire l'utilisation du papier. Notre projet vise à mettre en place une solution basée sur Bonita BPM afin d'automatiser plusieurs demandes internes, telles que les demandes de congé, les certificats de travail, les autorisations de sortie, les autorisations d'absence et les demandes de repos compensatoire.

ملخص

في إطار التحول الرقمي للمؤسسات، تمثل رقمنة عمليات الموارد البشرية حلاً مهماً لتحسين الكفاءة الإدارية وتقليل استعمال الورق. يهدف مشروعنا إلى إنجاز حل يعتمد على Bonita BPM من أجل أتمتة عدة طلبات داخلية، مثل طلبات العطل، شهادات العمل، تراخيص الخروج، تراخيص الغياب وطلبات الراحة التعويضية.

يسمح هذا الحل باستبدال الطلبات الورقية بعمليات رقمية آلية، مما يضمن تتبعًا أفضل، ومعالجة أسرع، وتحسين إمكانية تتبع المعلومات. كما سيساهم في تحديث تسيير الموارد البشرية وتعزيز الفعالية العامة للمؤسسة.

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List of Acronyms

HRM: Human Resources Management

ATM: Algérie Télécom Mobile

SPA: Société Par Actions

CEO: Chief Executive Officer

UML: Unified Modeling Language

HR: Human Resources

HRD: Human Resources Director

LDM: Logical Data Model

BPM: Business Process Management

HTML: HyperText Markup Language

CSS: Cascading Style Sheets

JSON: JavaScript Object Notation

SQL : Structured Query Language

UI: User Interface

General Introduction :

Nowadays, the digitalization of internal processes plays an essential role within companies particularly in the field of human resources management . Faced with the rapid evolution of technologies and the need to improve organizational efficiency, companies are increasingly seeking to modernize their working methods by adopting reliable fast, and needs-oriented digital solutions.

In this context, the traditional management of Human Resources (HR) request in paper format presents several limitations, such as slow processing, the risk of document loss, lack of traceability, and difficulty in monitoring requests. These constraints can reduce the efficiency of administrative services and affect the quality of communication between employees, managers, and the Human Resources department.

To address these issues, our project aims to implement a solution for the digitalization and automation of HR processes. The main objective is to eliminate paper-based requests and replace them with a digital system that enables faster, more secure, and better-organized processing. This solution will cover several processes, including leave requests, work certificates, exit authorizations, absence authorizations, and compensatory leave.

To achieve this objective, our project is based on the use of Bonita Business Process Management (BPM)[1], a platform dedicated to the modeling and automation of business processes. Thanks to this tool, it will be possible to design efficient workflows, ensure better request tracking, and optimize exchanges between the various stakeholders involved.

Our project is part of a final-year study focused on the digitalization of HR processes . Its ambition is to develop an innovative solution that contributes to improving administrative management, reducing paper usage, and increasing the overall efficiency of the organization. To that end, we organized our work as follows:

-Chapter 1 : Presents ATM Mobilis and gives an overview of Human Resource Management processes

-Chapter 2 : Shows the system modeling using UML

-Chapter 3 : Demonstrates the implementation of the app

Chapter 1:

Overview of Human Resource Management Processes

I.1 Introduction :

Human resources represent one of the most important assets of any organization. The success and performance of companies depend largely on the skills, knowledge, and motivation of their employees. In modern organizations, managing human resources effectively has become a key factor for achieving organizational objectives and maintaining competitiveness in a rapidly changing economic environment.

I.2 Definition of Human Resources Management:

Human resources management (HRM) is concerned with the "people" dimension in management. It deals with the totality of the manpower management function. HRM may be defined as an art of processing, developing and maintaining a competent workforce to achieve the goals of an organization in an effective and efficient manner [2].

I.3 Objectives of HRM :

Companies need different resources (like money, equipment, and people) to reach their goals. HRM focuses on managing employees to help achieve these company goals. Its objectives are: to establish and maintain organizational structure and desirable working relationships among all the members of the organization, to create facilities and opportunities for individual or group development so as to match it with the growth of the organization, to identify and satisfy individual and group needs by providing adequate and equitable wages, incentives, employee benefits, social security, as well as measures for challenging work, prestige, recognition, security, status, finally to provide facilities, conditions of work and creation of a favorable atmosphere for maintaining stability of employment.[2].

I.4 Techniques and Functions Of HRM:

HRM includes several techniques and functions that help organizations manage their employees effectively. These functions support workforce planning, recruitment, training, motivation, and administrative follow-up.

a. **Human Resource Planning**: HR planning is a forecasting the need and availability of manpower in an organization. It is prepared by HR departments in consultation with other departments. The demand for manpower is estimated on the basis of expansion or contraction of current and future business operation whereas manpower supply is determined by the internal and external availability of people.

b. **Job Analysis**: It is the basic function of HRM. It collects the job-related information to make job specification and job description. Job Analysis helps in formulation manpower planning, recruitment and selection and other HR decisions.

c. **Recruitment and Selection**: HRM recruits the potential employees. Recruitment is a process of identifying the prospective employees, stimulating them and encouraging them to apply for the particular job in an organization. Selection is made from the list of potential employees after recruitment. Selection involves the process of reviewing application blanks, organizing interviews and test and informing candidates.

d. **Training and Development**: It is needed to build the skill, ability and to motivate the employees. HR department provides training and development program to the employees as per the organizational need. It assesses the training needs and determines the type of training and development program.

e. **Compensation and Benefits**: Compensation and Benefits are the monetary reward provided to the employees against their effort to work. They are the major tools to motivate the employees in an organization. Thus, HR manager must design them in effective manner to attract qualified and skilled manpower at work.

f. **Employee Relation**: HR mangers must maintain harmonious relation between management and employees. Any issues or grievances arise in an organization should be handled constructively through discussion, negotiation etc.

g. **Record Keeping**: HR department keeps and maintain the record of employees and retrieve whenever it is necessary. The records include application form, medical records, employment history, absence etc. This function helps in promoting as well as to take disciplinary action to staffs.

I.5 Presentation of ATM Mobilis :

This section presents Algérie Télécom Mobile (ATM) Mobilis, the company where the practical training was carried out. It provides a general overview of the company, its missions, organizational chart, and structure.

I.5.1 Overview:

ATM Mobilis is a joint stock company SPA [3] (known in french as Société Par Actions), divided into 1,000 shares, entirely held by Algerie Telecom. Its head office is located in the Bab-Ezzouar business district in Algiers. A subsidiary of Algerie Telecom, Mobilis is the first mobile operator in Algeria (historical operator), having become autonomous in August 2003. Mobilis's function is to produce goods and services intended for sale. It has autonomy in terms of accounting and management. Since its creation, ATM Mobilis has opted for a policy of change and innovation. Speaking of innovation, Mobilis was the first mobile operator in Algeria to focus on

and launch the 3rd generation mobile network (Mobilis 3G++). Mobilis continuously works on its brand image and constantly strives to offer the best to its customers by deploying a high-quality network, ensuring satisfactory customer service, and creating innovative products and services. Mobilis is positioned as an operator close to its partners and customers, reinforced by its institutional signature: "Partout avec vous" (Everywhere with you). Its slogan is a promise to listen and a sign of commitment to assume its role in sustainable development through its participation in economic progress, its respect for cultural diversity, its commitment to fulfilling its social role, and its participation in environmental protection.

Figure 1.1 : Mobilis's Logo

I.5.2 Missions of ATM Mobilis:

ATM Mobilis is committed to:
- Ensuring customer satisfaction and loyalty.
- Promoting innovation and technological progress.
- Actively participating in the progress of the national economy.
- Working for the protection of the environment.
- Respecting cultural diversity and fully assuming its social role.

I.5.3 Organization Chart of ATM Mobilis :

The Figure 1.2 presents the organizational chart of ATM Mobilis and shows its main divisions, directorates and regional structures.

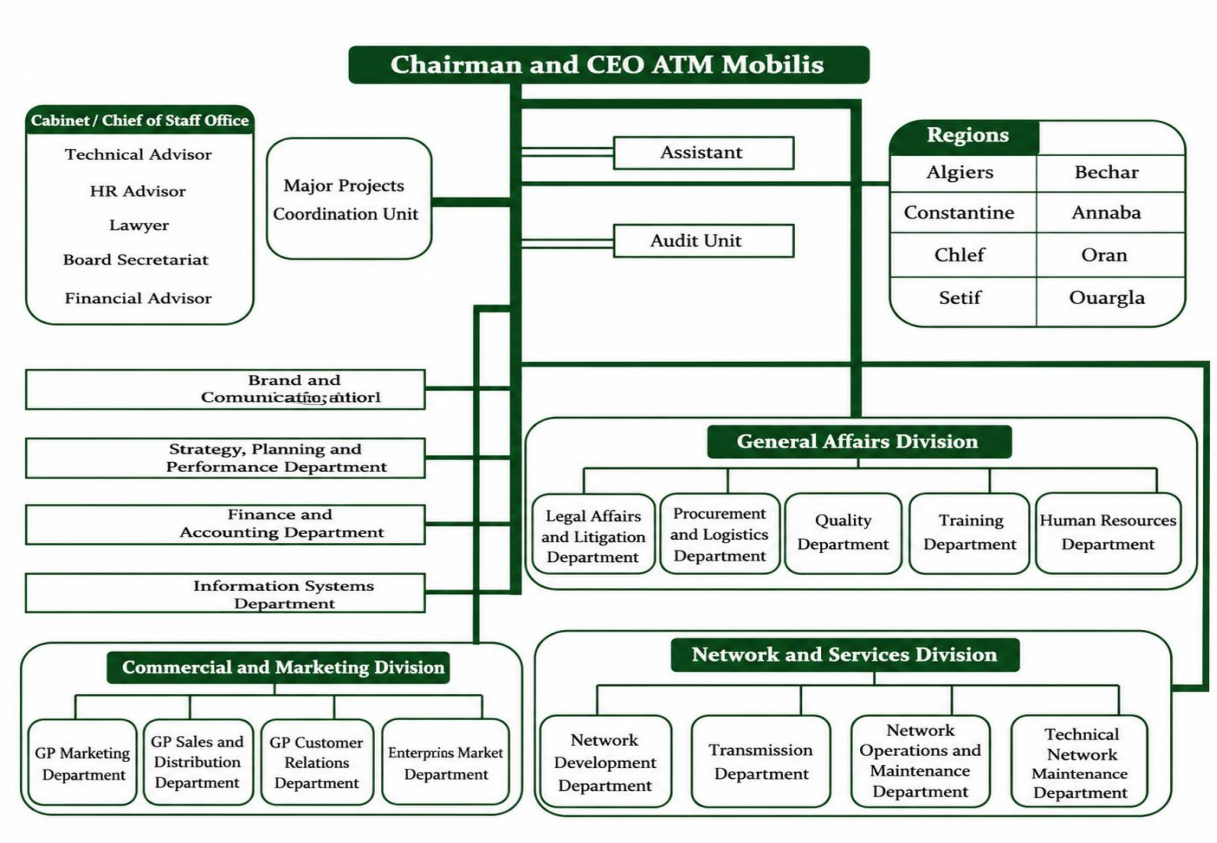


Figure 1.2: Organizational Chart of ATM Mobilis

I.5.4 Organizational Structure:

The company is managed by a Chairman and Chief Executive Officer (CEO), who is supported by an executive office composed of an assistant, several technical advisors, and two additional advisors responsible for financial affairs and human resources.

General Affairs Division :

The General Affairs Division is responsible for administrative and internal management functions within the organization. It is composed of the following directorates:

- Legal and Litigation Affairs Directorate
- Quality Directorate
- Purchasing and Logistics Directorate
- Training Directorate
- Human Resources Directorate

Commercial and Marketing Division

The Commercial and Marketing Division focuses on developing the company's commercial strategy, promoting its services, and maintaining relationships with customers. This division includes the following directorates:

- Mass Market Marketing Directorate
- Mass Market Distribution and Sales Directorate
- Mass Market Customer Relations Directorate
- Business Market Directorate

Network and Services Technical Division

The Network and Services Technical Division is responsible for the technical infrastructure of the company, including the development, deployment, and maintenance of network services. It is composed of the following directorates:

- Network Maintenance Directorate
- Network Engineering and Development Directorate
- Network Deployment and Operations Directorate
- Transmissions Directorate

Other Central Directorates

In addition to the main divisions, the company also includes several central directorates that play a key role in the management and strategic development of the organization:

- Finance and Accounting Directorate
- Brands and Communication Directorate
- Strategy, Planning and Performance Directorate
- Information Systems Directorate

Regional Directorates

To ensure effective management and service delivery across the country, the organization is supported by several regional directorates, including:

- Algiers Regional Directorate
- Constantine Regional Directorate
- Annaba Regional Directorate
- Setif Regional Directorate
- Ouargla Regional Directorate

- Chlef Regional Directorate
- Oran Regional Directorate
- Bechar Regional Directorate

I.6 Human Resources Management within ATM Mobilis:

Within ATM Mobilis, human resources management plays an essential role in the proper functioning and development of the company. As a major operator in the telecommunications sector in Algeria, Mobilis relies on a qualified and competent workforce to ensure the quality of its services and maintain its position in the market. In this context, the Human Resources Directorate plays a strategic role in managing the company's personnel. It is responsible for several important missions such as employee recruitment, personnel administration, training and skills development, as well as performance evaluation and career management.

Furthermore, the Human Resources Directorate also manages several administrative procedures related to employees, particularly the management of leave requests and the issuance of employment certificates. These procedures are among the essential services that help meet the administrative needs of employees and ensure respect for their rights.

Within Mobilis, these procedures are currently handled in paper form. In this perspective, the project aims to facilitate their processing through the digitalization and automation of requests and certificates, such as leave requests, employment certificates, absence authorizations, exit authorizations, and compensatory rest requests, thereby improving the efficiency of administrative management and supporting the work of human resources.

I.7 Conclusion:

In this chapter, we presented the general context of Human Resource Management and its main functions. We also introduced ATM Mobilis, its missions, organizational chart, and organizational structure. Finally, we highlighted the role of the Human Resources Directorate within ATM Mobilis and the need to digitalize administrative requests in order to improve processing, tracking, and traceability.

Chapter 2:

UML modeling of the system

II.1. Introduction:

This chapter is dedicated to the Unified Modeling Language (UML) modeling of our HR management application. The objective is to represent the functional requirements of the system using different UML diagrams.
We start with a brief presentation of UML, then we describe the main actors of the system and present the diagrams used in our project, such as the use case diagram, sequence diagram and class diagram.

II.2. Presentation of UML:

UML, is a graphical modeling language used to describe the structure and behavior of a software system [4].
It helps represent the system requirements, the interactions between users and the application, and the main components needed for the development.
In our project, UML allows to better understand the application before moving to the implementation phase.

II.2.1 Advantages of UML:

UML provides several advantages:
-It makes the system easier to understand through graphical representations.
-It helps organize the functional requirements of the application.
-It allows the identification of the actors and their interactions with the system.
-It improves communication between developers and users.
-It helps prepare the development phase in a clear and structured way.

II.2.2 Modeling with UML:

Modeling with UML consists of representing the system before its implementation.
It gives a clear view of the application’s functionalities, actors, processes, and data structure.
In this project, UML is used to describe how the HR requests management system works and how each actor interacts with it.

II.3. UML diagrams:

UML offers different types of diagrams to represent the system from several points of view.
In our project, we use the diagrams that are most useful for understanding the application, including the use case diagram, sequence diagram and class diagram.

II.3.1 Use Case Diagram:

The use case diagram represents the main functionalities of the system from the user's point of view.
It shows the actors who interact with the application and the actions they can perform.

Actors of the application
The main actors of our application are :

Employee:
The employee submits HR requests such as leave requests, work certificate, absence authorizations, exit authorization, and compensatory rest requests. The employee can also check the status of his requests.

Manager:
The manager receives the requests submitted by employees. He reviews each request and decides whether to approve or reject it. If the request is approved, it is forwarded to the HR team for validation.

HR Team:
The HR team receives only the requests approved by the manager. It verifies the information and makes the administrative validation. For work certificate requests, the HR team can either approve or reject the request. If the request is approved, it's forwarded to the HR Director for signature.

HR Director:
The Human Resources Director (HRD) is responsible for signing official HR documents, especially the work certificate, after the request has been approved.

Admin:
The administrator manages user accounts in the system. He can add new accounts, search for existing accounts, and remove accounts when necessary.

The general use case of our HR request management system is depicted in figure 2.1 below. It shows the main actors of the application and their interactions with the system.

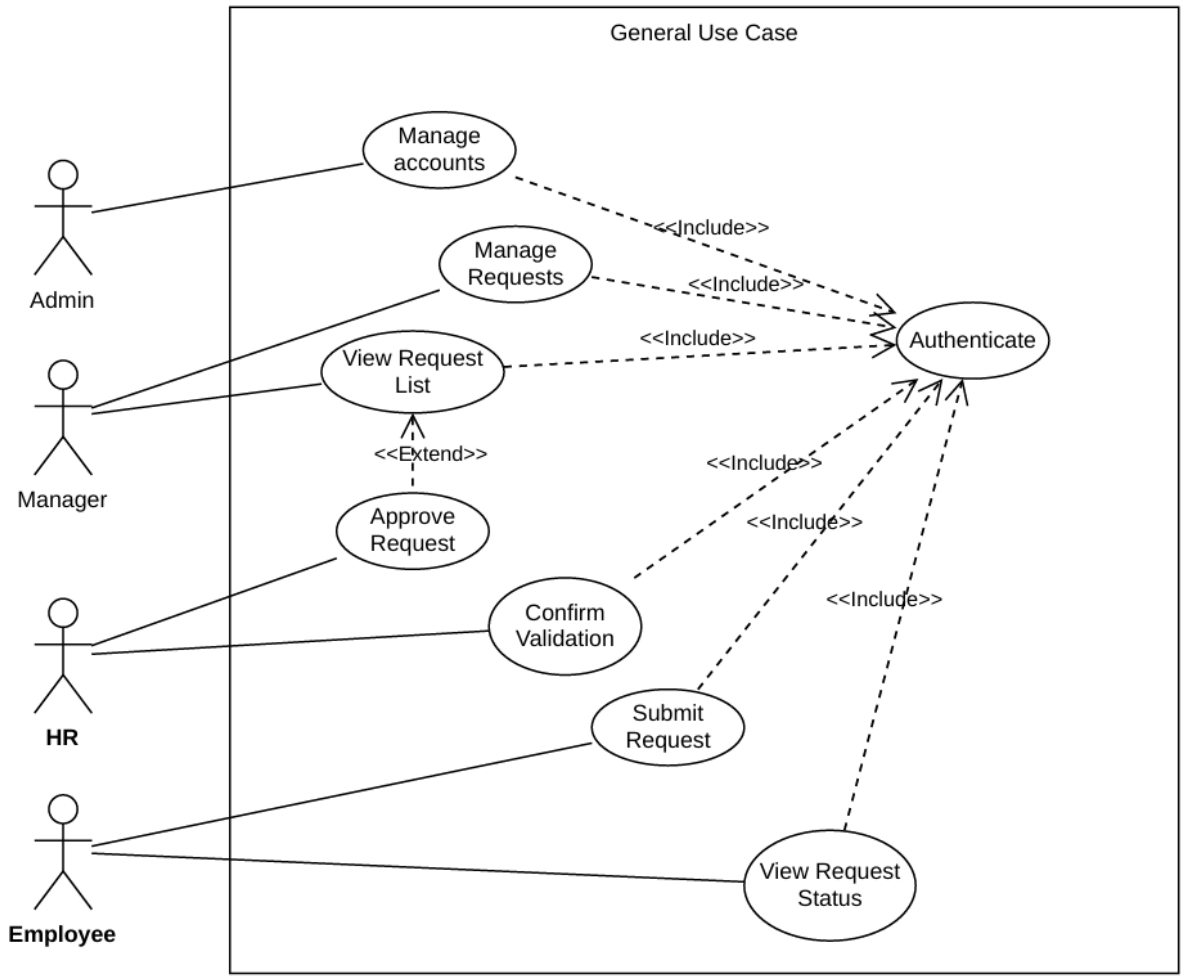


Figure 2.1: General Use Case Diagram

II.3.1.1 Authentication Use Case Diagram:

It shows how users log in to the system by entering their username and password before accessing the application.

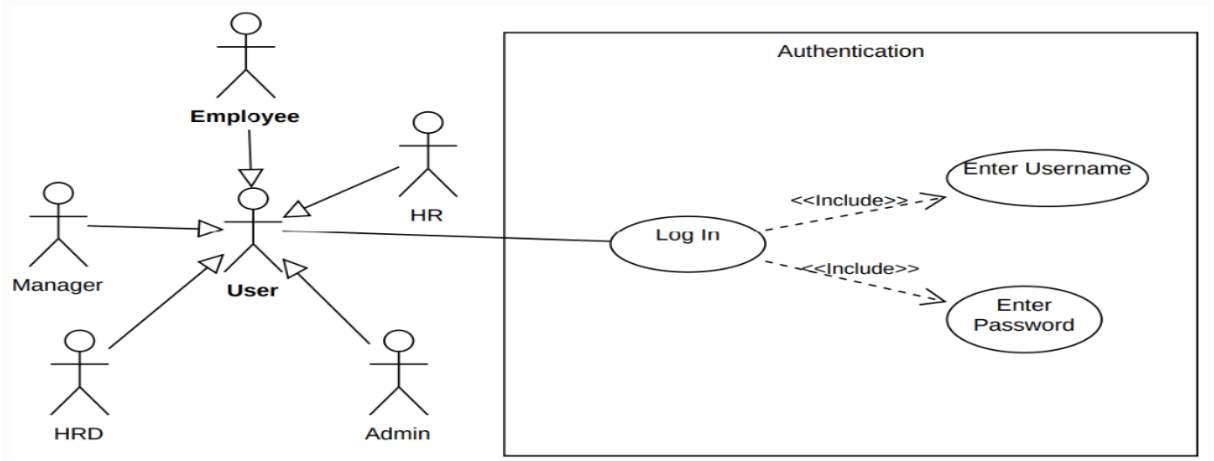


Figure 2.2: Authentication Use Case Diagram

II.3.1.2 Account Management Use Case Diagram:

It displays the main actions performed by the admin, such as creating, searching, and deleting user accounts.

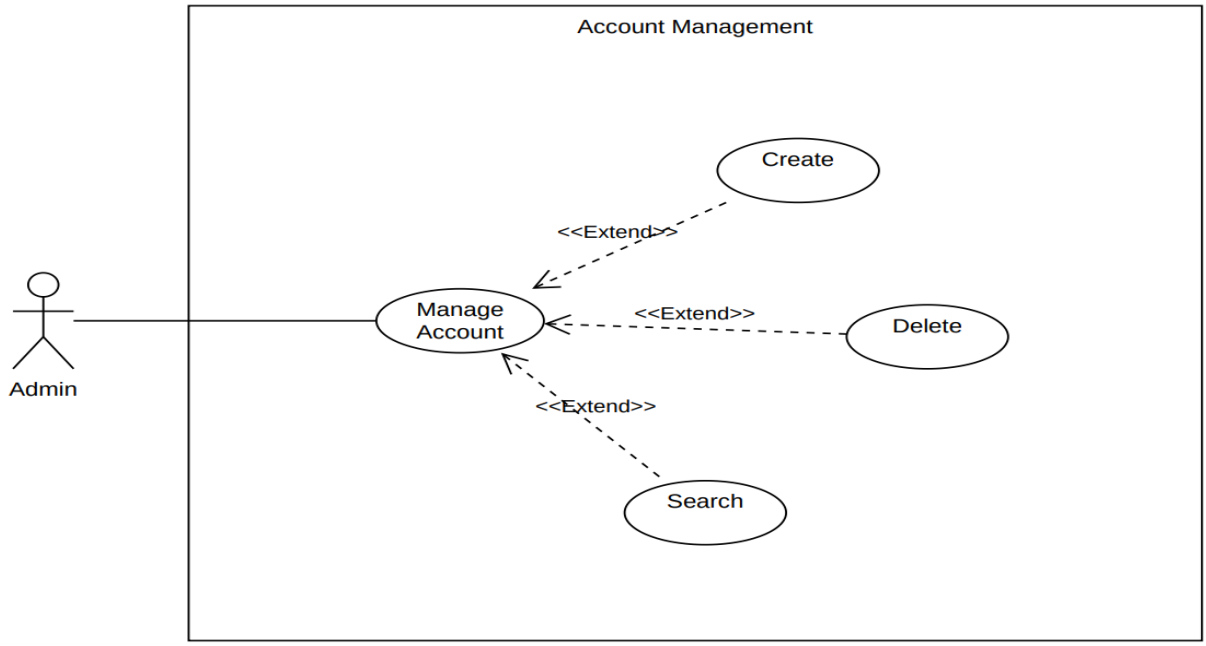


Figure 2.3: Account Management Use Case Diagram

II.3.1.3 Requests Management Use Case Diagram:

It shows how the manager views employee requests and decides whether to approve or reject them.

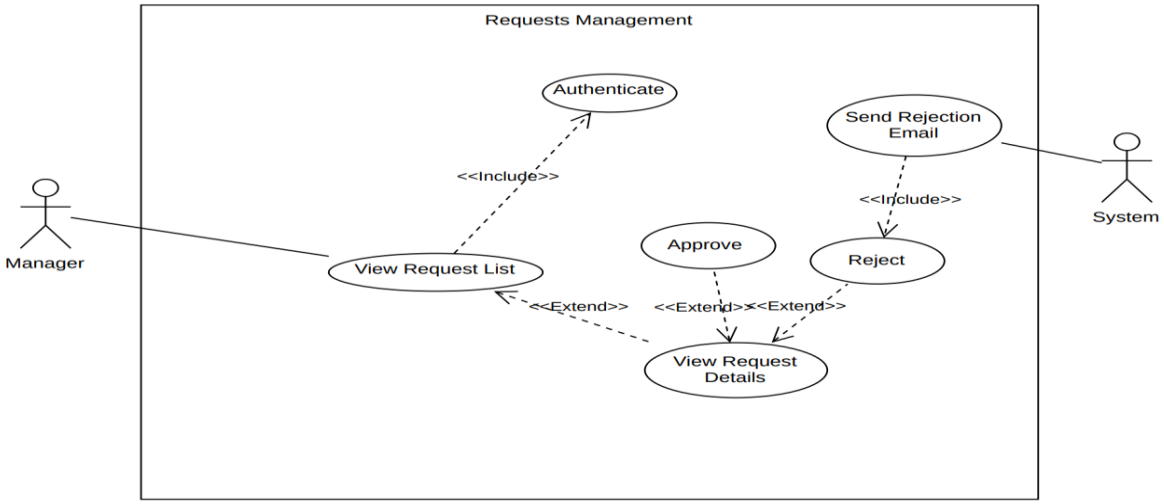


Figure 2.4: Requests Management Use Case Diagram

II.3.1.4 HR Confirmation Use Case Diagram:

It does show how the HR team validates the requests approved by the manager and handles work certificate requests.

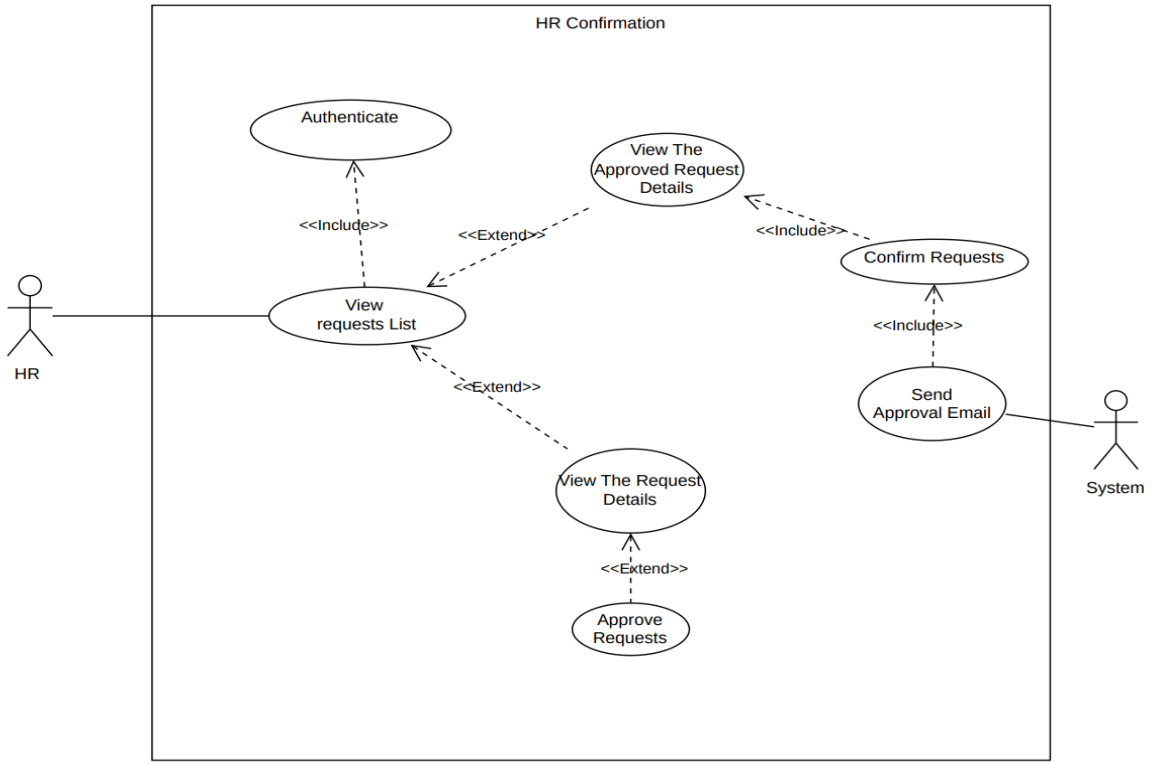


Figure 2.5: HR Confirmation Use Case Diagram

II.3.1.5 Document Signature Use Case Diagram:

It shows how the HR Director signs the work certificate after its approval by the HR team.

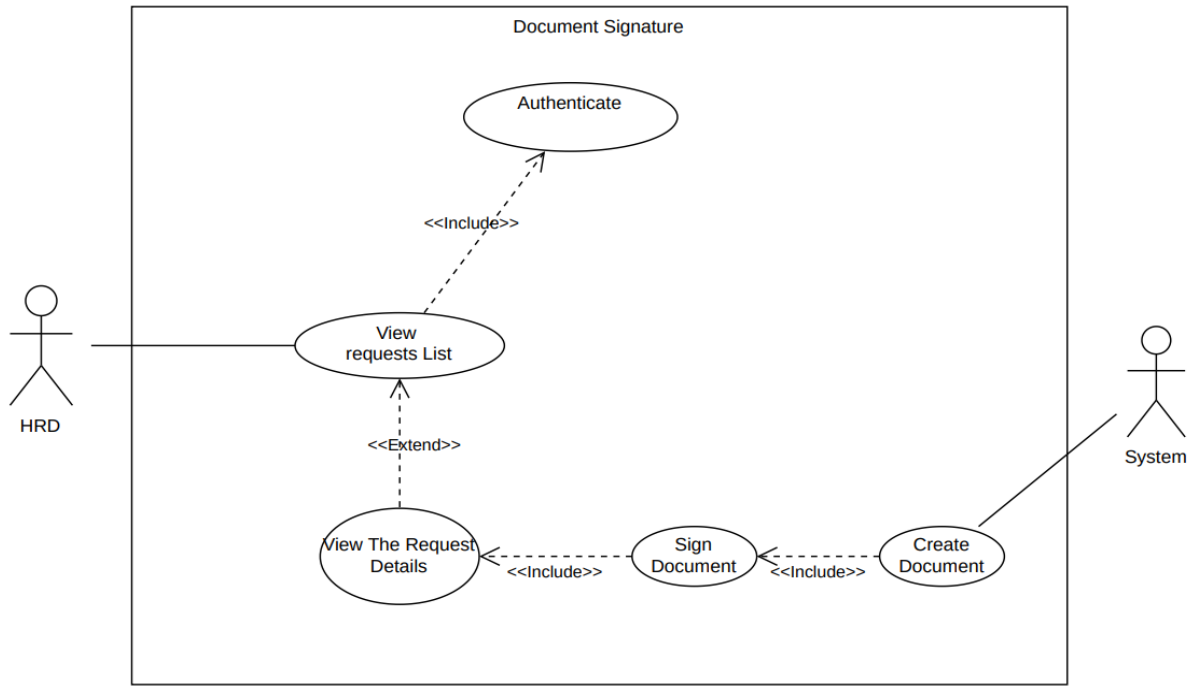


Figure 2.6: Document Signature Use Case Diagram

II.3.2 Sequence Diagram:

The sequence diagram represents the interactions between the actors and the system in chronological order. It shows the exchange of messages between the user, the system, and the database during the execution of a specific function. In our application, several sequence diagrams can be defined. We present the three most important ones: request submission, request processing, and HR confirmation.

II.3.2.1 Request Submission Sequence Diagram:

It shows the employee authenticates, chooses the type of request, fills in the request form, and sends it to the system. The system verifies the information and saves the request in the database.

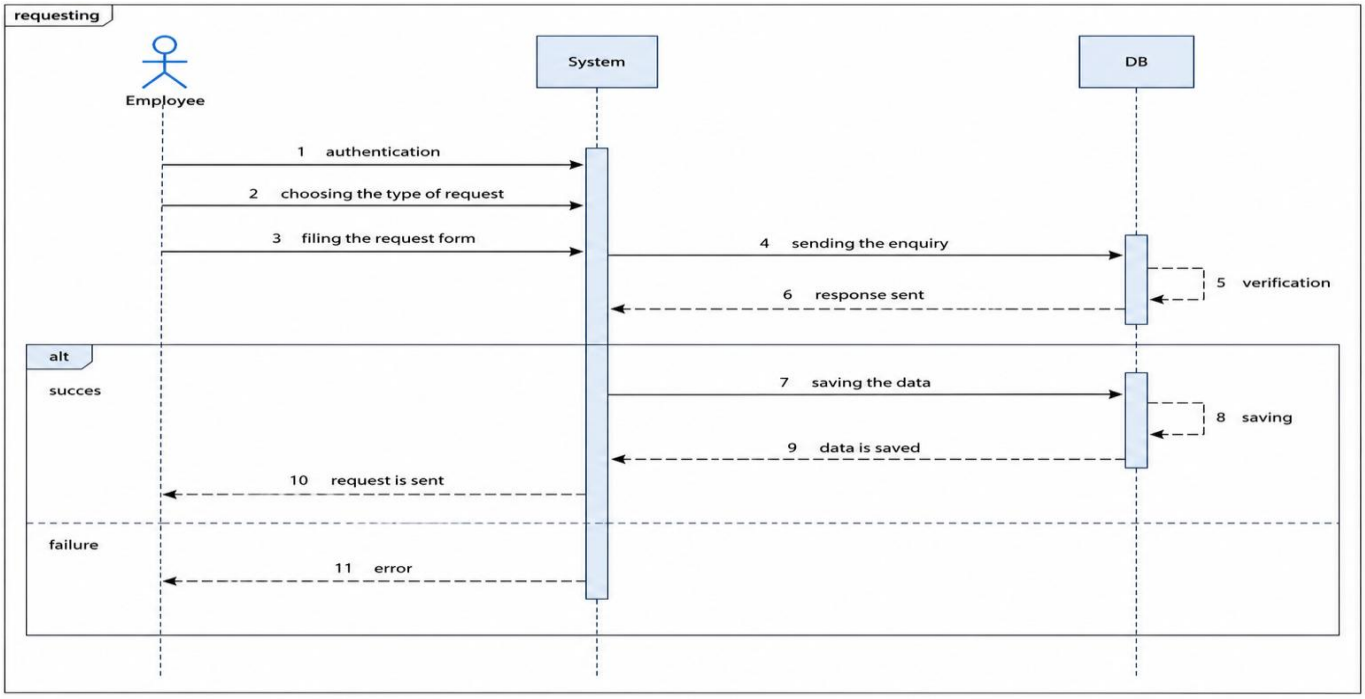


Figure 2.7: Request submission Sequence Diagram

II.3.2.2 Request Processing Sequence Diagram:

It shows how the manager views the list of submitted requests, selects a request, and decides whether to approve or reject it. The system then updates the request status in the database.

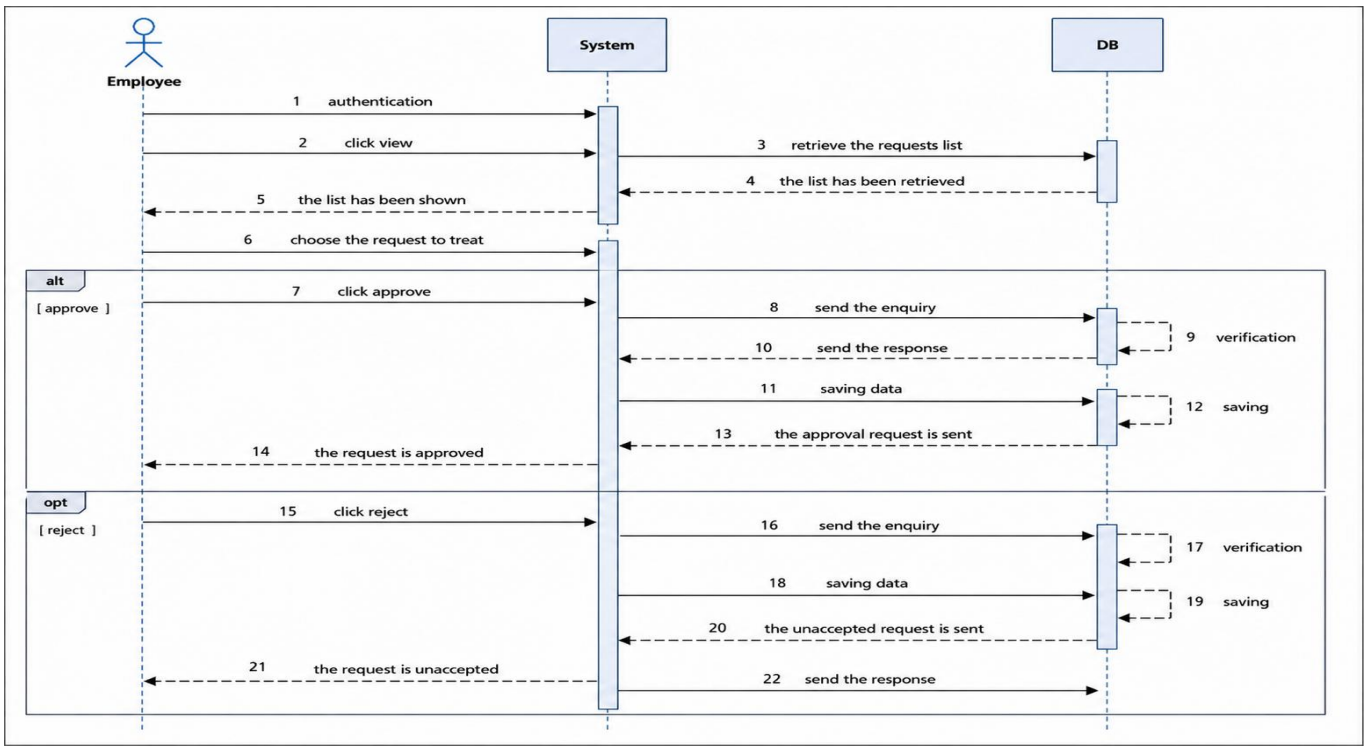


Figure 2.8: Request Processing Sequence Diagram

II.3.2.3 HR Confirmation Sequence Diagram:

It shows how the HR team views the approved requests, confirms the validation, and sends a confirmation email to the employee through the system.

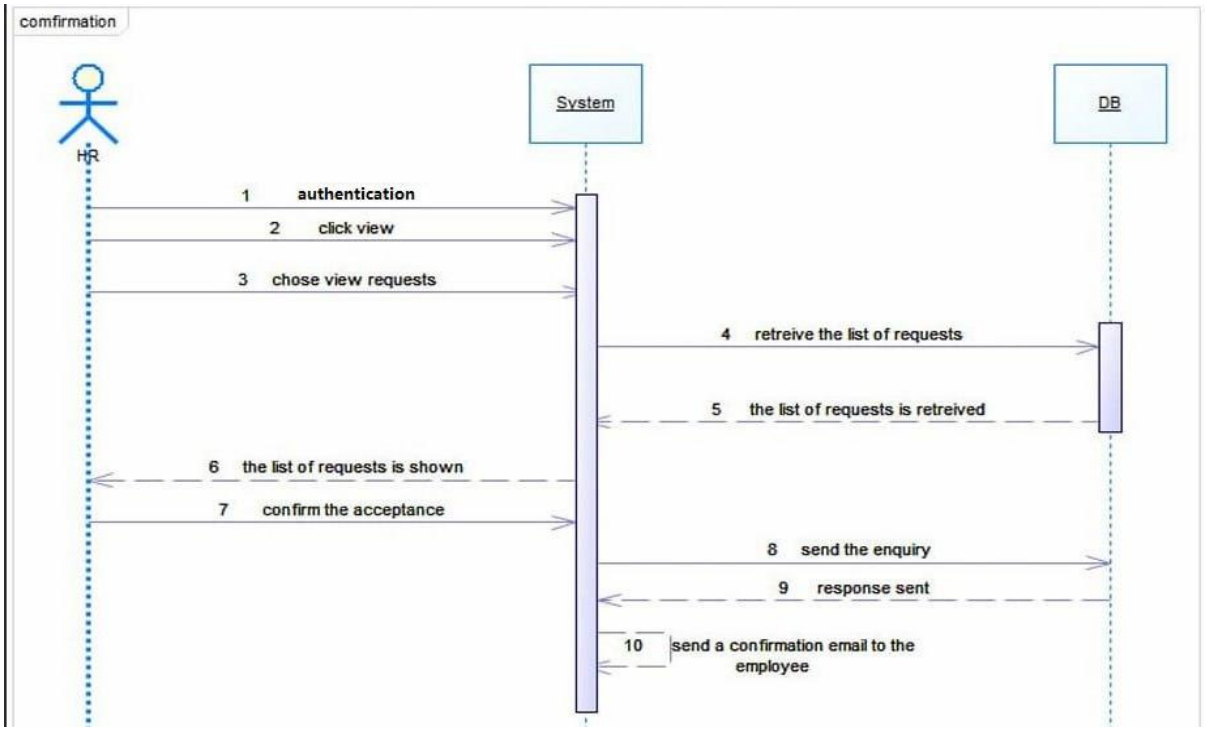


Figure 2.9: HR Confirmation Sequence Diagram

II.3.3 Class Diagram:

The class diagram represents the static structure of the system. It is depicted in table 2.1. It shows the main classes of the application, their attributes, and the relationships between them. In our project, the class diagram helps to identify the data used in the HR requests management system.

The following table presents the class dictionary of the HR request management system. It describes the main classes, their attributes, types, and roles in the application.

Class	Attribute	Designation	Type	Size
User	persistenceId	User identifier	Int	11
	Firstname	User first name	String	50
	lastname	User last name	String	50

Account	username	Account username	String	50
	password	Account password	String	50
	email	Account email	String	100
	role	User role	String	30
	group	User group	String	30
	firstname	First name	String	50
	lastname	Last name	String	50
Employee	dateofbirth	Employee data of birth	Date	12
	dateofrecrut	Recruitment date	Date	12
	tel	Phone number	String	20
	post	Employee position	String	50
	direction	Department or direction	String	50
	reliquat	Remaining leave days	Int	11
	email	Employee email	String	100
Manager	direction	Manager department	String	50
	email	Manager email	String	100
	dateofbirth	Manager date of birth	Date	12
	tel	Phone number	String	20
HR	dateofbirth	HR date of birth	Date	12
	dateofrecrut	Recruitment date	Date	12
	tel	Phone number	String	20
	direction	HR department	String	50
	reliquat	Remaining leave days	Int	11
	email	HR email	String	100
HRD	dateofbirth	HRD date of birth	Date	12
	dateofrecrut	Recruitment date	Date	12
	tel	Phone number	String	20
	direction	HRD department	String	50
	reliquat	Remaining leave days	Int	11
	email	HRD email	String	100
Admin	createAccount()	Create a user account	Method	-
	deleteAccount()	Delete a user account	Method	-
Request	firstname	Request owner first name	String	50
	lastname	Request owner last name	String	50
	persistenceId	Request identifier	Int	11

LeaveRequest	persistenceId	Leave request identifier	Int	11
	startdate	Leave start date	Date	12
	enddate	Leave end date	Date	12
	reason	Leave reason	String	100
	nbday	Number of days	Int	11
	status	Request status	String	30
WorkCertificate	reason	Certificate request reason	String	100
	prefDelTime	Preferred delivery time	Date	12
AbsenceAuthorization	reason	Absence reason	String	100
	startTime	Start time	Date	12
	endTime	End time	Date	12
	creationDate	Creation date	Date	12
	absenceDate	Absence date	Date	12
	ref	Reference	String	30
	absApproved	Approval status	boolean	1
ExitAuthorization	reason	Exit reason	String	100
	startTime	Start time	Date	12
	endTime	End time	Date	12
	creationdate	Creation date	Date	12
	exitDate	Exit date	Date	12
	ref	Reference	String	30
	approved	Approval status	Boolean	1
CompensatoryRest	startdate	Rest start date	Date	12
	enddate	Rest end date	Date	12
	creationdate	Creation date	Date	12
	ref	Reference	String	30
	numOfDays	Number of rest days	Int	11
	leaveLoc	Leave location	String	50
	interim	Interim employee	String	50
	crApproved	Approval status	Boolean	1

Table 2.1: Dictionary of the HR Request Management System

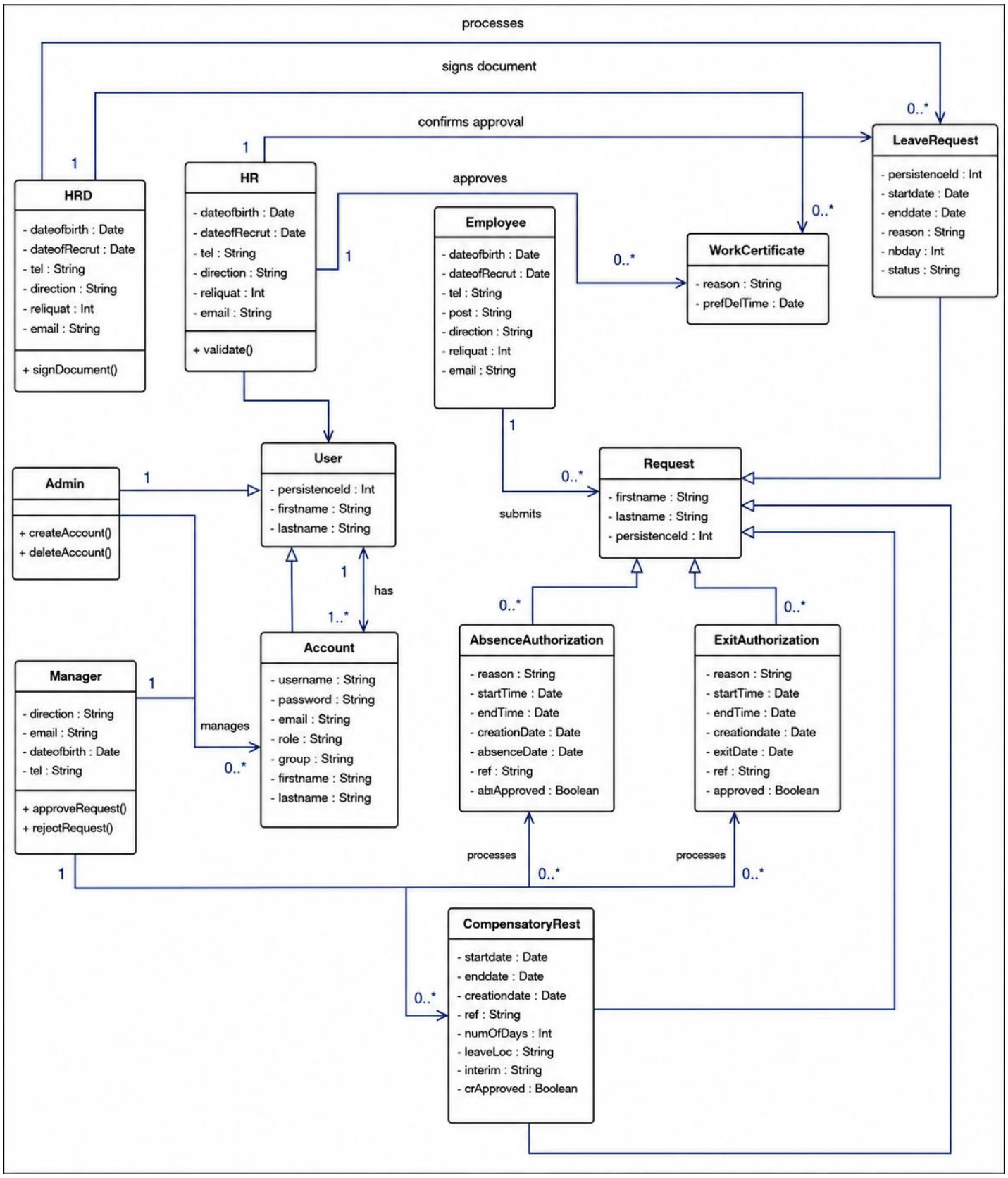


Figure 2.10: Class Diagram of the HR Request Management System

II.3.4 Logical Data Model:

The logical data model (LDM) represents the translation of the conceptual class diagram into a relational database schema. It defines the system's primary tables, their attributes , primary keys, foreign keys, and the structural relationships between them.

Underlined attributes represent primary keys, while attributes preceded by the symbol # represents foreign keys.

User (persistenceId , firstname, lastname).
Account (username , password, email, role, group, firstname, lastname, *#userId*).

Employee (persistenceId, dateofbirth, dateofrecrut, tel, post, direction, reliquat, email, *#userId*).

Manager (persistenceId , direction, email, dateofbirth, tel, *#userId*).

HR (persistenceId, dateofbirth, dateofrecrut, tel, direction, reliquat, email, *#userId*).

HRD (persistenceId, dateofbirth, dateofrecrut, tel, direction, reliquat, email, *#userId*).

Admin (persistenceId, *#userId*).

Request (persistenceId , firstname, lastname, *#employeeId*).

LeaveRequest (persistenceId, startdate, enddate, reason, nbday, status, *#requestId*, *#managerId*).

Workcertificate (persistenceId , reason, prefDelTime, *#requestId* , *#hrId*, *#hrdId*).

AbsenceAuthorization (persistenceId, reason, startTime, endTime, creationdate, absenceDate, ref, absApproved, *#requestId* , *#managerId*).

ExitAuthorization (persistenceId, reason, startTime, endTime, creationdate, exitDate, ref, approved, *#requestId* , *#managerId*).

CompensatoryRest (persistenceId, startdate, enddate, creationdate, ref, numOfDays, leaveLoc, interim, crApproved, *#requestId* , *#managerId*).

II.4.Bonita Workflows:

The workflow implementation represents the main functional part of the proposed solution. Each HR request was modeled as a Bonita process in order to define the actors, tasks, decisions and validation paths.

II.4.1.Leave Request Workflow:

The leave request starts when the employee submits the form. The manager processes the request, then the HR team validates it if it is accepted. The system sends an email notification in case of approval or rejection. It is shown in Figure 3.19.

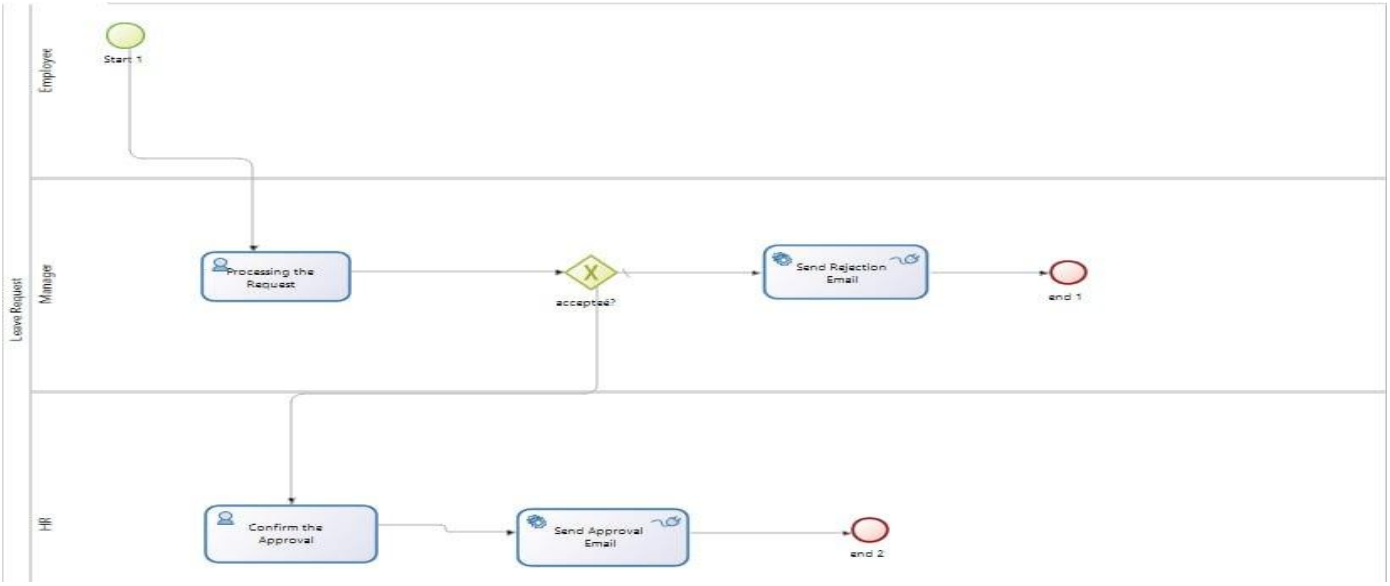


Figure 2.11: Leave Request Workflow

II.4.2.Work Certificate Workflow:

The work certificate request is first validated by the HR team. After approval, it is forwarded to the HR Director for signature. It is presented in Figure 3.20

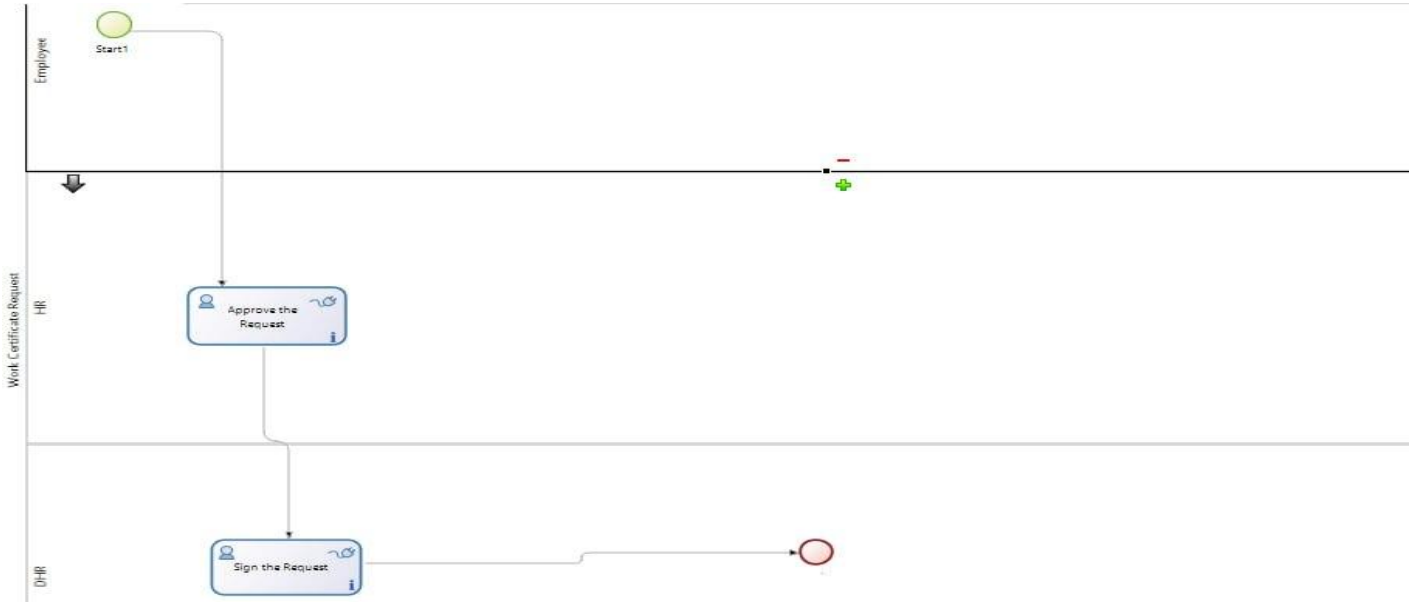


Figure 2.12: Work Certificate Request Workflow

II.4.3.Other HR Request Workflows:

The absence authorization, exit authorization and compensatory rest requests follow a similar workflow. It is displayed in Figure 3.21. The employee submits the request, then the manager approves or rejects it. If the request is approved, the system generates the corresponding administrative document.

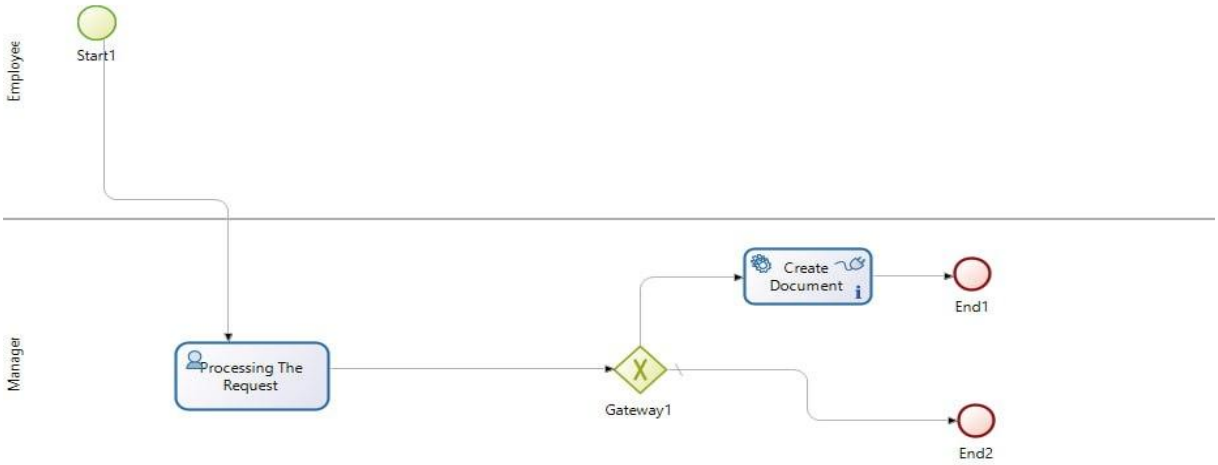


Figure 2.13: Authorizations and Compensatory Rest Workflows

II.5.Conclusion:

In this chapter, we presented the UML modeling of our HR request management system. We described the main actors of the application and represented the system using use case, sequence, and class diagrams. We also presented the class dictionary and the logical data model. This modeling step provides a clear view of the system structure and prepares the implementation phase.

Chapter 3:

Implementation

III.1.Introduction:

After presenting the general context of the project and the UML modeling of the system, this chapter focuses on the implementation of the proposed solution. The objective is to show how the HR processes were digitalized using Bonita BPM. This chapter presents the tools used, the business data model, the implemented workflows, the user interfaces, and the test scenarios.

III.2.Development Tools:

Several tools were used to implement and test the proposed solution. These tools helped us model the workflows, manage business data, create user interfaces, and execute the HR processes.

III.2.1.Bonita Studio:

Bonita Studio is the main development environment used in this project [1]. It allowed us to model the HR processes, configure actors, define tasks, and deploy the workflows. Through Bonita Studio, we implemented the different HR request processes such as leave requests, work certificates, absence authorizations, exit authorizations, and compensatory rest requests.

III.2.2.Bonita BPM:

Bonita Business Process Management (BPM) is a Business Process Management platform used to automate and execute business processes. In our project, it was used to manage the execution of HR workflows and organize the interaction between employees, managers, the HR team, and the HR Director.

III.2.3.Bonita UI Designer:

Bonita User Interface (UI) Designer was used to create the forms and user interfaces of the application. It allowed us to design pages that enable employees to submit requests and allow the different actors to process them according to their roles.

III.2.4.H2 Database:

H2 Database was used during the development and testing phase [5]. It stores the business data created during the execution of the processes, such as employees, requests, statuses, and validation information.

III.2.5.REST API:

REST APIs were used to retrieve information from the database and display it in the application interfaces. They allowed the system to access business data such as employees, managers, requests, and use this data during workflow execution.

III.3.Development Languages:

Several development languages were used to build the interfaces, manage data, and control the logic of the workflows. Each language had a specific role in the implementation of the HR request management system.

III.3.1.HTML:

HyperText Markup Language (HTML) was used to structure the pages and forms of the application [6]. It allowed us to define the different interface elements, such as input fields, buttons, labels, and tables.

III.3.2.CSS:

Cascading Style Sheets (CSS) was used to improve the visual appearance of the application interfaces [7]. It allowed us to customize the layout, colors, spacing, and general design of the pages.

III.3.3.JavaScript:

JavaScript was used to manage the logic of buttons and dynamic interactions in the user interfaces [8]. It helped control user actions, handle form behavior, and improve the interaction between the user and the application.

III.3.4.JSON:

JavaScript Object Notation (JSON) was used to handle and exchange data between the interfaces, APIs, and business data [9]. It allowed the application to structure information in a simple and readable format.

III.3.5.SQL:

Structured Query Language (SQL) was used to interact with the H2 database through the H2 Console [10]. It allowed us to insert, update, delete and verify data stored in the database, such as employees, managers, HR users and request information.

III.3.6.GROOVY:

Groovy was used inside Bonita to manage workflow logic [11]. It was used to write scripts and operations, initialize business objects, update request information, and control data during process execution.

III.4.User Interfaces:

The user interfaces were designed to provide a simple and clear interaction between users and the system. They allow users to access the platform, start HR processes, submit requests, track cases and view request statistics. The interfaces were customized using HTML, CSS, JavaScript, and Bonita UI Designer in order to improve usability and visual appearance.

III.4.1.Login Interface:

The login interface represents the entry point of the application. It is depicted in Figure 3.1. It allows users to access the Mobilis HR platform by entering their username and password. After authentication, each user is redirected to the appropriate space according to his role.

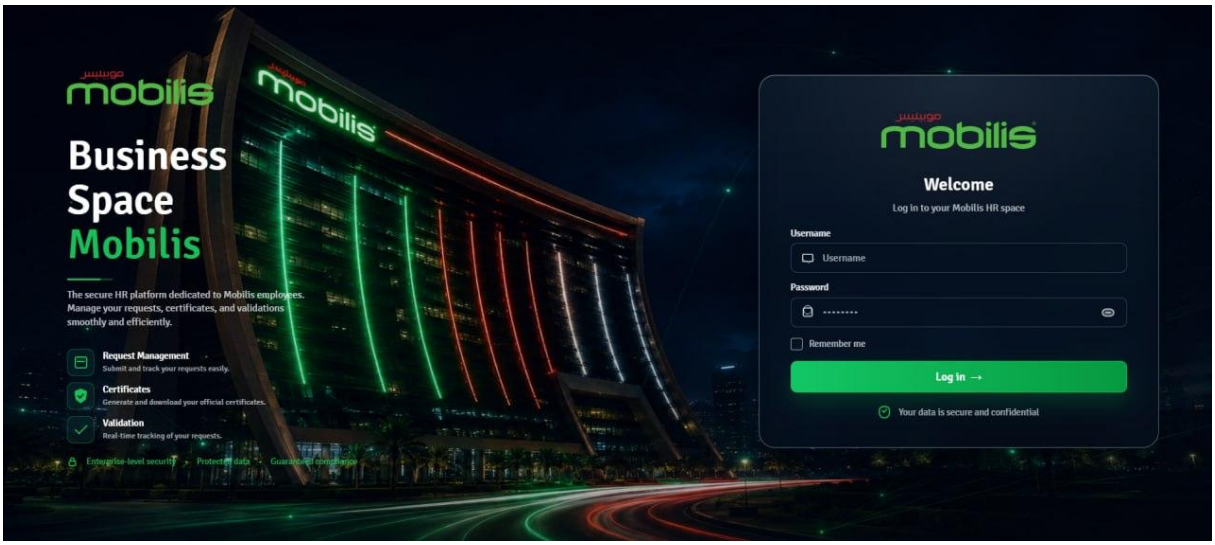


Figure 3.1: Login Interface

III.4.2.Processes Interface:

The processes interface allows the employee to start a new HR request. It is shown in Figure 3.2. It displays the available processes, including leave request, exit authorization, absence authorization, compensatory rest request and work certificate request.

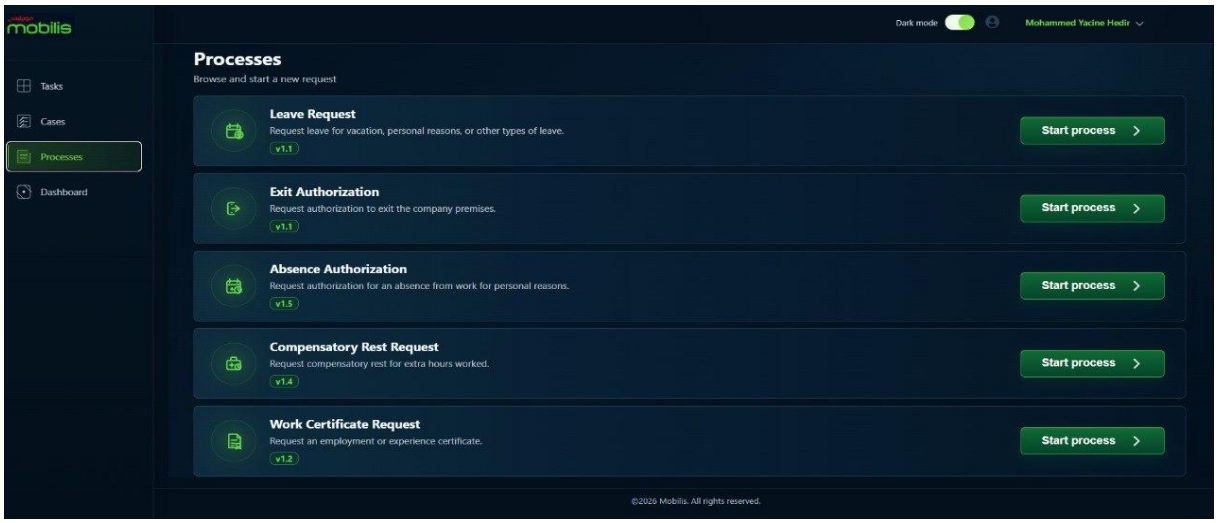


Figure 3.2: Processes Interface

III.4.3.Request Forms:

The request forms allow employees to enter the required information according to the selected process. they are presented in Figures: (3.3), (3.4), (3.5), (3.6), (3.7). Each form contains specific fields related to the type of requests, such as dates, reason, remaining days, delivery time, reference, or number of days

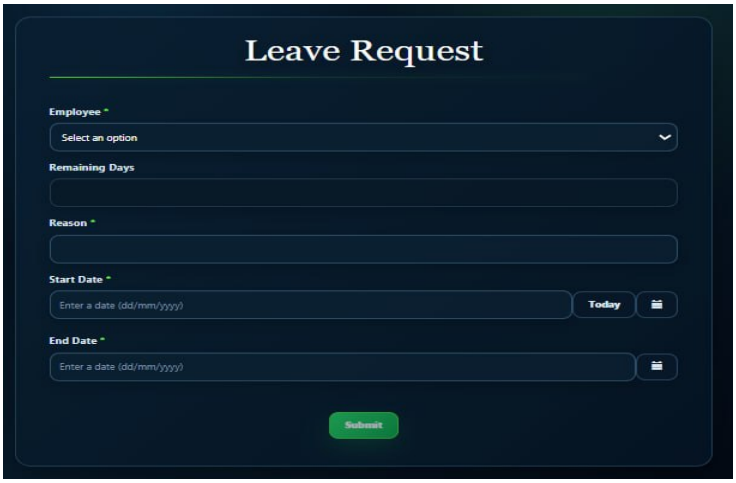


Figure 3.3: Leave Request Form



Figure 3.4: Work Certificate Request Form

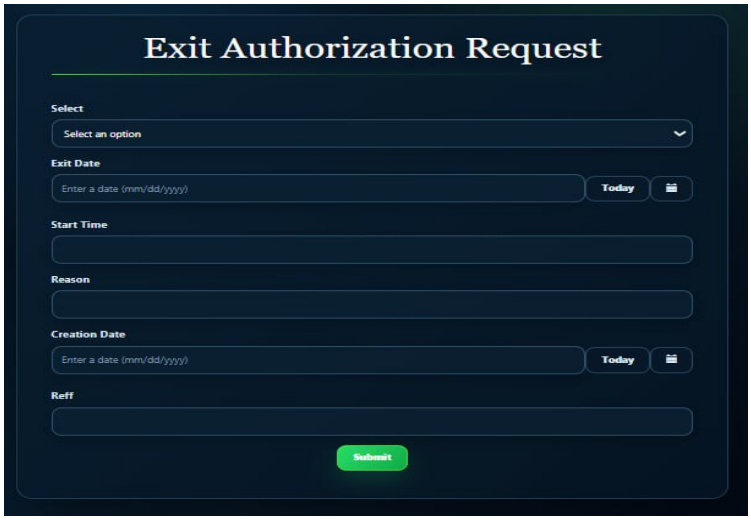


Figure 3.5: Exit Authorization Form



Figure 3.6: Compensatory Rest Request Form



Figure 3.7: Absence Authorization Form

III.4.4.Cases Forms and Details:

After submitting a request, the system creates a new case. The employee can follow the progress of his requests through the cases interface and view the status of each case. It is depicted in Figures (3.8) , (3.9).

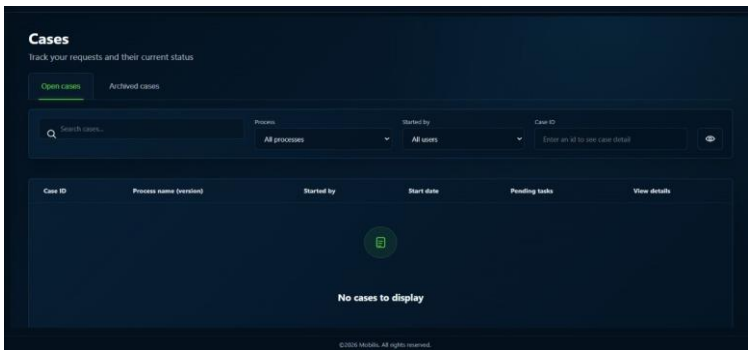


Figure 3.8: Cases Form

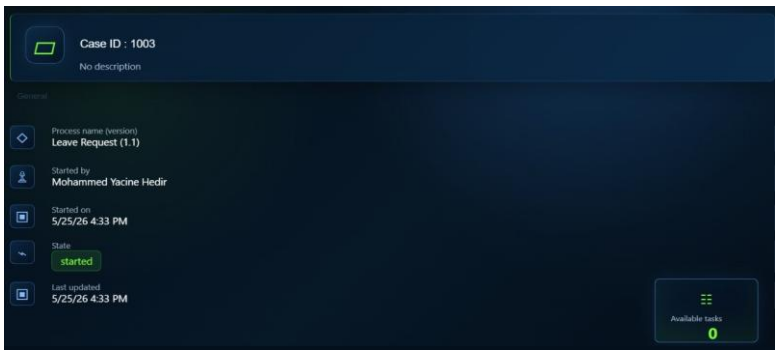


Figure 3.9: Cases Details Form

III.4.5.Employee Dashboard:

The employee dashboard provides an overview of the employee's requests and statistics. It is represented in Figure 3.10. It shows the total number of requests, approved requests, rejected requests, pending requests, remaining leave balance, and work certificate requests.

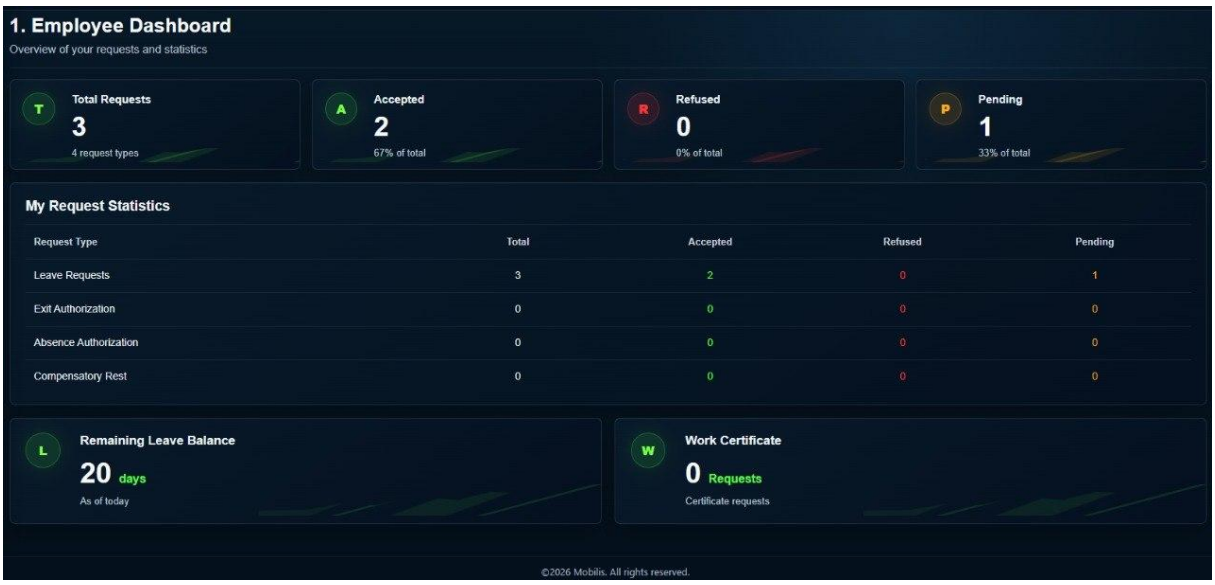


Figure 3.10: Employee Dashboard

III.4.6.Manager Task Processing:

Once a request is submitted, it is sent to the manager. The manager can view pending tasks, open the request details, and approve or reject the request according to the provided information. It is shown in Figures (3.11), (3.12).

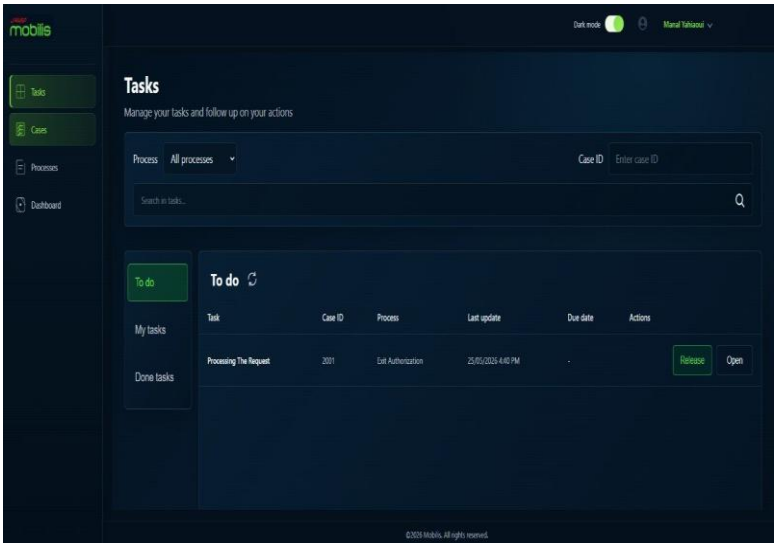


Figure 3.11: Manager Tasks Interface

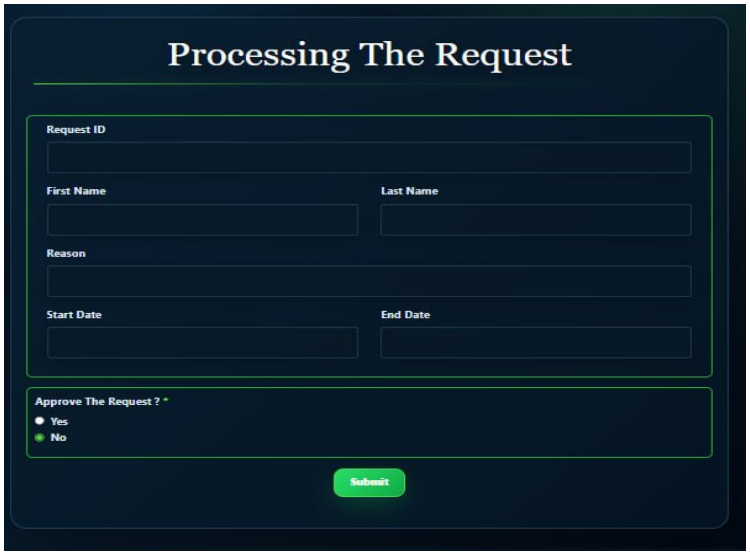


Figure 3.12: Manager's Request Processing Interface

III.4.7.Manager Dashboard:

The manager dashboard provides an overview of the requests related to the manager's department. It is displayed in Figure 3.13. It displays request statistics such as approved, rejected and pending requests, which helps the manager monitor the processing of employee requests

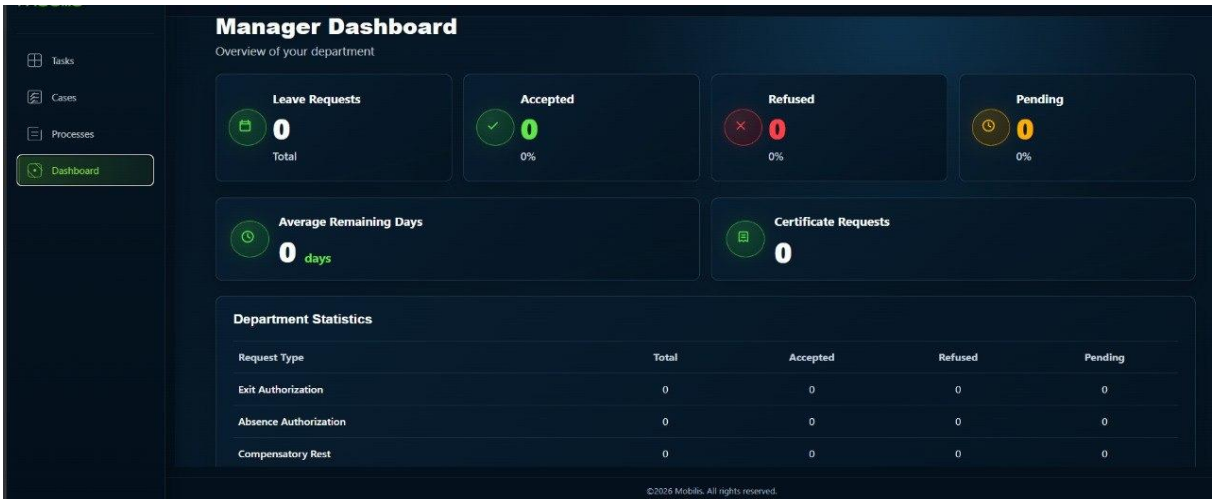


Figure 3.13: Manager Dashboard

III.4.8.HR Task Processing:

If the request requires HR validation, it is forwarded to the HR team. It is depicted in Figures (3.14), (3.15). They can view pending tasks, open the request details, and approve or reject the request according to the required administrative validation.

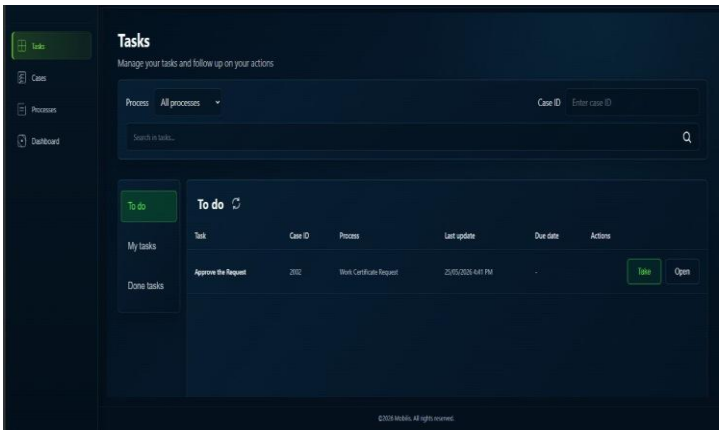


Figure 3.14: HR Tasks Interface

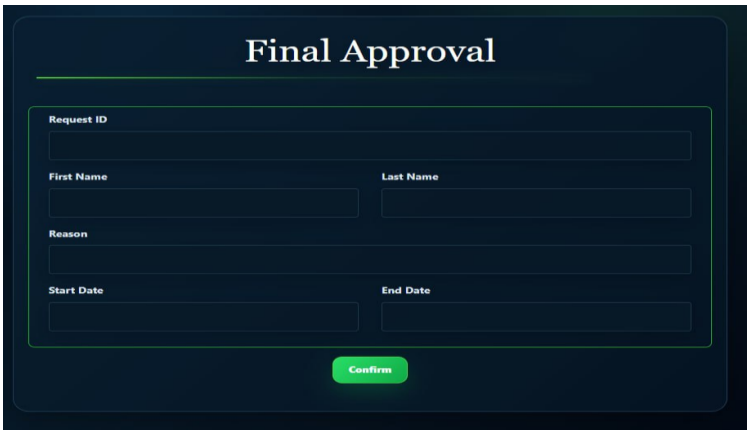


Figure 3.15: HR Final Approval Interface

III.4.9.HR Dashboard:

The HR dashboard provides an overview of all the HR requests. It is shown in Figure 3.16. It displays statistics such as requests per month, completed requests per department, approved, rejected and pending requests. It also shows leave balance indicators, including the average, minimum and maximum remaining leave days.



Figure 3.16: HR Dashboard

III.4.10.HR Director Signature:

For work certificate requests, after HR approval, the request is forwarded to the HR Director. He can view the signature task and sign the approved work certificate request. It is displayed in Figures (3.17), (3.18).

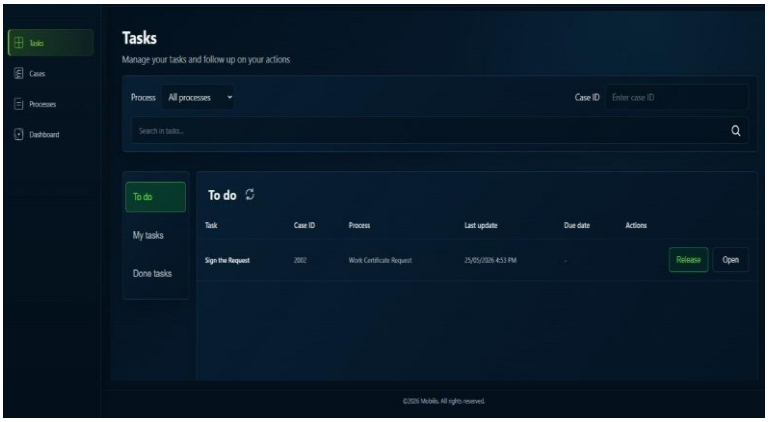


Figure 3.17: HR Director Tasks Interface

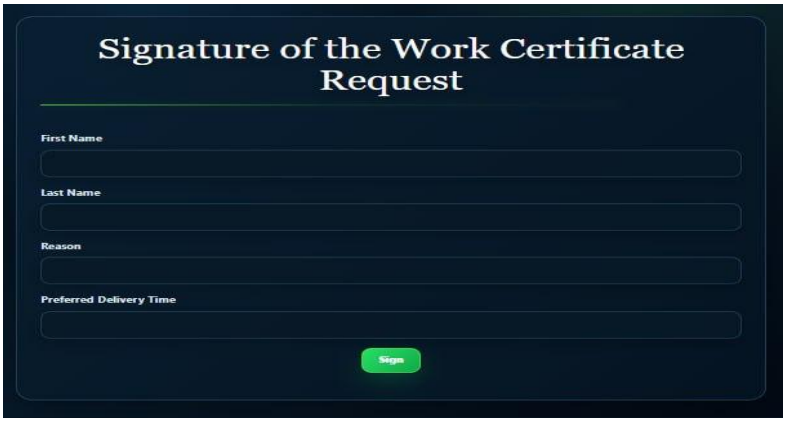


Figure 3.18: Work Certificate Signature Interface

III.6.Conclusion:

In this chapter, we presented the implementation of the proposed solution using Bonita BPM. We described the development tools, development languages, user interfaces and workflows. The implemented solution shows how HR requests can be submitted, processed, validated and tracked digitally, which helps reduce paper-based procedures and improve administrative efficiency.

General conclusion and Perspectives:

This final-year project focused on the digitalization of Human Resource processes using Bonita BPM. The main objective was to propose a digital solution that replaces paper-based HR requests with automated workflows, in order to improve processing time, traceability and administrative efficiency.

Throughout this work, we first presented the general context of Human Resource Management and introduced ATM Mobilis, the company where the practical training was carried out. Then, we modeled the proposed system using UML diagrams in order to define the actors, functionalities, interactions, and data structure of the application. Finally, we implemented the solution using Bonita BPM, with customized interfaces, workflows, forms, dashboards and request tracking features.

The implemented application allows employees to submit different types of HR requests, such as leave requests, work certificates, exit authorizations, absence authorizations and compensatory rest requests. It also enables managers, HR staff, and the HR Director to process these requests according to their roles. In addition, the dashboards and case tracking interfaces provide better visibility over the status and statistics of requests.

In conclusion, this project represents a practical contribution to the modernization of HR administrative procedures. It helps reduce paper usage, improve communication between actors, and ensure better monitoring of employee requests. As future work, the solution can be improved by adding advanced reporting features, stronger security mechanisms, integration with other internal information systems as well as integrating artificial intelligence features for anomaly detection and HR data analysis.

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