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Communications et des Réseaux

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présenté à

L'École Nationale d'Ingénieurs de Gabès

par

Sabrine KOUKI

en vue de l'obtention du

Diplôme National d'Ingénieur en :
Génie des Communications et des Réseaux

Electronic Document Management Platform

Soutenu le 18/09/2021, devant la commission de jury:

M. Abdelhakim KHLIFI	Président
M. Abdelhak MOUSSA	Rapporteur
M. Chaker BEN MAHMOUD	Encadrant

DEDICATION

To my lovely parents and my siblings who gave me endless love, trust, constant encouragement over the years, and for their prayers.

To my mentors and peers for their patience, support, love, and enduring the ups and downs during the completion of this report.

To all my loved ones.

Acknowledgement

I wish to express my most significant thankfulness to every last one of the people who helped me, some way or another, to complete this project.From the outset, I offer thanks to Almighty Allah who gave me the strength, direction, purpose, and patience all through the project.

And I am grateful to my project supervisor, Mr. Chaker Ben Mahmoud, for his patience, guidance, direction and support during the execution of this project.

Finally, I acknowledge the members of the jury for honoring me by accepting to evaluate this work.

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List of Figures

Acronyms

API Application Programming Interface

CSS Cascading Style Sheets

EDM Electronic Document Management

GUI Graphical User Interface

HTML Hypertext Markup Language

PHP Hypertext Preprocessor

RAM Random-Access Memory

SSL Secure Sockets Layer

UML Unified Modeling Language

General Introduction

Engineers, operations personnel, or maintenance personnel may often find it difficult to locate the right information at the right time.In addition, current and accurate documents, which reflect the current plant configuration may not be made readily available.

The electronic management of documents can have a dramatic effect on project and operations efficiency at the plant.Failure to properly manage these critical documents can result in delays in projects and problems with consistent plant operation.Many companies are employing electronic document management to organize this critical set of information.

Any company feel a need for an EDM platform that enables his team members and devices to accurately record and manage their ever-increasing number of various documents and drawings.

In this context, our end-of-study project in communication and network engineering has as main theme: the design of a web platform of electronic document management.

In the first chapter "Overview", we will describe the proposed project.Subsequently, we will emphasis on the process of making this platform by studying some similar solutions.

In the second chapter "Analysis and Design", we will discuss the design phase.We will present the different diagrams of our website. Thus, we will study the functional and non-functional requirements.

We end this report with the chapter "Realisation", where we present our web site, mentioning the different hardware and software working environments used to start the project, as well as citing the main realized interfaces.

We will conclude this report with a synthesis of the work carried out and the possible perspectives that result from this work.

Chapter

1 Overview

Contents

1.1 Introduction

In this first chapter we will focus on the context of the project, we will continue with the study of the rival applications to detect their main weaknesses in order to identify the constraints and the existing problems.

1.2 EDM Concept

1.2.1 Definition

A document is no longer a place where words are placed on a page, but is a set of elements or objects related to a particular topic, assembled together.Thus, a new definition of a document in the electronic age appears: “An electronic document is an information container in electronic form that collects information from different sources in different formats on a particular topic to meet the needs of a particular person.”[1] The user can create an electronic document on a personal computer without creating a paper document.The electronic document can be identified, taken and stored on the Internet and Intranet in electronic form.One electronic document can be processed and transmitted to others on the network at the same workplace or even to users around the world via the Internet.

1.2.2 Paper Documents Drawbacks

Documents represent the knowledge of industrial corporations and are much more than just formatted data.Largely, document processing is paper-based.One obvious drawback to this is the long processing time.In addition, certain information that is embedded in paper documents can be partly or entirely lost after their active processing has terminated.The documents are usually stored in insufficient paper archives or transferred only partly to persistent online databases.

1.2.3 EDM Solutions

An EDM software provides the most economical way to access and share information.Document imaging alone cannot adequately solve the total document management problem.An integration strategy is needed for managing images and drawing from various packages and technical documents.

The EDM software encompasses the following:

- Documents capture :

  The source drawing or document is converted into a computer-compatible format. Even if a computer first generated the document, it is made compatible with all other manually generated and computer-generated documents in the system.

  - Document storage:

    All documents are stored in the system in such a way as to allow access by a common user interface without regard to original medium, format, size or original location.

- Document version update:

  Automatic control is maintained over which functional departments and specific individuals have authority to revise the documents. In addition, a workflow mechanism can be put in place that allows specified personnel to review, comment and suggest revisions before they are approved and released for general use.

- Document retrieval:

  Document access is limited to those with a need or authority to view, make hard copies, retrieve and distribute documents.There are multiple levels of rights like view, modify, print, etc.

- Document distribution:

  Only those with the proper authority are allowed to retrieve documents in any desired output medium, including paper hard copy, exportable electronic file formats, computer monitor display, color transparency, etc. Document retrieval is instant, giving the user optimum value.

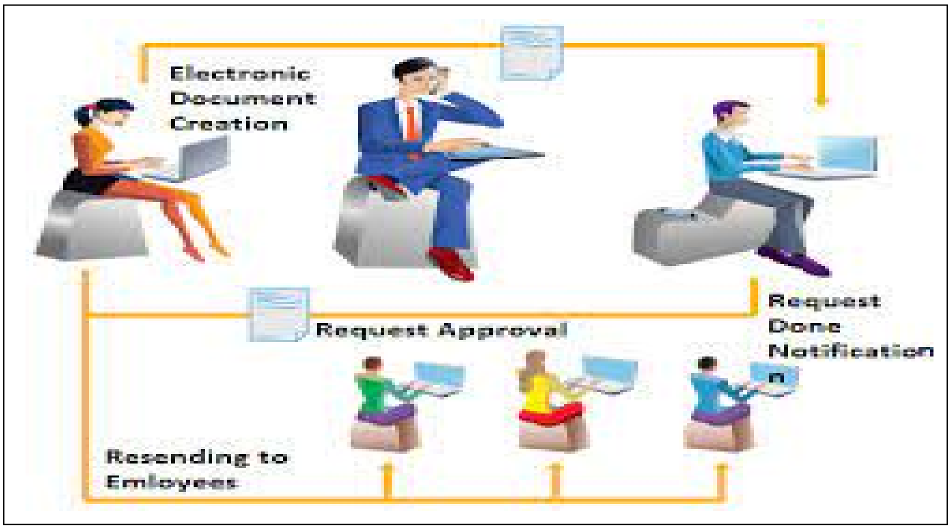


Figure 1.1: Document Distribution Process

- Security:

  Improved document security as imaged documents are never taken out of storage, as paper documents would be [1].

1.2.4 Workflow

Workflow management involves: process modelling, that requires workflow models and techniques for capturing and describing a process; process reengineering, that requires techniques for optimising the process; and workflow implementation and automation, that requires methodologies and technologies for using information systems and human performers to implement, schedule, execute and control the workflow tasks as described by the workflow specification.

This technology is used to control the approval and distributions tasks in the document life cycle.The workflow is based on rules that will transmit electronically a task with a document or some documents to the desktop of the professionals.They typically separate work activities into well-defined tasks, roles, rules, and procedures, which regulate most of the work in manufacturing and the office.The enactment of a workflow may include activation, tracking, status monitoring, messaging, queue handing and routing of documents.It becomes possible to monitor management process and track and route the associated documents.

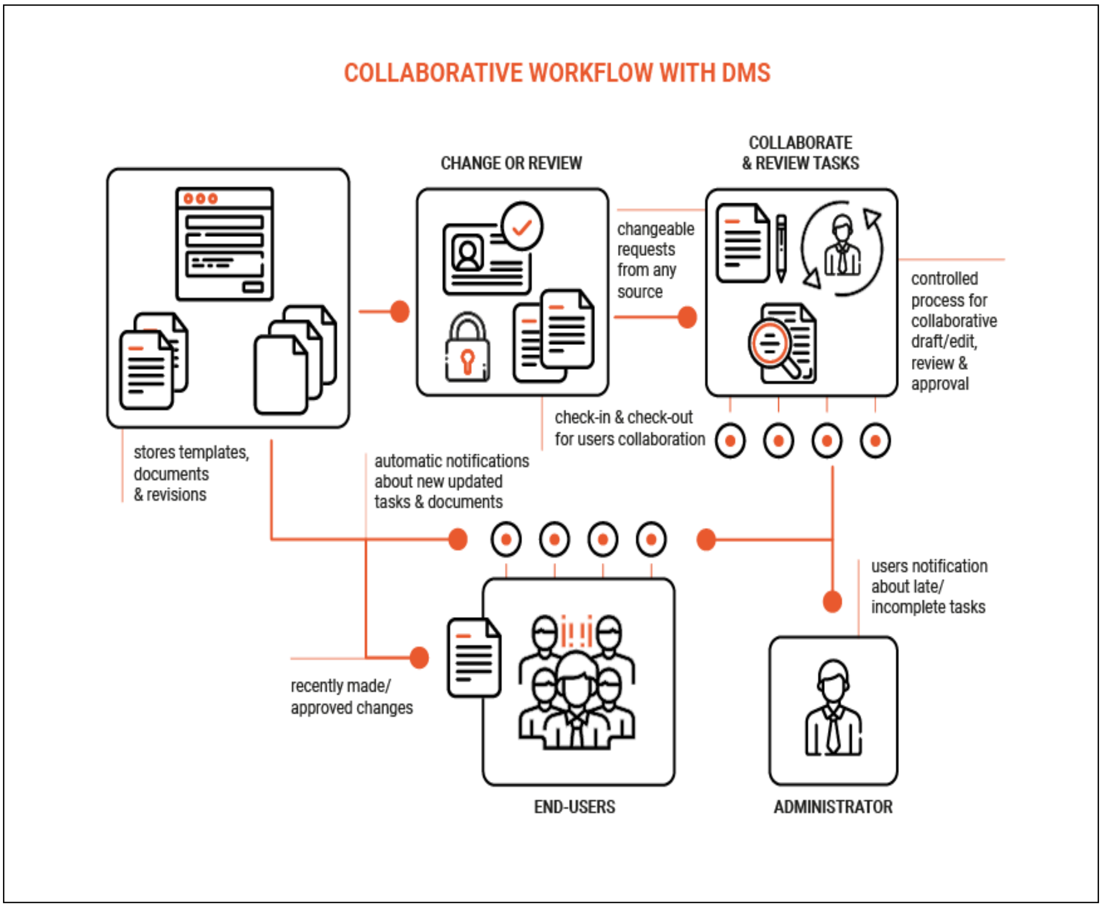

COLLABORATIVE WORKFLOW WITH DMS
CHANGE OR REVIEW
COLLABORATE
& REVIEW TASKS
changeable requests from any source
controlled process for collaborative draft/edit, review & approval
stores templates, documents & revisions
check-in & check-out for users collaboration
automatic notifications about new updated tasks & documents
users notification about late/ incomplete tasks
recently made/ approved changes
END-USERS
ADMINISTRATOR

Figure 1.2: Workflow Architecture

1.2.5 EDM process

Documents can be inputted either from disk or scanned into the computer.EDM then provide a data storage and retrieval processes with outputs in the form of hard-copy or computer files.

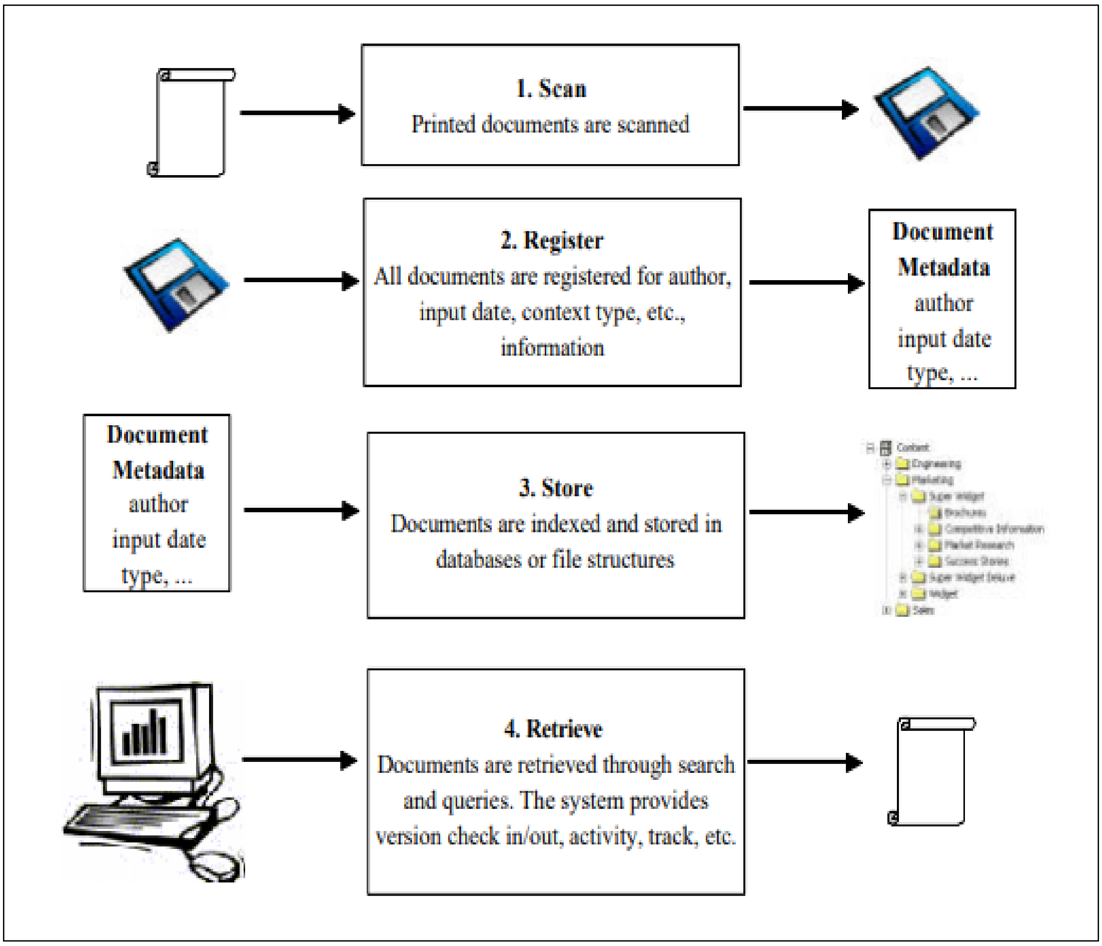

1. Scan
Printed documents are scanned
2. Register
All documents are registered for author, input date, context type, etc., information
Document
Metadata
author
input date
type, ...
Document
Metadata
author
input date
type, ...
3. Store
Documents are indexed and stored in databases or file structures
Content
Engineering
Marketing
Super Widget
Brochures
Competitive Information
Market Research
Success Stories
Super Widget Deluxe
Widget
Sales
4. Retrieve
Documents are retrieved through search and queries. The system provides version check in/out, activity, track, etc.

Figure 1.3: EDM process

1.3 Exploratory Study of the Project

The project is a web application which is purposeful for electronic document management. Users will have the possibility to sign in.Then, they will be able to consult and manage their directories and documents.The main purpose, is to create a generic application that can be used by any company whatever his domain.It’s also dedicated to help regulatory compliance and ensure that all users have access to the up-to-date and accurate document.

1.3.1 Project contribution

This project has different contributions that are shown in the following list:

- The application is generic and can be used by any company whatever his domain.

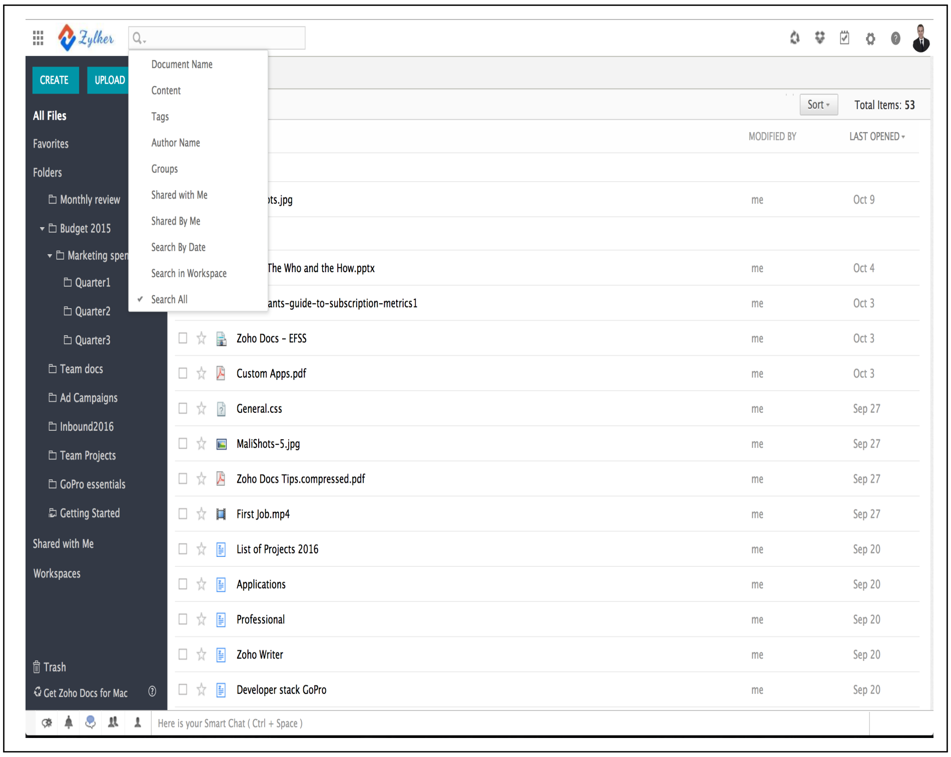
- Share all relevant information with the right people at the right time by affecting a team leader whose role is to spearhead the team members.
- Update and process documents to make sure that all relevant personnel have access to the latest version.
- Securing the service connection session (SSL).
- Securing access to spaces/documents (access rights / roles).

1.3.2 Critical Study of Rival Applications

The study of the existing is a very important step.It is defined by the applications similar to our project, to treat and improve the existing ones and to look for others that are not already integrated.Thus, we have reviewed some EDM applications and websites to identify their benefits and their insufficiency.

1.3.2.1 Zoho Docs

Zoho Docs is a comprehensive online document management system used for creating, storing, sharing and collaborating on documents of almost any format available.The application consists of two distinct core functions: document storage and management and document editing and collaboration.



Total Items: 53

	MODIFIED BY	LAST OPENED
ts.jpg	me	Oct 9
The Who and the How.pptx	me	Oct 4
ants-guide-to-subscription-metrics1	me	Oct 3
Zoho Docs - EFSS	me	Oct 3
Custom Apps.pdf	me	Oct 3
General.css	me	Sep 27
MaliShots-5.jpg	me	Sep 27
Zoho Docs Tips.compressed.pdf	me	Sep 27
First Job.mp4	me	Sep 27
List of Projects 2016	me	Sep 20
Applications	me	Sep 20
Professional	me	Sep 20
Zoho Writer	me	Sep 20
Developer stack GoPro	me	Sep 20

Figure 1.4: Zoho Docs

- **Advantages**:

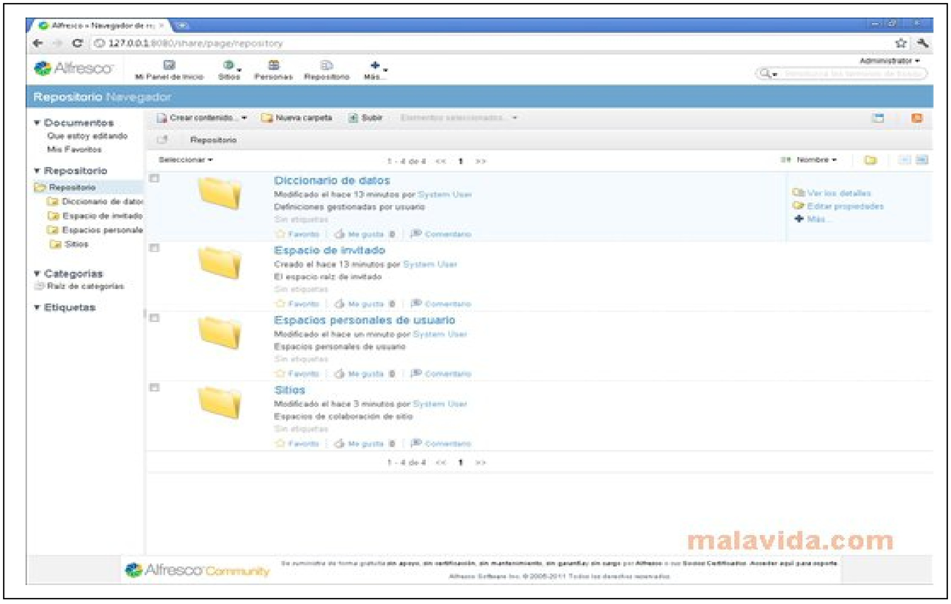
  All types of formats are simple to prepare and download.You can readily update your records online and incorporate them into your daily routine.It's a dependable and very productive instrument.

- **Disadvantages**:

  It's difficult to modify the formatting of previously saved files while editing them.Sharing files or document with several other users causes problems in a more perplexing manner.

1.3.2.2 Alfresco

Alfresco is a content management system created by Alfresco Software in 2005 and distributed under a free license.



Diccionario de datos
Modificado el hace 13 minutos por System User
Definiciones gestionadas por usuario
Sin etiquetas
Favorito | Me gusta 0 | Comentario

Espacio de invitado
Creado el hace 13 minutos por System User
El espacio raíz de invitado
Sin etiquetas
Favorito | Me gusta 0 | Comentario

Espacios personales de usuario
Modificado el hace un minuto por System User
Espacios personales de usuario
Sin etiquetas
Favorito | Me gusta 0 | Comentario

Sitios
Modificado el hace 3 minutos por System User
Espacios de colaboración de sitio
Sin etiquetas
Favorito | Me gusta 0 | Comentario

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Figure 1.5: Alfresco

- **Advantages**:

  Alfresco is a system for organizing and facilitating collaborative document creation through common features and the use of discussion forums.

- **Disadvantages**:

  It's expensive.Moreover, it's complex to use therefore, it takes time to find a document in alfresco.

1.3.3 Proposed Solutions

In order to overcome the failures mentioned above, we propose to create a platform Easy to use and administer.

It is essential to specify at this stage that our project will take into consideration all these constraints by trying to present the necessary solutions while respecting the rules of development of a Web site such as the simplicity of navigation between the pages, making simple and advanced document search, the good ergonomics and the security of confidential data of the customers.

1.4 Conclusion

This first chapter is a necessary step in setting the benchmarks for our project.we have broadly presented the framework of the work and a critique of some web applications that exist in the same province.We will begin a second chapter "Analysis and Design" in which we will specify our needs.

Chapter

2

Analysis and Design

Contents

2.1 Introduction

In this chapter, we give full concern towards an analysis of our system requirements.After completing that, we will give focus on the detailed design of the project.Indeed, we present at the beginning a study of the various functional and non-functional needs after having defined the actors involved in the system.Then, we move on to the conceptual study of our project, which leads us to define the different diagrams used.

2.2 Specifying Needs

In this section we mainly focus on the functional and non-functional requirements of our project.

2.2.1 Identifying The Actors

An actor is behaviored classifier which specifies a role played by an external entity that interacts with the subject (by exchanging signals and data), a human user of the designed system, some other system or hardware using services of the subject.

The actors who interact with the system are:

The member of team : Its role is to consult the available documents.

The leader : Its role is to manage teams.

The administrator :He is the site manager.

2.2.2 Functional Requirements

A functional requirement can be defined according to the specific needs of the system to be developed. In the following, we describe the different requirements of our system.

- **For the member**:
  - Update an account.

  - manage a document (create, update, download, comment, consult history).

- **For leader**:
  - Manage team's directories (add, update, delete).
  - Delete a document.
  - Finalize a document.

- **For administrator**:
  - Manage a project (add, update, delete).
  - Manage a team (add, update, delete)..
  - Manage a member (add, update, delete).
  - Assign a member to a team.

2.2.3 Non-Functional Requirements

These are requirements that do not specifically concern the behavior of the system but rather they identify internal and external constraints of the system.

The main non-functional requirements are:

- **Security**:User accounts are secured by an encrypted password. This is provided by symfony's security.
- Ease of use and interpretation of errors as well as any improvement and optimization tasks optimization thanks to the adopted MVC architecture which allows to have an extensible and maintainable code.

2.3 Modeling Architecture

The design phase is based on the UML modeling language allowing to bring details on our solution and give us a detailed vision of the project to be treated.We have drawn some diagrams.

2.3.1 Use Case Diagram

The Use Case Diagram given below shows a use case diagram which is a graphic depiction of the interactions among the elements of a system.Use Case Diagram portrayed the system's functionality and necessity by using actors and use cases.It is represented by either circles or ellipses.

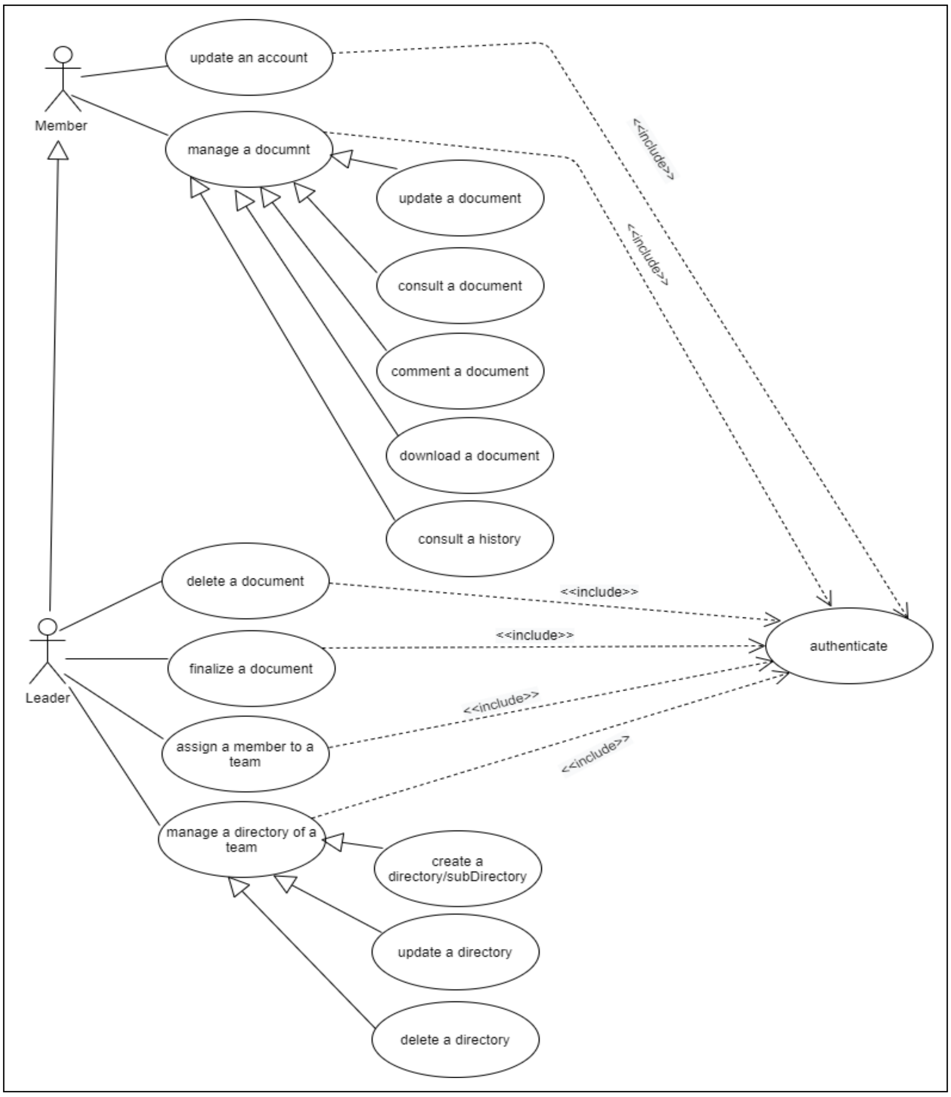


Figure 2.1: Use case diagram for the member/leader

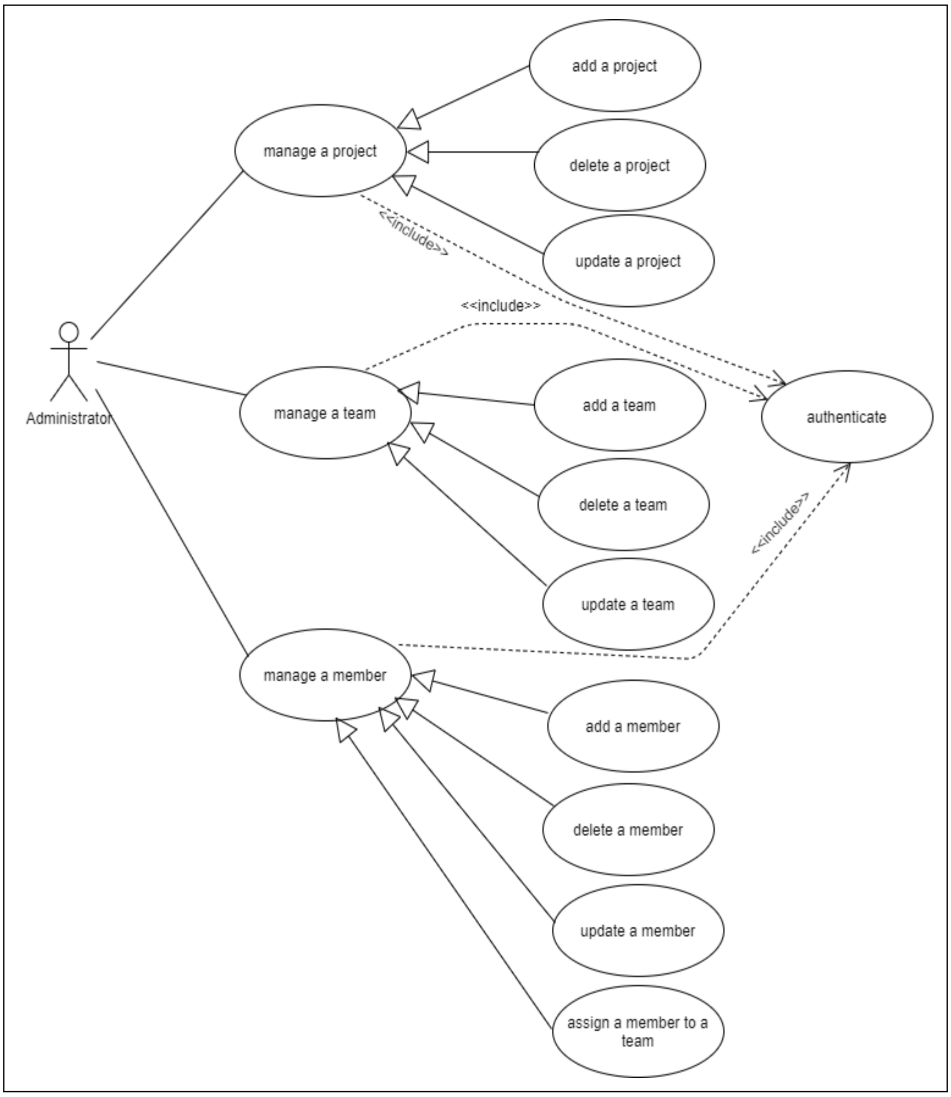


Figure 2.2: Use case diagram for the administrator

2.3.2 Class Diagram

The class diagram is defined as a set of classes and their relationships in the form of generalizations and associations.This kind of diagrams is used to express the static content or a structure of the system under development [2].Its purpose is to describe the structure of the entities manipulated by the user.

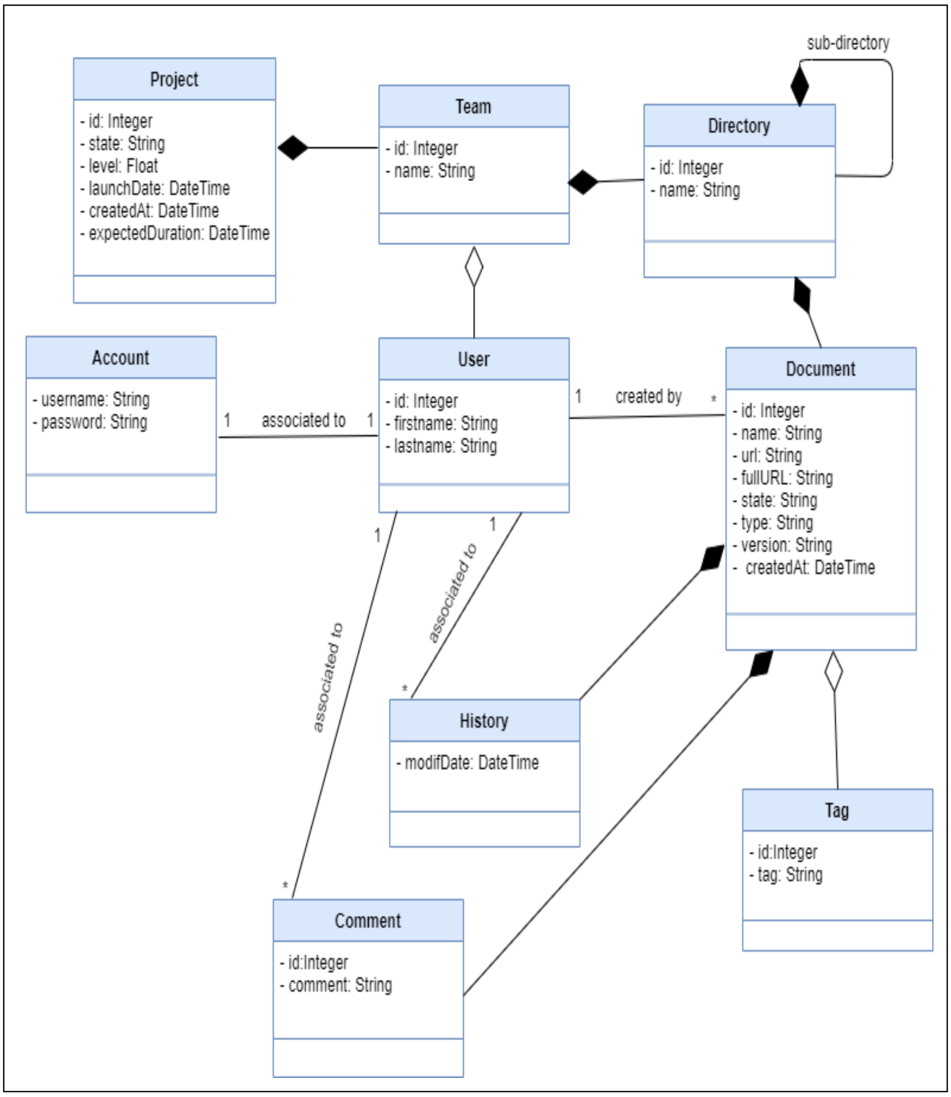


Figure 2.3: Class diagram

Among the classes that appear in this diagram, we can mention:

- The user that is characterized by his id, first and last name.
- The document that belongs to a directory/sub-directory is created by a user and composed of comments, tags, history.

2.3.3 Sequence Diagram

Sequence diagrams describe interactions, which are used to capture system scenarios as a set of specified occurrences across several parts of the system, represented by lifelines.An interaction is specified using occurrence specifications, which are organized into a hierarchy, and ordered by interaction operators [3].

2.3.3.1 Detailed sequence diagram for "Authentication"

The diagram below shows the authentication steps and the interactions between the different elements of the web application.Authentication is a requirement for all actors.

In fact, It is the only way to access the platform because it provides a user with the login interface. After filling the required fields, the system checks the database if the entered parameters are valid.In case of valid entries, the user is directed to the home interface after being assigned a new session.In case of invalid entries however, the system indicates to the user which parameters are incorrect and the whole process would be repeated all over again.The end of this sequence of interactions marks the beginning of any sort of use of the platform.

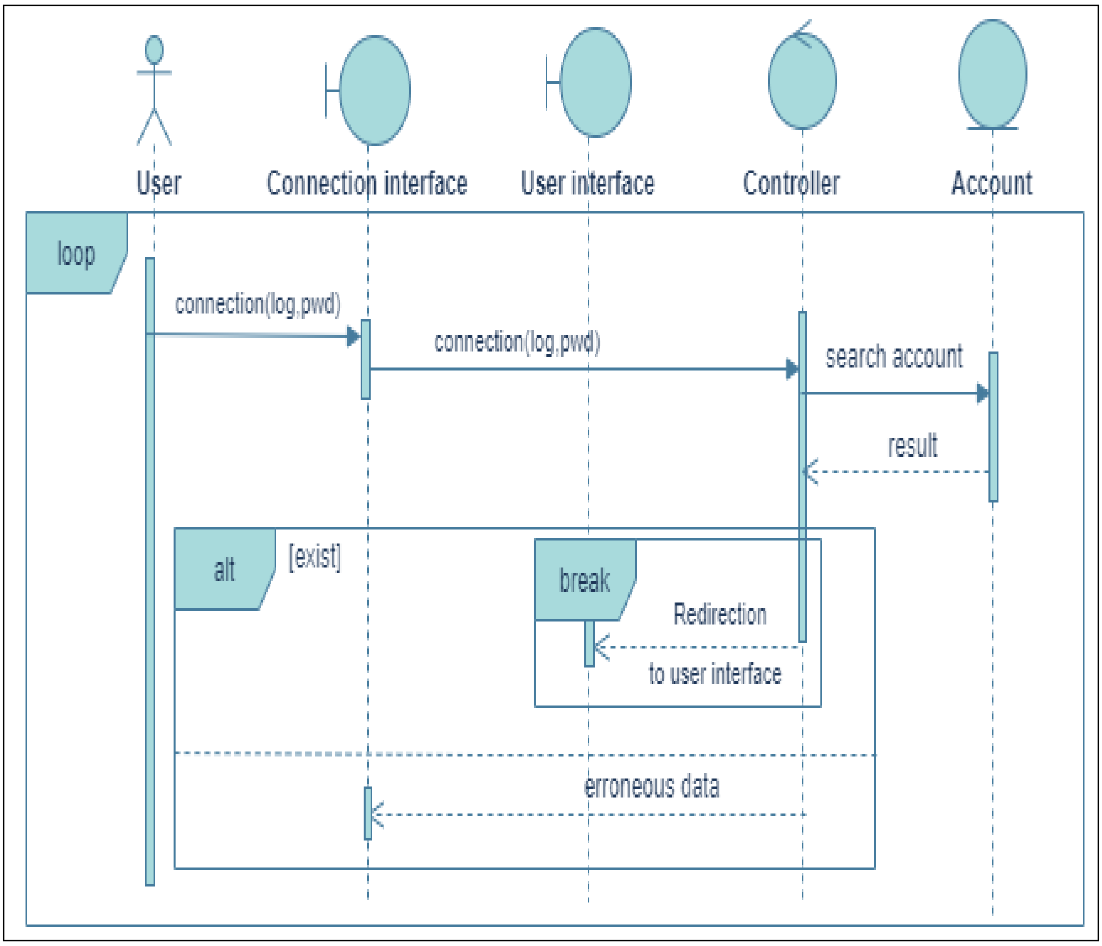


Figure 2.4: Authentication sequence diagram

2.3.3.2 Detailed sequence diagram for "Modifying a document"

To start with, a successfully signed in user will access the list of documents and will be then provided with the opportunity to select and update a document.

Figure 2.5 details this operation.

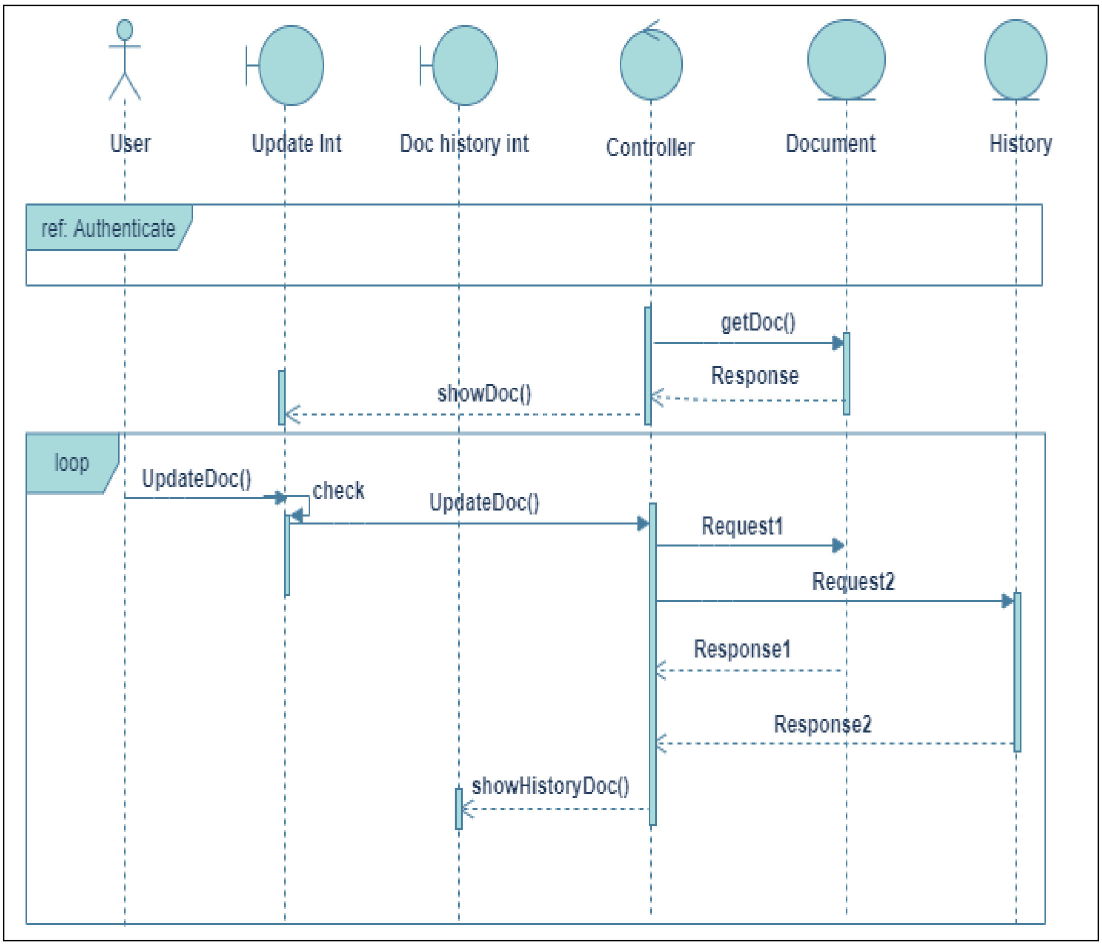


Figure 2.5: Sequence diagram for modifying a document

2.3.3.3 Detailed sequence diagram for "Consulting a document history"

The figure below shows the sequence diagram for the use case consult the history of a document which is composed of two interfaces: document list and history, controller and a history entity.

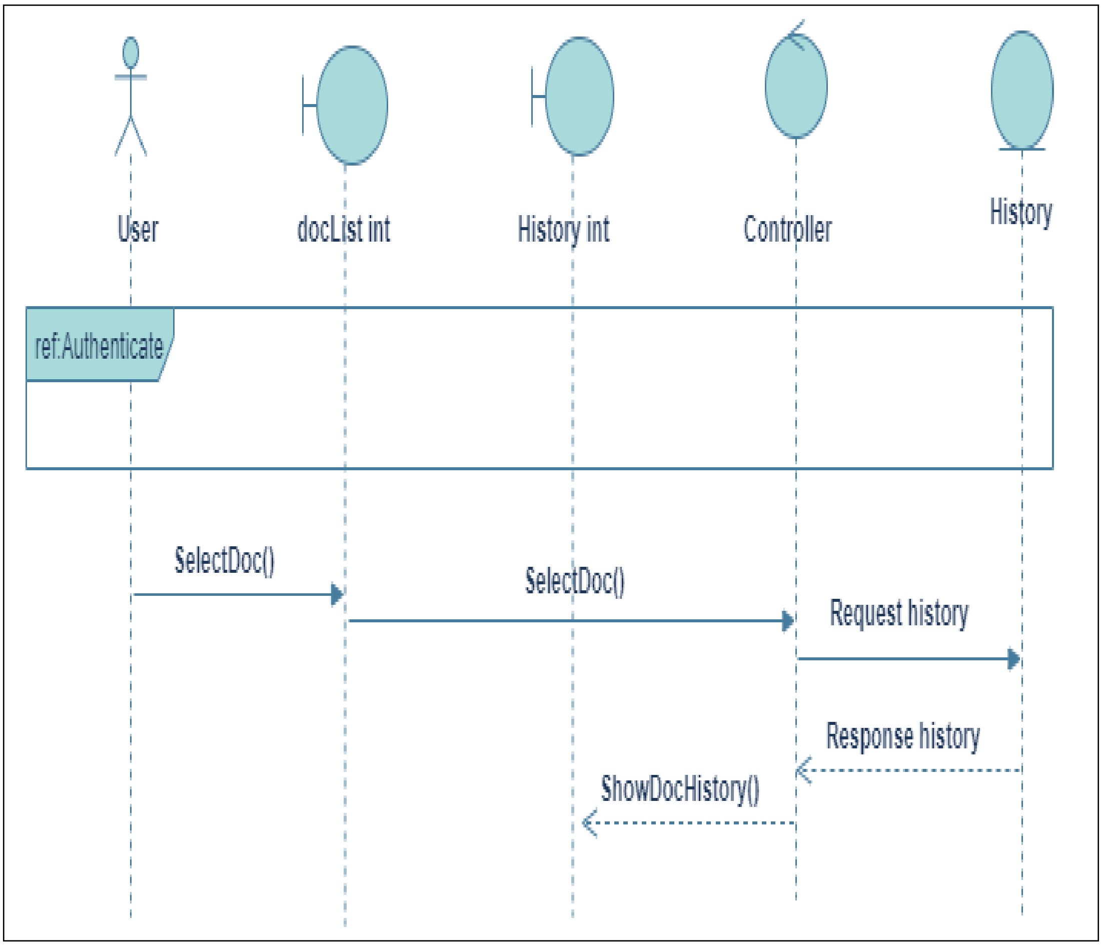


Figure 2.6: Sequence diagram for consulting a document history

2.3.3.4 Detailed sequence diagram for "Assigning user to a team"

Figure 2.7 shows the process that the leader takes in order to assign a user to his team.In fact, the leader selects the user and this user will be assigned to the team.

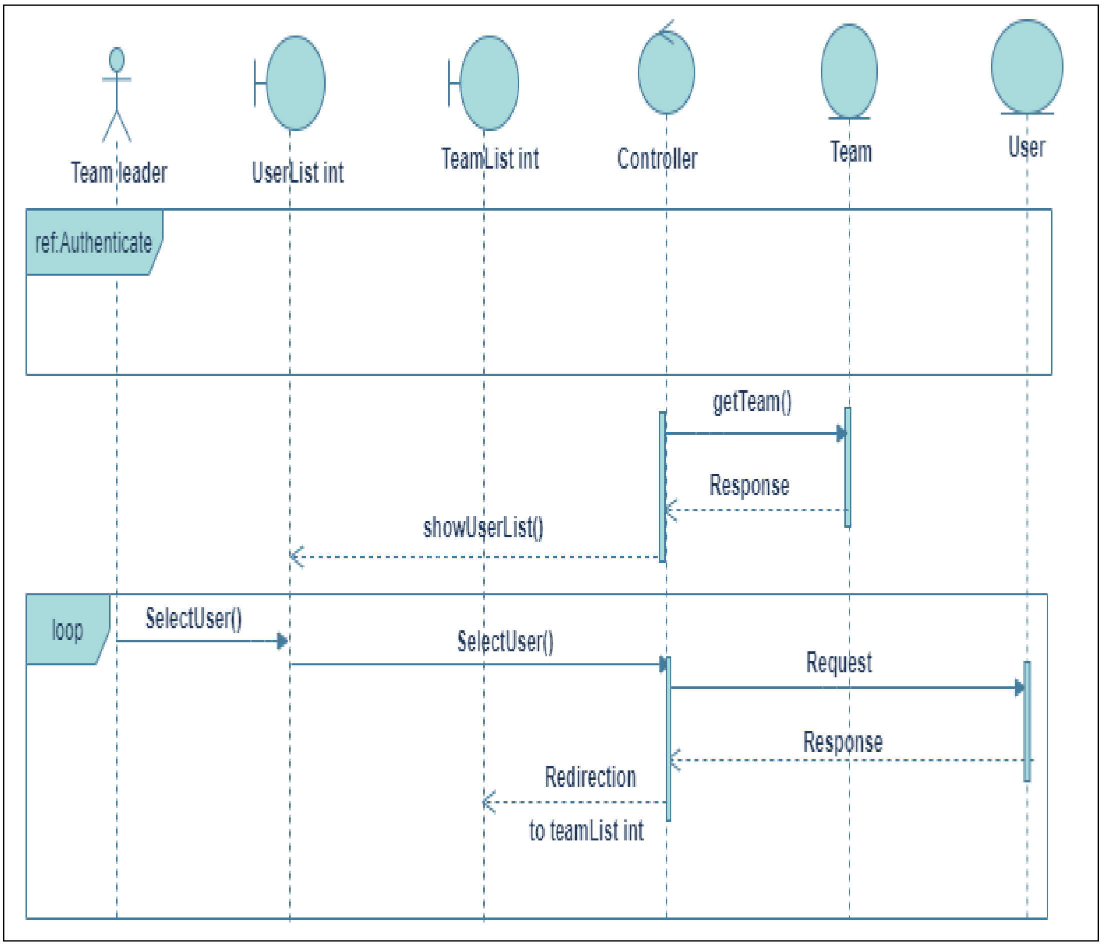


Figure 2.7: Sequence diagram for assigning user to a team

2.3.3.5 Detailed sequence diagram for "Managing projects"

Figure 2.8 shows how the administrator of the application manages the list of the users After authentication, a list of all projects is displayed for him on the interface.He can choose to add, update a project or to delete one from the list.

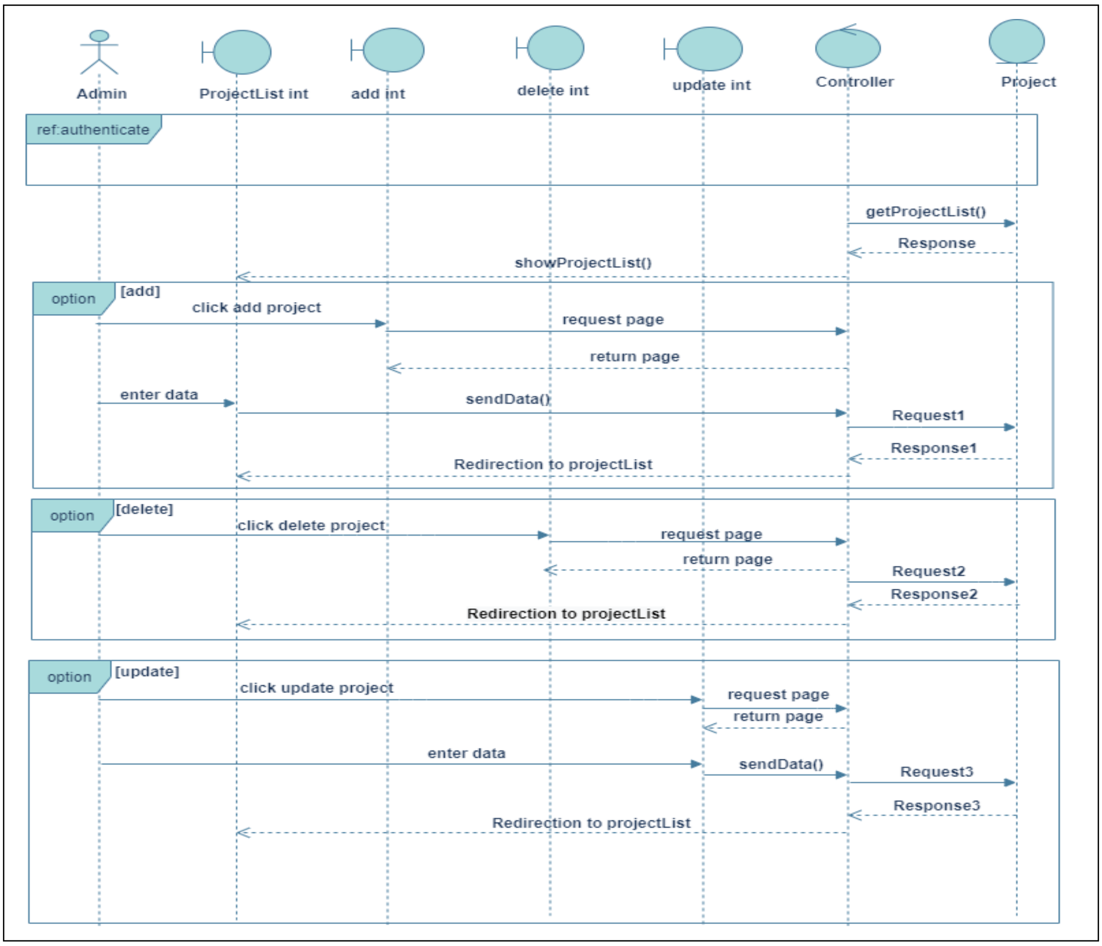


Figure 2.8: Sequence diagram for managing the projects

2.3.3.6 Detailed sequence diagram for "Managing team directories"

Figure 2.9 shows how the administrator of the application manages the list of team's directories.After authentication, a list of all team's directories is shown for him on the interface.He can choose to add, update a directory or to delete one from the list.

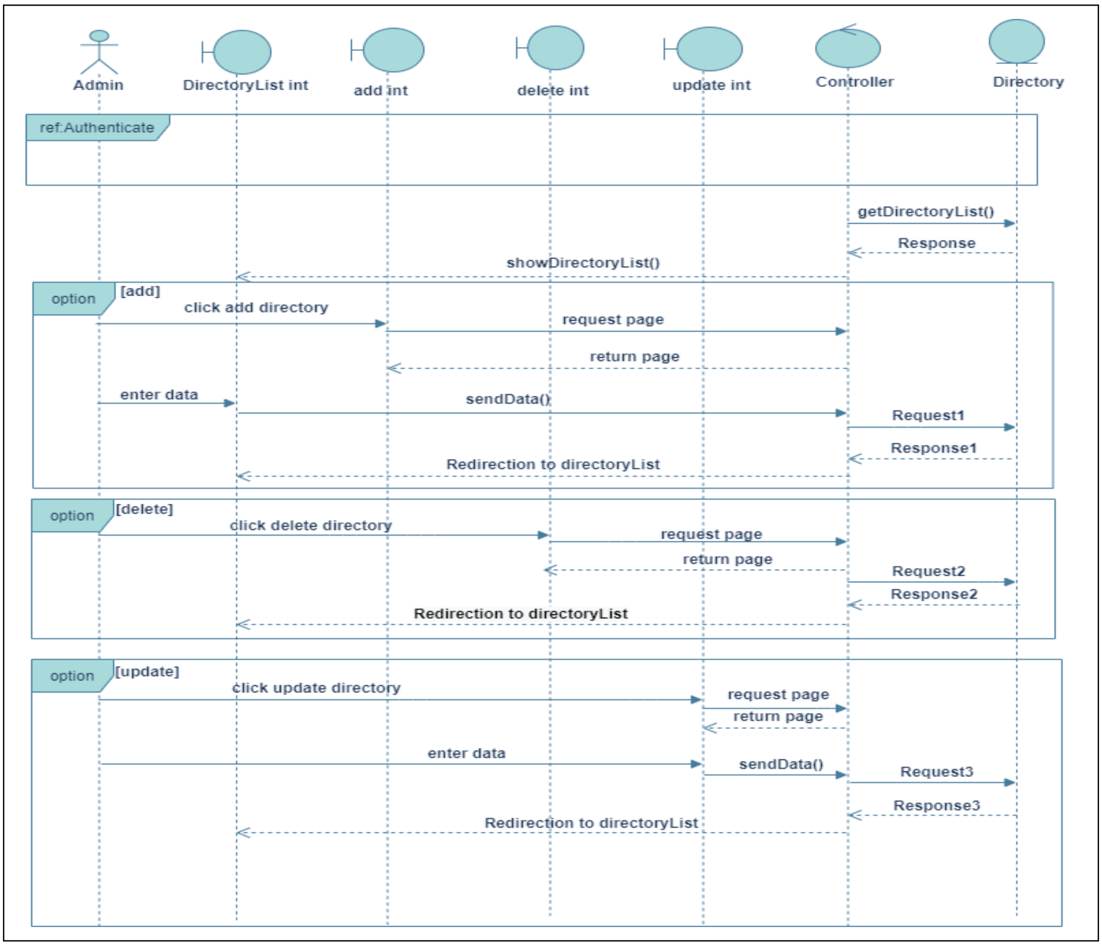


Figure 2.9: Sequence diagram for managing the team directories

2.3.4 State Diagram

state-transition diagram describes the internal behavior of an object using a finite state machine.It presents the possible sequences of states and actions that a class instance can process during its life cycle in response to discrete events.The document object can have several possible states (created document, modified document, archived document and deleted document).

Figure 2.10 shows the state-transition diagram of the Document object.

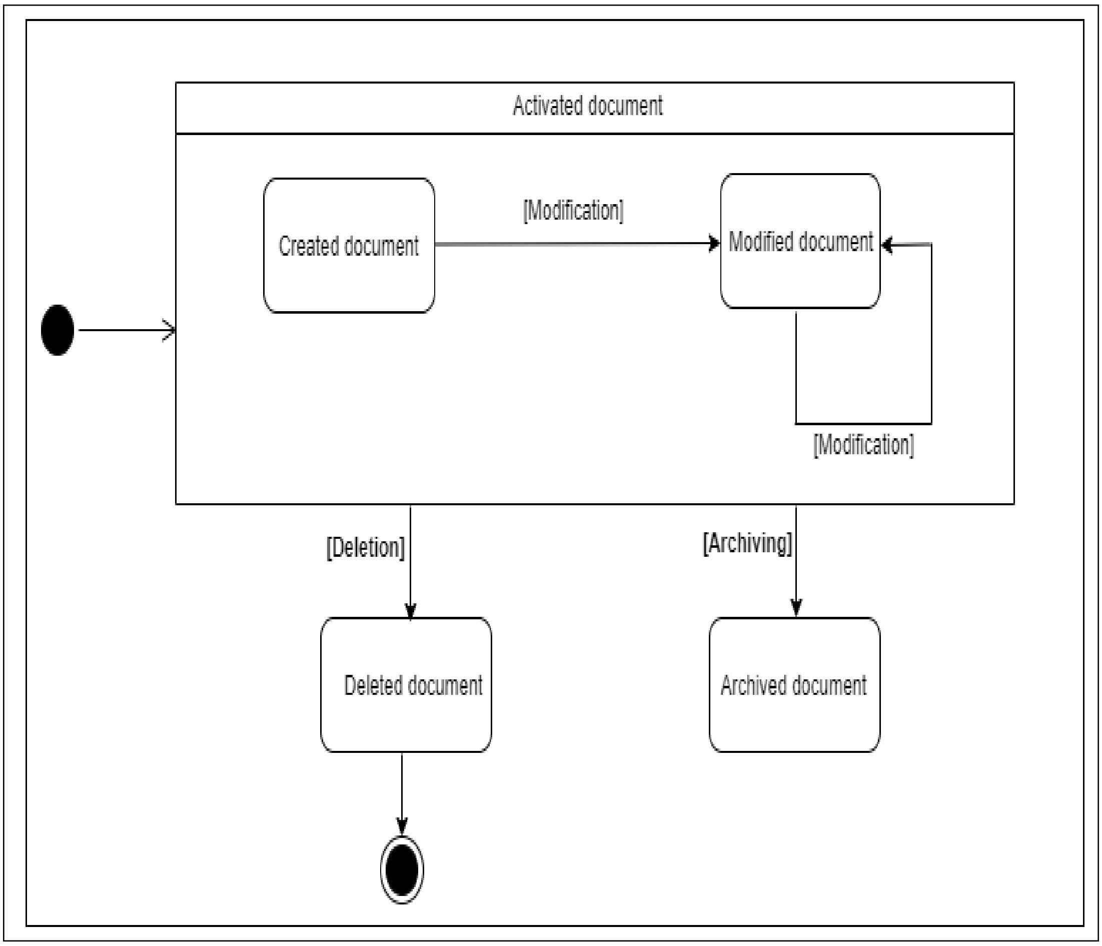


Figure 2.10: State diagram of a document

2.3.5 Activity Diagram

In the UML language, the activity diagram gives a view of the system's behavior by describing the sequence of actions of a process.The activity diagrams are similar to information processing flowcharts, as they show the flowcharts between actions in an activity.The activity diagrams can, however, also show parallel and alternative flows and replacement flows.

Figure 2.11 shows the activity diagram of the document modification process.

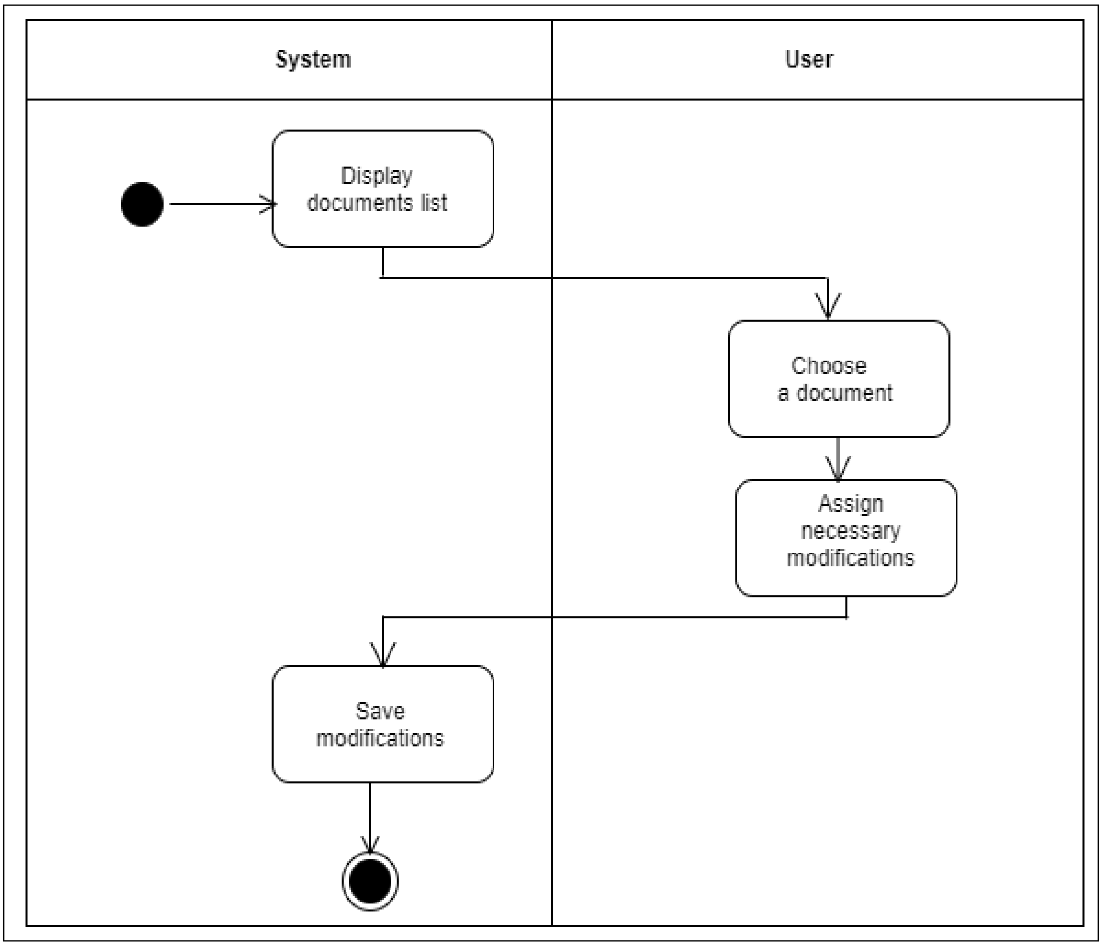


Figure 2.11: Activity Diagram

2.4 Conclusion

This chapter has been devoted to studying the current system in order to identify problems and propose better solutions.This helped us to identify the functional and non-functional requirements, which will simplify the subsequent work.In the next chapter, we will present the steps of implementation and realization.

Chapter

3 Realisation

Contents

3.1 Introduction

After having elaborated the design of our application, we approach in this chapter the last part of this report, which aims to expose the realization phase.We first conduct a technical study where we describe the development environment hardware and software used.Then, we detail the development methodologies.Finally, we present the main interfaces realized to illustrate the functioning of the system activities.

3.2 Development Environment

3.2.1 Hardware Environment

During the realization phase, we chose as a standard for our project a computer which has the following characteristics:

Processor	Intel(R) Core(TM) i3-6006U CPU @ 2.00GHz 1.99 GHz
RAM	4 Go
Hard Disk	500 GB
Operating system	Windows 10 Professional 64-bit

3.2.2 Software Environment and Tools

In order to cover certain aspects of our application in all phases, from specification and design to implementation and design as well as the implementation, it is essential to choose the right software tools to use for the the realization of this work.

3.2.2.1 Draw.io

Draw.io is a UML design and modeling tool, it offers the possibility to create and manage different UML diagrams.

3.2.2.2 Visual Studio Code

Visual Studio Code (VS Code) is an open source (development environment) developed by Microsoft.

We chose Visual studio code because it integrates several features that facilitate development like syntax highlighting, autocompletion system, source code management with a simple and powerful integration of Git, integrated terminal support that allows to select and use the Shell of the development platform.

3.2.2.3 Postman

Postman is an API(application programming interface) development tool which helps to build, test and modify APIs[4].

3.2.2.4 phpMyAdmin

phpMyAdmin is an open-source software tool which is written in PHP.Basically, it is a third-party tool to manage the tables and data inside the database.phpMyAdmin supports various type of operations on MariaDB and MySQL.The main purpose of phpMyAdmin is to handle the administration of MySQL over the web[5].

3.2.2.5 Overleaf

Overleaf is an open-source online real-time collaborative LaTeX editor[6].

3.2.3 Technologies

In this part, we will present the main languages and technologies adapted in the development of our platform.

3.2.3.1 MariaDB

MariaDB is an open source relational database management system (DBMS) that is a compatible drop-in replacement for the widely used MySQL database technology[7].

3.2.3.2 Symfony

Symfony is a framework that represents a set of standalone PHP components (also called libraries) that can be used in private or open source web projects. It allows you to create dynamic websites in a quick and structured way, with a clear development.

3.2.3.3 Ionic

Ionic is an HTML5 mobile app development framework targeted at building hybrid mobile apps.Hybrid apps are essentially small websites running in a browser shell in an app that have access to the native platform layer.

3.2.3.4 Bootstrap

Bootstrap is an open source framework for GUI oriented web development developed by Twitter.It uses the main web development languages (HTML, CSS, JavaScript).It is a code that shortens different features (plugins using the JQuery library). Bootstrap Allows the developer to save time and to realize simply complex codes(animations, carousels, tables, histograms, ...) and reducing the amount of characters required.

3.3 Architecture

3.3.1 Deployment Diagram

3.3.1.1 Definition

A deployment diagram is a UML diagram type that shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them.

3.3.1.2 Elements of a deployment diagram

The elements that make up a deployment diagram are mainly:

- **The nodes**: are the hardware or software elements of the system (such as personal computers,sensors, printing devices or servers), represented by a cube or a box.
- **The components**: represented by rectangular boxes that indicate software elements.
- **Artifacts**: an artifact presents the specification of a piece of physical information created during the development process. It is a way of defining a program, a file, database or library produced or modified in a project to be developed. It is usually symbolized by a rectangle with the stereotype "artifact".
- **The associations**: are simple lines that indicate the communication links between the different system components.

3.3.1.3 System deployment diagram

To illustrate the deployment of our application, we made the deployment diagram, as shown in Figure 3.1, which presents the physical layout of the different hardware (or nodes) and the distribution of components within the nodes:

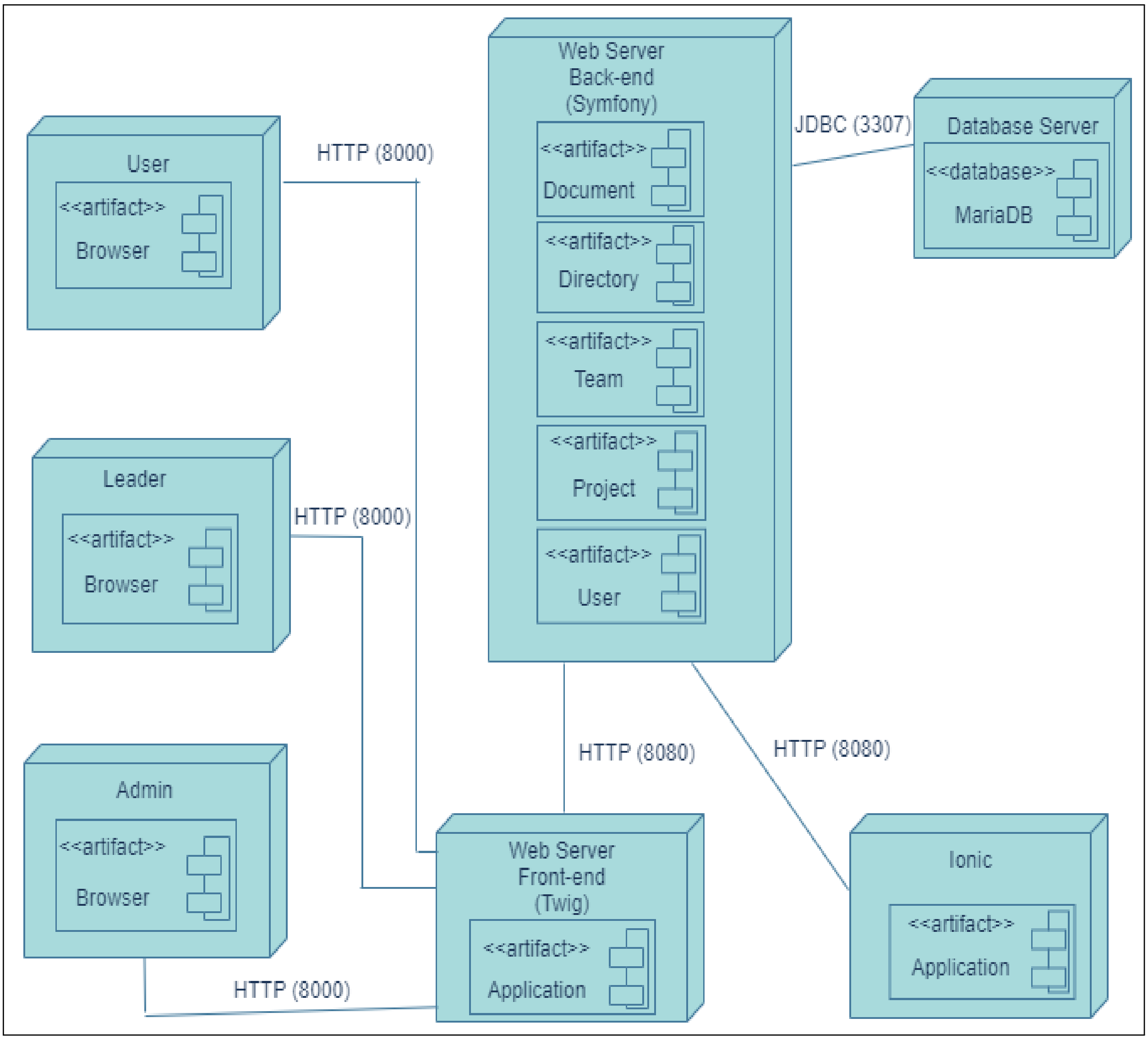


Figure 3.1: Deployment Diagram

Our system contains the following nodes:

- The web server: Symfony.
- The database server: that contains the MariaDB database management system.
- The web application: Twig.
- Members, leaders and the administrator can access the application via a web browser.

3.3.2 Implementation Architecture

The architecture implementation is the organization of the different elements of the project and the relationships between these elements.The choice of architecture is a crucial step as it determines the success or failure of the project.In order to more explain the details of our implementation phase,it's very helpful to start by giving an overview of the web application's structure. Figure 3.2 shows our application's design.

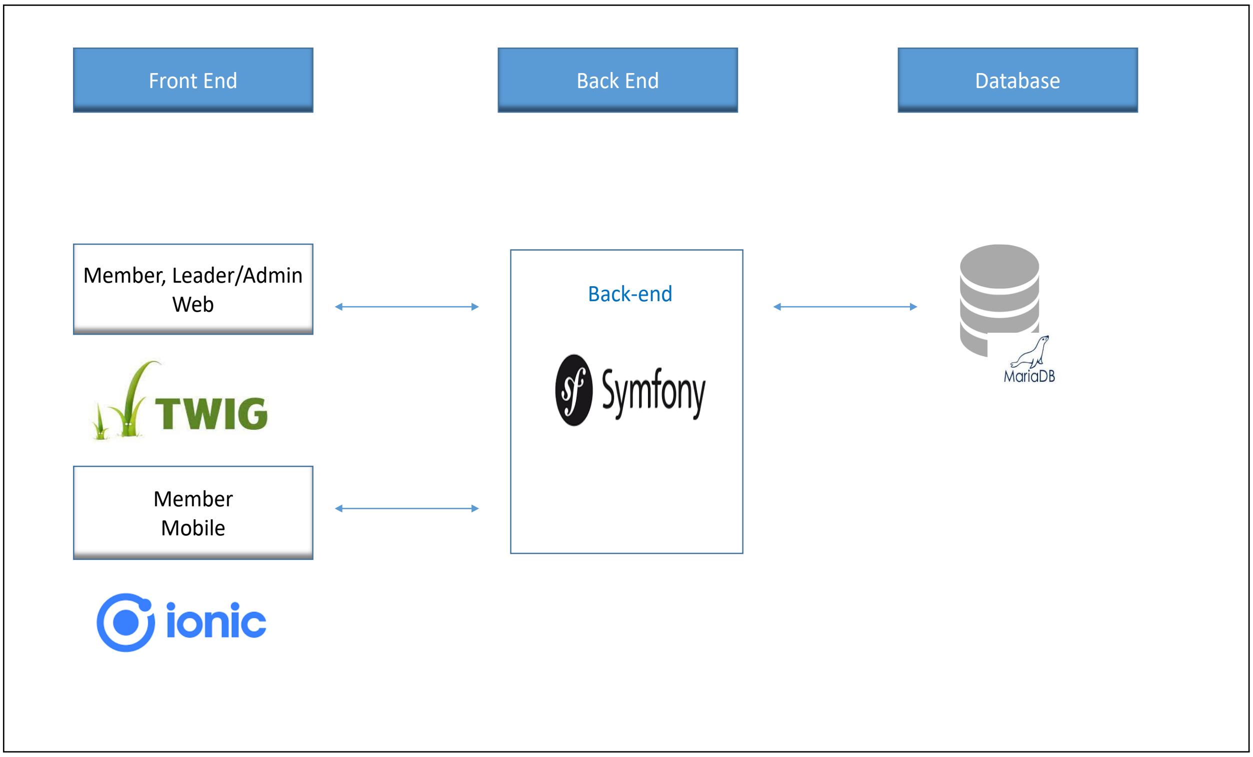


Figure 3.2: Project architecture

Our application is based on a three-tier client/server architecture: the presentation tier or user interface, the application tier and the data tier, each running on a different platform.

These three proposed layers will be explained in the following list:

- Tier one: is the user interface layer, which runs on the end-user's computer.
- Tier two: is the business logic and data processing,layer.This middle tier runs on a server and is often called the application server.

- Tier three: is the data storage system, which stores the data required by the middle tier.This tier may run on a separate server called the database server.This third layer is called the back-end server.

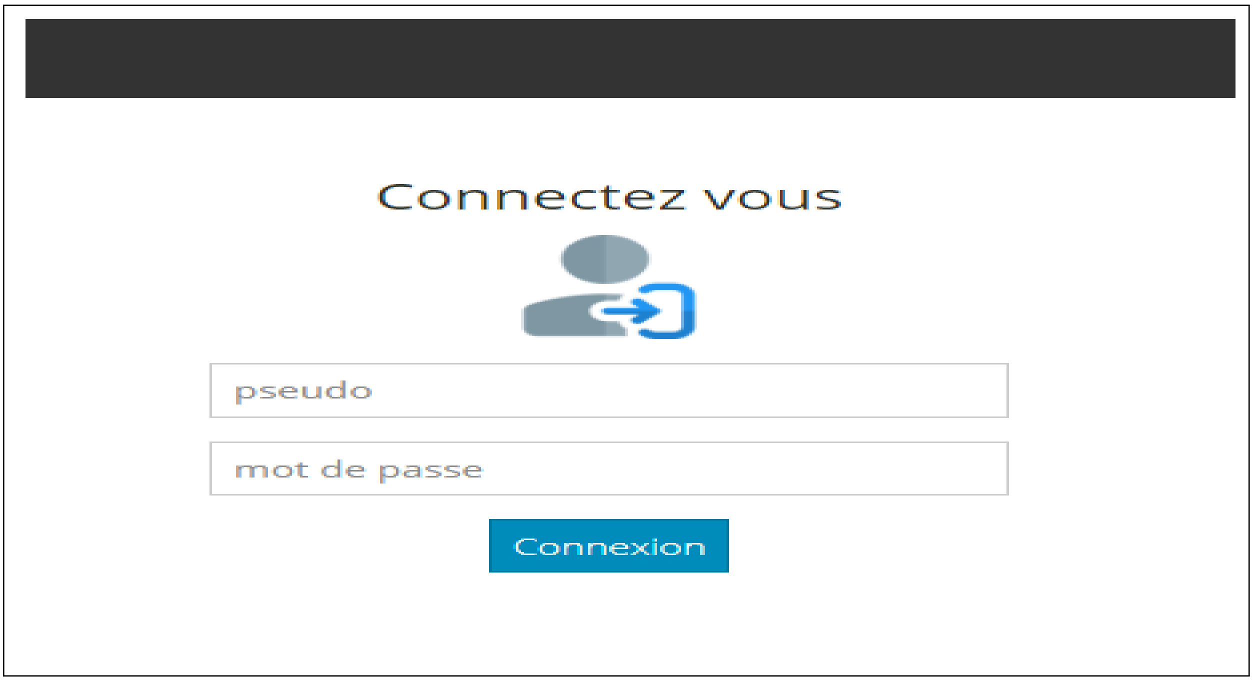
In a three-tier application, the user interface processes remain on the client's computers, but the business rules processes are resided and executed on the application middle layer between the client's computer and the computer which hosts the data storage/ retrieval system.One application server is designed to serve multiple clients.In this type of application, the client would never access the data storage system directly.

3.3.3 Operation mode

This part presents the actual implementation of the platform and shows various functionalities by presenting some interfaces of our application.

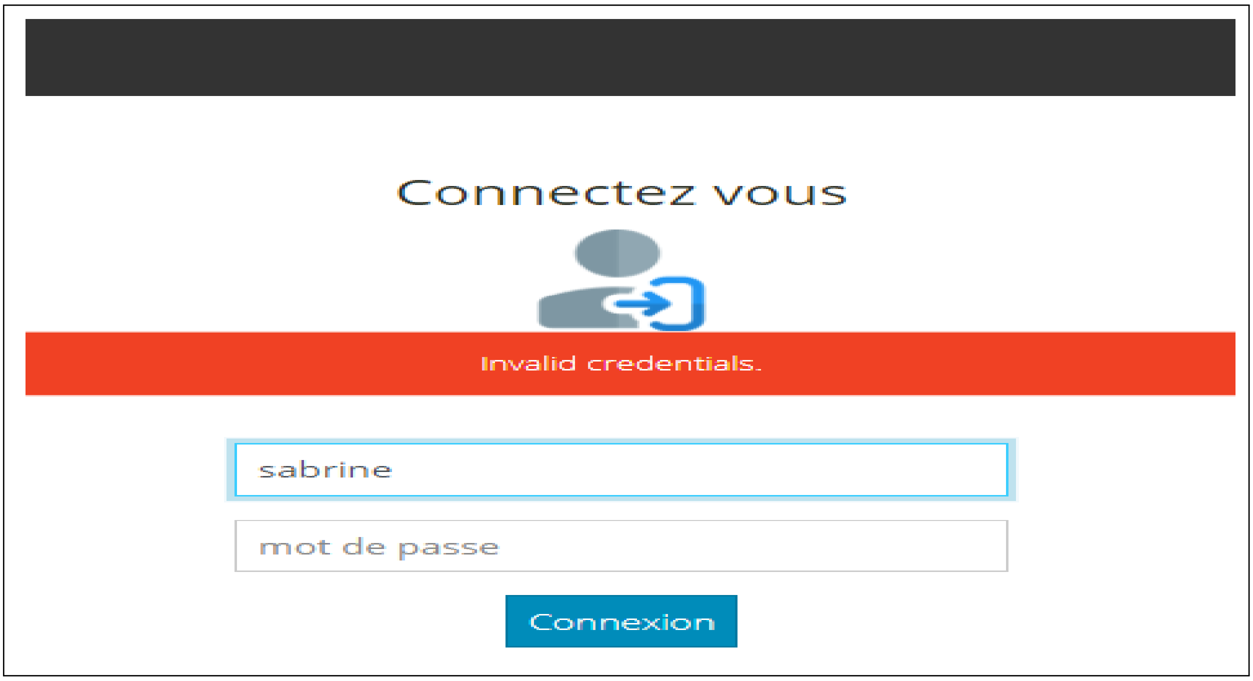
3.3.3.1 Logging In Interface

In order to log in the platform ,username and password are required to be typed.These parameters will be checked by the back-end system.In case of valid entries, users will be able to access the site as shown in Figure 3.3 .In case of invalid entries however, the system will display an error message as shown in Figure 3.4 .



Connectez vous

Figure 3.3: Log In Interface



Connectez vous

Invalid credentials.

Figure 3.4: Error Message Interface

This application has three types of users: administrator, leader and member.Each of them is responsible for specific actions based on the permissions provided.User permissions depend on the type of user and the project/team they belong to.

3.3.3.2 The administration part

In this section, we will present the administration panel interfaces in which the administrator can outlook statistics on the platform.He will also be able to manage the resources available on the platform including users , projects, teams, members, directories and documents.

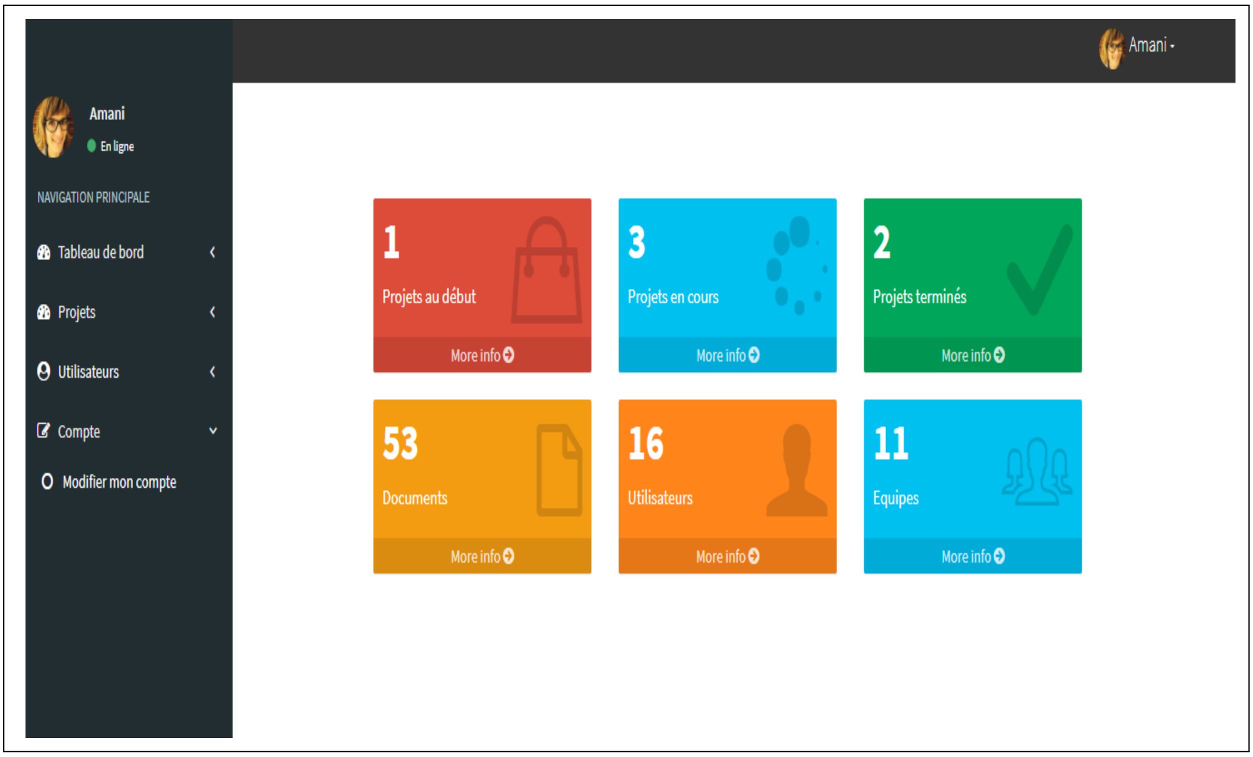
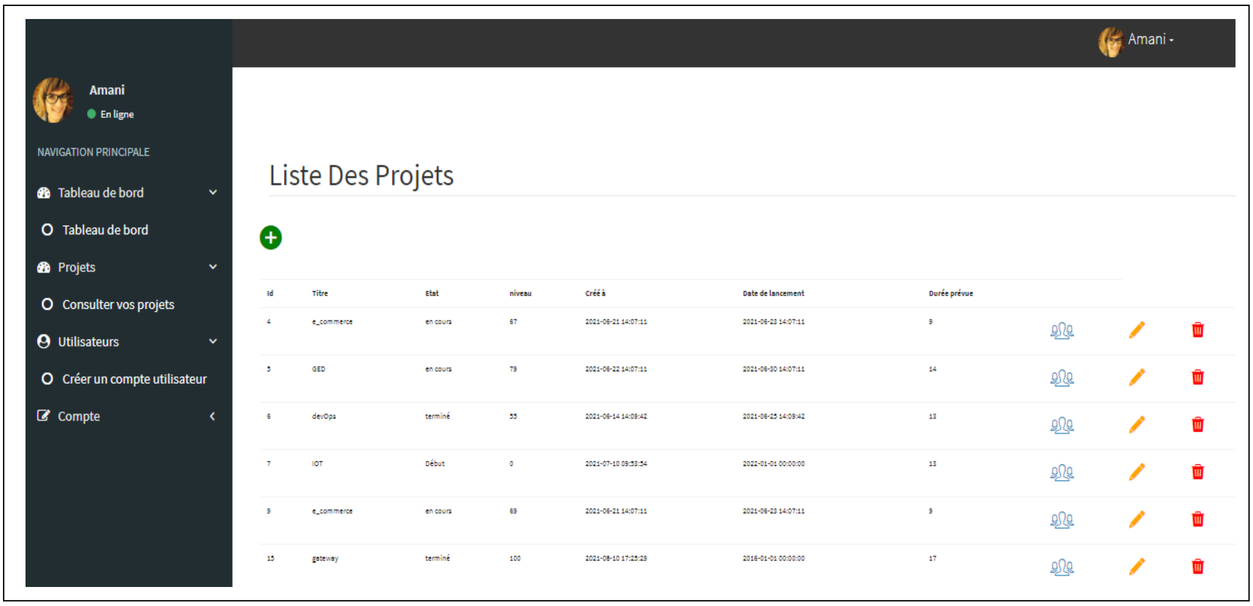


Figure 3.5: Administrator Interface

- **Managing Projects**:

  Figure 3.6 shows that the administrator will be able to manage all existing projects.Thus, he can consult, add, update and delete any project.



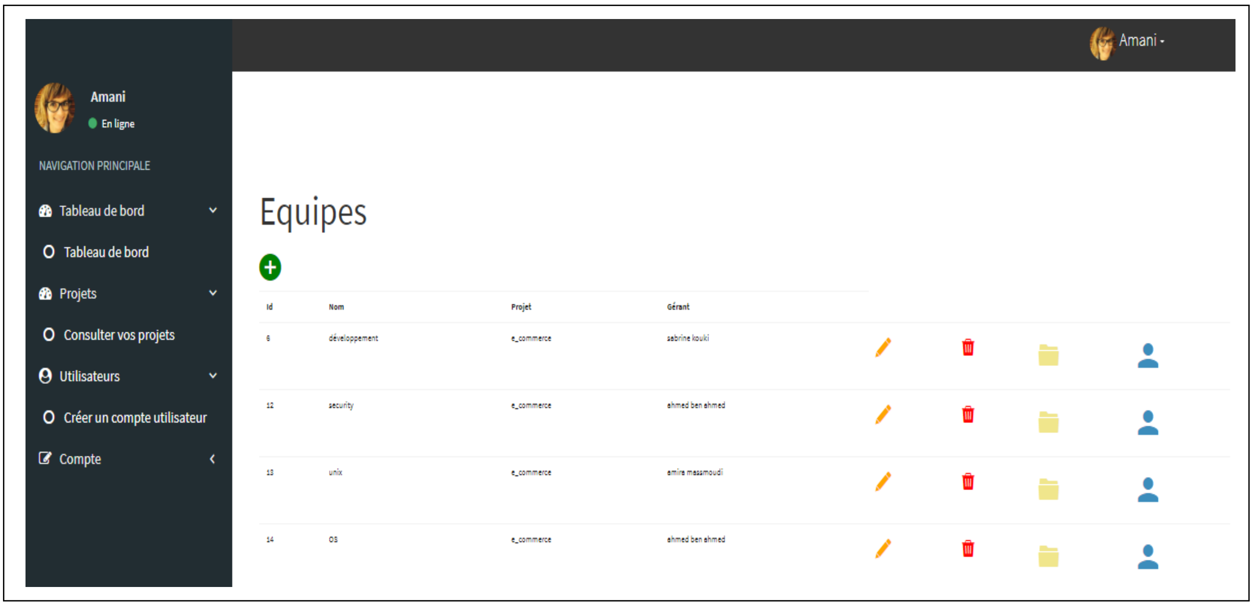
Liste Des Projets

Id	Titre	Etat	niveau	Créé à	Date de lancement	Durée prévue
4	e_commerce	en cours	67	2021-06-21 14:07:11	2021-06-23 14:07:11	9
5	GED	en cours	79	2021-06-22 14:07:11	2021-06-30 14:07:11	14
6	devOps	terminé	55	2021-06-14 14:09:42	2021-06-25 14:09:42	13
7	IOT	Début	0	2021-07-10 09:53:54	2022-01-01 00:00:00	13
9	e_commerce	en cours	69	2021-06-21 14:07:11	2021-06-23 14:07:11	9
15	gateway	terminé	100	2021-08-10 17:25:29	2016-01-01 00:00:00	17

Figure 3.6: The projects management Interface

- **Managing Teams**:

  As shown in the Figure 3.7, it's possible for the administrator to manage the teams of each project.



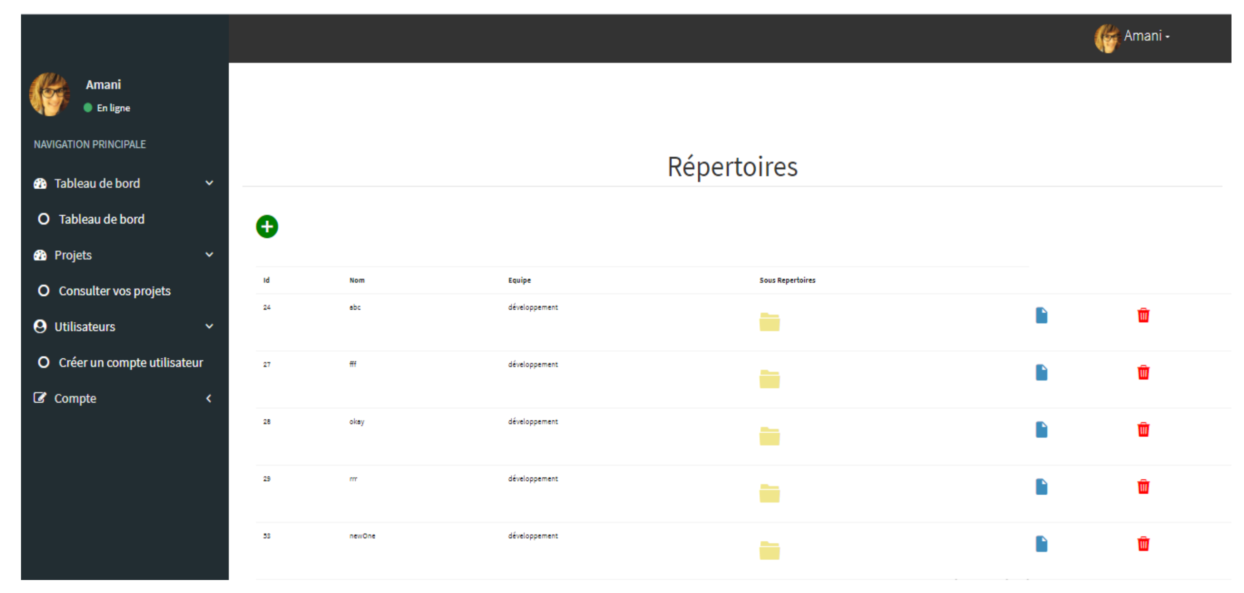
Equipes

Id	Nom	Projet	Gérant
6	développement	e_commerce	sabrine kouki
12	security	e_commerce	ahmed ben ahmed
13	unix	e_commerce	amira massmoudi
14	OS	e_commerce	ahmed ben ahmed

Figure 3.7: The teams management Interface

- **Managing Directories**:

  Figure 3.8 shows that the administrator will be allowed to manage the directories/sub-Directories of each team.



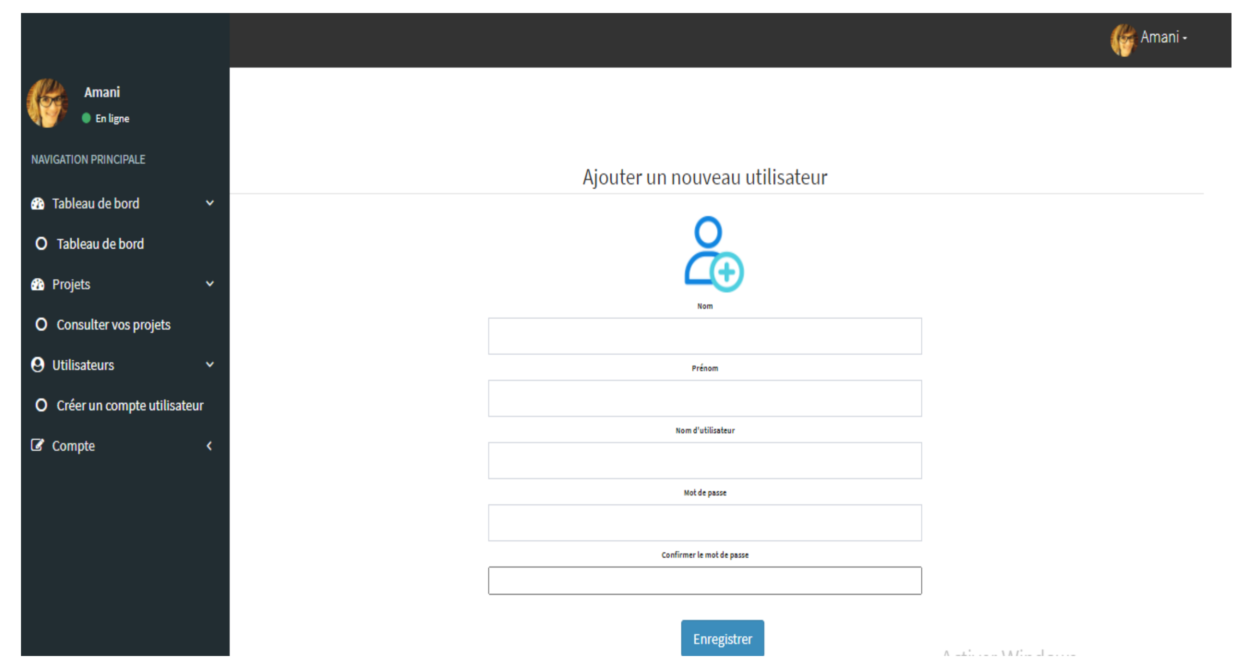
Répertoires

Id	Nom	Equipe	Sous Repertoires		
24	abc	développement			
27	fff	développement			
28	okay	développement			
29	rrr	développement			
53	newOne	développement			

Figure 3.8: The directories management Interface

- **Managing Members**:

  As shown in Figure 3.9, the administrator can create new user accounts at any point in time.



Ajouter un nouveau utilisateur

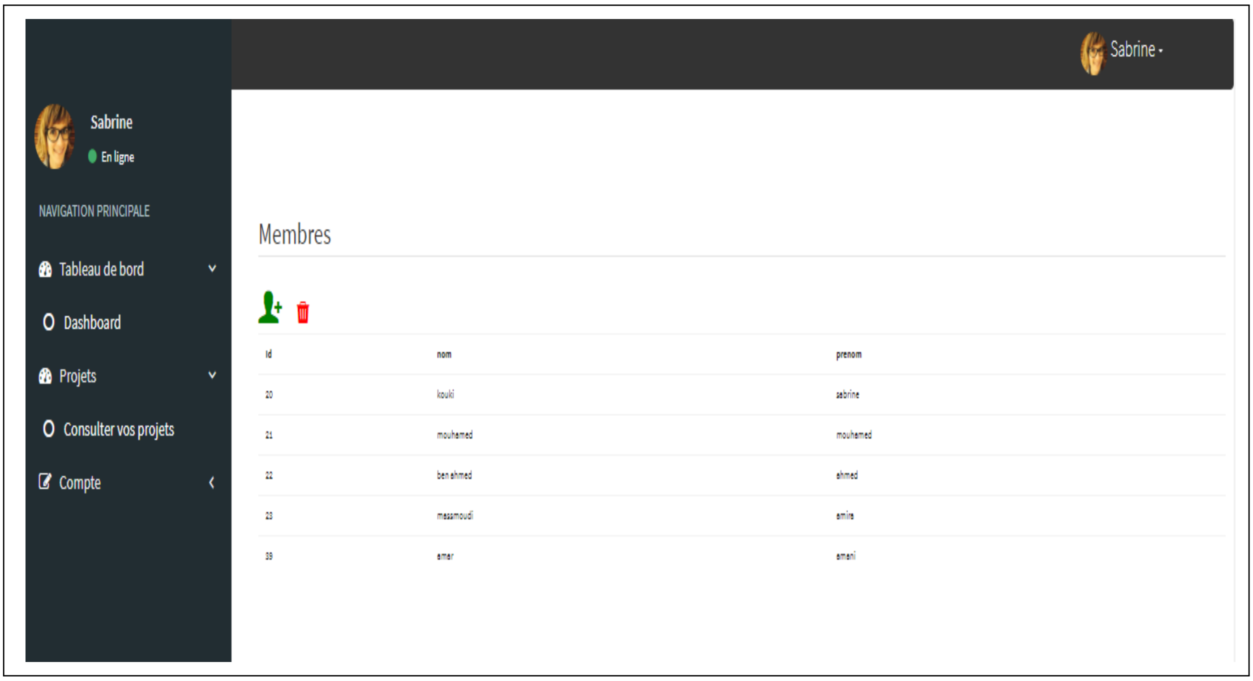
Figure 3.9: User account creation Interface

3.3.3.3 The leader part

In this section, we will present the leader panel interfaces in which, this leader will be able to assign a user to join his team or eliminate him at any point in time.

- **assigning a user to a team**

  Figure 3.10 shows the interface that enables the leader to manage members.



Id	nom	prenom
20	kouki	sabrine
21	mouhamed	mouhamed
22	ben ahmed	ahmed
23	massmoudi	amira
39	amar	amani

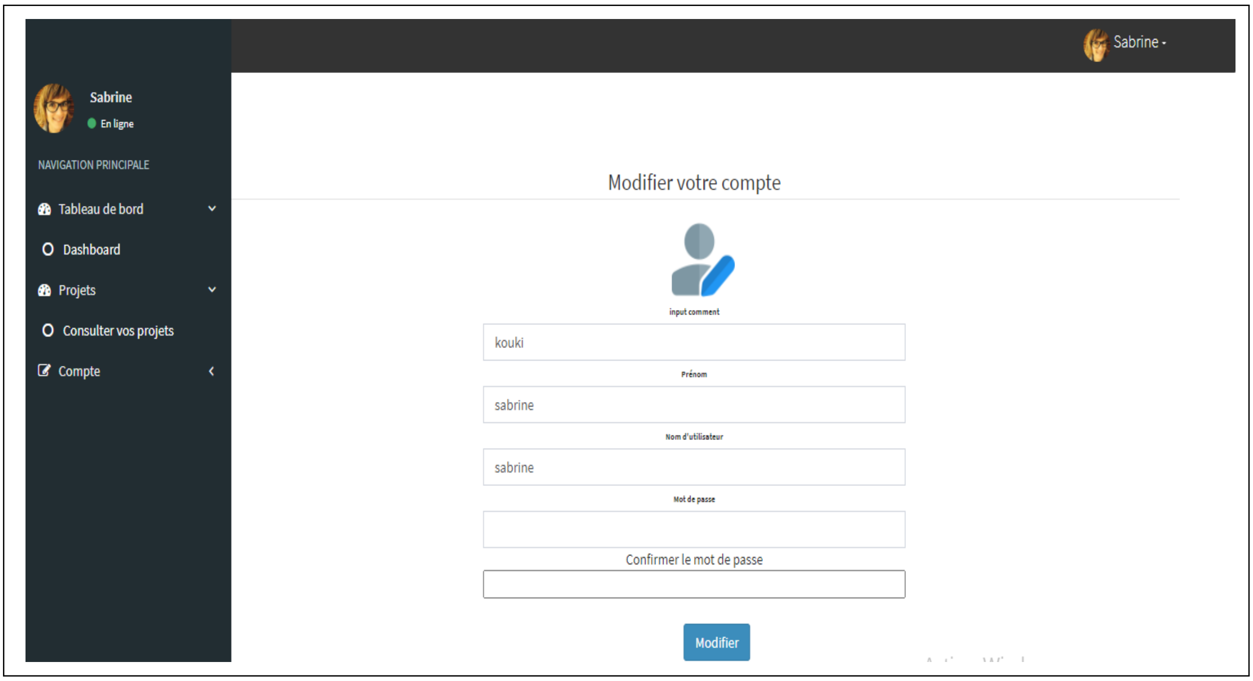
Figure 3.10: Managing Team's Members Interface

3.3.3.4 The member part

This section will be devoted to present the user panel interfaces in which he will be able to modify his account and manage documents.

- **Modifying user account**

  Figure 3.11 shows that any user logged in will have permission to modify his account.



Modifier votre compte

input comment: kouki

Prénom: sabrine

Nom d'utilisateur: sabrine

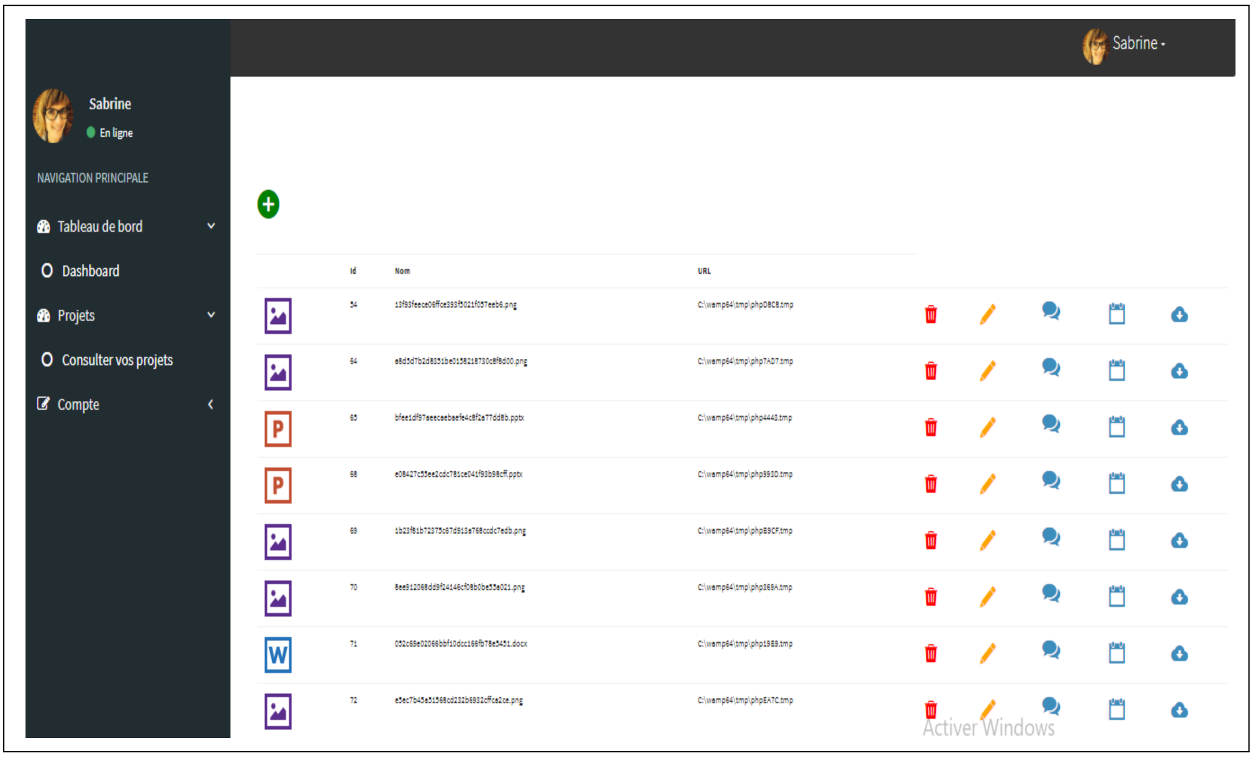
Mot de passe:

Confirmer le mot de passe:

Figure 3.11: User account modification Interface

- **Managing Documents**

  Figure 3.12 shows that the member will have possibility to manage documents.Thus, he can consult, add, update, comment and download documents.

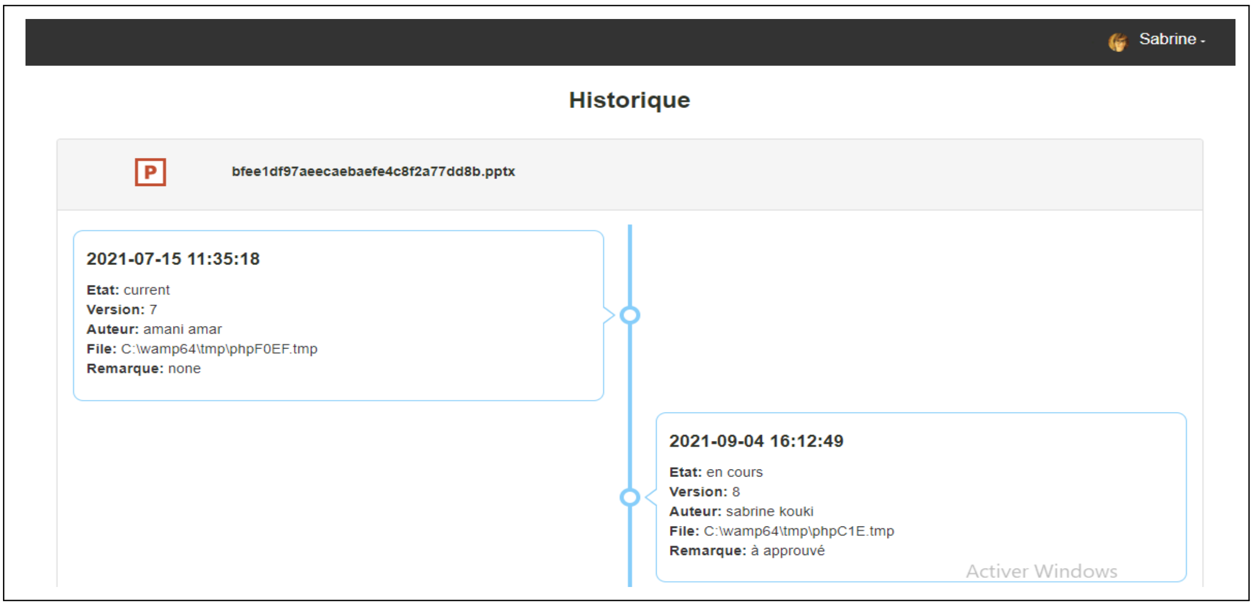


Id	Nom	URL
54	13f93feece06ffce393f5021f057eeb6.png	C:\wamp64\tmp\phpD8C8.tmp
64	e8d5d7b2d8351be0158218730c8f8d00.png	C:\wamp64\tmp\php7AD7.tmp
65	bfee1df97aeecaebaefe4c8f2a77dd8b.pptx	C:\wamp64\tmp\php4443.tmp
68	e08427c55ee2cdc781ce041f93b98cff.pptx	C:\wamp64\tmp\php993D.tmp
69	1b23f81b72375c67d913a768ccdc7edb.png	C:\wamp64\tmp\phpB9CF.tmp
70	8ee912068dd9f24146cf08b0be55e021.png	C:\wamp64\tmp\php369A.tmp
71	052c69e02066bbf10dcc166fb78e5451.docx	C:\wamp64\tmp\php19B9.tmp
72	e5ec7b45a51568cd232b6932cffca2ce.png	C:\wamp64\tmp\phpEA7C.tmp

Figure 3.12: The Document List Interface

- **Consulting Document's history**

Figure 3.13 shows that the user will be able to consult the document's history.



bfee1df97aeecaebaefe4c8f2a77dd8b.pptx

2021-07-15 11:35:18

Etat: current
Version: 7
Auteur: amani amar
File: C:\wamp64\tmp\phpF0EF.tmp
Remarque: none

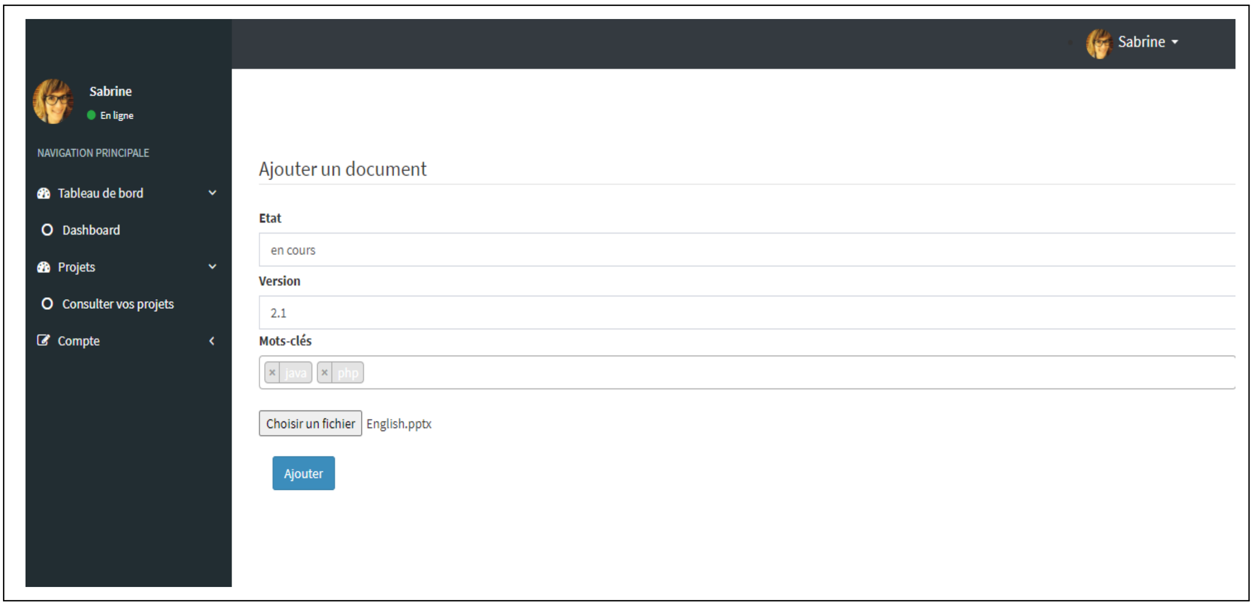
2021-09-04 16:12:49

Etat: en cours
Version: 8
Auteur: sabrine kouki
File: C:\wamp64\tmp\phpC1E.tmp
Remarque: à approuvé

Figure 3.13: The Document History Interface

- **Uploading Document**

Figure 3.14 shows the procedure of new document creation.Every member in the team can create new documents.Every new document has the following parameters:Document state, document version and keywords related to the document.



Ajouter un document

Etat
en cours

Version
2.1

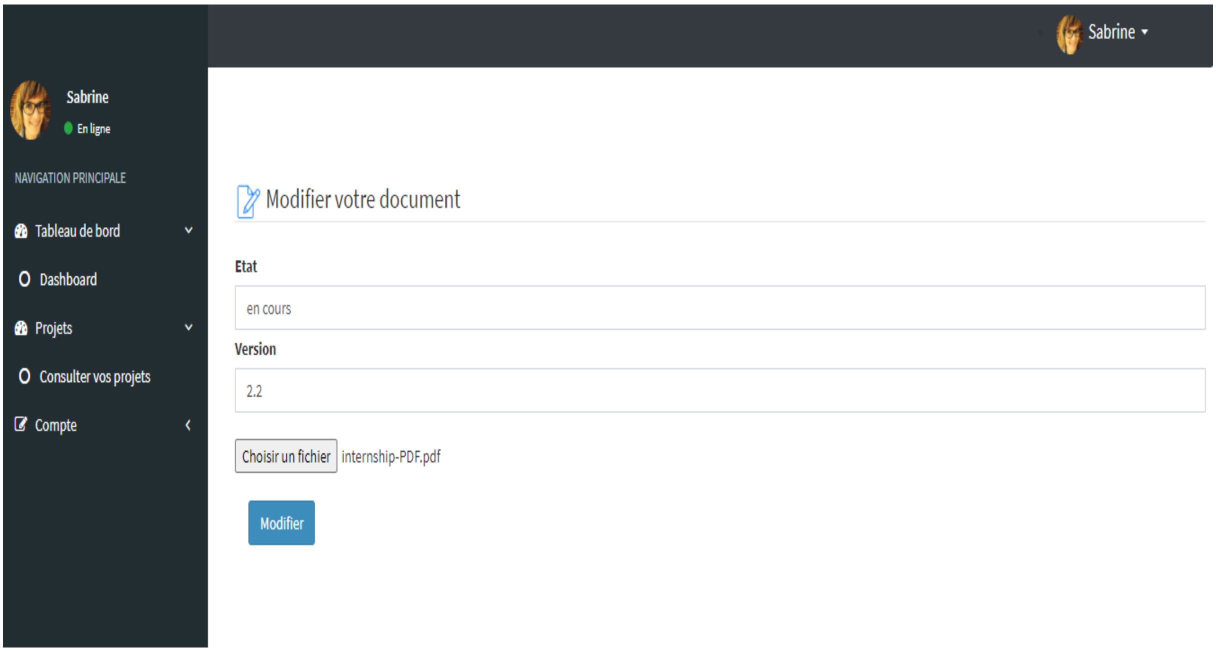
Mots-clés
× java × php

English.pptx

Figure 3.14: New document creation Interface

- **Editing Document**

  Any user can edit a document by uploading a new one ,mentioning the new state and the new version of the document as shown in figure 3.15 .



Modifier votre document

Etat

en cours

Version

2.2

internship-PDF.pdf

Figure 3.15: Editing Document Interface

General Conclusion

As part of this end of studies internship, we have been led to create a web application that handles the digital documents as Document control has become even more of a concern as the complexity of projects has increased, liabilities abound, and collaborative velocity accelerates. All of these key factors are driving the demise of paper documents and bringing about the age of digital document control.

In the first chapter, we chose to initiate with a general study of our project by coming closer its context and mentioning some existing rival web applications and listing our solution's aims, which give us permission to reveal the importance and the strengths of this application.

In the second chapter we continued with the planning of our work thus,we specified the main components to be implemented in order to fit our solution's requirements.It was crucial to mention this stride because it defined the requirements that needed to be provided by the application.

Ultimately, we proceeded towards the realisation phase in which we illustrated the main development environment, the technologies used and the project's architecture.Moreover, so as to make apparent the work done, we exposed some screen shots for each possible usage scenario.

This project was an opportunity to use modern technologies such as Symfony in an interesting project.As we could run our application in both browser by using Symfony and a mobile device by using Ionic framework.

We were confronted with several difficulties that we had originally envisioned.These difficulties have allowed us to broaden our perspectives and to better orient our future work.As an extension to this project we propose to manage and store our documents in the cloud.In fact, storing documents in the cloud makes them accessible anywhere with an internet connection.Also it provides us more security.

BIBLIOGRAPHY

[1] **Product and plant knowledge management**. Alexandra Elbakyan.(2004).

WEBOGRAPHY

[1] **Elektronnii dokumentooborot**. Available on: https://works.doklad.ru/view/6AN752uvwAI

[2] **Journal of Visual Languages and Computing**. Available on: https://www.sciencedirect.com/science/article/pii/S1045926X14001323

[3] **Modeling Message-Based Behavior with Interactions**. Available on: https://www.sciencedirect.com/topics/computer-science/sequence-diagram.

[4] https://www.geeksforgeeks.org/introduction-postman-api-development.

[5] https://www.javatpoint.com/phpmyadmin

[6] https://github.com/overleaf/overleaf

[7] https://searchdatamanagement.techtarget.com/definition/MariaDB

[8] https://sci-hub.se/https://doi.org/10.1016/B978-0-12-805476-5.00001-0

[9] https://www.g2.com/products/zoho-docs/reviews

[10] https://ionicframework.com/docs/v1/guide/preface.html

ELECTRONIC DOCUMENT MANAGEMENT

Sabrine KOUKI

Abstract:

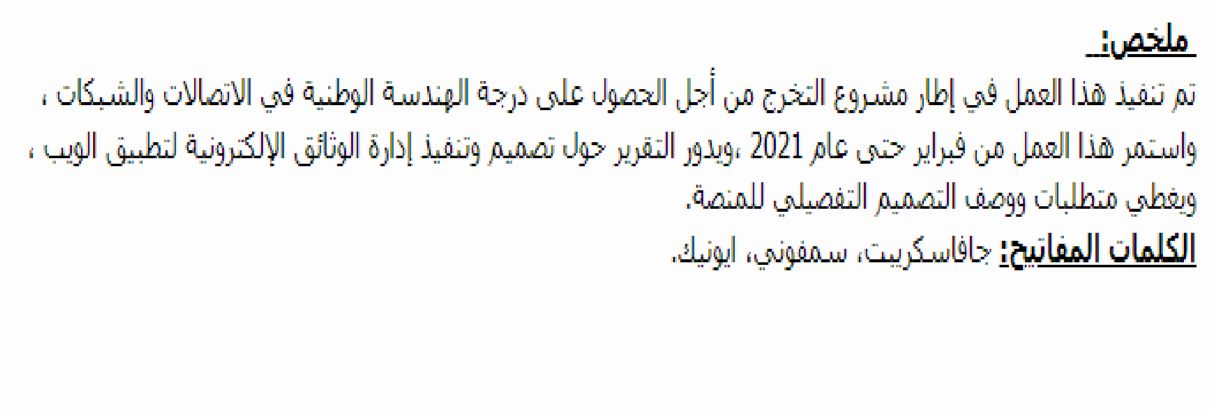
This work was carried out within the frame of the graduation project in order to obtain the National Engineering degree in Communications and Networks and it lasted from February to Aout 2021.The report revolves around the design and implementation a web application electronic document management.It covers the requirements and the description of the detailed design of the platform.

Key-words: JavaScript, Symfony, Ionic.

Résumé :

Ce travail a été réalisé dans le cadre du projet de fin d'études en vue de l'obtention du diplôme national d'ingénieur en communications et réseaux et il a duré de février à août 2021.Le rapport s'articule autour de la conception et de la mise en œuvre d'une application web de gestion électronique des documents.Il couvre les exigences et la description de la conception détaillée de la plate-forme.

Mots clés: JavaScript, Symfony, Ionic.



ملخص:

تم تنفيذ هذا العمل في إطار مشروع التخرج من أجل الحصول على درجة الهندسة الوطنية في الاتصالات والشبكات ، واستمر هذا العمل من فبراير حتى عام 2021 ،ويدور التقرير حول تصميم وتنفيذ إدارة الوثائق الإلكترونية لتطبيق الويب ، ويغطي متطلبات ووصف التصميم التفصيلي للمنصة.

الكلمات المفاتيح: جافاسكريبت، سمفوني، ايونيك.