

End of study Project



Boost Buddy

Student's Resource Platform

Project in Business Intelligence

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General Introduction

Technology nowadays keeps evolving .In order to adapt to these changes humans tend to create new methods regarding these innovations .In the field of education , the use of the internet is almost a must thanks to the facilities it provides and how easy it makes the learning process .It offers a wide range of online courses and resources that play a huge role in the level of the student's comprehension .Since most of these resources are free , it reduces a lot of costs saving you time and money , not to forget , the possibility to learn at your own pace and access at any time .

It's true that a lot of resources are available ,but most of them don't match what's being taught at universities .Within this context aligns our project offering a solution that targets this specific problem that drains the student's energy every year .The idea is to create a web application named “ Boost Buddy ” that will hold all the resources and information necessary to boost the student's performance and help them achieve higher grades .

This web application entails different types of documents that you can access whenever you want . Due to the shortage of details and clarity about internships , i believe that adding a section to share one's experience is a crucial step to learn from others experiences .

This report will present you with a walk through my journey as i develop this web application so that you can grasp the details .

Preliminary Study

Plan

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1.1 Introduction

Setting the stage for our walk through the journey , we will start by casting a gaze upon the host organization and introduce it then we're going to present the project's context .After that we will analyse the state ,explain the problematic and provide the solution for together with specifying the objectives that we desire to reach once the project comes to an end .

1.2 Host Organization Introduction

ISGS is a public university situated in Sousse and is part of Sousse University .Being a part of the educational environment ,this place was created in February 1995 . Furnished with a lot of amazing teachers with outstanding backgrounds alongside a broad selection of majors . An organization can't be formed without an objective that leads it to work harder , ISGS's objective is to provide high quality education and make their degrees recognized across the world .

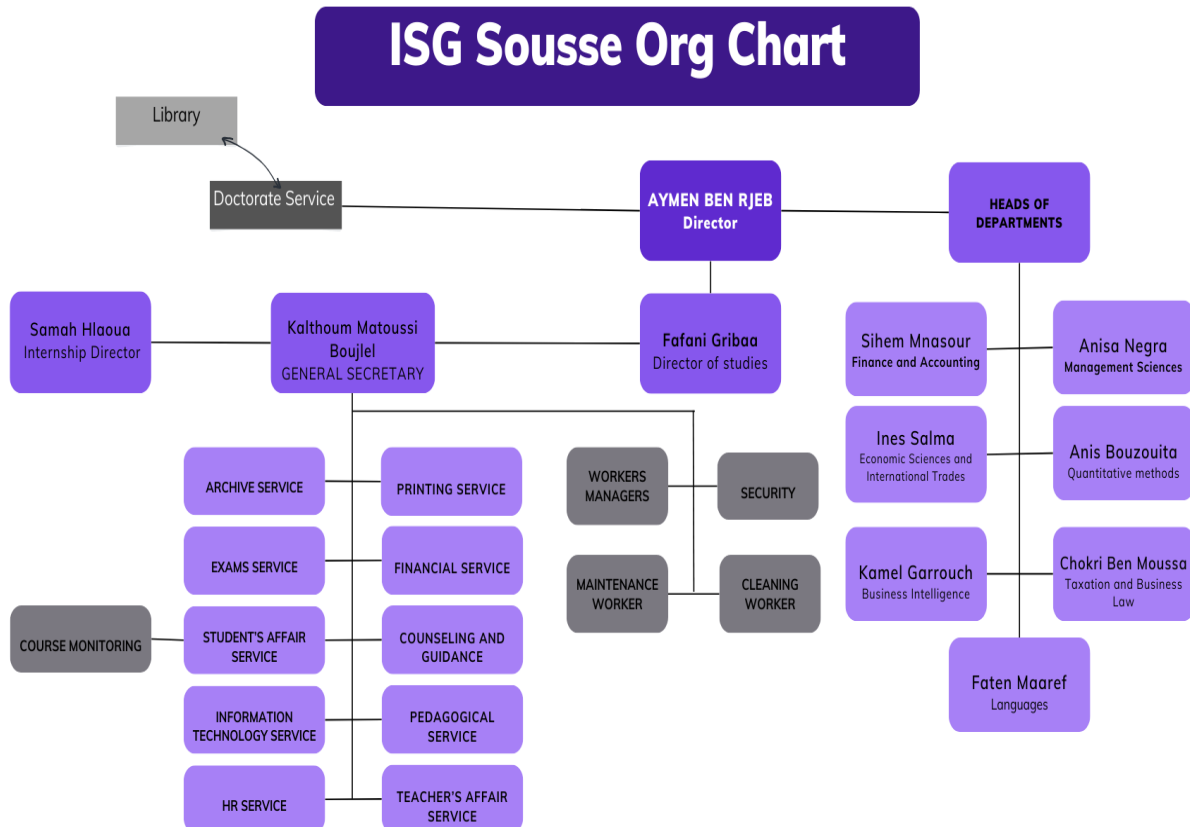


FIGURE 1.1 – ISGS Organizational Chart

1.3 Project Context

This project was done in the context of an end of study project at the Higher Institute Of Management Of Sousse aiming to obtain a bachelor's degree in Business informatics " Business Intelligence " . This project is the result of my genuine effort i made during my internship that lasted 3 months at my university " ISGS " . We will now be discussing the problematic that led me to come up with the project's topics .

1.4 Existing State Analysis

By doing an analysis of the existing state we figure out what's exactly missing to find a solution for it .We also study previous projects that are similar to benefit from them and to avoid their mistakes .

1.4.1 Existing State Description

Innovative solutions were found in every field with the rise of internet dependency .Within the domain of education ,teaching methods have changed to what we call " Auto-Education " that signifies learning by yourself and at your own pace using resources online which i believe is very practical due to the fact that everybody's learning pace is different along with other factors like available time , geographical constraints , cost barriers

1.4.2 Problematic

The available resources online are not always useful since they can be very different from the courses currently instructed .Students had to look for documents from old students which is an exhausting process .Once they get the documents they find themselves in front of a pile of papers not knowing where to start so they lose motivation along the way .Most students don't seem to know a lot about the professional life and skills they need to build for their careers so they need a place that helps them acknowledge what it's like from other people's experience .

1.4.3 Solution

Students need a support in both academic and professional life , either they will get help from the platform or they will offer help for others. Our web application will be a platform that hold the necessary resources to support the students .They will be able through it to :

- Manage documents
- Manage Internship experiences
- Gain study points
- View dashboard
- Leave feedback

1.4.4 Project objectives

The main reason to create this platform is to make sure that students no longer suffer or struggle throughout their academic journey .They will have a simple but efficient interface that allows them to manage documents and internship experiences . To conclude this part , our platform is going to :

- Boost students performance.
- Maximise productivity .
- Provide meaningful insights and analysis .

1.5 Work Methodology Choice

Within the domain of web development , a work methodology is required to solve issues related to project structuring , planning and for an enhanced control . To make sure we're choosing the right methodology , we're going to compare two different ones and pick the one that aligns with our project objectives the most .

1.5.1 Work Methodology Comparison

To avoid a bad project outcome , our goal is to make a wise choice between the two main project management methodologies . We want the one that emanates a feeling of efficiency and offers us rules to make it easier to work together in harmony .

In the context of decision making we begin by analysing each methodology :

- **Waterfall :** Striking with it's traditional vibe until the early 2000. It resembles the waterfall where each step needs to be done in order to pass to the next one . It's drawbacks are contact loss and difficulty to make changes in the project .As soon as the project is delivered the contact with our precious client is lost And in the case where this latter want to make a change in the project it's pretty much impossible to include it unless it was done from the very beginning which leaves our clients unsatisfied with our work and can lead to an increase in costs followed by delivery delays .
- **Agile Approach :** Elegantly situated on the top of all approaches , agile method offers an unbeatable flexibility going by a principle that says “ Clients first ” . The goal here is to make sure that you have captivated your client and made him satisfied with the project output . The contrast between this approach and the waterfall approach is that in the Agile method we make sure to include the client in the development process After detailing the big picture and turning it into pixels meaning that we divide our project into mini projects and take the client's opinion after each mini project is done and not at the end of the development process .

- **Roles and Responsibilities association** : assigning roles and responsibilities offers a greater transparency and surrounds the working environment with an air of accountability.
- **Daily stand-ups** : What's a greater solution to solve problems and do a follow up on the progress that to communicate on a deeper level with the team ? These daily stand-ups are going to promote communication within the team .
- **Priority update** : Since not all of us are good at taking a clear decision from the beginning , Scrum helps us in this matter by allowing the client to define or change the priority order later in the development process .

1.5.3 Roles in SCRUM

To elicit the sense of a systematic environment and head to achieve better results we should start by identifying each role within the team . It is known that bad team composition can lead to severe outcomes some of them are :

- **Being stuck in progress** : it entails the lack of skills needed to finish the project , for this exact reason we have to be more thoughtful when picking the members
- **Bad role assignment** : it's when someone who's not skilled enough to hold the position they're at .

The key Scrum roles

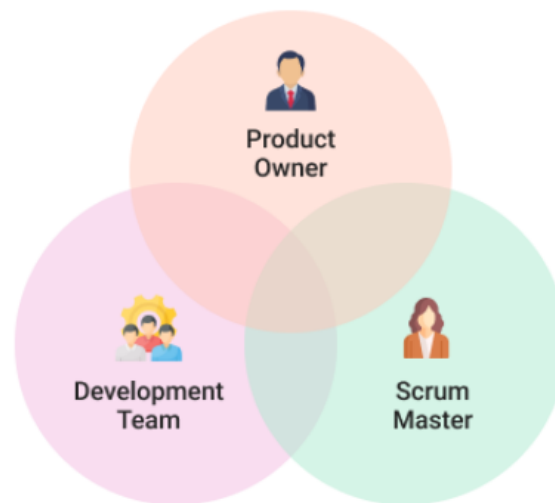


FIGURE 1.3 – Roles in SCRUM

As mentioned in the picture above we can conclude that there are three key roles in scrum and we're going to assign a role for each one of the people included in this project :

| Role | Name | Description |
|-------------------------|---------------------|--|
| Product Owner | Ms Kalthoum Boujlel | Responsible for the product backlog and priority order definition , they also ensure the delivery of a valuable result . |
| Scrum Master | Mr Hamdi Hassen | This latter acts as the bridge between the product owner and the development team where his role is to ensure that the scrum process is well understood and followed . |
| Development team | Hadhami Abidi | Concentrating on the aspect of delivering a high quality product , the team holds the responsibility of getting the work done and delivering the product . |

TABLE 1.2 – Roles in SCRUM

1.5.4 Scrum Tools

- **Backlog** :Since the system we want to create can have a lot of features we can get overwhelmed , the backlog is going to serve as a definition tool in the form of a list of

user stories . It is divided into two :

- **Product Backlog** :which holds all the features of the project that we want to work on.
 - **Sprint Backlog** :a subset of the product backlog where in each sprint we focus on some features and develop them .
-
- **Scrum Board** : A tool that touches the organizational spirit within the team . It's basically a visual representation divided into three parts “ To DO ” , “ Doing “ and “ Done ” . Since it's real-time there won't be any confusion or task repetition because we can visualise the whole progress in one place .
 - **Scrum Burn Down Chart** : It is a graph that contains the work done and how much it took to do it versus how much we estimated it will take . The challenge is to work hard enough until we see the graph line land to zero which means we succeeded our mission and got all the work done .

1.5.5 Design Language

The perfect match for this project is UML because it represents the static and dynamic aspects of the system with it's extended range of diagrams in a simplified way .

1.6 Conclusion

Bringing the discussion to a close , our exploration has led us to get to know the Internship placement where within it we introduced the host organization , the problem faced and it's solution . On top of that we specified the work methodology and design language that we'll use as our base in the next chapters . The journey continues where we'll come out with a plan for our project and we'll dive deeper into the web application's features and understand them .

Sprint 0 :Needs specification and analysis

Plan

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2.1 Introduction

Starting our preparatory phase that sets the ground we will build on it our project .In this sprint we will be initiating the discussion of our web application precisely by specifying the different types of needs , designing globally our application , shedding insight on the product backlog and planning our sprints , we will also understand the physical architecture , highlight the work environment and finish with a prototype suggesting what our application can look like .

2.2 Needs Specification

Keeping the objective of ensuring that your team understands what they're expected to do in mind .The needs specification phase is the process of identifying and documenting your clients needs , this includes the list of features and functionalities as well as the constraints .

2.2.1 Actors Identification

It is best to describe him as an external entity that interacts with our system it can be a user or another system . This entity is not in the system but their interactions have an impact on it . Now that we know what an actor is , let's move on to present our application's actors in the form of a table :

| Actor | Description |
|---------|--|
| Student | Responsible for managing documents , managing internship experience , consulting his dashboard . |
| Teacher | Responsible for managing documents , managing internship experience . |
| Admin | Responsible for managing users , managing documents and managing internships experiences . |

TABLE 2.1 – Actors table

2.2.2 Functional Requirements

At the outset of each web application , we have a bunch of steps to follow , one of them being defining for each actor his/her functionalities that the system should provide .

- **Manage documents** : each actor will be able to add ,search , view , update and delete documents.
- **Manage internships experiences** : each actor will be able to add ,search , view , update and delete internships experiences .
- **View Dashboard** The student can view the visualisation of data on the platform.
- **Find Topic** : The student can , with the help of the platform , find a topic for his/her end of study project using old reports .

2.2.3 Non Functional Requirements

- **Security** : it's really important to protect user's data to make them feel more secure and comfortable using the platform .
- **Regulatory Compliance** : education norms must be respected .
- **User Support** : including a chat-bot can be really helpful for users to get a glimpse of how the platform works .
- **Session management** : to protect users against unauthorized access (Session Time-Out).

2.2.4 Decision Requirements

It represents a crucial part of our domain since With the help of the statistics and dashboards provided the student can take decisions . Are they studying enough ? Should they apply for the internship at X company or not ? .

To wrap it up we can tell that the project has done it's job when we see that students performance and grades are higher .

2.3 Design

Being the heart of development projects , and the map we get to follow it's roads . We're now going to focus on globally designing the use case diagram accompanied with the class diagram .

2.3.1 Global Use Case Diagram

In UML , this diagram is a visual representation that solves the issues related to understanding who interacts with our system and what are the functionalities that they can use . It has 4 key elements : actors , Use cases , associations and system boundaries . The overall vision might still not be clear , so let's dive into a more detailed explanation by explaining two of the use cases from the list :

- **Log-In** :It's the most crucial step among all . It's basically the process of typing your username or email and a password , once they're correct you get to access the rest of the services .
- **Sign-Up** :When it's your first time accessing the platform , you can't login in before accomplishing the mission of signing up where you fill in all the required information .

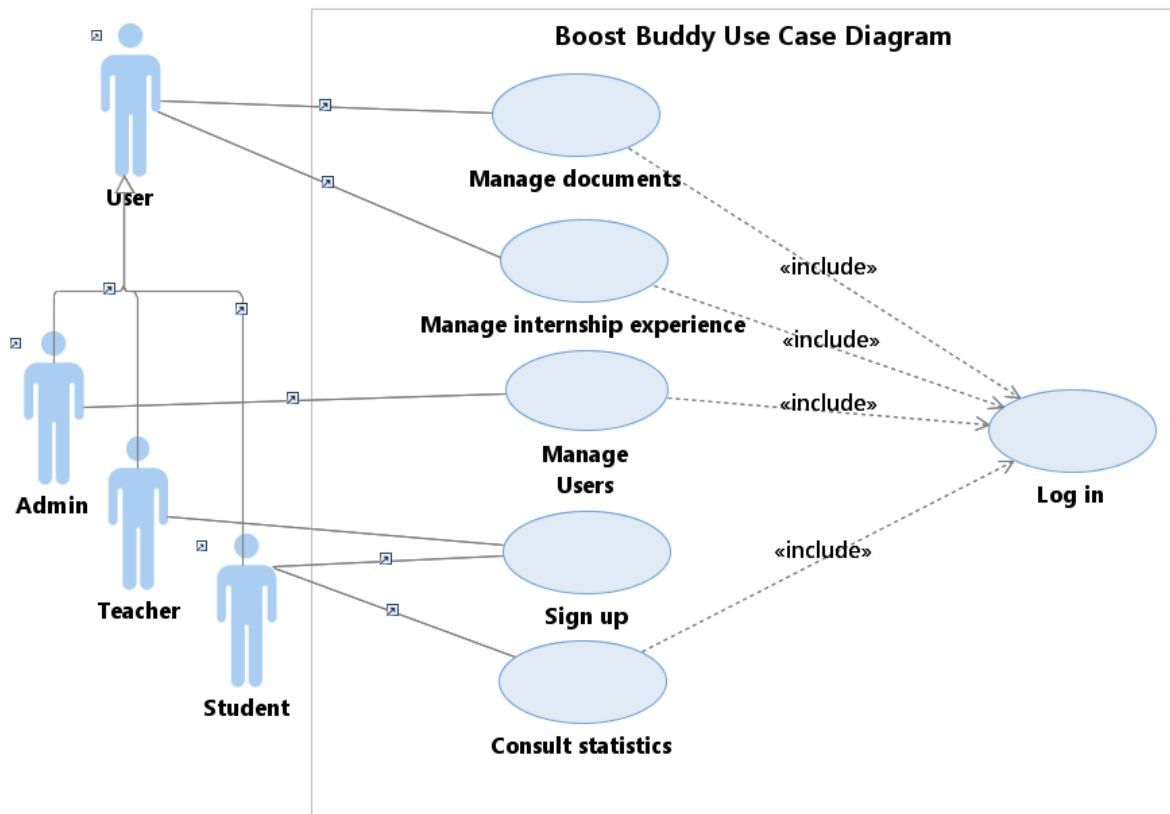


FIGURE 2.1 – Global Use Case Diagram

2.3.2 Global Class Diagram

The reason we create a class diagram is to encapsulate and illustrate our system's architecture. It contains the classes and their relationships within our system. Each of these classes has attributes, methods and association. Below we can find the class diagram of our system.

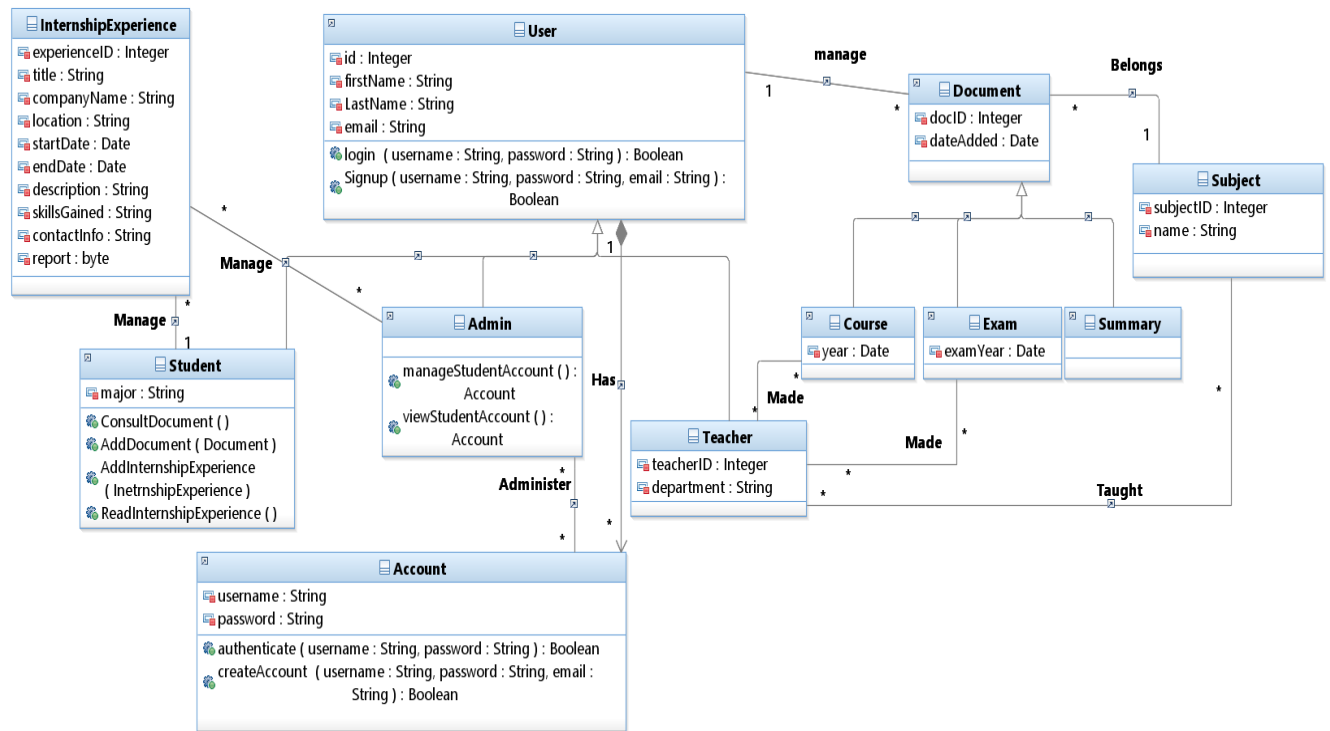


FIGURE 2.2 – Global Class Diagram

2.4 Use Case Processing Planning

- Priorities :**As the quote says “ No project unfolds exactly as planned ” which means It’s challenging to establish the final planning as we forecasted since circumstances can happen however what’s important is to lay the groundwork for the distinction between the project’s tasks by specifying what’s urgent and what’s important to eliminate the chances of failing.
- Risks :** In order to set the stage for a successful project management , it’s crucial to take some time and identify the potential risks that could lead to project failure . In the heart of our project , it’s the project’s complexity compared to the available time .

2.5 Product Backlog

Before we jump into the process of planning, as the methodology suggests , we will commence by gathering the outcome of our meetings with the client and address the features they asked for , then we compact all these features in one place called “ The Product Backlog “ . This latter is Infused with a touch of “ strategic finesse ” because it’s drawn by priority order giving a vivid indication of when they were done .

| ID | Feature | Priority | Complexity Level |
|----|------------------------------|----------|------------------|
| 1 | Sign Up | 1 | Moderate |
| 2 | Log In | 2 | Moderate |
| 3 | Manage Users | 3 | Moderate |
| 4 | Add Document | 3 | Complex |
| 5 | Consult documents | 3 | Moderate |
| 6 | Manage documents | 4 | Moderate |
| 7 | Add internship experience | 5 | Complex |
| 8 | Read internship experience | 5 | Moderate |
| 9 | Manage internship experience | 6 | Moderate |
| 10 | Consult statistics | 7 | Hard |

TABLE 2.2 – Product Backlog

Now that we’re done creating the product backlog we can initiate the discussion of a road map to success .

2.6 Sprints Planning

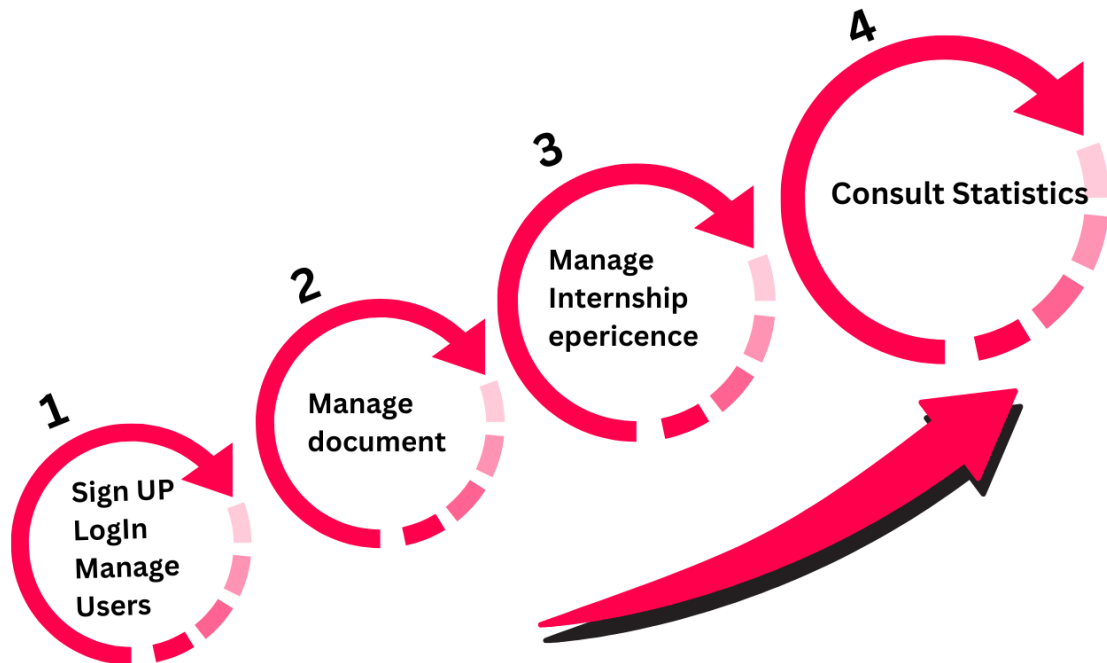


FIGURE 2.3 – Sprints Planning

2.6.1 Data Base Schema

User (userID, firstName , lastName , email , type)

Account(#userID, username , password)

Subject(subjectID , name , #professorID)

Teacher(teacherID, #userID , department)

Student(studentID, #userID , major)

Document(docID , dateAdded , #subjectID)

Course(#docID , year , #teacherID , #subjectID)

Summary (#docID , #userID , #subjectID)

Exam(#docID , examYear , #teacherID , #subjectID)

Internship(#experienceID , title , companyName , location , startDate , endDate , description)

, skillsGained , contactInfo , report)

2.7 Physical Architecture

The part where we explore and investigate an application's components is called " Physical Architecture ". In the heart of our application is situated a user , a server and a database . We should be able to understand better how it looks like by observing the figure below .

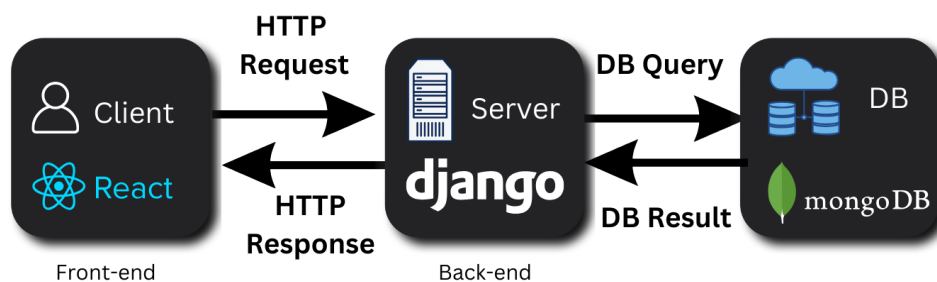


FIGURE 2.4 – Physical Architecture

2.7.1 Architectural Pattern

As we move forward , our focus now shifts to the architectural pattern which entails a solution for a recurrent architectural problem we face either in the front-end or back-end .

2.7.2 MVC architecture

As the seasons change and the time passes by , MVC architecture (Model-View-Controller) remains the top most used architecture among all for creating web applications . The reason

behind that is the 3 parts it's composed of that serves as a guide for a better project structure .

Moving on to addressing what's each part's responsibilities :

- **Model** : this component is privileged in contrast to the user with the ability to interact with the data base and to manipulate data . On top of that it can respond to instructions given from the entity responsible of extracting or updating data , the model then follows these instructions precisely .
- **View** : the view entails the communication with the controller in order to receive the retrieved data and to display it to the user in an adequate format , which indicates that this part is what is viewed by the user / what the user can see .
- **Controller** : this component takes control over the management of user interactions , that signifies receiving and handling requests sent by the user such as GET , POST etc ...
It manages the communication between the view and the model by supplying the model with instructions when an update or data retrieval is needed and commands the view to perform an update .

2.7.3 Superiority of an MVC architecture[?] :

- **Modularity** : Since each component of the 3 handles a specific application aspect we get a modular ,easily understandable and maintained code .
- **Better collaboration** : The components are distinct thus different teams can work on them at the same time leading to a sped up development process
- **Adaptability to change** : we're able thanks to this architecture to make a change in one of the components without affecting the others

To strengthen our understanding on how these components in the MVC architecture communicate between each other and with the user we should take a glance at the figure below .

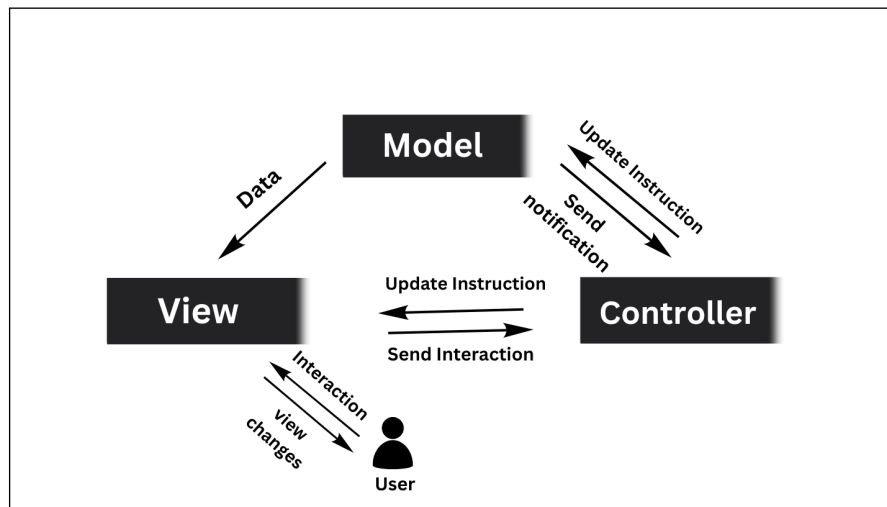


FIGURE 2.5 – MVC Architecture

2.7.4 BI section Architecture

2.7.5 BI tools

Our primary goal is to make our web application's visualisation dynamic and not static , for this particular reason i believe that **Power BI** is a good option to choose considering how well it works with the tools used to develop our web application .

2.8 Work Environment

The notable achievements we will acquire once we're done with this part is a finer idea on both parts used in the development process , the hardware and the software .

2.8.1 Hardware

The table below covers the description of the hardware used for development .

| | |
|-------------------------|---------------------|
| Owner | Hadhami Abidi |
| PC Brand | Asus |
| Processor | Intel Core i7-8750H |
| RAM | 16 Go |
| Hard Disk | 255 GB SSD |
| Operating System | Windows 11 |

TABLE 2.3 – Development machine description

2.8.2 Software

Since the project requires a development process we need a software tools combination to get us through until we achieve our goal . Let's initiate the exploration of these softwares. Dans ce qui suit, nous présentons les outils logiciels utilisés lors du développement de notre application.

2.8.2.1 - Django[?]

For the backend of my application I've decided to opt for one of the most famous and powerful Python frameworks " Django " .Not only it is open source but it also follows the "Batteries Included philosophy" which implies that within it exists a lot of built-in features like an admin interface , authentication ... With the help of these features the development time is so much less and you're able to build a robust web application .



FIGURE 2.6 – django

2.8.2.2 - React-Js[?]

One of the tools that when combined with django backend is React JS as they offer "Best of both worlds" Pour la partie frontend, nous avons choisi la bibliothèque JavaScript front a le ReactJs puisque cette dernière nous permet de créer des interfaces utilisateurs inter actives facilement à l'aide de ses bibiliothèques telles que ant design. Elle est open source, sécurisée, rapide, scalable et sa popularité s'accroît grâce au soutien de Facebook et d'une communauté dynamique.

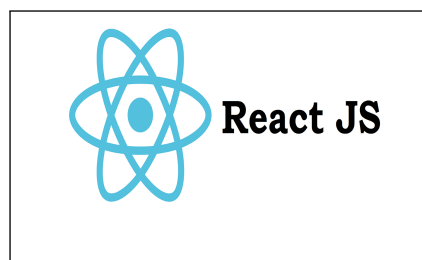


FIGURE 2.7 – React JS

2.8.2.3 -PostgreSQL[?]

PostgreSQL is an open source and free relational database system .It offers advanced features like full-text search and complex queries .PostgreSQL is also known for it's scalability making it suitable for large projects .IT integrates very well with Django framework making it a popular choice due to it's compatibility .

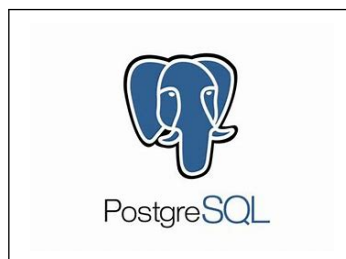


FIGURE 2.8 – PostgreSQL

2.8.2.4 -Vite[?]

It has a french name that means quick , it is a server to ease the development process and make it faster of front-end applications built with Java-Script frameworks such as React , Vue , Angular



FIGURE 2.9 – Vite

2.8.2.5 - Visual Studio [?]

Visual Studio Code is an open source code editor developed by Microsoft .It provides a vast and powerful environment for coding with a support for all programming languages and a rich ecosystem of extensions that makes the working process a lot better .

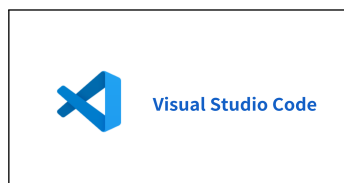


FIGURE 2.10 – Visual Studio Code

2.8.2.6 - Trello [?]

Trello is an Agile project management tool , the reason behind choosing to work with it Comme outil de gestion de projet agile, nous avons utilisé Trello qui est une application de gestion de projet gratuite permettant d'organiser des projets sous forme de tableaux composés de listes en colonnes, qui répertorient des tâches sous forme de cartes.



FIGURE 2.11 – Trello

2.8.2.7 - IBM Rational Software Architect [?]

It's an Integrated Development Environment (IDE) for both developers and architects based on UML diagrams to facilitate modeling complex systems .RSA also integrates easily with a vast range of tools , supports code generation to granting the ability to create end-to-end softwares .



FIGURE 2.12 – IBM Rational Software Architect

2.9 Prototypes

Before we delve into developing our web application , we give the client a glimpse on how our application would look like and do a quick check on whether it matches the requirements discussed before , if there's something missing or if they want to add something . Not only does it help the client but also the developers since it helps them visualize the application and sets the ground they'll be working on .



The image shows a mobile app prototype for a sign-up screen. It features a purple header bar with a white '< HOME' button on the left and a white hamburger menu icon on the right. A white sign-up card is centered on the screen. The card has a title 'SIGN UP' with a purple underline. Below the title are five input fields: 'FirstName' and 'LastName' (split), 'Email', 'Username', and 'Password'. Under the 'Password' field are two checkboxes: 'Student' and 'Professor'. A large grey 'Get Started' button is below the checkboxes. At the bottom of the card, it says 'Already have an account ?' followed by a blue 'Log IN' link. The background of the app is a solid purple color.

SIGN UP

FirstName LastName

Email

Username

Password

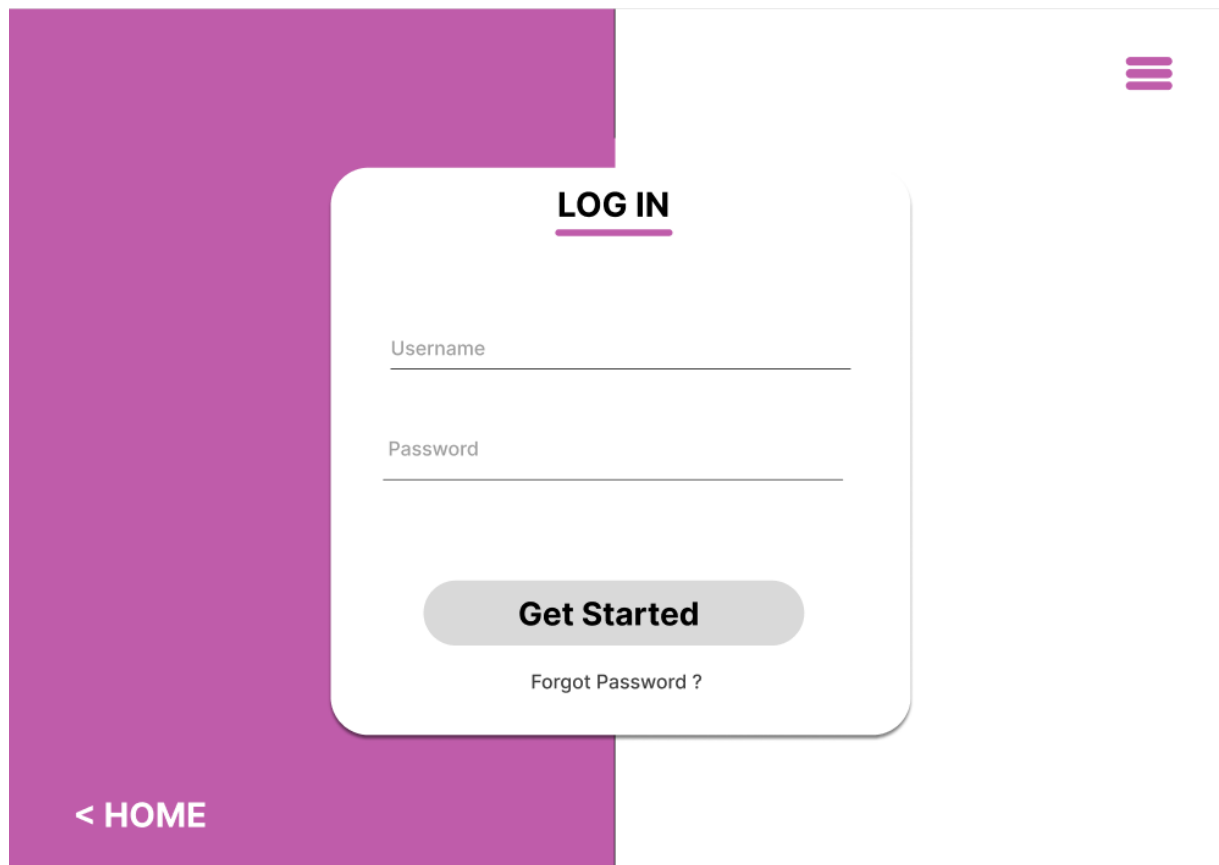
☐ Student ☐ Professor

Get Started

Already have an account ? [Log IN](#)

< HOME

FIGURE 2.13 – Sign Up Prototype



A prototype of a login form. The form is a white rounded rectangle with a drop shadow, centered on a light gray background. To the left of the form is a large purple L-shaped graphic. In the top right corner of the page, there is a purple hamburger menu icon. The form has a title 'LOG IN' with a purple underline. Below the title are two input fields: 'Username' and 'Password'. Below the password field is a gray button with the text 'Get Started'. At the bottom of the form is a link that says 'Forgot Password ?'. In the bottom left corner of the purple L-shaped graphic, the text '< HOME' is written in white.

LOG IN

Username

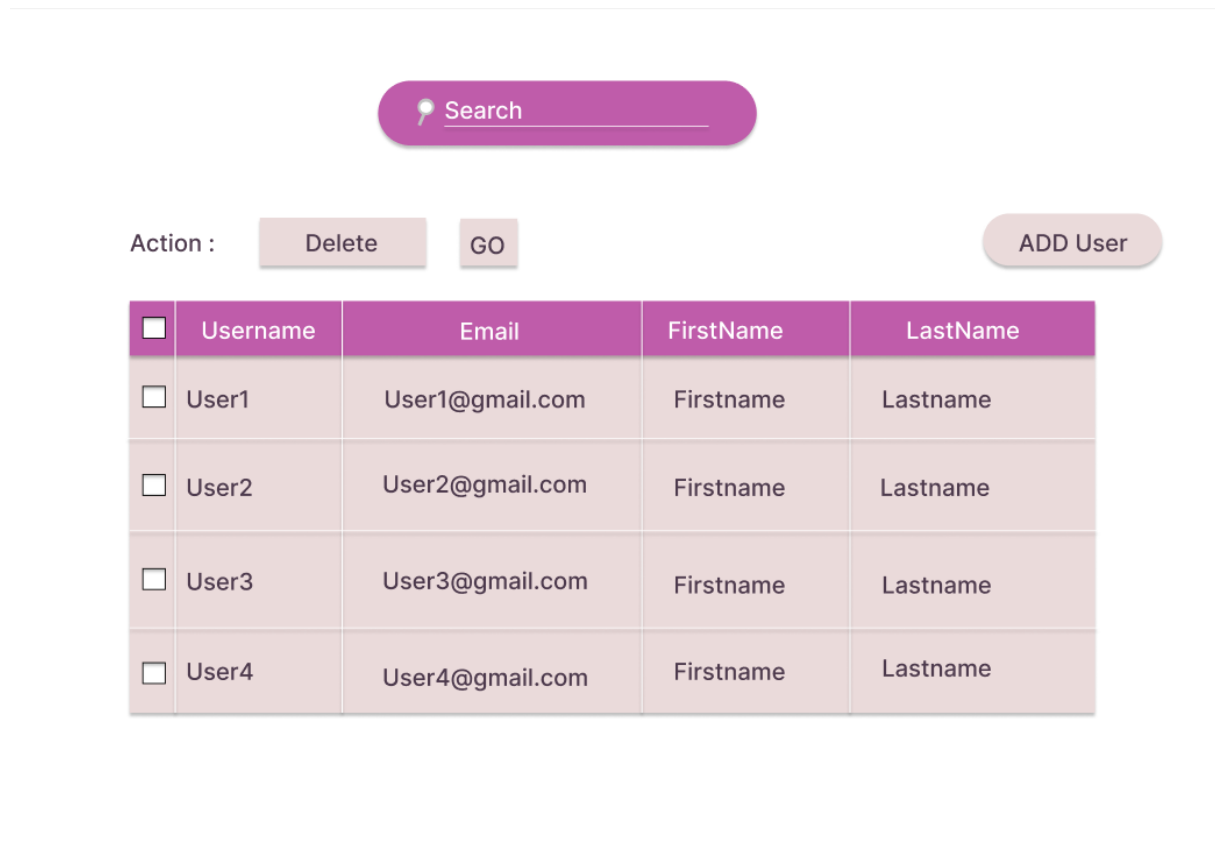
Password

Get Started

[Forgot Password ?](#)

< HOME

FIGURE 2.14 – Log In Prototype



The prototype shows a search bar at the top with a magnifying glass icon and the text "Search". Below it, there are three buttons: "Delete", "GO", and "ADD User". The "ADD User" button is highlighted with a red border. Below the buttons is a table with five columns: a checkbox column, "Username", "Email", "FirstName", and "LastName". The table contains four rows of user data.

| <input type="checkbox"/> | Username | Email | FirstName | LastName |
|--------------------------|----------|-----------------|-----------|----------|
| <input type="checkbox"/> | User1 | User1@gmail.com | Firstname | Lastname |
| <input type="checkbox"/> | User2 | User2@gmail.com | Firstname | Lastname |
| <input type="checkbox"/> | User3 | User3@gmail.com | Firstname | Lastname |
| <input type="checkbox"/> | User4 | User4@gmail.com | Firstname | Lastname |

FIGURE 2.15 – Manage Users Prototype

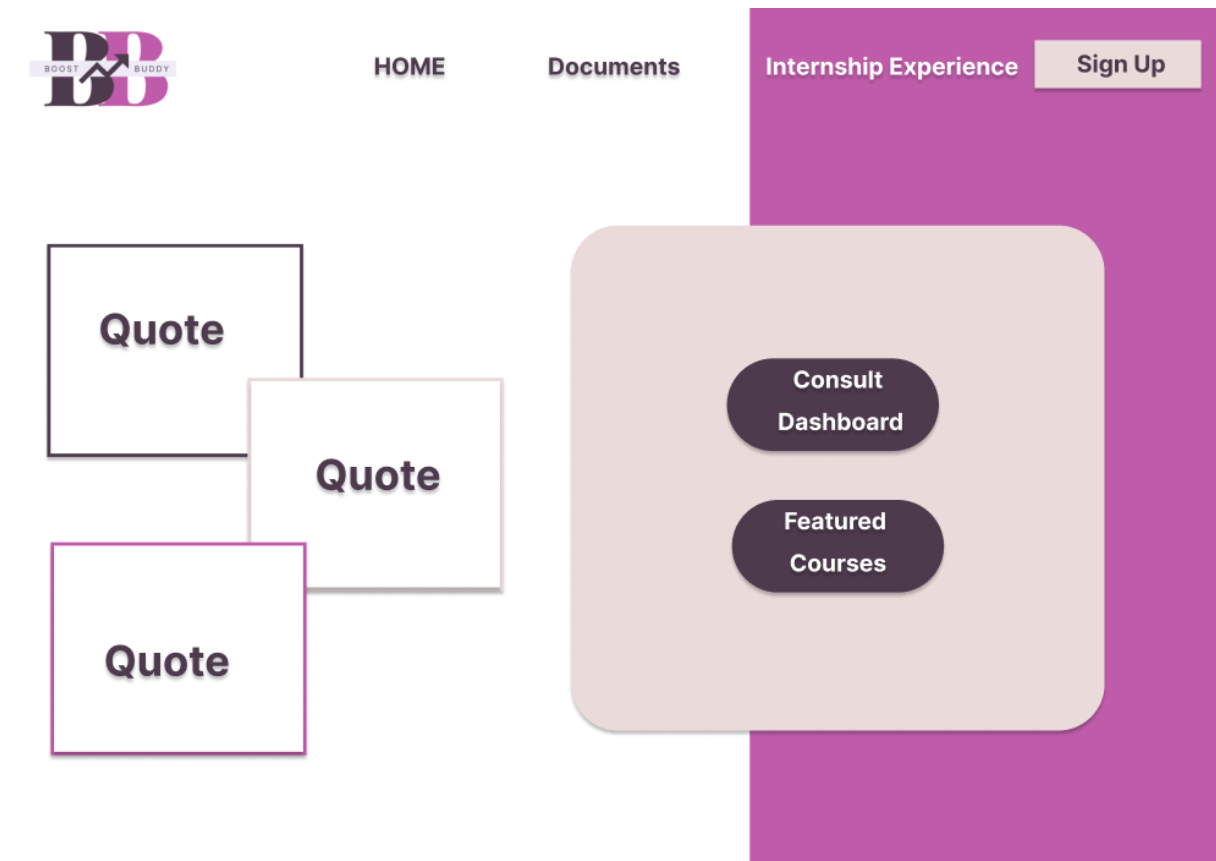


FIGURE 2.16 – Home Page Prototype

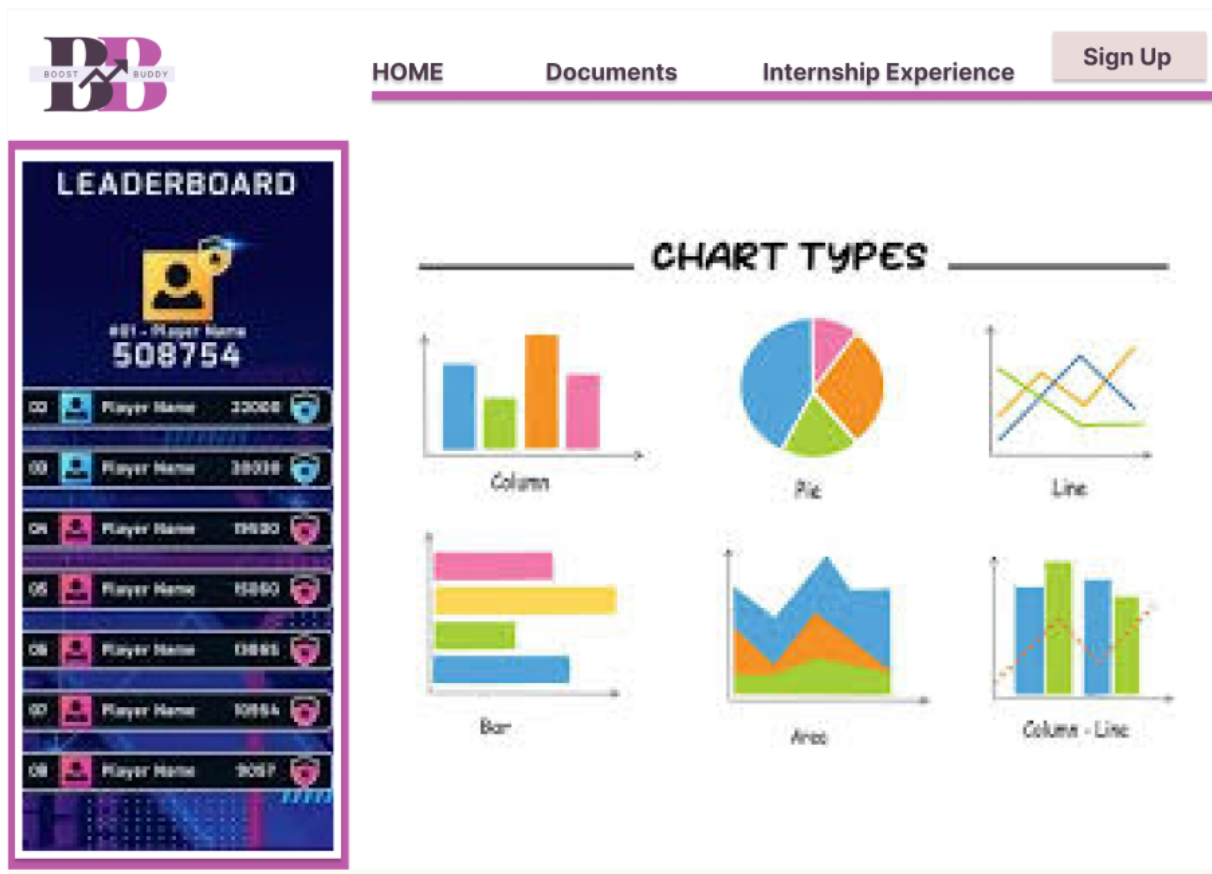


FIGURE 2.17 – Consult Dashboard Prototype

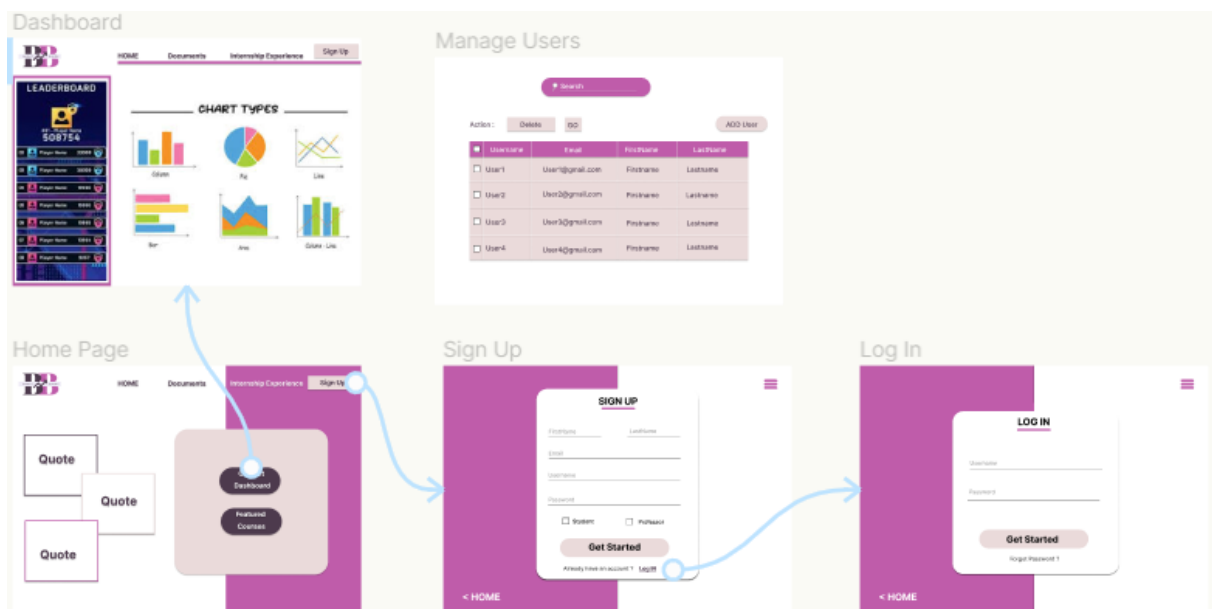


FIGURE 2.18 – Prototype

2.10 Conculsion

Ascertaining the outcome of this chapter , we identified the actors ,the functional and non functional requirements along with the decision requirements . After that we drew the lines on our project's global use case diagram and class diagram .Then we shed the light on the product backlog followed by planning our sprints and presented our Data Base schema .Successively we came to an end with precising and explaining the physical architecture and the development environment that we're going to use .We can now proudly announce that we took the first steps and it's now time to dive deeper into the project and unveil in each chapter a feature .

Sprint 1 :Log-In , Sign-Up , Manage Users

Plan

| | | |
|----------|---|-----------|
| 1 | Introduction | 30 |
| 2 | Sprint Backlog | 30 |
| 3 | Use cases specification | 39 |
| 4 | Design | 32 |
| 5 | Implementation and Tests | 50 |
| 6 | Scrum tools implementation | 53 |
| 7 | Conclusion | 54 |

3.1 Introduction

As we commence the first sprint , we should get to know better what's a sprint . Having a name inspired from the world of sports since in both fields , a sprint is an iteration that has a duration and an objective . In scrum we choose features from the “ Product Backlog “ to develop in each sprint and deliver a significant part of the project at the end of it and most notably we can't move to the next sprint unless we're done with the current one as that's against the “ iterative and incremental “ concept of scrum . I've decided to start with a gentle breeze but as we go further it'll turn into a powerful wind , in this sprint I'll be accomplishing two basic yet very important features Sign up and Log In along with Users management .

3.2 Sprint Backlog

In this matter , we present in a table the user and his user story along with the priority order. A user story consists of describing a feature from the user's point of view , it has three key elements : a role , an action and a benefit . Here's an outline of the table :

| Feature | User Story | Priority | Estimated Duration |
|---------------------|--|----------|--------------------|
| Sign Up | As a user I want to be able to sign up so that I can access the platform | 1 | 4 |
| Log In | As a user I want to be able to log in so that I can access the platform | 1 | 2 |
| Manage Users | As an Admin I want to be able to manage users accounts | 2 | 6 |

TABLE 3.1 – Sprint 1 Backlog

3.3 Use cases specification

3.3.1 Detailed Use Case Diagram

In the figure below we demonstrate the detailed use case diagram of this sprint that we'll later move on to writing a specification for each of the use cases shown in the diagram .

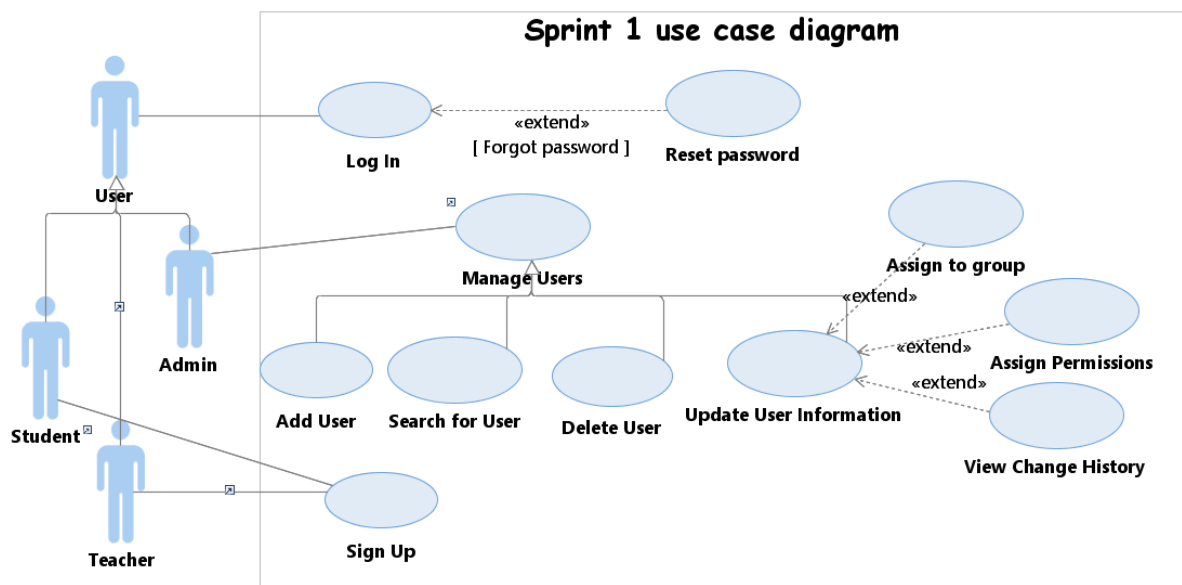


FIGURE 3.1 – Sprint 1 Use Case Diagram

Now that we've represented our use cases for this sprint in the diagram it's time to detail each one of them for an enhanced comprehension .

3.3.2 Use Case « Sign Up » Textual Description

| | |
|-----------------------------|---|
| Use Case | Sign Up |
| Actor | User |
| Pre-condition | The user is on the sign up page |
| Post-condition | New user added to the system |
| Main Scenario | <ol style="list-style-type: none">1.The user asks for the sign up form.2. The system displays the form .3.The user fills the form .4. The system validates the user's entries.5. The system saves the data . |
| Alternative Scenario | <ol style="list-style-type: none">4.a. User already exists<ol style="list-style-type: none">1- The system displays the message “ user already exists “.2- The system re-displays the form .4.b. Data format not valid :<ol style="list-style-type: none">1- The system shows an error message2-The system re-displays the form |

TABLE 3.2 – Use Case « Sign Up » Textual Description

3.3.3 Use Case « Log In » Textual Description

| | |
|-----------------------------|--|
| Use Case | Log In |
| Actor | User (Student ,professor , Admin) |
| Pre-condition | - The user is on the log in page . - The user has an account |
| Post-condition | User is authenticated |
| Main Scenario | 1. The student asks for the log in form. 2. The system displays the form. 3. The student fills the form with his credentials. 4. The student clicks on the log in button. 5. The system validates the student's credentials . 6. The system redirects the student to the home page. |
| Alternative Scenario | 5.a. Wrong credentials entered : 1- The system shows an error message 2-The system goes back to step 2 |

TABLE 3.3 – Use Case « Log In » Textual Description

3.3.4 Use Case « Manage Users » Textual Description

3.3.4.1 Use Case « ADD User » Textual Description

| | |
|-----------------------------|--|
| Use Case | ADD User |
| Actor | Admin |
| Pre-condition | The admin is authenticated |
| Post-condition | New User added |
| Main Scenario | <ol style="list-style-type: none">1. The admin selects manage users.2. The system displays the manage users UI .3. The system displays the list of existing accounts .4. The admin selects the add User option.5. The system displays the add user form .6. The admin fills the form .7. The system verifies the data .8. The system saves the data . |
| Alternative Scenario | <p>7.a. user already exists :</p> <ol style="list-style-type: none">1- The system shows a message saying the data already exists2- The system re-displays the form <p>7.b. The data format is not valid :</p> <ol style="list-style-type: none">1- The system displays an error message .2- The system goes back to step 5. |

TABLE 3.4 – Use Case « ADD user » Textual Description

3.3.4.2 Use Case « Delete User » Textual Description

| | |
|-----------------------------|---|
| Use Case | Delete User |
| Actor | Admin |
| Pre-condition | - The admin is authenticated . -User exists |
| Post-condition | User deleted |
| Main Scenario | 1. The admin selects manage users. 2. The system displays the manage users UI . 3. The system displays the list of existing accounts . 4. The admin selects the User to delete . 5. The admin clicks on delete . 6. The system displays a confirmation message . 7. The admin confirms the deletion . 8. The system updates the users list . |
| Alternative Scenario | 6.a. The admin cancels the deletion : 1- The system goes back to step 3 |

TABLE 3.5 – Use Case « Delete user » Textual Description

3.3.4.3 Use Case « Search for User » Textual Description

| | |
|-----------------------------|---|
| Use Case | Search for Users |
| Actor | Admin |
| Pre-condition | The admin is authenticated |
| Post-condition | Search results displayed |
| Main Scenario | <ol style="list-style-type: none">1. The admin selects manage users.2. The system displays the manage users UI .3. The system displays the list of existing accounts .4. The admin types the desired name in the search bar.5. The system searches for the user .6. The system displays the search results . |
| Alternative Scenario | <p>5.a. User doesn't exists :</p> <ol style="list-style-type: none">1- The system displays an empty list . |

TABLE 3.6 – Use Case « Search for user » Textual Description

3.3.4.4 Use Case « Update User » Textual Description

| | |
|-----------------------------|---|
| Use Case | Update User |
| Actor | Admin |
| Pre-condition | - The admin is authenticated . -User exists |
| Post-condition | User information updated |
| Main Scenario | 1. The admin selects manage users. 2. The system displays the manage users UI . 3. The system displays the list of existing accounts . 4. The admin selects the desired user form the list . 5. The system displays the user's information . 6. The admin makes a change to the information . 7. The admin clicks on save . 8. The system saves the changes. |
| Alternative Scenario | 3.a. No accounts to update : 1- The system shows an empty list 7.a. The admin doesn't save the changes : 1- The system doesn't save the changes . 2- The system re-displays the users list. |

TABLE 3.7 – Use Case « Update user » Textual Description

3.3.4.5 Use Case « View User » Textual Description

| | |
|-----------------------------|--|
| Use Case | View User |
| Actor | Admin |
| Pre-condition | - The admin is authenticated . -User exists |
| Post-condition | User information displayed |
| Main Scenario | 1. The admin selects manage users. 2. The system displays the manage users UI . 3. The system displays the list of existing accounts . 4. The admin selects the desired User . 5. The system displays the user's information . |
| Alternative Scenario | 6.a. No users in the system : 1- The system displays an empty list . |

TABLE 3.8 – Use Case « View user » Textual Description**3.4 Design**

With the help of UML design we can understand better the system functionalities that we envisioned .Each diagram plays an important role , the class diagram captures the static aspect of the system while the sequence diagram captures the dynamic aspect of it .

3.4.1 Sprint 1 Class Diagrams

3.4.1.1 Use Case « Sign Up » Class Diagram

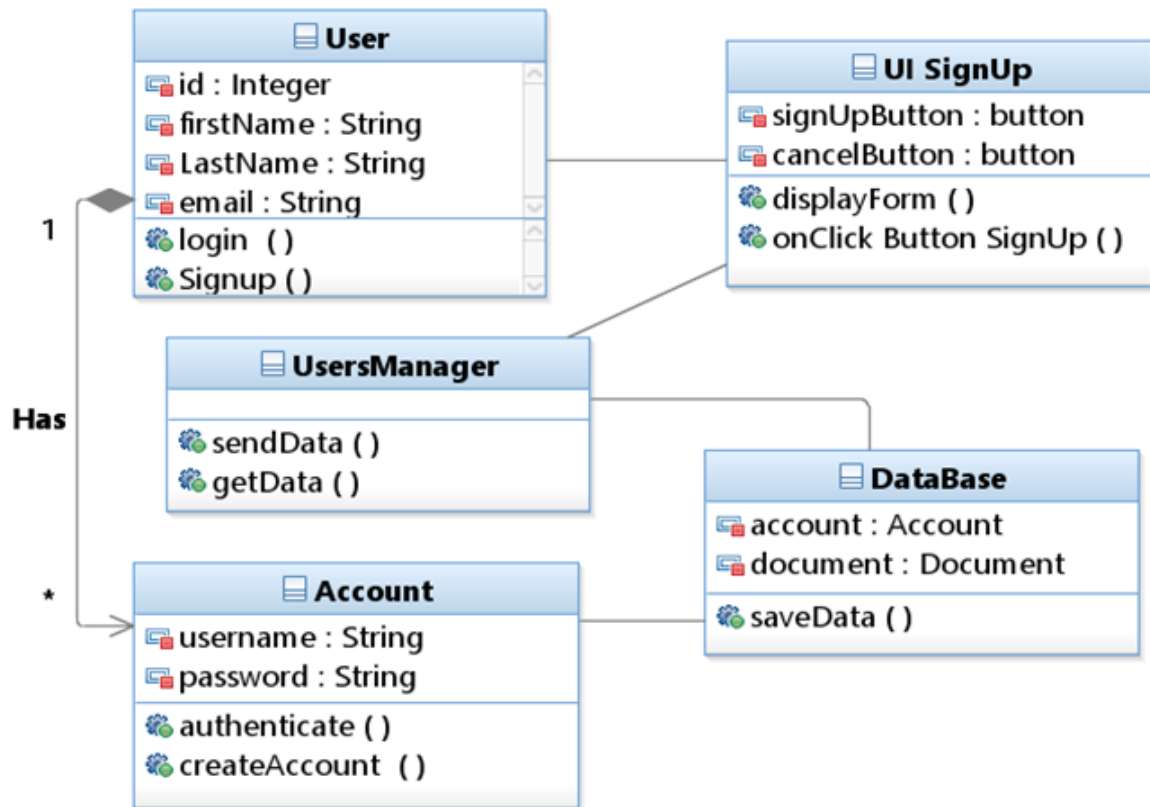


FIGURE 3.2 – Use Case « Sign Up » Class Diagram

3.4.1.2 Use Case « Log In » Class Diagram

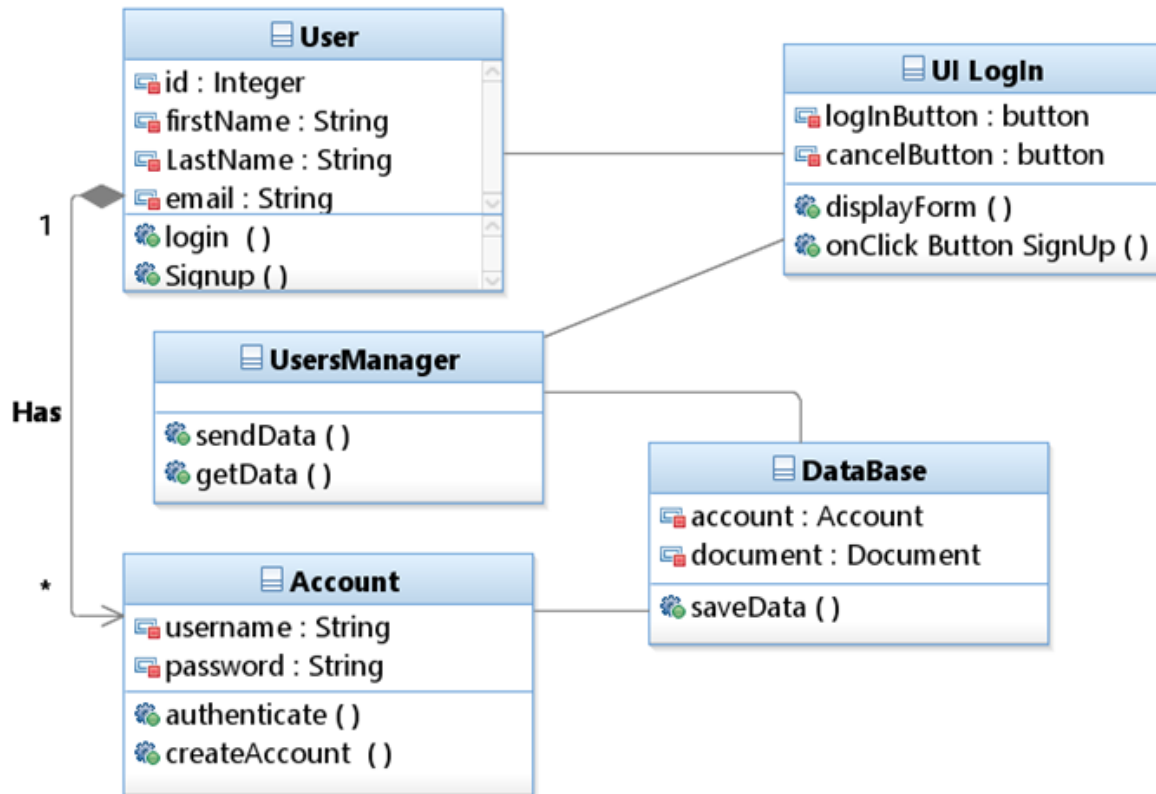


FIGURE 3.3 – Use Case « Log In » Class Diagram

3.4.1.3 Use Case « Manage Users » Class Diagram

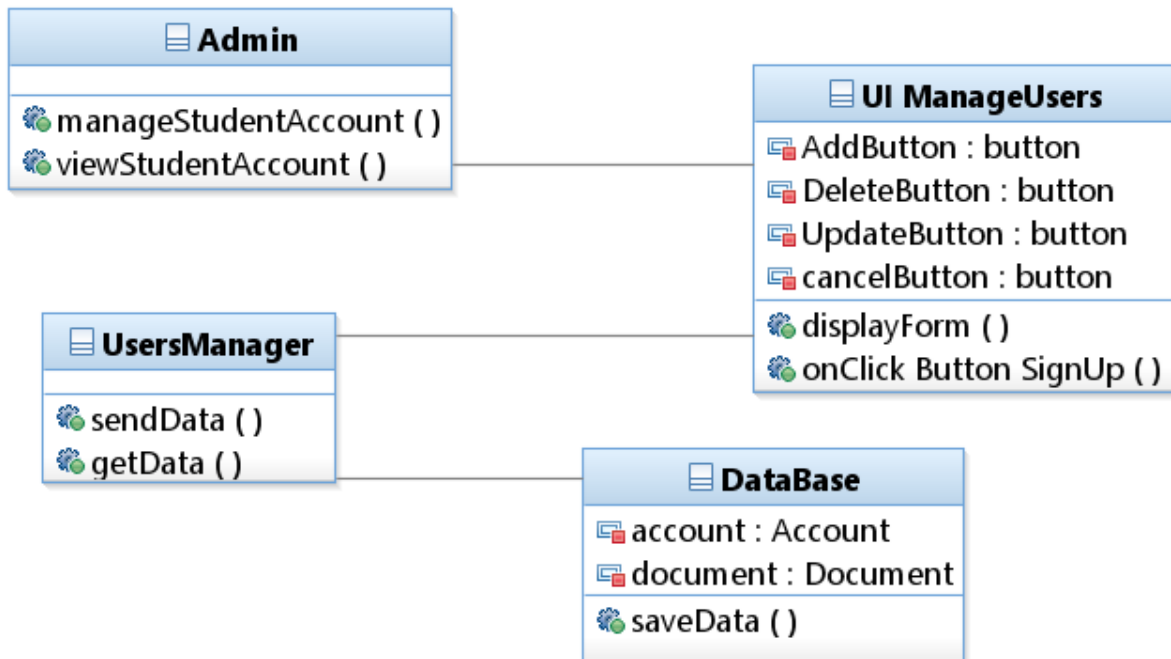


FIGURE 3.4 – Use Case « Manage Users » Class Diagram

3.4.1.4 Use Case « ADD Users » Class Diagram

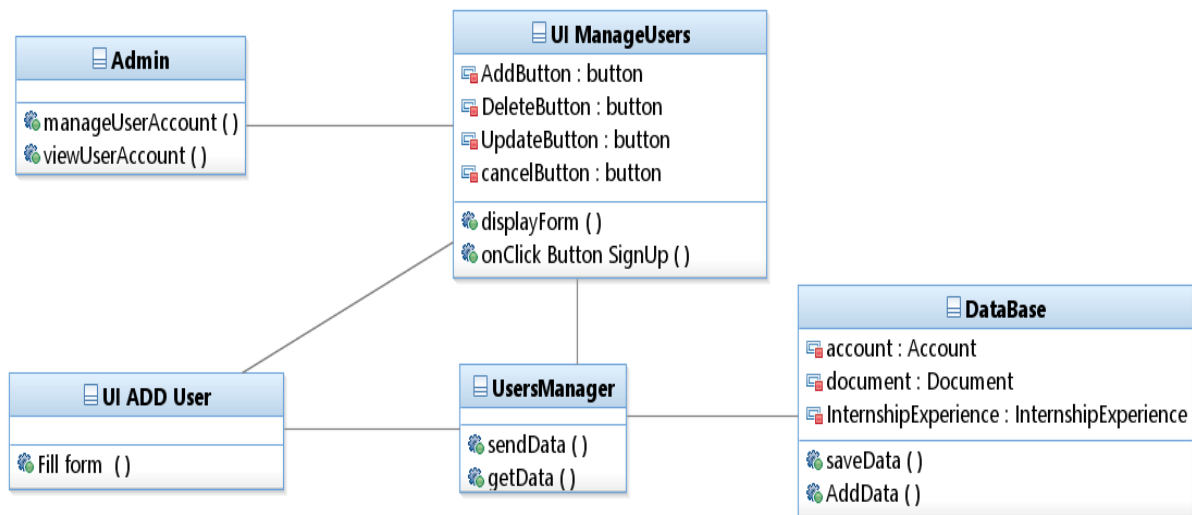


FIGURE 3.5 – Use Case « ADD Users » Class Diagram

3.4.2 Sprint 1 Sequence Diagrams

3.4.2.1 Use Case « Sign Up » Sequence Diagram

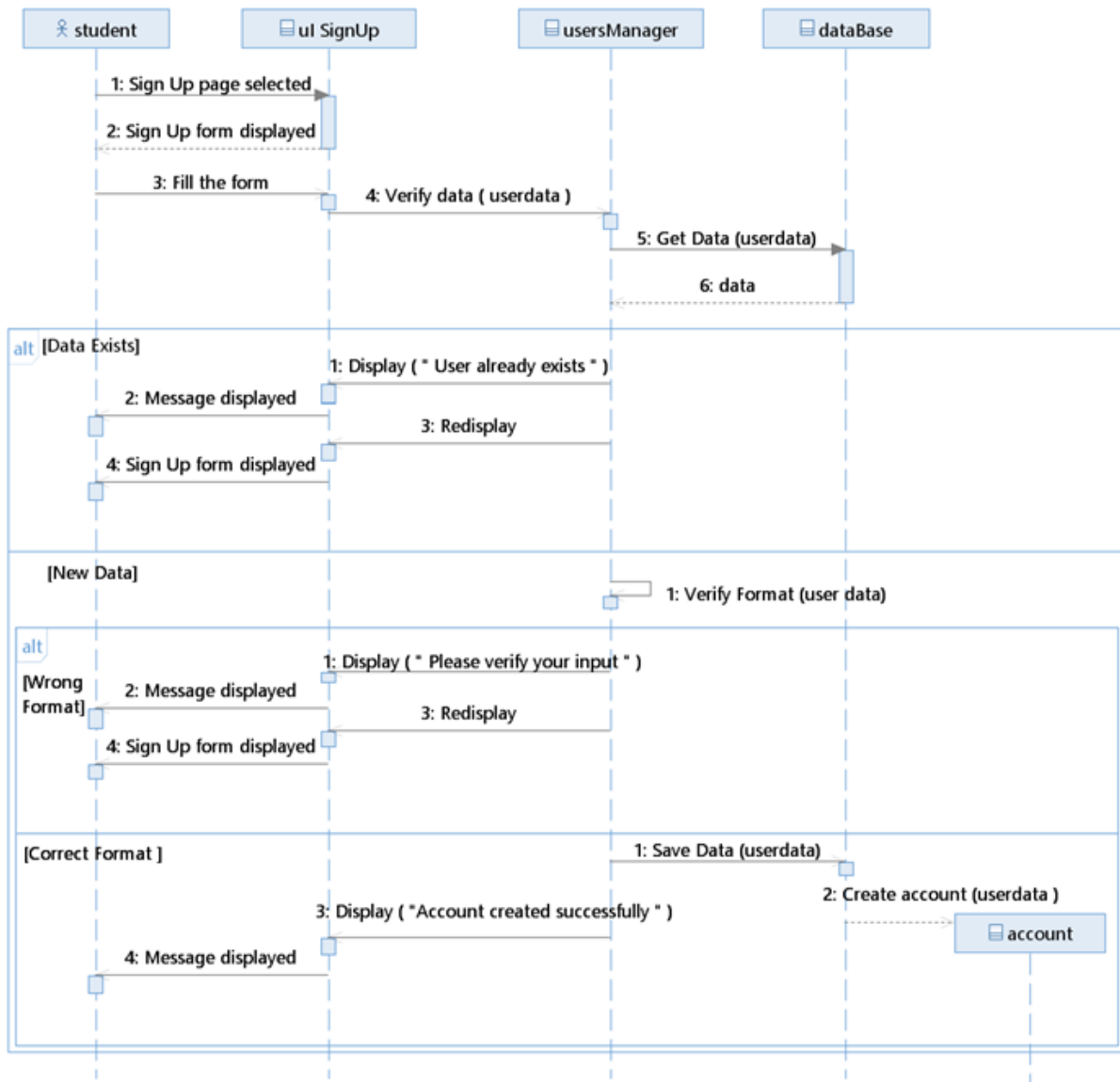


FIGURE 3.6 – Use Case « Sign Up » Sequence Diagram

3.4.2.2 Use Case « Log In » Sequence Diagram

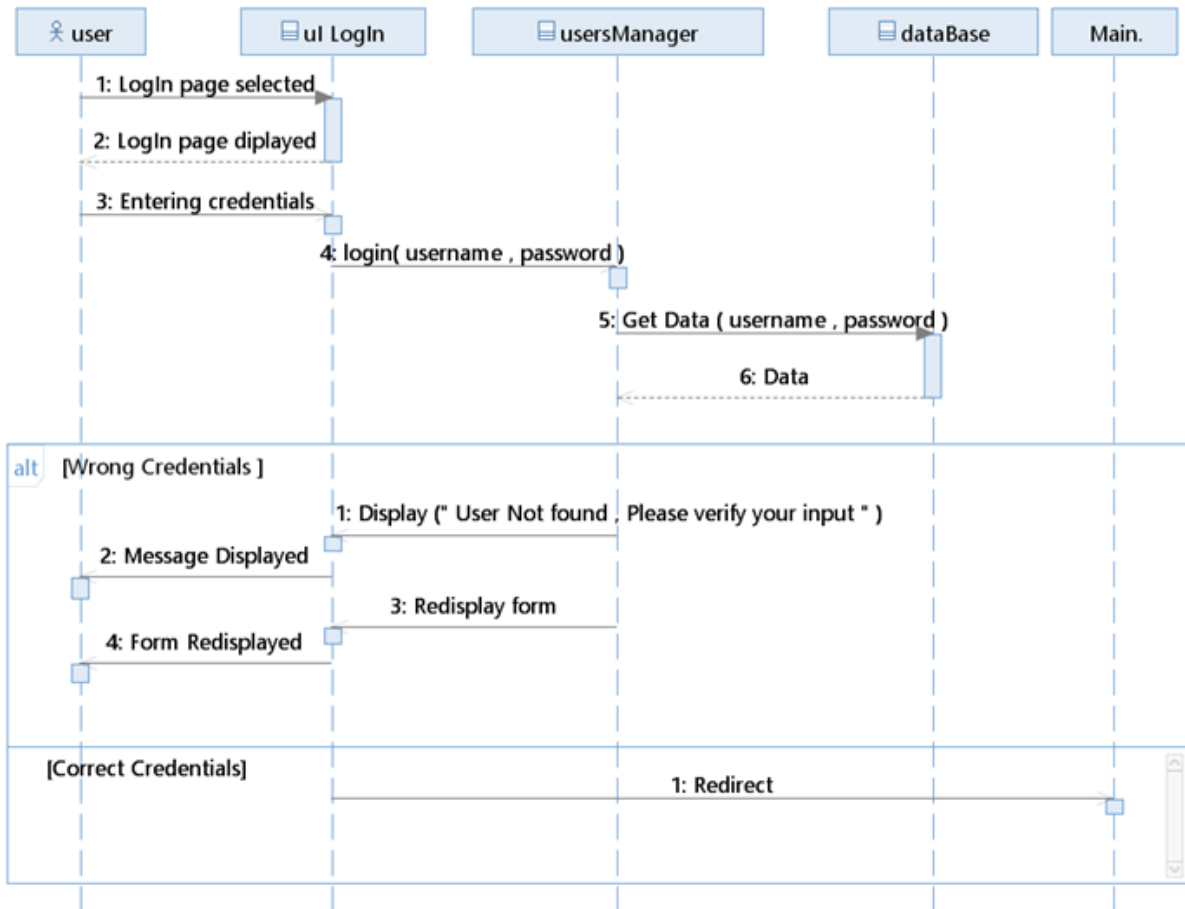
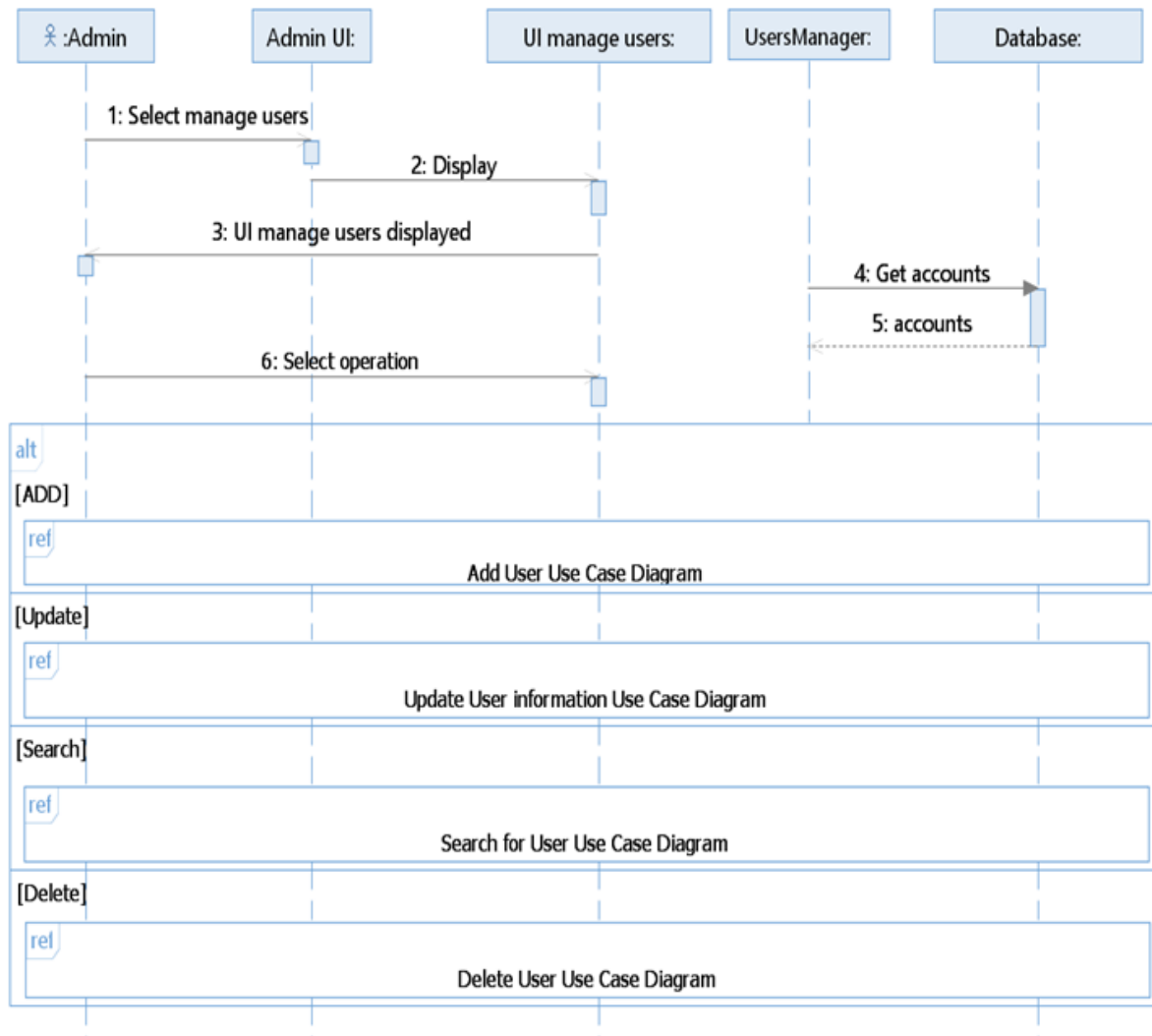


FIGURE 3.7 – Use Case « Log In » Sequence Diagram

3.4.2.3 Use Case « Manage Users » Sequence Diagram**FIGURE 3.8 – Use Case « Manage Users » Sequence Diagram**

3.4.2.4 Use Case « ADD User » Sequence Diagram

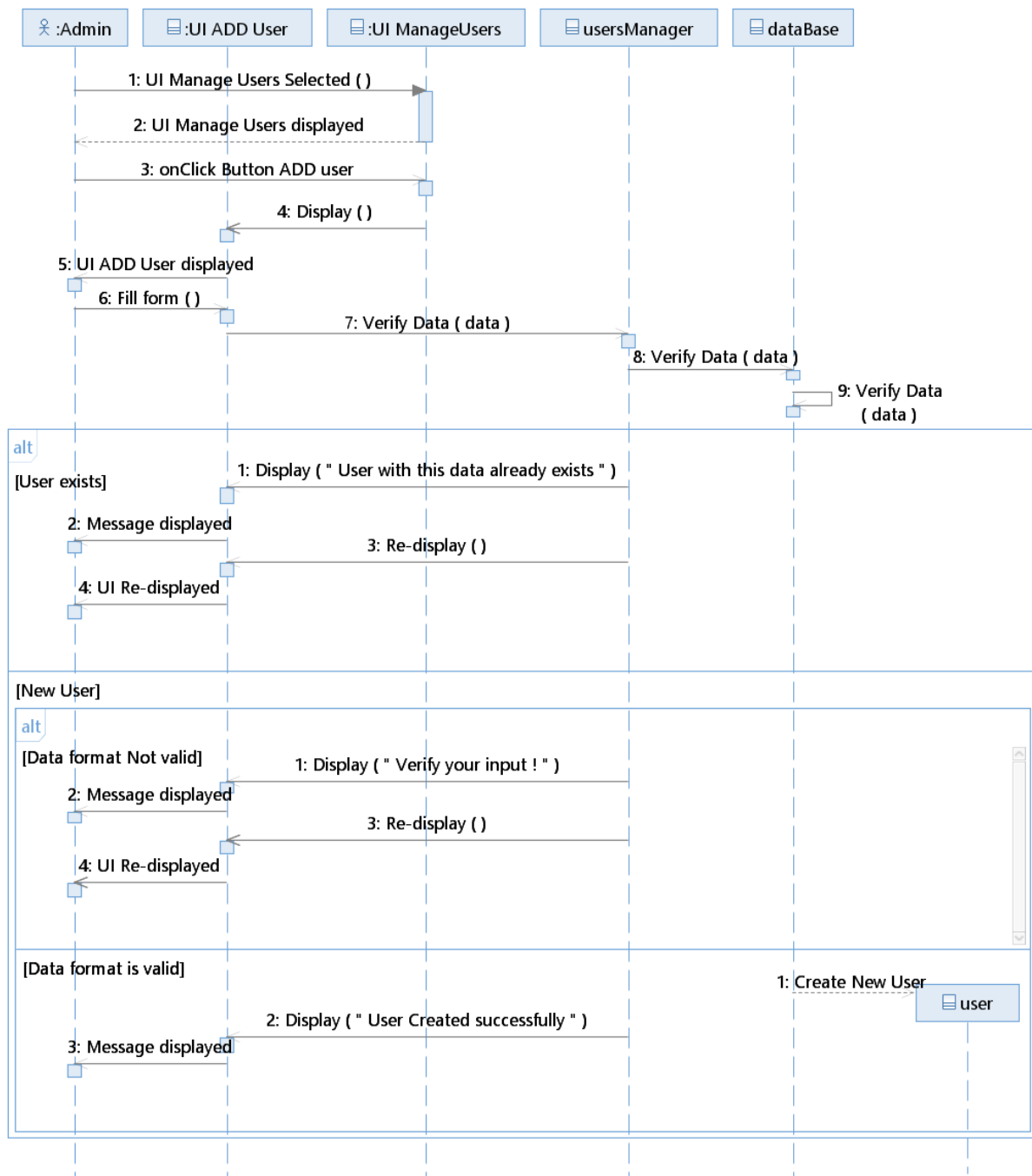


FIGURE 3.9 – Use Case « ADD User » Sequence Diagram

3.4.3 Sprint 1 Traceability

3.4.3.1 « Log In » Use Case Traceability

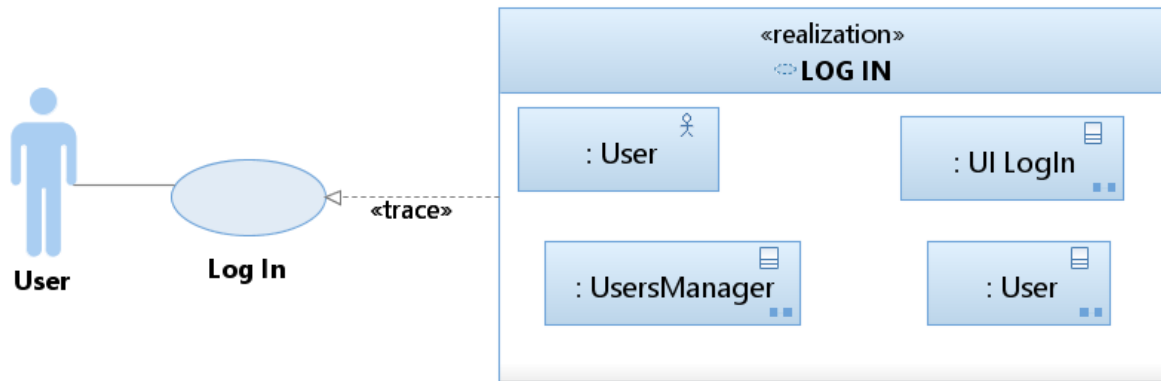


FIGURE 3.10 – « Log In » Use Case Traceability

3.4.3.2 « Sign Up » Use Case Traceability

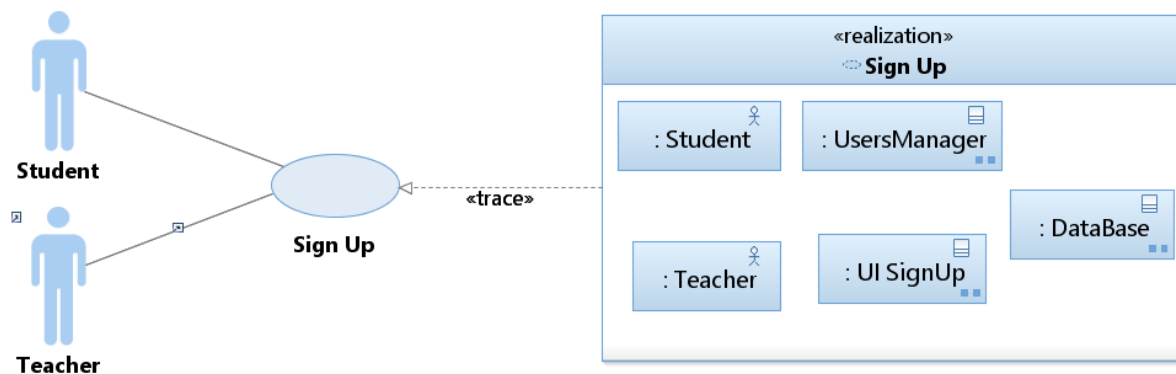


FIGURE 3.11 – « Sign Up » Use Case Traceability

3.4.3.3 « Manage Users » Use Case Traceability

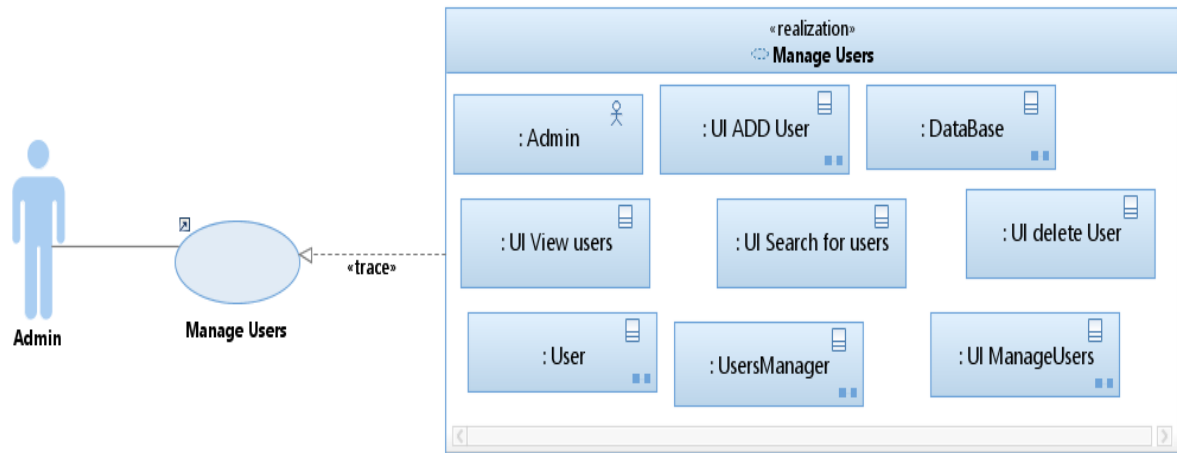


FIGURE 3.12 – « Manage Users » Use Case Traceability

3.5 Implementation and Tests

3.5.1 Sign Up

3.5.2 Log In

3.5.3 Manage Users

3.6 Scrum Tools implementation

3.6.1 Scrum Board

3.6.2 Scrum Burn-Down Chart

3.7 Conclusion

I'm pleased to report now that during this sprint we successfully designed and implemented the user stories selected from the product backlog . Next on the plan is the second sprint , more effort is needed as the complexity is higher .

Sprint 2 : Manage Documents

Plan

| | | |
|----------|---|-----------|
| 1 | Introduction | 30 |
| 2 | Sprint Backlog | 30 |
| 3 | Use cases specification | 39 |
| 4 | Design | 32 |
| 5 | Implementation and Tests | 50 |
| 6 | Scrum tools implementation | 53 |
| 7 | Conclusion | 54 |

4.1 Introduction

As we progress , attention will be given to the manage documents feature .Looking forward to achieving tangible progress , this sprint is a key step in the success of our project so let's navigate through it together and embrace it's challenges and opportunities .

4.2 Sprint Backlog

| Feature | User Story | Priority | Estimated Duration |
|----------------------------|---|----------|--------------------|
| Add document | As a user I want to be able to add documents to the platform | 1 | 7 |
| View document | As a user I want to be able to view documents on the platform | 1 | 5 |
| Update document | As a user I want to be able to update documents on the platform | 2 | 5 |
| Delete document | As a user I want to be able to delete documents in the platform | 2 | 4 |
| Search for document | As a user I want to be able to search for documents in the platform | 3 | 4 |

TABLE 4.1 – Sprint 2 Backlog

4.3 Use Cases Specification

A use case specification is a textual description of the interactions between the user and the system . We document the goal behind the use case in addition to the how the system should response to the different interactions .

4.3.1 Sprint 2 Detailed Use Case Diagram

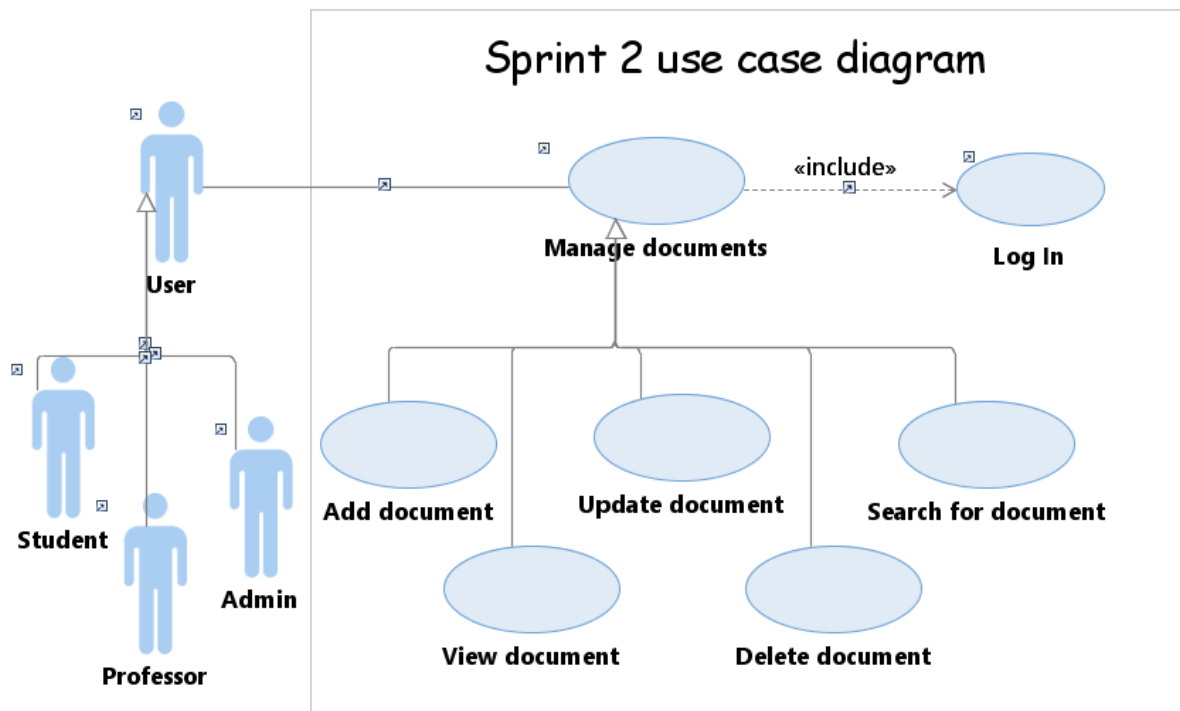


FIGURE 4.1 – Use Case « Manage documents » Use Case Diagram

4.3.1.1 Use Case « ADD document » Textual Description

| | |
|-----------------------------|--|
| Use Case | ADD document |
| Actor | User |
| Pre-condition | The user is authenticated |
| Post-condition | New document added |
| Main Scenario | <ol style="list-style-type: none">1. The user selects manage document.2. The system displays the manage document UI .3. The user selects the add document option.4. The system displays the add document UI .5. The user fills the form .6. The system verifies the data .7. The system saves the data . |
| Alternative Scenario | <ol style="list-style-type: none">2.a. user not logged in :<ol style="list-style-type: none">1- The system redirects the user to the login page .6.a. No document was added :<ol style="list-style-type: none">1- The system displays an error message .2- The system goes back to step 4. |

TABLE 4.2 – Use Case « ADD document » Textual Description

4.3.1.2 Use Case « Delete document » Textual Description

| | |
|-----------------------------|--|
| Use Case | Delete document |
| Actor | User |
| Pre-condition | - The user is authenticated . - Document exists |
| Post-condition | document deleted |
| Main Scenario | 1. The user selects manage document. 2. The system displays the manage document UI . 3. The system displays the list of documents added by the user. 4. The user selects the document to delete . 5. The user clicks on delete . 6. The system displays a confirmation message . 7. The user confirms the deletion . 8. The system updates the documents list . |
| Alternative Scenario | 3.a. No documents were added by the user : 1- The system informs the user that no documents were found . 2-The system re-displays the manage documents UI . 7.a. The user cancels deletion : 1- The system informs the user that no changes were made . 2-The system re-displays the manage documents UI . |

TABLE 4.3 – Use Case « Delete document » Textual Description

4.3.1.3 Use Case « Search for document » Textual Description

| | |
|-----------------------------|--|
| Use Case | Search for document |
| Actor | User |
| Pre-condition | The user is authenticated |
| Post-condition | Search results displayed |
| Main Scenario | <ol style="list-style-type: none">1. The user selects manage documents.2. The system displays the manage documents UI .3. The user types the desired document name in the search bar.4. The user clicks on search .5. The system searches for the document .6. The system displays the search results . |
| Alternative Scenario | <ol style="list-style-type: none">2.a.User not authenticated :<ol style="list-style-type: none">1- The system redirects the user to the login page .6.a. Document not found :<ol style="list-style-type: none">1- The system displays an error message . |

TABLE 4.4 – Use Case « Search for document » Textual Description

4.3.1.4 Use Case « Update document » Textual Description

| | |
|-----------------------------|--|
| Use Case | Update document |
| Actor | User |
| Pre-condition | - The user is authenticated . -Document exists |
| Post-condition | User information updated |
| Main Scenario | 1. The user selects manage documents. 2. The system displays the manage documents UI . 3. The system displays the list of documents added by the user . 4. The user selects the desired document form the list . 5. The user clicks on update . 6. The system displays the form . 7. The user makes changes . 8. The user clicks on save. 9. The system saves the changes. |
| Alternative Scenario | 7.a. User forgot to save : 1- The system informs the user that they forgot to save the changes . |

TABLE 4.5 – Use Case « Update document » Textual Description

4.3.1.5 Use Case « View document » Textual Description

| | |
|-----------------------------|---|
| Use Case | View document |
| Actor | User |
| Pre-condition | - The user is authenticated . -Document exists |
| Post-condition | Document displayed |
| Main Scenario | 1. The user selects View document. 2. The system displays the list of documents . 3. The user selects the document they want to view . 4. The system displays the document . |
| Alternative Scenario | 1.a. User not authenticated : 1- The system redirects the user to the login page . |

TABLE 4.6 – Use Case « View document » Textual Description

4.4 Design

4.4.1 Use Case « Manage documents » Class Diagram

4.4.1.1 Use Case « ADD document » Class Diagram

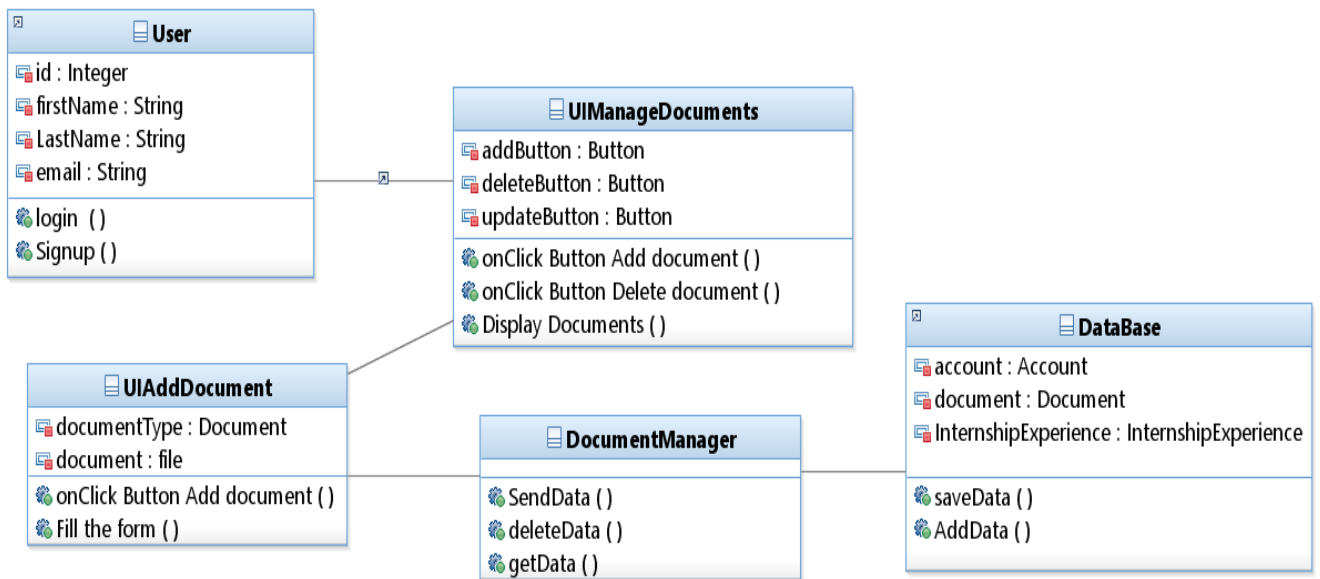


FIGURE 4.2 – Use Case « ADD document » Class Diagram

4.4.1.2 Use Case « Delete document » Class Diagram

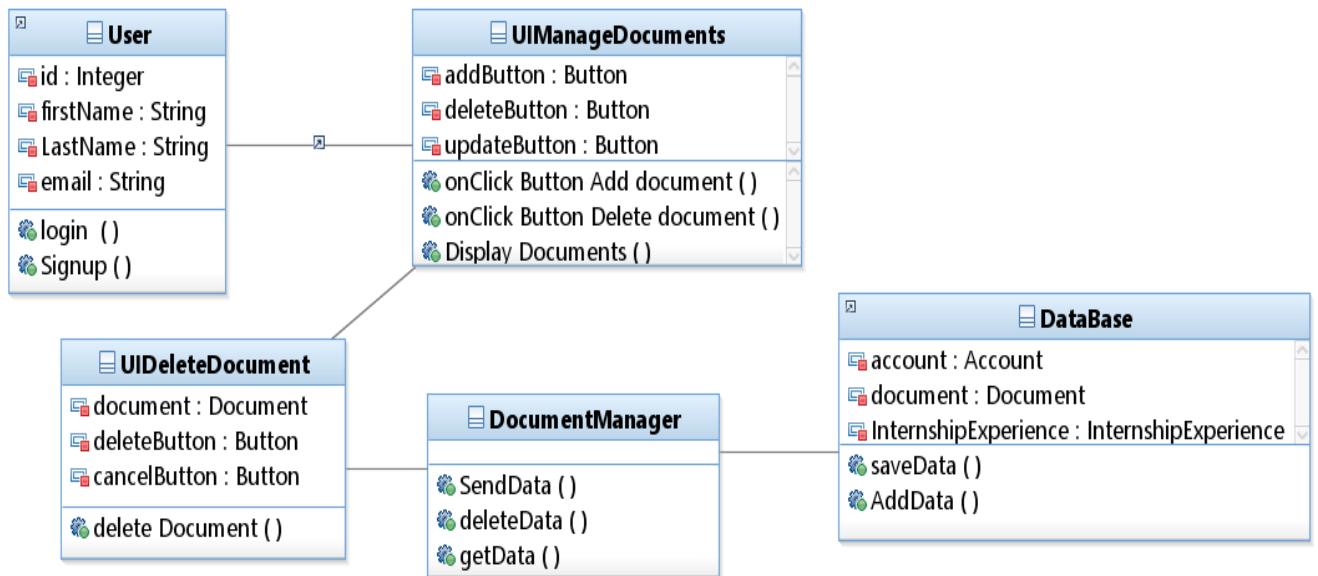


FIGURE 4.3 – Use Case « Delete document » Class Diagram

4.4.1.3 Use Case « Search for document » Class Diagram

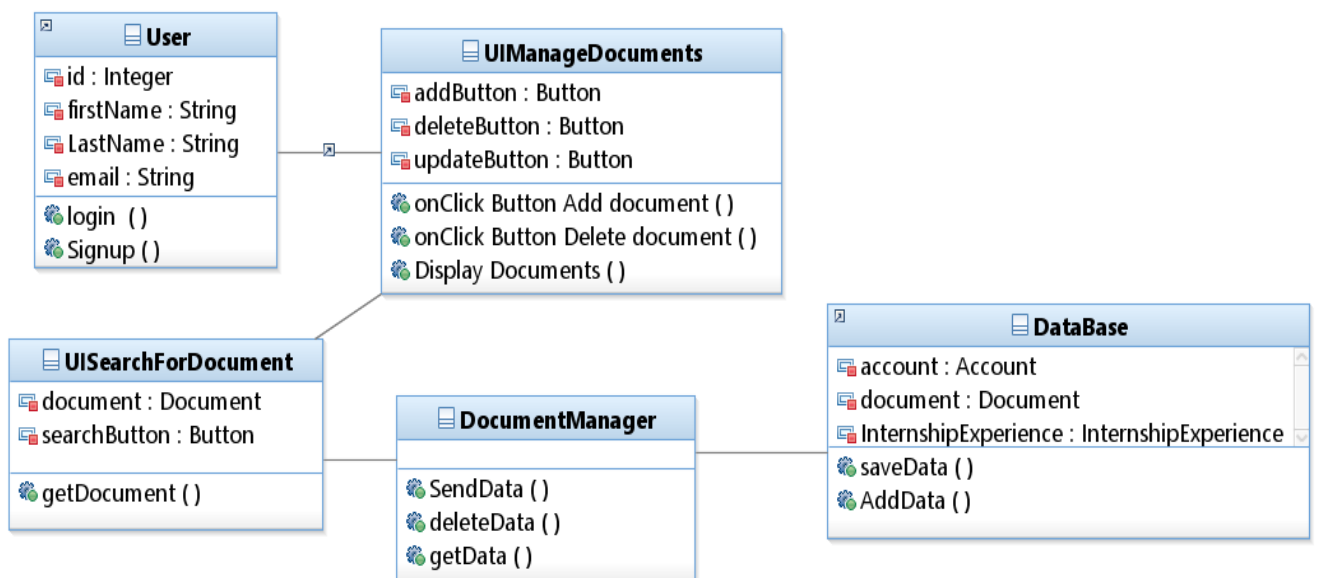


FIGURE 4.4 – Use Case « Search for document » Class Diagram

4.4.2 Use Case « Manage documents » Sequence Diagram

4.4.2.1 Use Case « ADD document » Sequence Diagram

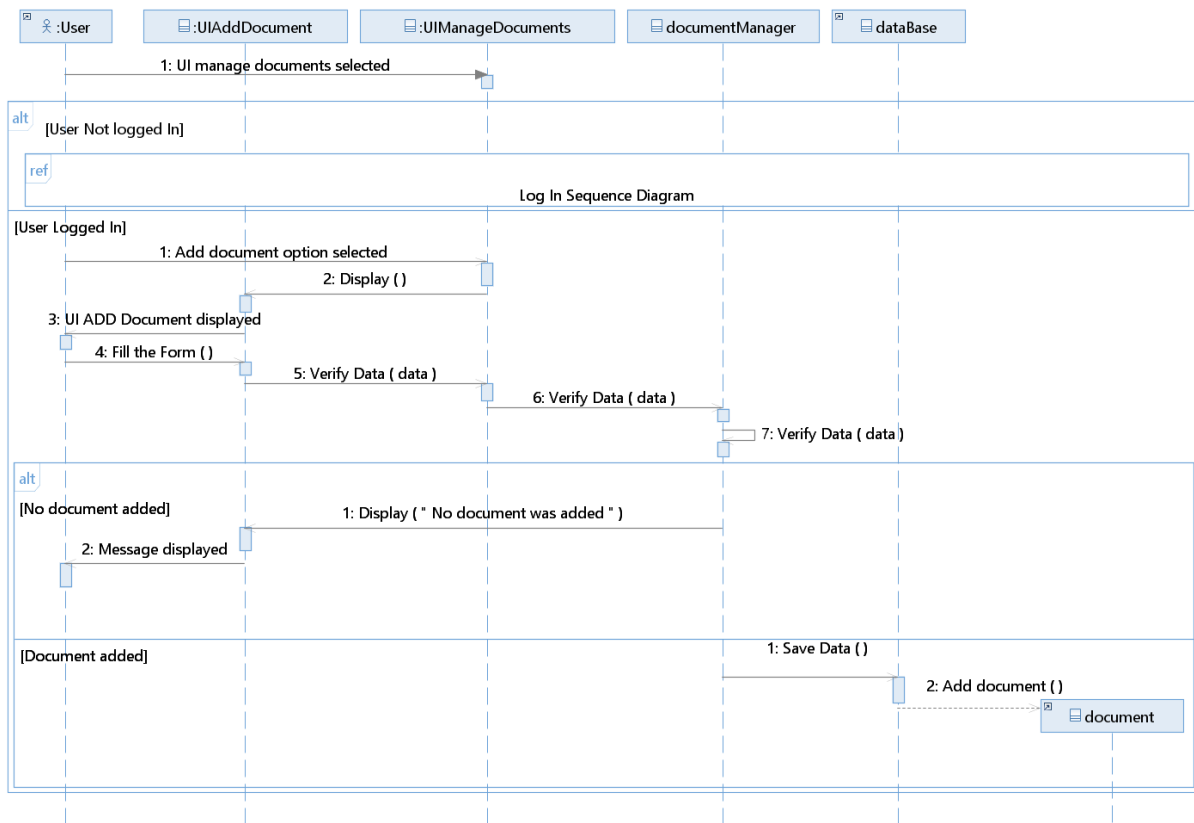


FIGURE 4.5 – Use Case « ADD document » Sequence Diagram

4.4.2.2 Use Case « Delete document » Sequence Diagram

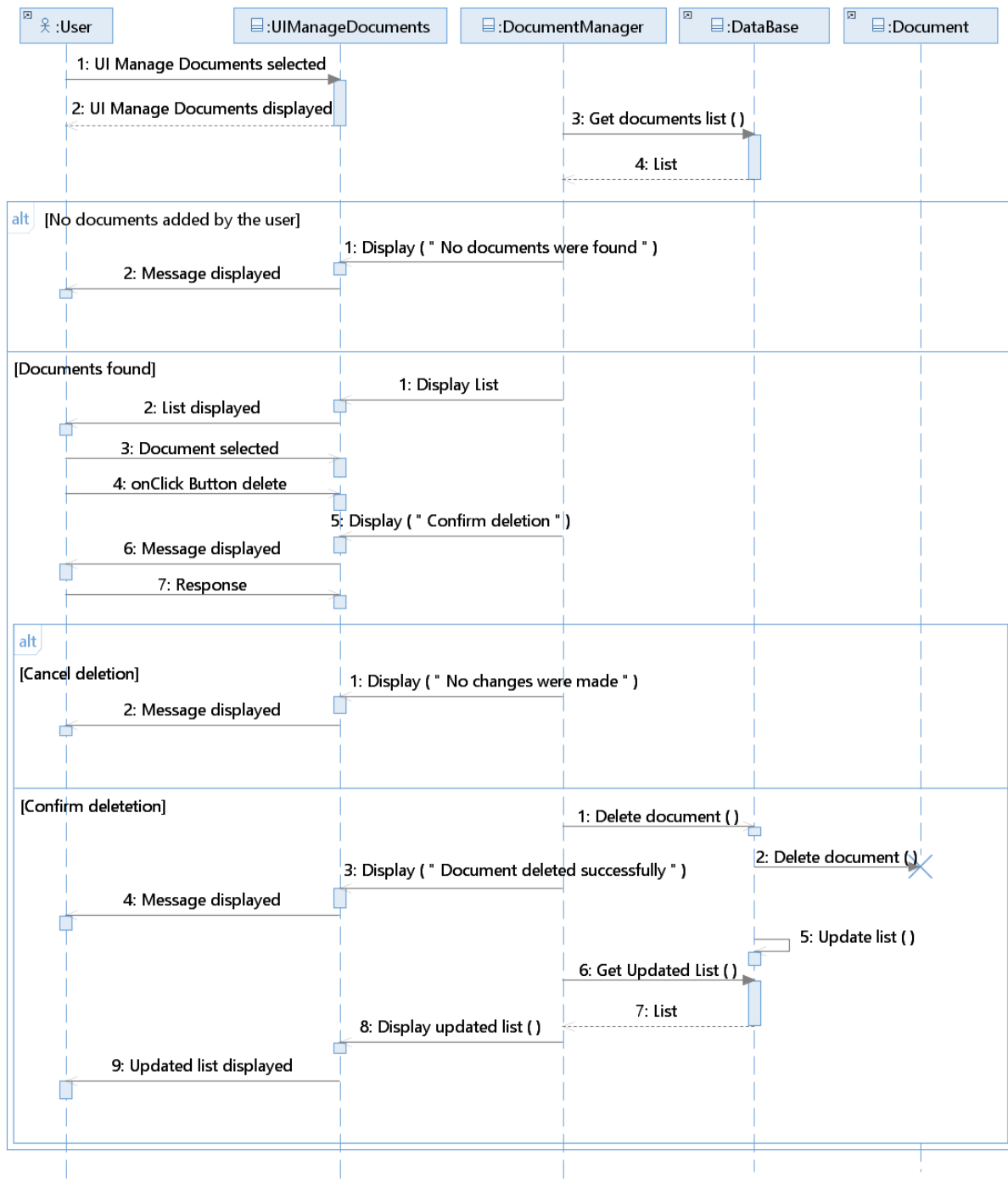


FIGURE 4.6 – Use Case « Delete document » Sequence Diagram

4.4.2.3 Use Case « Search for document » Sequence Diagram

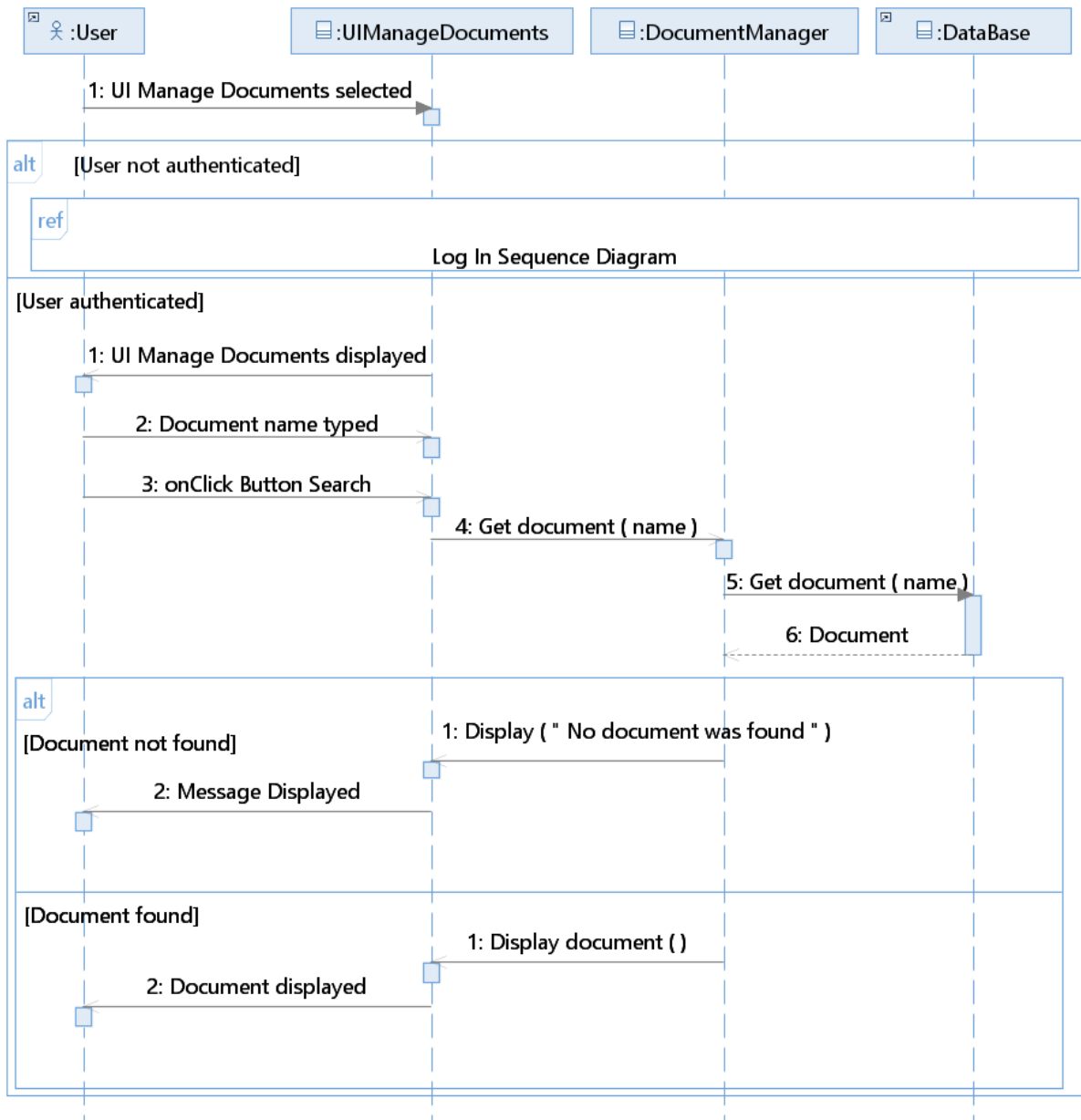


FIGURE 4.7 – Use Case « Search for document » Sequence Diagram

4.4.3 Use Case « Manage documents » Traceability

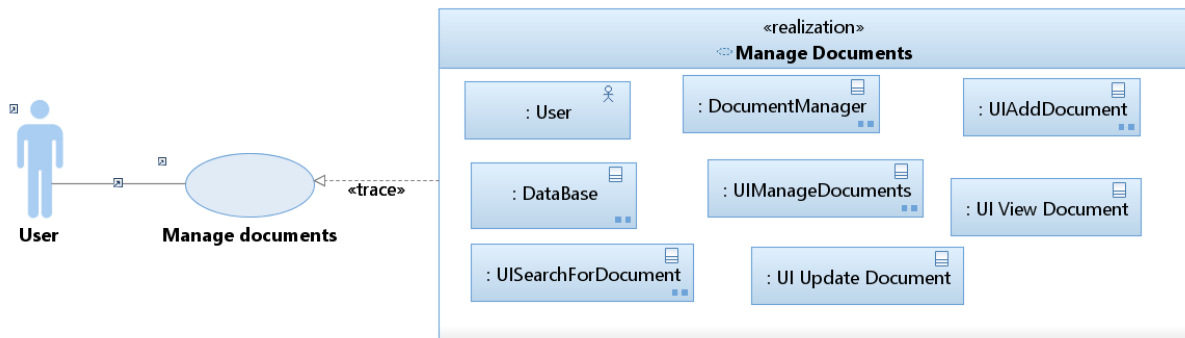


FIGURE 4.8 – Use Case « Manage documents » Traceability

4.4.4 Sprint 2 Component diagrams

4.4.4.1 Use Case « Add documents » Component diagram

4.4.4.2 Use Case « Delete documents » Component diagram

4.4.4.3 Use Case « Search for documents » Component diagram

4.5 Implementation and Tests

4.5.1 Add document

4.5.2 View document

4.5.3 Update document

4.5.4 Search for document

4.5.5 Delete document

4.6 Scrum Tools implementation

4.6.1 Scrum Board

4.6.2 Scrum Burn-Down Chart

4.7 Conclusion

Sprint 3 : Manage Internship Experience

Plan

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| 5 | Implementation and Tests | 50 |
| 6 | Scrum tools implementation | 53 |
| 7 | Conclusion | 54 |

5.1 Introduction

5.2 Sprint Backlog

| Feature | User Story | Priority | Estimated Duration |
|-------------------------------------|--|-----------------|---------------------------|
| Add Internship Experience | As a user I want to be able to add an Internship Experience to the platform | 1 | 12 |
| View Internship Experience | As a user I want to be able to view an Internship Experience on the platform | 1 | 7 |
| Update Internship Experience | As a user I want to be able to update an Internship Experience on the platform | 2 | 9 |
| Delete Internship Experience | As a user I want to be able to delete an Internship Experience in the platform | 2 | 5 |
| Search Internship Experience | As a user I want to be able to search for an Internship Experience in the platform | 3 | 6 |

TABLE 5.1 – Sprint 3 Backlog

5.3 Use Cases Specification

5.3.1 Sprint 3 Detailed Use Case Diagram

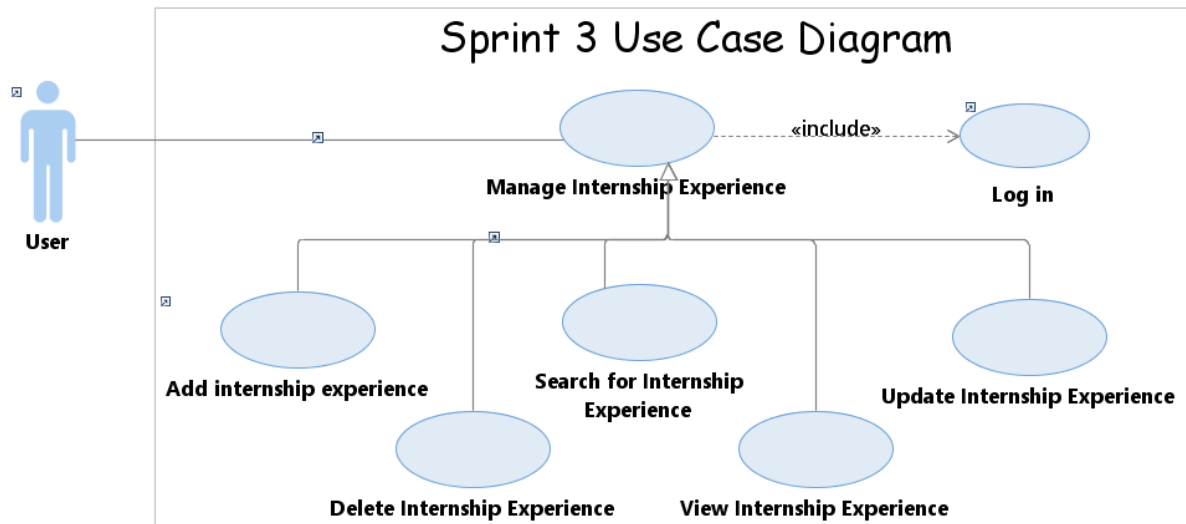


FIGURE 5.1 – Sprint 3 detailed Use Case Diagram

5.3.1.1 Use Case « ADD Internship Experience » Textual Description

| | |
|-----------------------------|--|
| Use Case | ADD Internship Experience |
| Actor | User |
| Pre-condition | The user is authenticated |
| Post-condition | New Internship Experience added |
| Main Scenario | <ol style="list-style-type: none">1. The user selects manage Internship Experience.2. The system displays the manage Internship Experience UI .3. The user selects the add Internship Experience option.4. The system displays the add Internship Experience UI .5. The user fills the form .6. The system verifies the data .7. The system saves the data . |
| Alternative Scenario | <p>2.a. user not logged in :</p> <ol style="list-style-type: none">1- The system redirects the user to the login page . <p>6.a. Form not filled :</p> <ol style="list-style-type: none">1- The system informs the user that the form is not filled. |

TABLE 5.2 – Use Case « ADD Internship Experience » Textual Description

5.3.1.2 Use Case « Delete Internship Experience » Textual Description

| | |
|-----------------------------|--|
| Use Case | Delete Internship Experience |
| Actor | User |
| Pre-condition | <ul style="list-style-type: none"> - The user is authenticated . - Internship Experience exists |
| Post-condition | Internship Experience deleted |
| Main Scenario | <ol style="list-style-type: none"> 1. The user selects manage Internship Experience. 2. The system displays the manage Internship Experience UI . 3. The system displays the list of Internship Experiences added by the user. 4. The user selects the Internship Experience to delete . 5. The user clicks on delete . 6. The system displays a confirmation message . 7. The user confirms the deletion . 8. The system updates the Internship Experience list . |
| Alternative Scenario | <p>3.a. No Internship Experience were added by the user :</p> <ol style="list-style-type: none"> 1- The system informs the user that no Internship Experiences were found . <p>7.a. The user cancels deletion :</p> <ol style="list-style-type: none"> 1- The system informs the user that no changes were made . 2-The system re-displays the manage documents UI . |

TABLE 5.3 – Use Case « Delete Internship Experience » Textual Description

5.3.1.3 Use Case « Search for Internship Experience » Textual Description

| | |
|-----------------------------|--|
| Use Case | Search for Internship Experience |
| Actor | User |
| Pre-condition | The user is authenticated |
| Post-condition | Search results displayed |
| Main Scenario | <ol style="list-style-type: none">1. The user selects manage Internship Experience.2. The system displays the manage Internship Experience UI .3. The user types the desired Internship Experience name in the search bar.4. The user clicks on search .5. The system searches for the Internship Experience .6. The system displays the search results . |
| Alternative Scenario | <p>2.a.User not authenticated :</p> <ol style="list-style-type: none">1- The system redirects the user to the login page . <p>6.a. Internship Experience not found :</p> <ol style="list-style-type: none">1- The system displays an error message . |

TABLE 5.4 – Use Case « Search for Internship Experience » Textual Description

5.3.1.4 Use Case « Update Internship Experience » Textual Description

| | |
|-----------------------------|---|
| Use Case | Update Internship Experience |
| Actor | User |
| Pre-condition | - The user is authenticated . -Internship Experience exists |
| Post-condition | User information updated |
| Main Scenario | <ol style="list-style-type: none">1. The user selects manage Internship Experience.2. The system displays the manage Internship Experience UI .3. The system displays the list of Internship Experience added by the user .4. The user selects the desired Internship Experience form the list .5. The user clicks on update .6. The system displays the form .7. The user makes changes .8. The user clicks on save.9. The system saves the changes. |
| Alternative Scenario | <p>8.a. User forgot to save :</p> <ol style="list-style-type: none">1- The system informs the user that they forgot to save the changes . |

TABLE 5.5 – Use Case « Update Internship Experience » Textual Description

5.3.1.5 Use Case « View Internship Experience » Textual Description

| | |
|-----------------------------|---|
| Use Case | View Internship Experience |
| Actor | User |
| Pre-condition | - The user is authenticated . -Internship Experience exists |
| Post-condition | Internship Experience displayed |
| Main Scenario | 1. The user selects View Internship Experience. 2. The system displays the list of Internship Experiences . 3. The user selects the Internship Experience they want to view . 4. The system displays the Internship Experience . |
| Alternative Scenario | 1.a. User not authenticated : 1- The system redirects the user to the login page . |

TABLE 5.6 – Use Case « View Internship Experience » Textual Description

5.4 Design

5.4.1 Use Case « Manage Internship Experience » Class Diagram

5.4.1.1 Use Case « ADD Internship Experience » Class Diagram

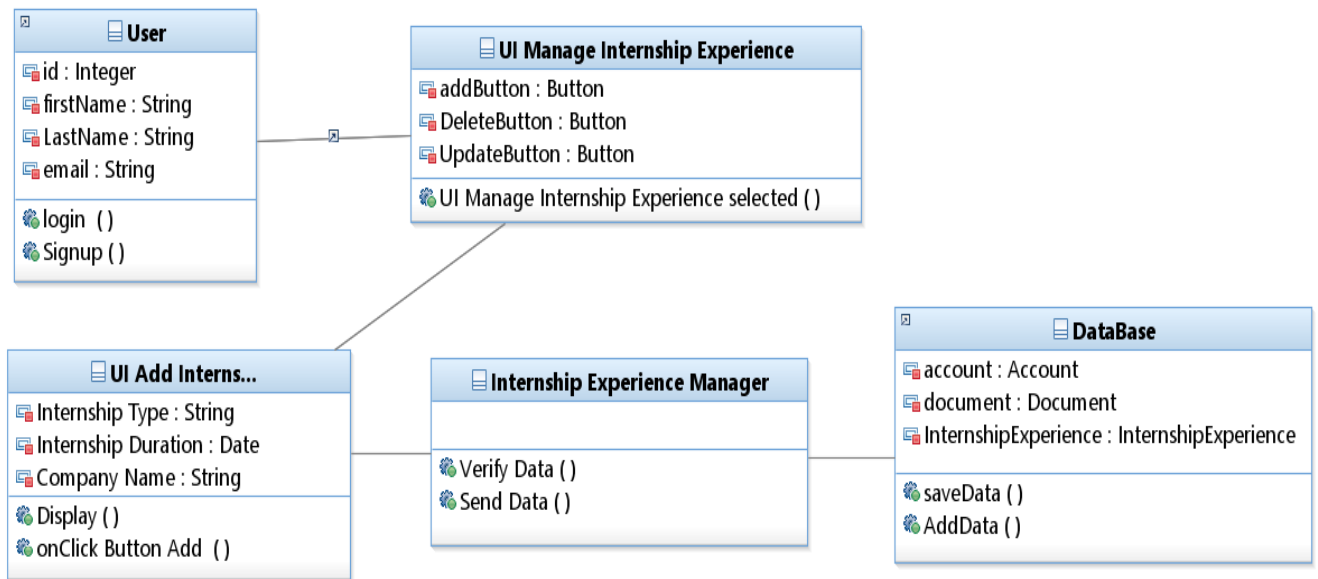


FIGURE 5.2 – Use Case « ADD Internship Experience » Class Diagram

5.4.1.2 Use Case « Update Internship Experience » Class Diagram

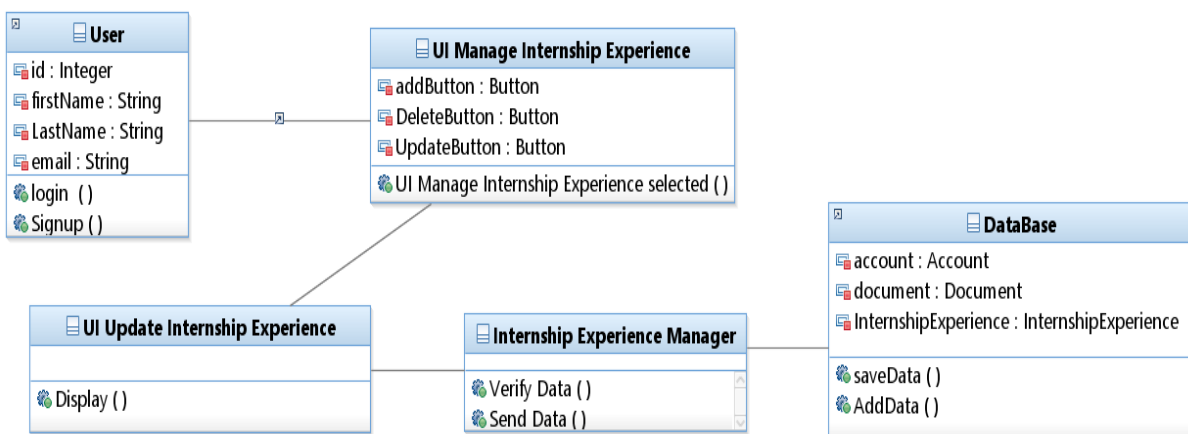


FIGURE 5.3 – Use Case « Update Internship Experience » Class Diagram

5.4.1.3 Use Case « View Internship Experience » Class Diagram

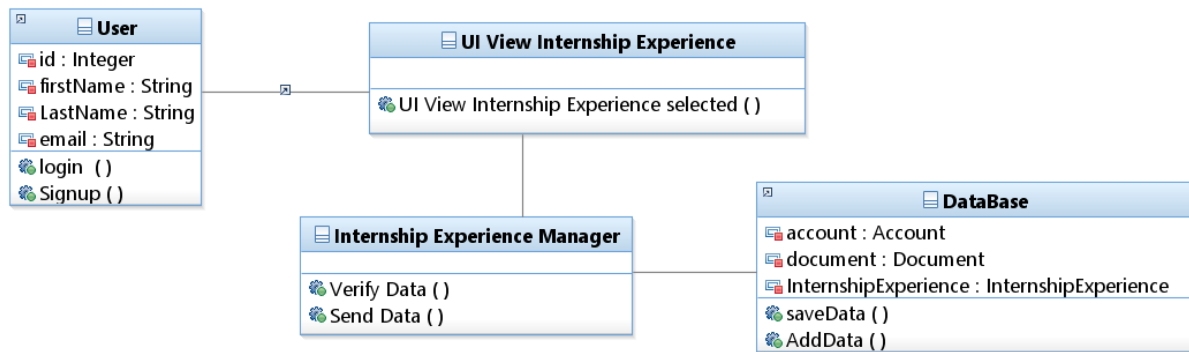


FIGURE 5.4 – Use Case « View Internship Experience » Class Diagram

5.4.2 Use Case « Manage Internship Experience » Sequence Diagram

5.4.2.1 Use Case « ADD Internship Experience » Sequence Diagram

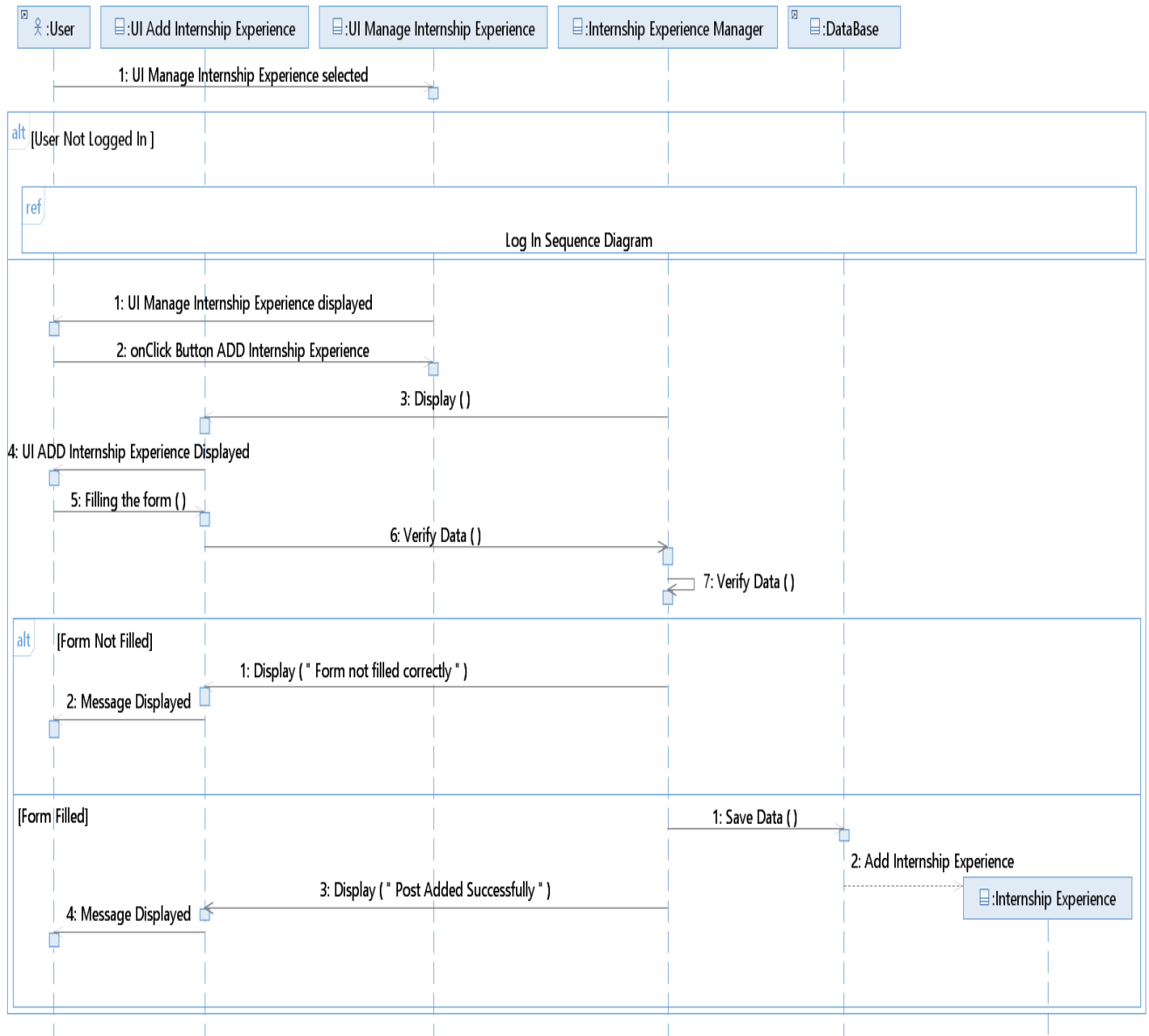


FIGURE 5.5 – Use Case « ADD Internship Experience » Sequence Diagram

5.4.2.2 Use Case « Update Internship Experience » Sequence Diagram

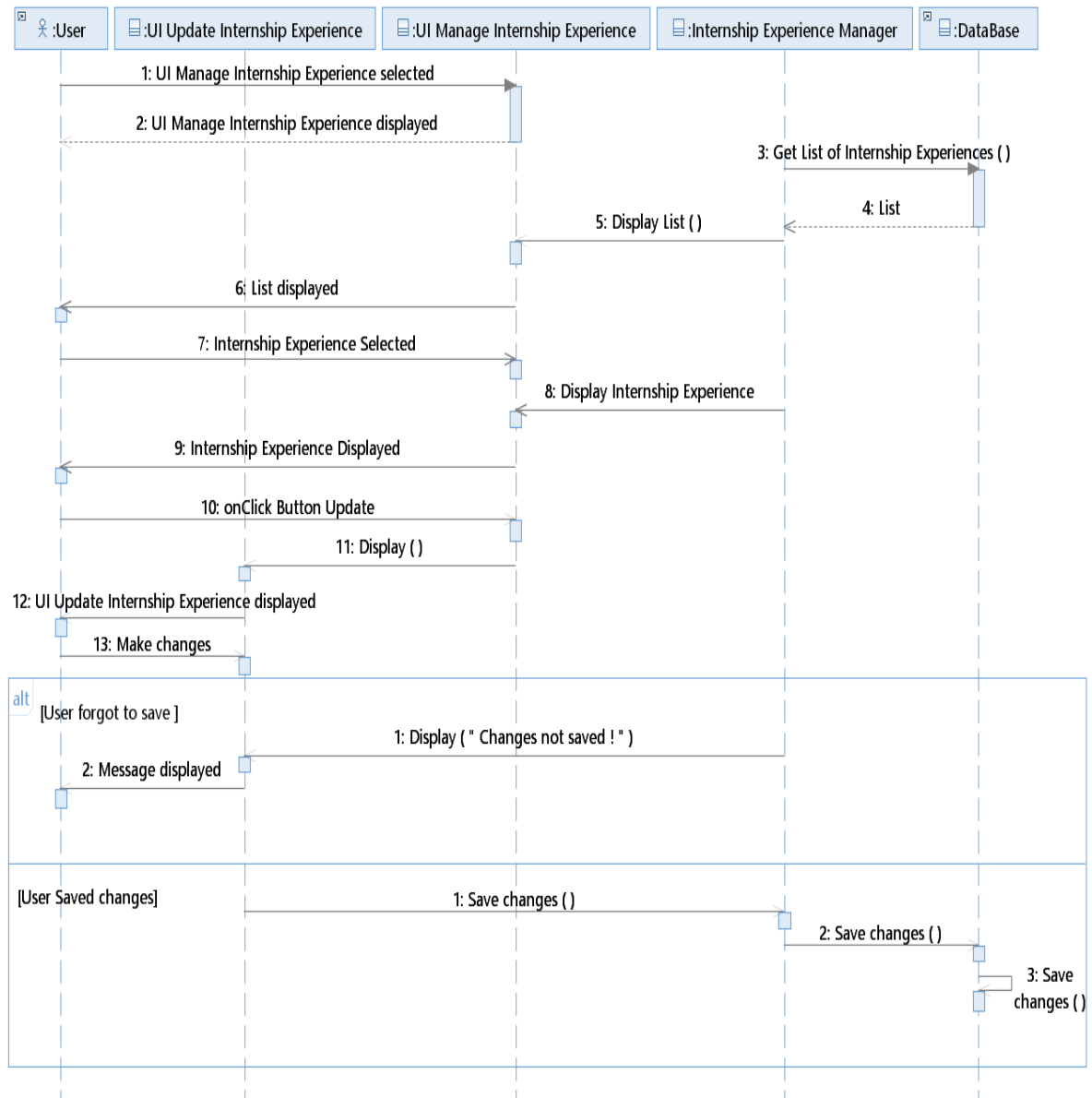


FIGURE 5.6 – Use Case « Update Internship Experience » Sequence Diagram

5.4.2.3 Use Case « View Internship Experience » Sequence Diagram

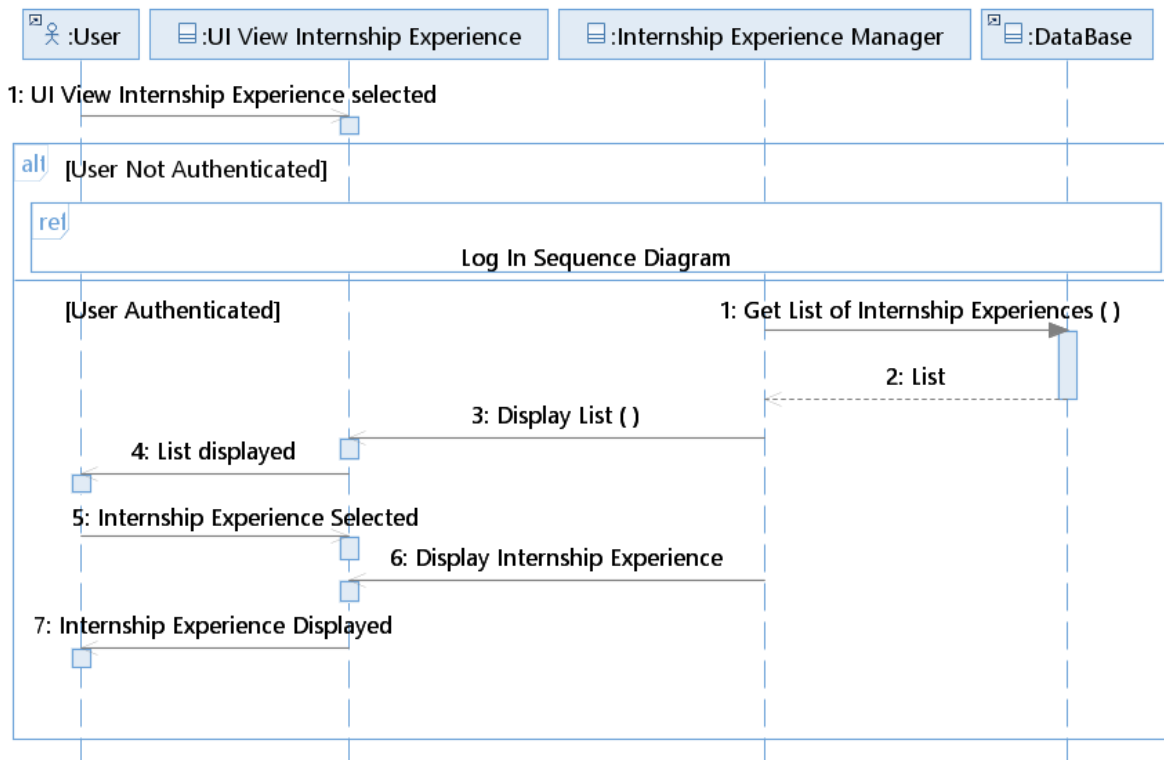


FIGURE 5.7 – Use Case « View Internship Experience » Sequence Diagram

5.4.3 Use Case « Manage Internship Experience » Traceability

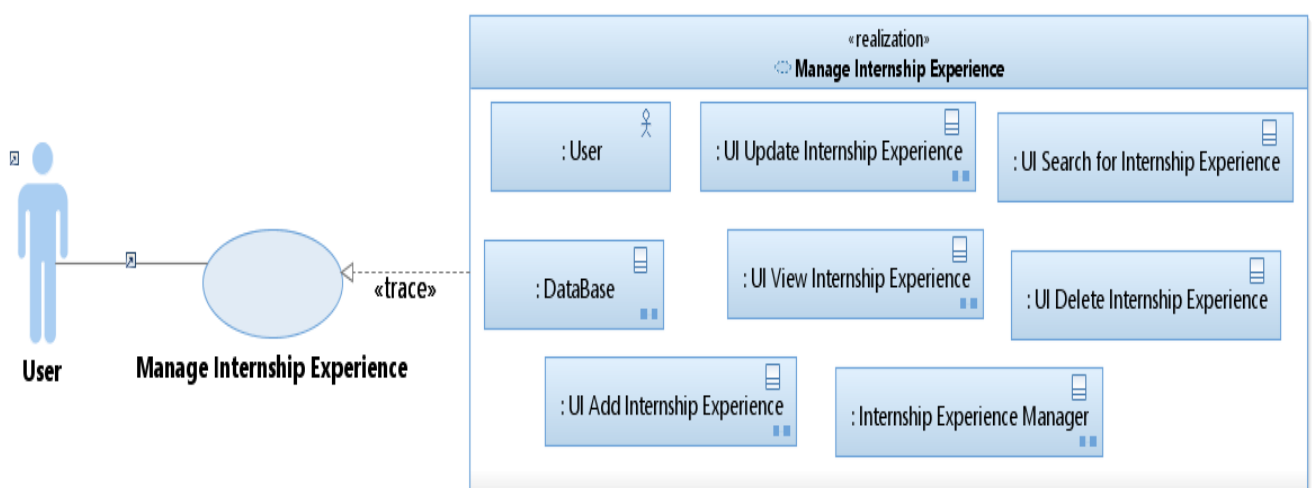


FIGURE 5.8 – Use Case « Manage Internship Experience » Traceability

5.5 Implementation and Tests

5.5.1 Add Internship Experience

5.5.2 View Internship Experience

5.5.3 Update Internship Experience

5.5.4 Search for Internship Experience

5.5.5 Delete Internship Experience

5.6 Scrum Tools implementation

5.6.1 Scrum Board

5.6.2 Scrum Burn-Down Chart

5.7 Conclusion

Sprint 4 : Consult Statistics

Plan

| | | |
|----------|-----------------------------------|-----------|
| 1 | Introduction | 30 |
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| 4 | Design | 32 |
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| 6 | Scrum tools implementation | 53 |
| 7 | Conclusion | 54 |

6.1 Introduction

6.2 Sprint Backlog

| Feature | User Story | Priority | Estimated Duration |
|-------------------|---|----------|--------------------|
| Consult dashboard | As a student I want to view statistics concerning my activities on the platform | 1 | 7 |

TABLE 6.1 – Sprint 4 Backlog

6.3 Use Cases Specification

6.3.1 Sprint 4 Detailed Use Case Diagram

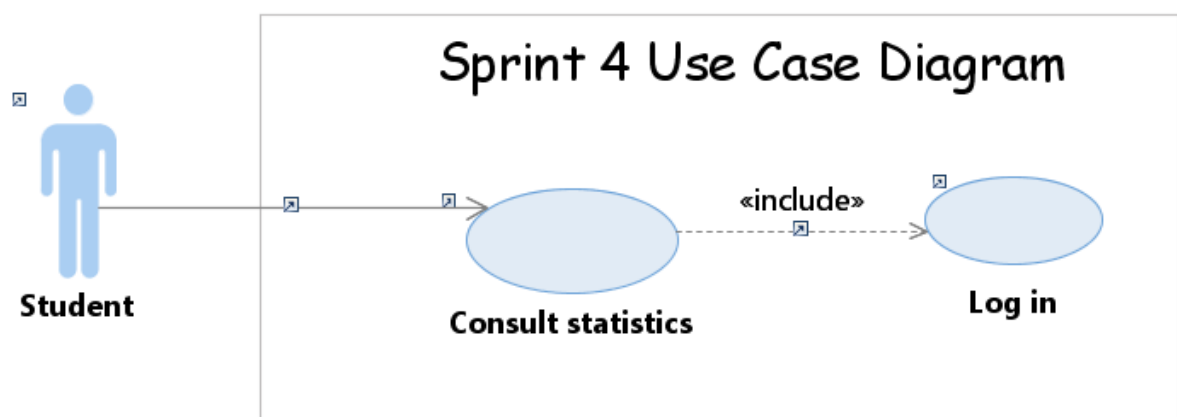


FIGURE 6.1 – Sprint 4 Detailed Use Case Diagram

6.3.2 Use Case « Consult Statistics » Textual Description

| | |
|-----------------------------|--|
| Use Case | Consult Statistics |
| Actor | User |
| Pre-condition | The user is authenticated |
| Post-condition | Dashboard consulted |
| Main Scenario | 1. The user selects Consult Dashboard from the menu. 2. The system displays the User's statistics . |
| Alternative Scenario | 1.a. user not logged in : 1- The system redirects the user to the login page . |

TABLE 6.2 – Use Case « Consult Statistics » Textual Description

6.4 Design

6.4.1 Use Case « Consult Statistics » Sequence Diagram

6.5 Implementation and Tests

6.5.1 Consult Statistics

6.6 Scrum Tools implementation

6.6.1 Scrum Board

6.6.2 Scrum Burn-Down Chart

6.7 Conclusion