People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
Salhi Ahmed University Center
Institute of Science
Department of Mathematics and Computer Science

THEME :

CONCEPTION AND IMPLEMENTATION OF A WEBSITE FOR Content Management System :

Jami3aty.DZ

Directed by:

- Gheffari Youcef
- Kenanda Abdelouahad Rabah

supervisor :

Mr Bouziane Abdel Ghani.

Thanks

We would like to express our thanks with great pleasure and respect to GOD Almighty, and my supervisor **Mr Bouziane Abdel Ghani**., who has not ceased to make me benefit from his precious advice and remarks. His availability and encouragement allowed us to carry out this work in the best conditions. We also address our gratitude to all the professors and the administrative staff of the Faculty of Science in general and to the math-info department in particular, who for a few years, their advice and knowledge have served us well. We also express our gratitude to all those who have given us their support, both for their kindness and dedication. We cannot name here all the people who have helped and encouraged us from near or far, but we thank them warmly. Finally, our thanks also go to the members of the juror for agreeing to judge our work.

SUMMARY

List of Tables

List of figures

CHAPTER 1 :Introduction

An educational institution is a place or location where community groups of different ages meet, and they are educated and provided with a lot of different information depending on the type of educational institution.

One of the obstacles facing educational institutions is the need for students to have an educational platform through which they can access and download their lessons, and the materials remain online and can be accessed whenever .

Our project will allow interaction between the subject teacher and his students, where the teacher raises his lessons inside the site, and only the students of the subject are allowed to enter under the supervision of the director of the site administration, who creates the emails for each teacher and student to ensure easy and guaranteed access to the educational family.

To build such a website, we went through two important phases: a conceptual study phase and an implementation phase that allowed us to manipulate a set of languages and tools such as React.js , Node.js, Bootstrap, Express.js, MongoDB, and JavaScript.

- The remainder of this report is organized as follows:
- **Chapter 2** to present the background and preliminary knowledge for our project.
- **Chapter 3** which aims to detail the conceptual phase, with the use of UML
- as a graphical modeling language.
- **Chapter 4** which reveals the implementation phase of the project.
- And finally, **le chapter 5** which concludes the report and discusses some perspectives for the improvement of this project in the near future.

CHAPTER 2 : Work context

2.1. ***Definition of a CMS site: :***

Managing a CMS website makes much of the Studying process easier Where the teacher may face many difficulties in raising his lessons on the Internet and maintaining their confidentiality only his students are allowed to access them and ensure a dedicated and clear place where there are all the lessons that students are looking for

And here comes our site Drew as it creates a study space for professors and students and makes it easier for the student to obtain all the information he needs in one place.

2.2. ***The problem of educational institutions without(SI) :***

- Difficulty in getting lessons
- Waste of time.
- Great effort.
- Confidentiality.

2.3. ***What is the Educational Institution Information System used for?:***

Our system aims to improve the functioning of the education process by providing the necessary lessons, and for this reason, our system intervenes in order to give a space dedicated to professors in order to upload and publish their lessons and enable the student to easily access them and our site guarantees them security, reliability and elimination of the problems mentioned previously.

2.4 ***The role of the IT system in the educational institution :***

- Remote transmission....
- Access is easy.
- Internet: Communication and Research.

2.5 Conclusion:

In this chapter, we learned about the traditional method of studying, which is a difficult process as you struggle to get lessons and have to look for several sources, perhaps sources that do not meet your specialization.

Compared to a special site that contains your teachers' lessons and you won't have to search

Therefore it is necessary to establish this site to facilitate learn.

CHAPTER 3: System design

3 .1 *Introduction :*

In this chapter we will represent the design of our website. We start with a brief definition of the UML graphical modeling language (Section 3.2) and then we detail the diagrams constructed: Use cases (Section 3.4), sequence diagrams (Section 3.5) and Classes (Section 3.6) Finally, a conclusion (Section 3.7) to close the chapters..

3.2 *Definition of UML* :

« UML (Unified Modeling Language) is a modeling language or formalism that represents an average of specifying and respecting the components of an information system. UML is a standard because from 1997 it became a standard of the object management Group (OMG) ».

Among UML diagrams :

- Structure or static diagrams.
- Dynamics diagrams.

3.2.1 Static views :

- Use case diagrams describe the behavior and functions of a system from the user's perspective
- Class diagrams describe the static structure, types, and relationships of object sets
- Object diagrams describe the objects in a system and their relationships
- Component diagrams describe the physical components and internal architecture of software
- Deployment diagrams describe the distribution of executable programs on different
- hardware

3.2.2 Dynamic views :

- Collaboration diagrams describe messages between objects (links and interactions)
- State-transition diagrams describe the different states of an object
- Activity diagrams describe the behaviors of an operation (in terms of shares)
- Sequence diagrams describe in a temporal way the interactions between objects and actor.

3.3 *Definition of actors* :

- Student.
- Teacher.
- Admin (who managed this site).

3.4 *Use case diagram* :

3.4.1 Definition :

« A use case diagram is used to graphically represent use cases. This is the main diagram of the UML model, the one where the relationship between the user and the objects that the system implements is ensured." Identification of actors:

Student: see and download chapters and lessons.

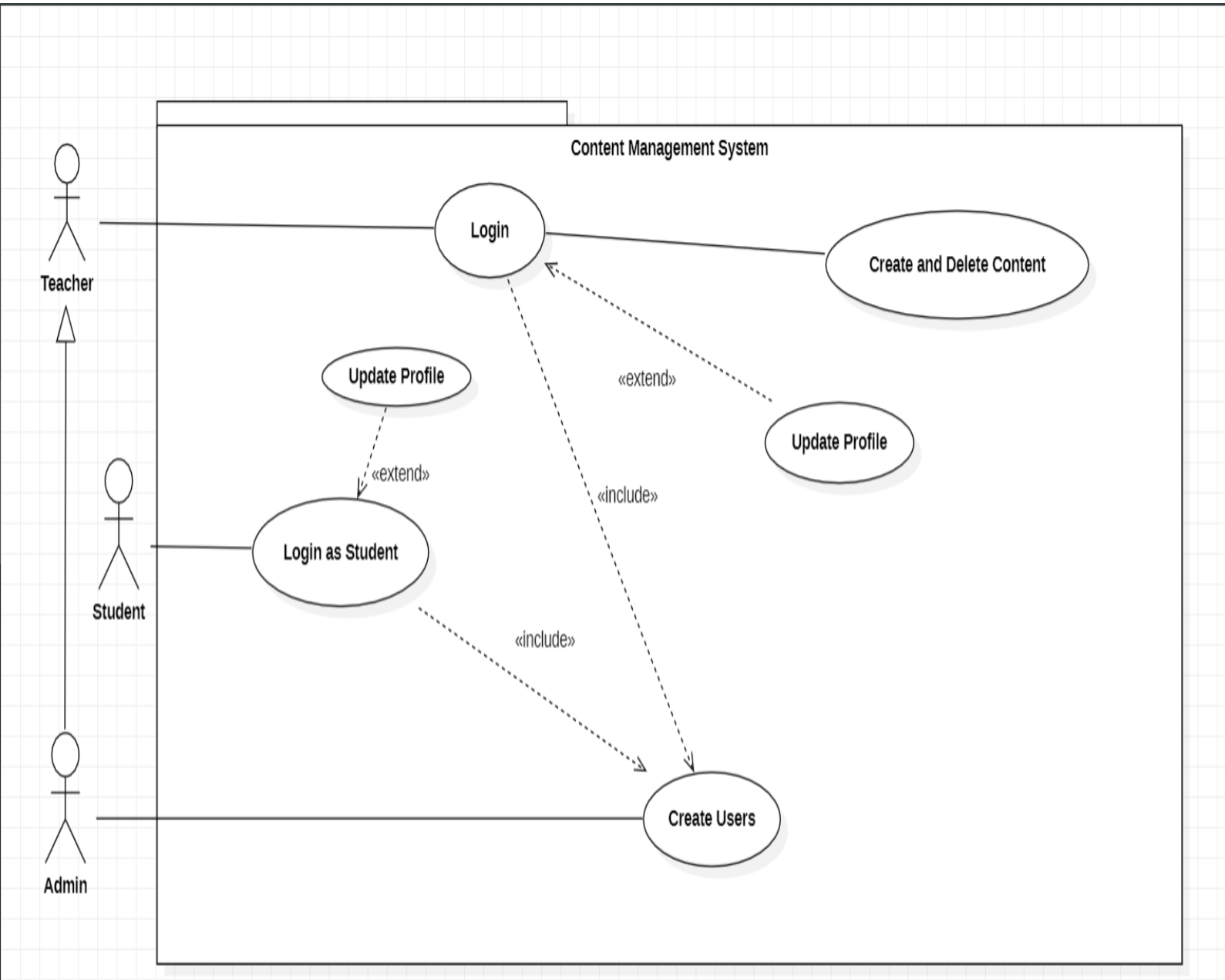
Teacher: Create Modules and Upload the Chapters.

Admin : Manage The site and create the user ‘s Profile.

3.4.2 ***Identification of use cases :***

A use case is used to define the behavior of a system or the semantics of any other entity without revealing its **internal structure**. Each use case specifies a **sequence of actions**, including variants, that the entity performs, interacting with the entity's actors. The responsibility of a use case is to specify a set of instances, where a use case instance represents a sequence of actions that the system performs that provides an outcome observable by the actor.

Here are the system use cases :



Authentification :

The application verifies that the user is who he claims to be and then gives him permission to access.

The figure below shows the use case digraph:

Figure 1:Use case diagram

Acteur	Cas d'utilisation
Student	❖ Registration ❖ Update Profile ❖ See The Chapter and Download
Teacher	❖ Registration ❖ Add Modules and Chapters ❖ Delete Modules ❖ Update Profile
Admin	❖ Registration ❖ See The List of Students and Teachers ❖ Add and Delete Users

Table 1: Table of User Roles

3.5 Sequence diagrams :

3.5.1 Definition:

« Sequence diagrams make it possible to represent the interactions between objects from a temporal point of view. the emphasis is on the chronology of message sending in three stages: Scenario, Interaction, Message". And that's it below authentication diagram from where I used two actors: **Student** , **Teacher** and **Admin.**

3.5.2 ***Authentication diagram*** :

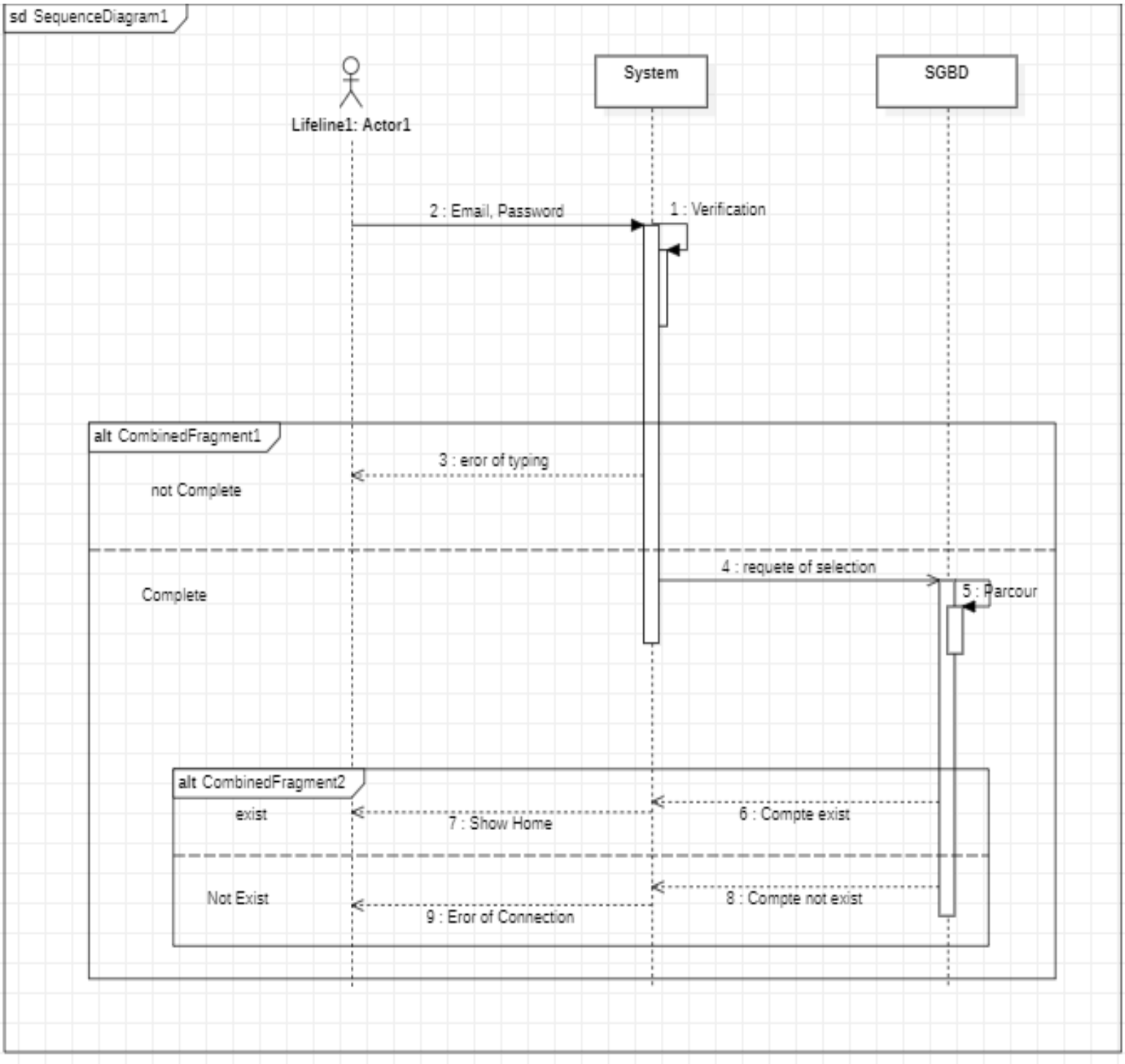


Figure 2: "Authentication" sequence diagram

3.5.3 Creation Diagram :

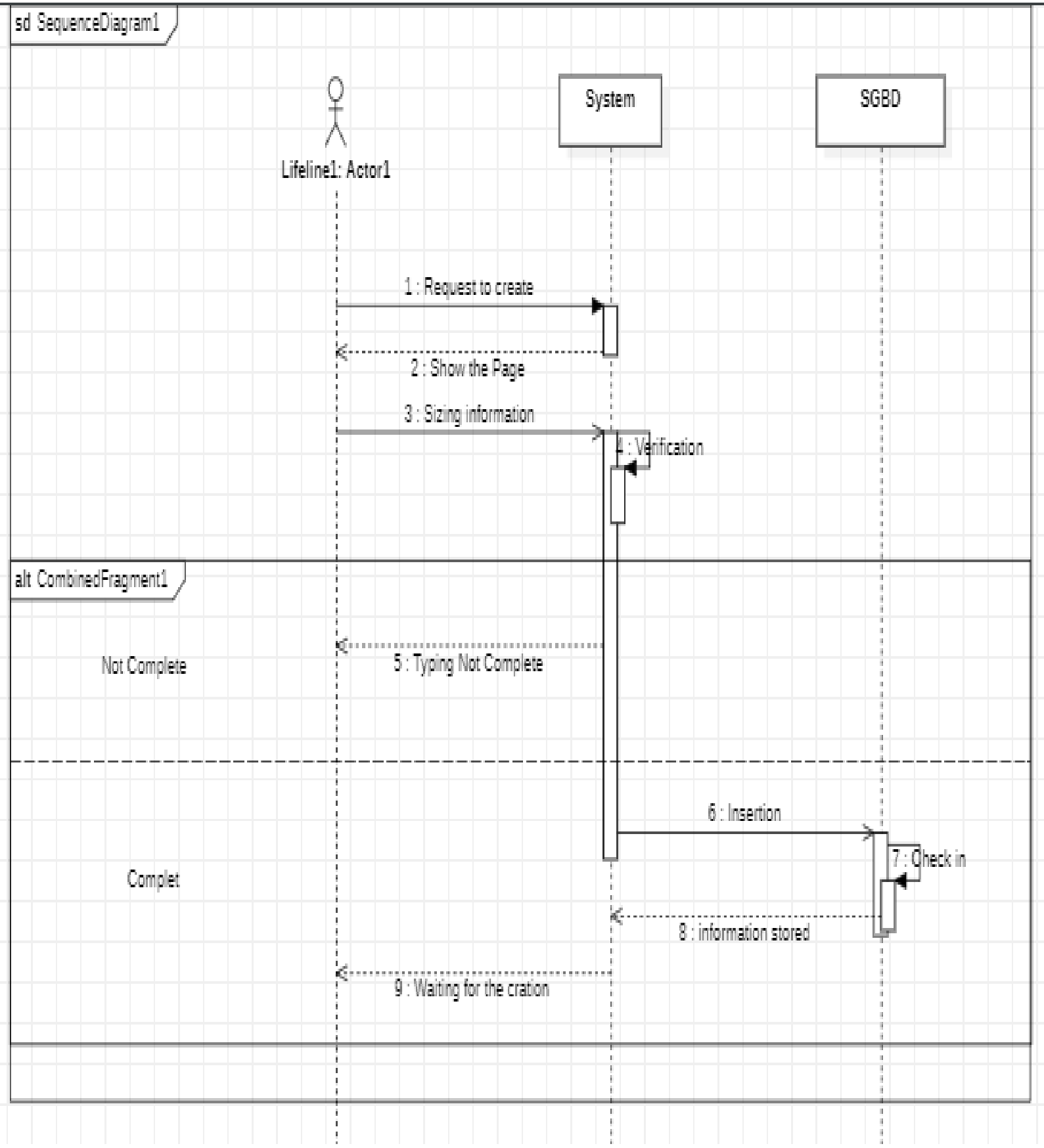


Figure 3: "Creating" sequence diagram

3.5.4 ***Update diagram :***

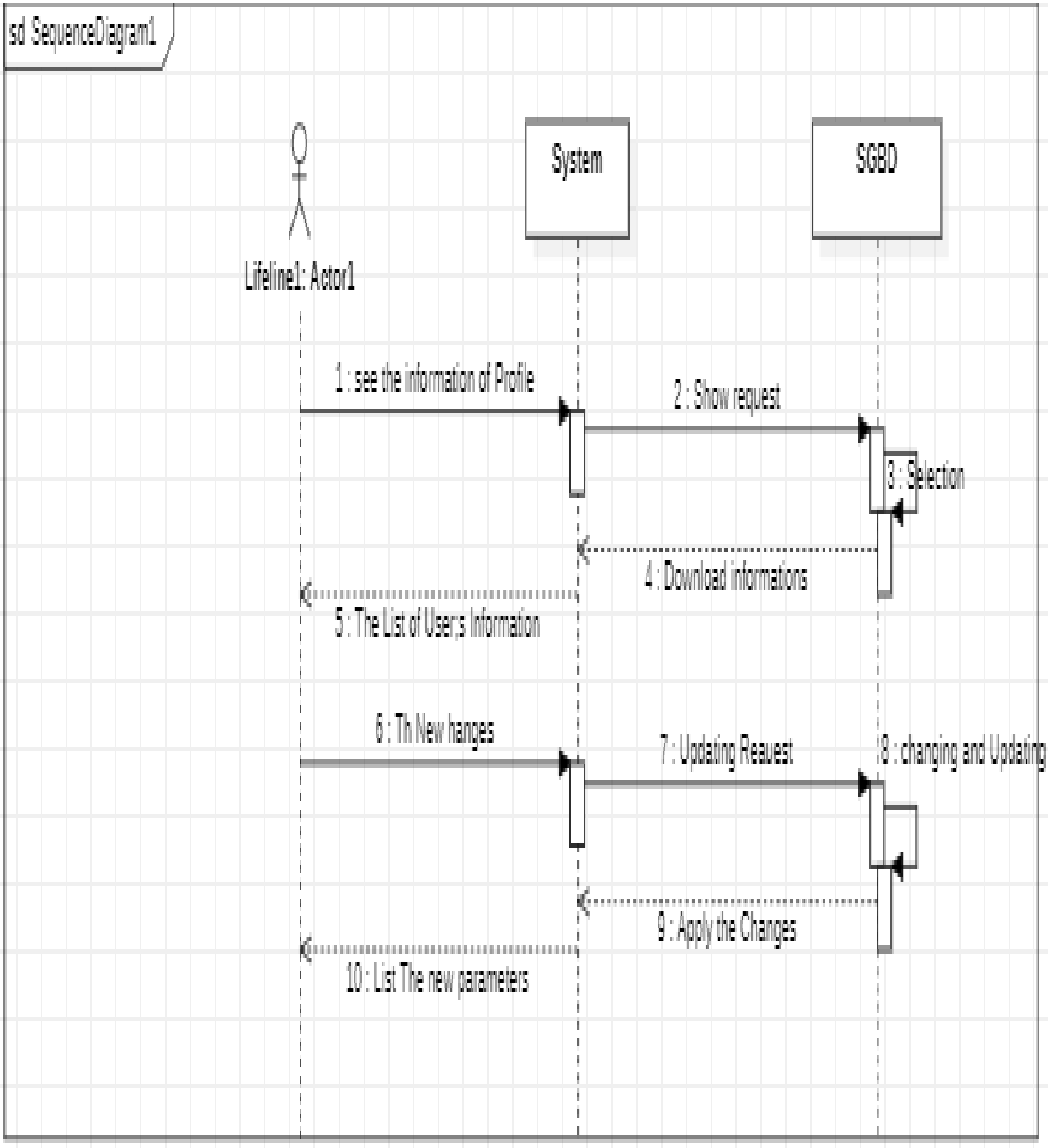


Figure 4: "Updated" sequence diagram

3.5.5 Deletion diagram :

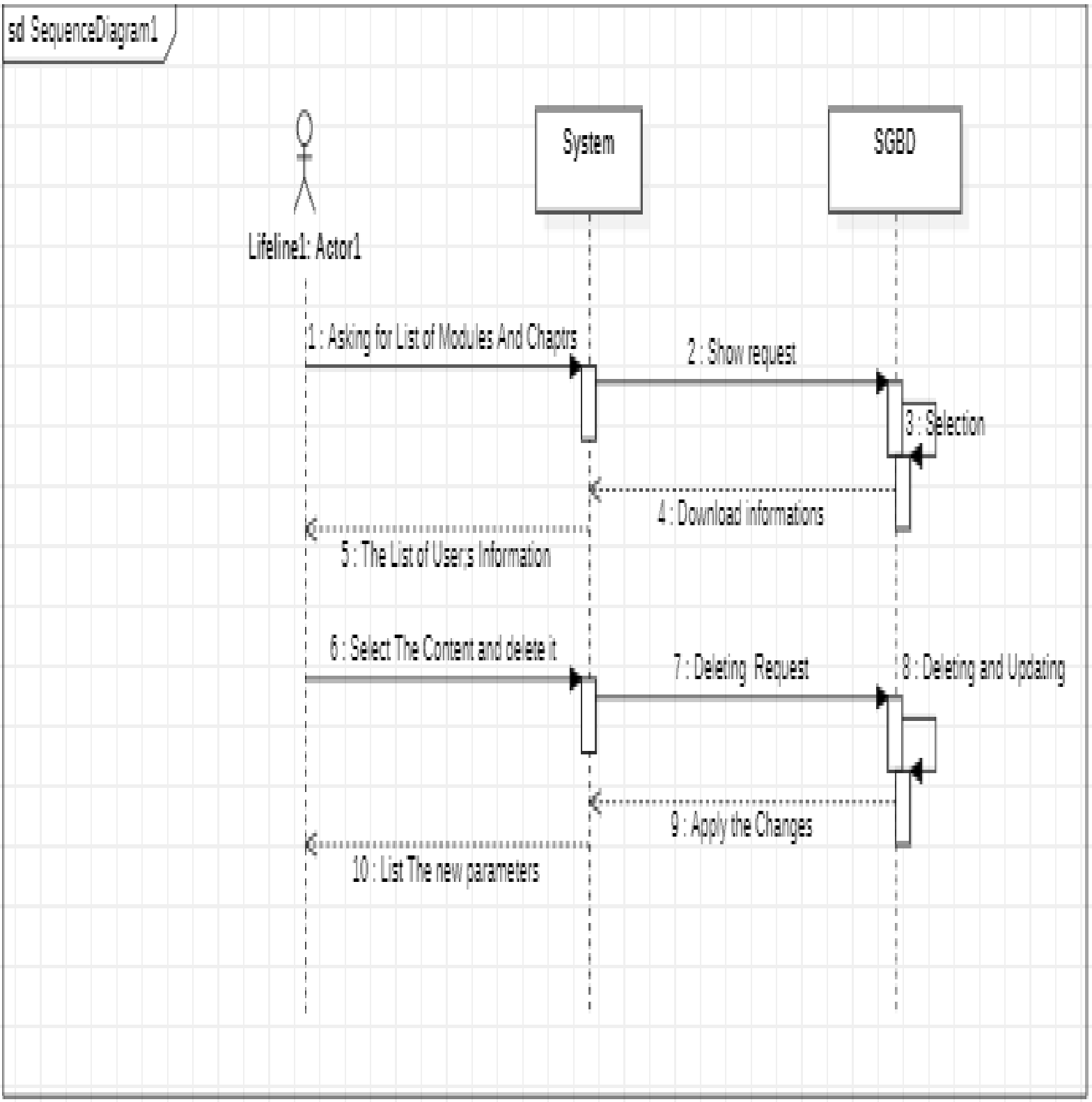


Figure 5: Sequence diagram <<deletion>>

3.6 ***Class diagram*** :

3.6.1 ***Definition :***

« Class diagrams are probably the most used diagrams of UML they describe the types of objects that make up a system and the different types of static relationship that exist between them ».

3.6.2 ***The concept of the class :***

« A class is a description of a group of objects that share a common set of properties (attributes), behaviors (operations), and relationships with other objects (associations and aggregations). ».

The classes on which my site focuses are as follows :

- Admin
- Users
- Teachers
- Students
- Institus
- Departement
- Specialization
- Level
- Modules
- Chapters

La figure au-dessous présente le digramme de classe :

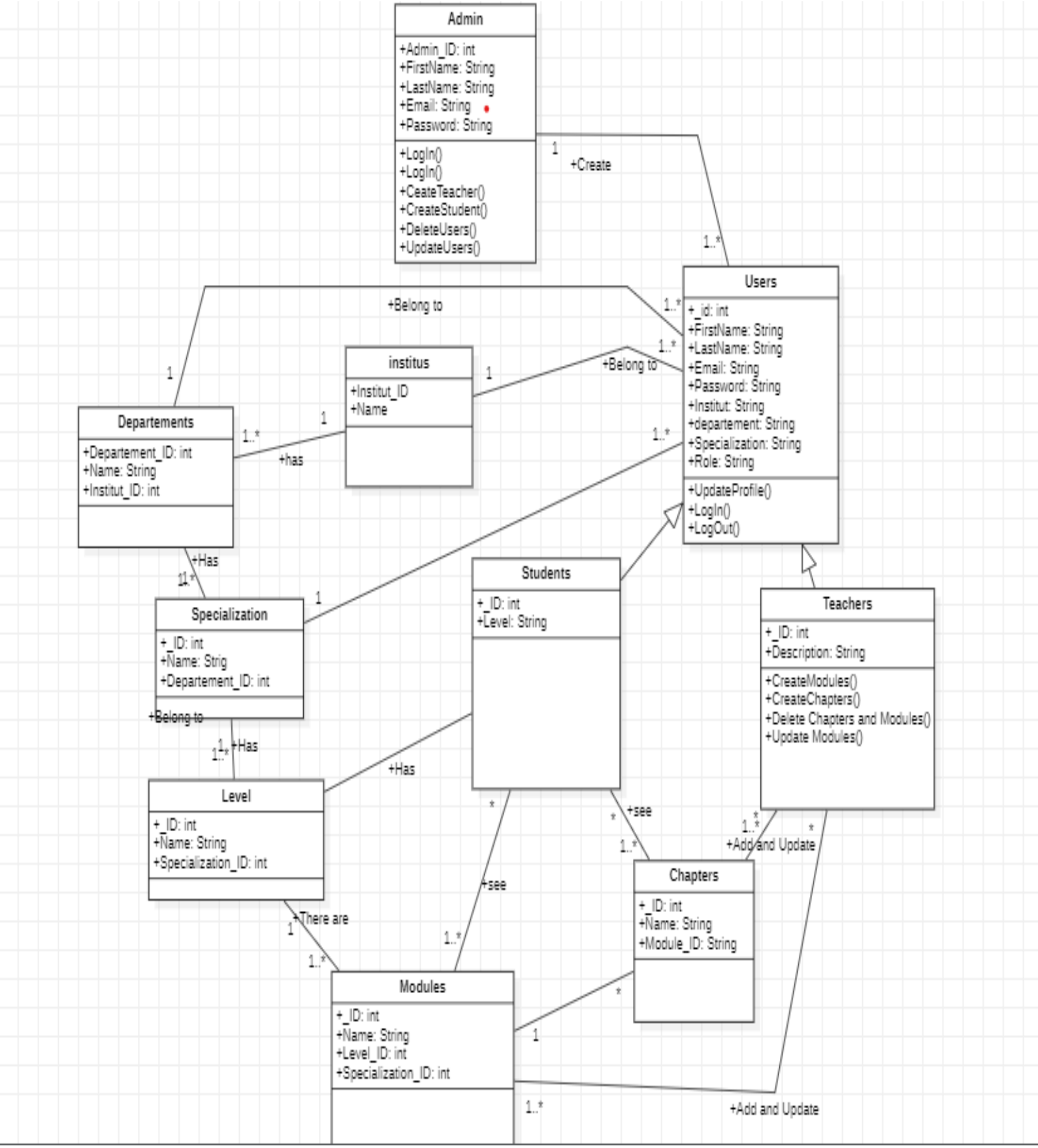


Figure 6: Class diagram

3.7 Conclusion :

In this second chapter, we were able to design our website project **(Jami3aty.dz)** based on the UML language diagrams namely the use case diagram, the sequence diagram and the class diagram. In the next chapter, we present the realization of our website.

CHAPTER 4 : System Implementation

4.1 Introduction :

In this chapter we will present the implementation phase of our website (Jami3aty.dz). We start with a general system architecture (Section 4.2), then briefly list the tools used for development (Section 4.3), followed by the implementation of the DBMS (Section 4.4), followed by Application Interfaces (Section 4.5) and finally a conclusion from the chapter (Section 4.6).

4.2 System Architecture :

The architecture of a website is the foundation of a system. Because a good architecture depends entirely on a system being scalable, extensible and maintainable.

La figure ci-dessous montre l'architecture générale de mon système :

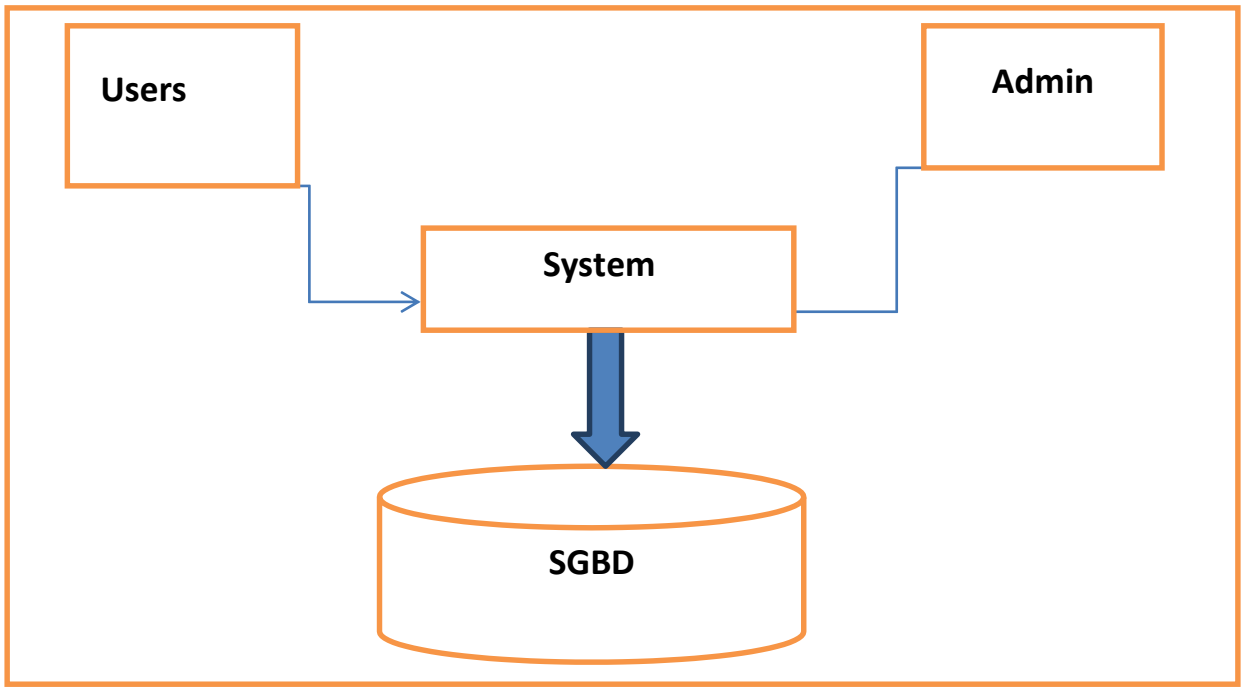


Figure 7: The general architecture Jami3aty.dz .

4.3 developpements Tools :

- ❖ React.js ..... (https://react.dev/)
- ❖ Node.js.....(https://nodejs.org/en)
- ❖ Bootstrap .....(https://getbootstrap.com/)
- ❖ Visuel Studio .....(https://visualstudio.microsoft.com/)

4.4 ***Database Management System*** :

« A database management system is a set of software that manipulates the contents of databases. It is used to perform ordinary operations such as finding, adding or deleting records manipulating indexes, creating or copying databases .» .

And to implement our database We used MongoDB as our database service .

4.5 Application interfaces :

In website (Jami3aty.dz) we have three actors by default. Therefore, we have provided a login and password for admin (which are already added to the database during the installation of the application) And we have Students and Teachers .

4.5.1 Authentification :

When our site is launched, the first window comes, which is the main window that contains the site's logo and name.

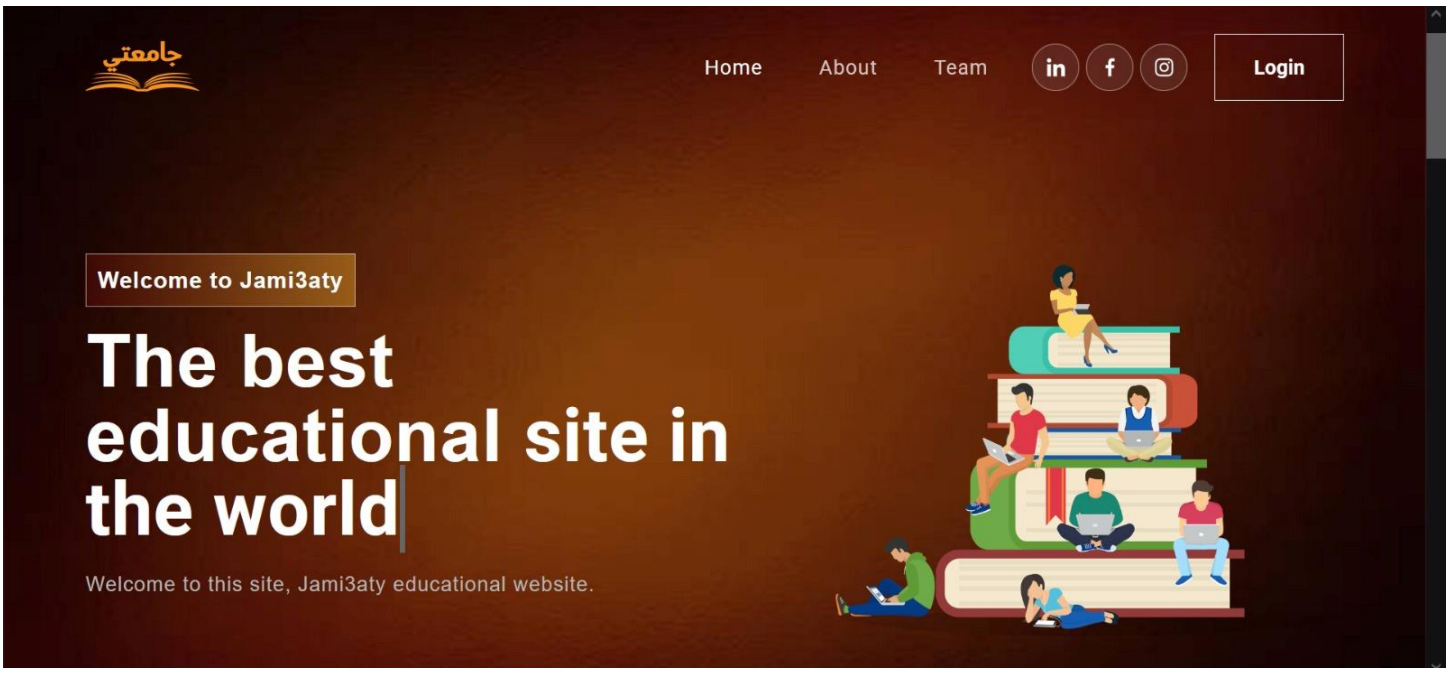


Figure 8: Home Page .

After that, you go down a little to meet you with the login page in which you put your email and password

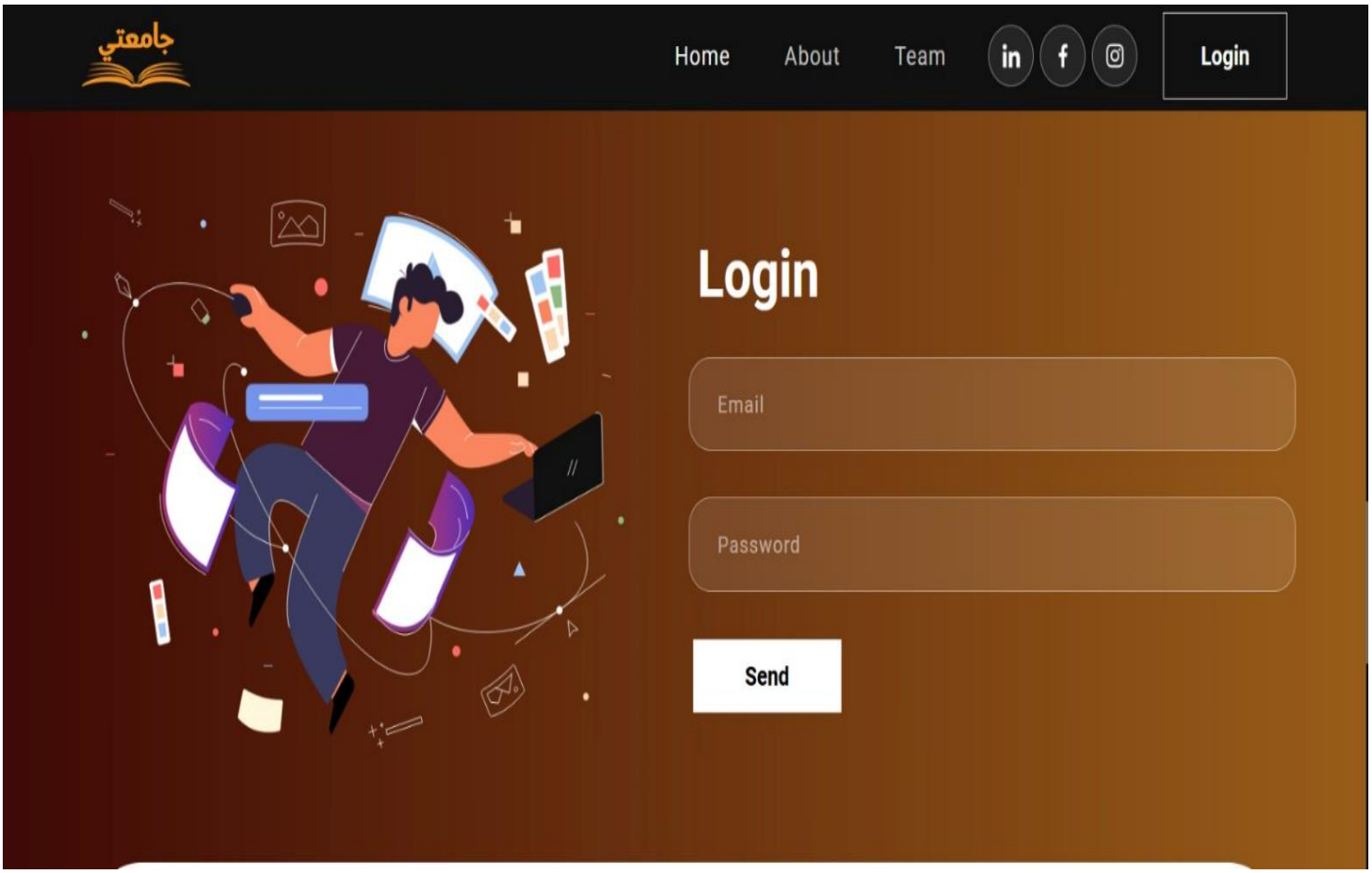


Figure 9 : Login Page

4.5.1 ***Create Modules and Chapters :***

For Create Modules you have this Page :

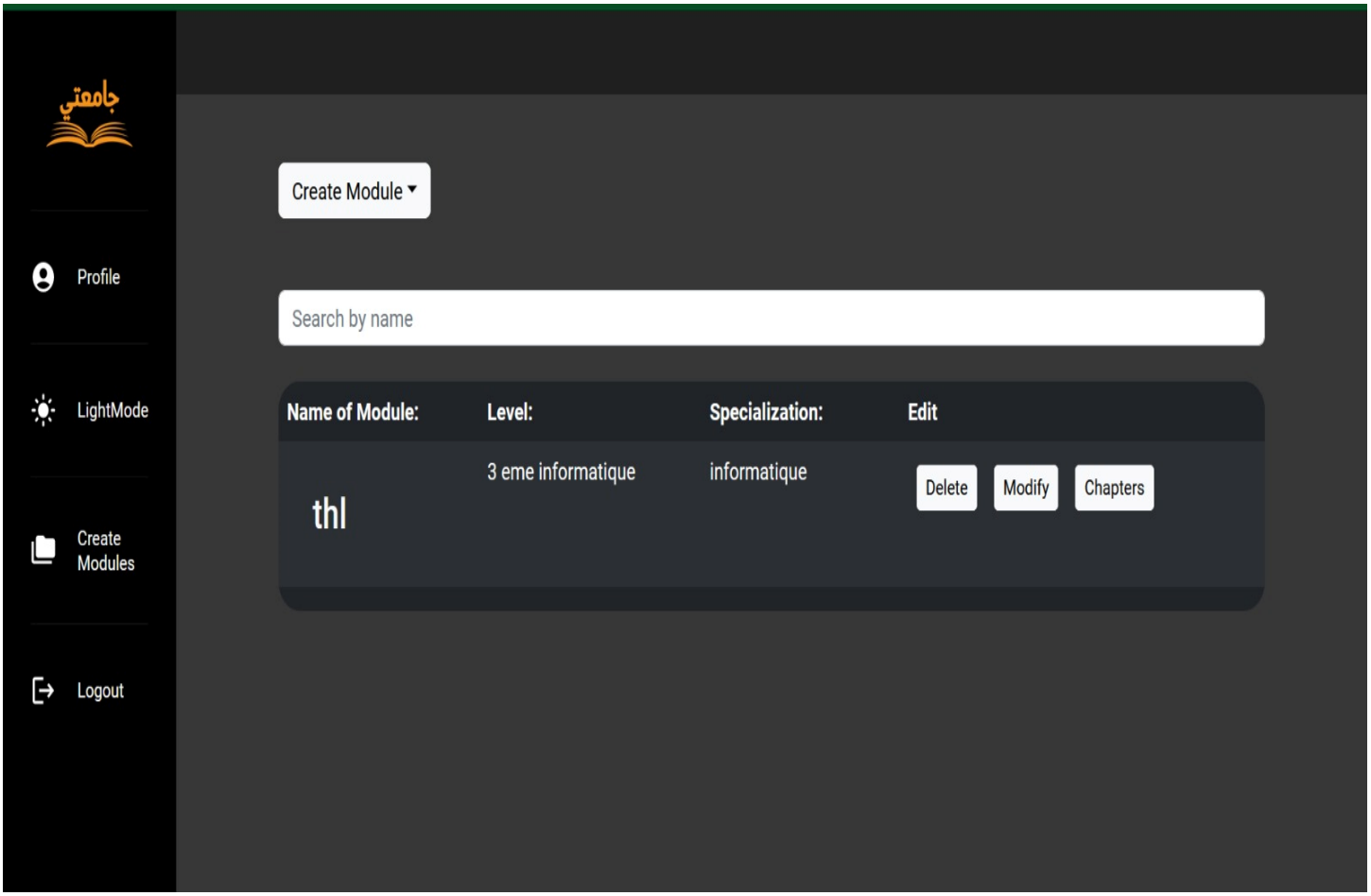


Figure 10: Page Create Modules

And There is Page for create Chapters:

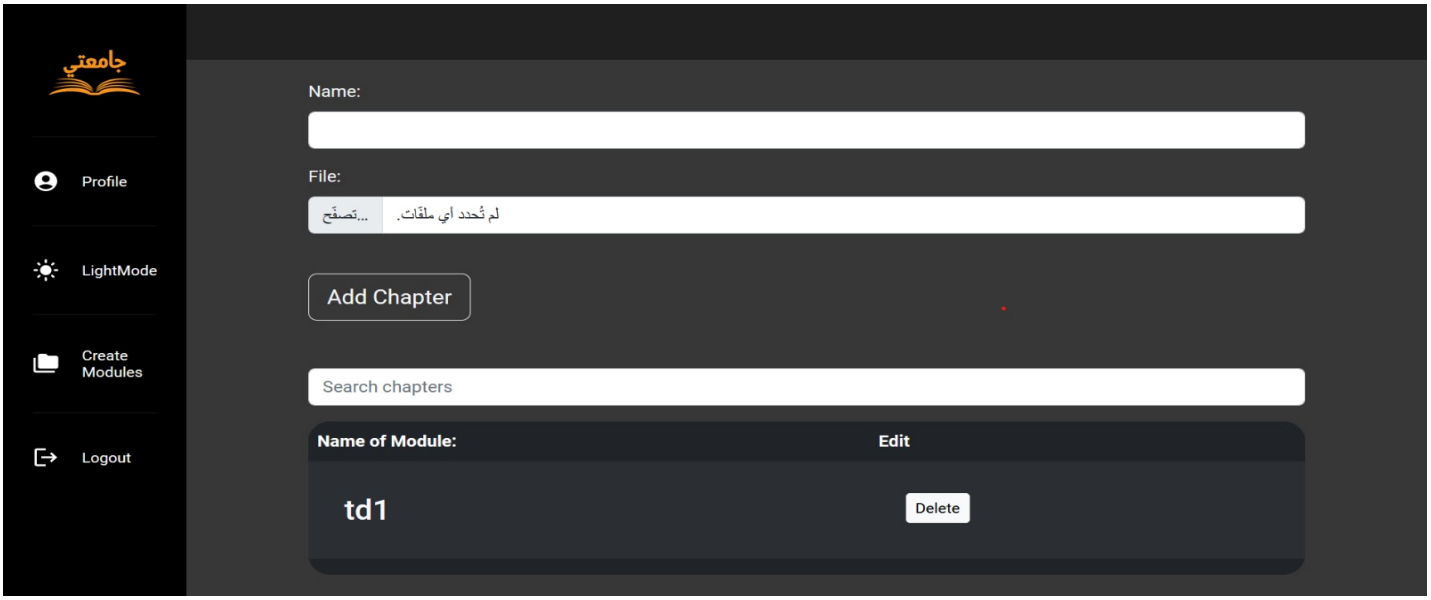


Figure 11 : Page for create Chapter

4.5.2 List of Users :

Admin can List All the Users List By First List The teacher List :

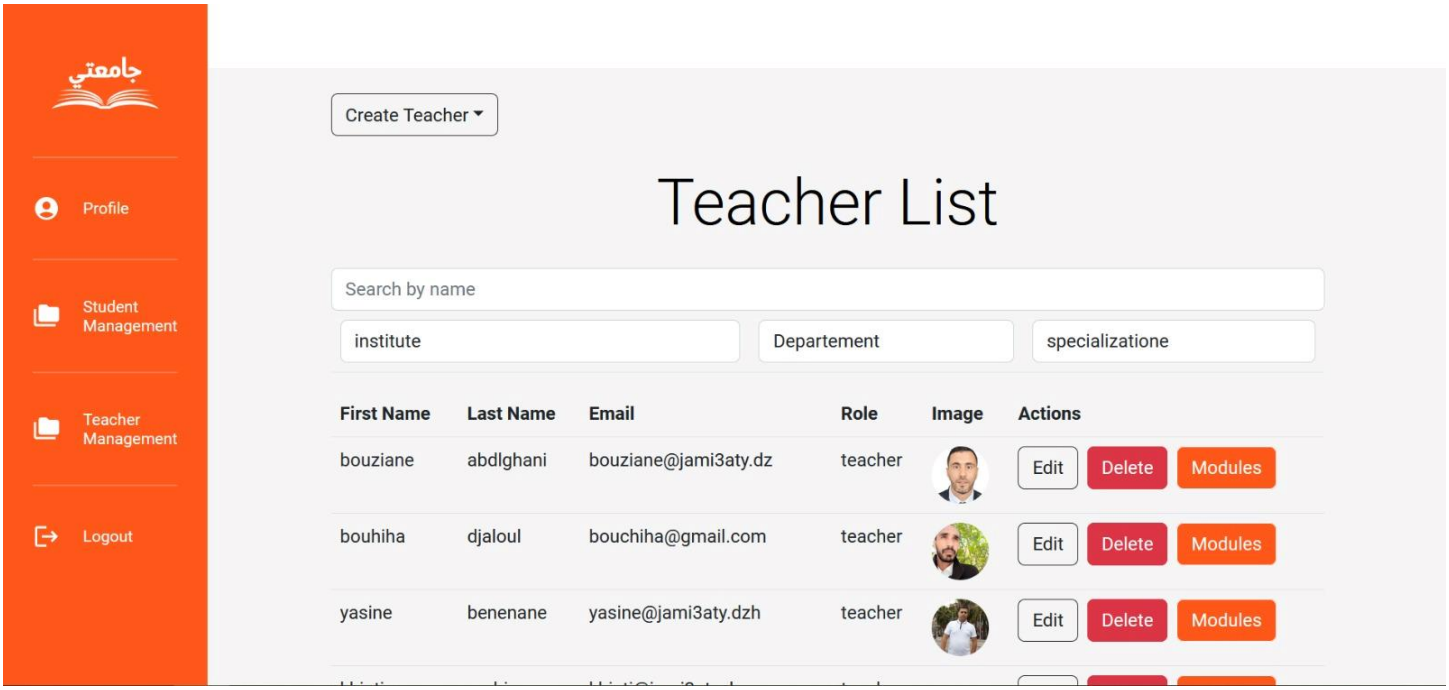


Figure 12: Page of Teachers List

And There is The List of Student :

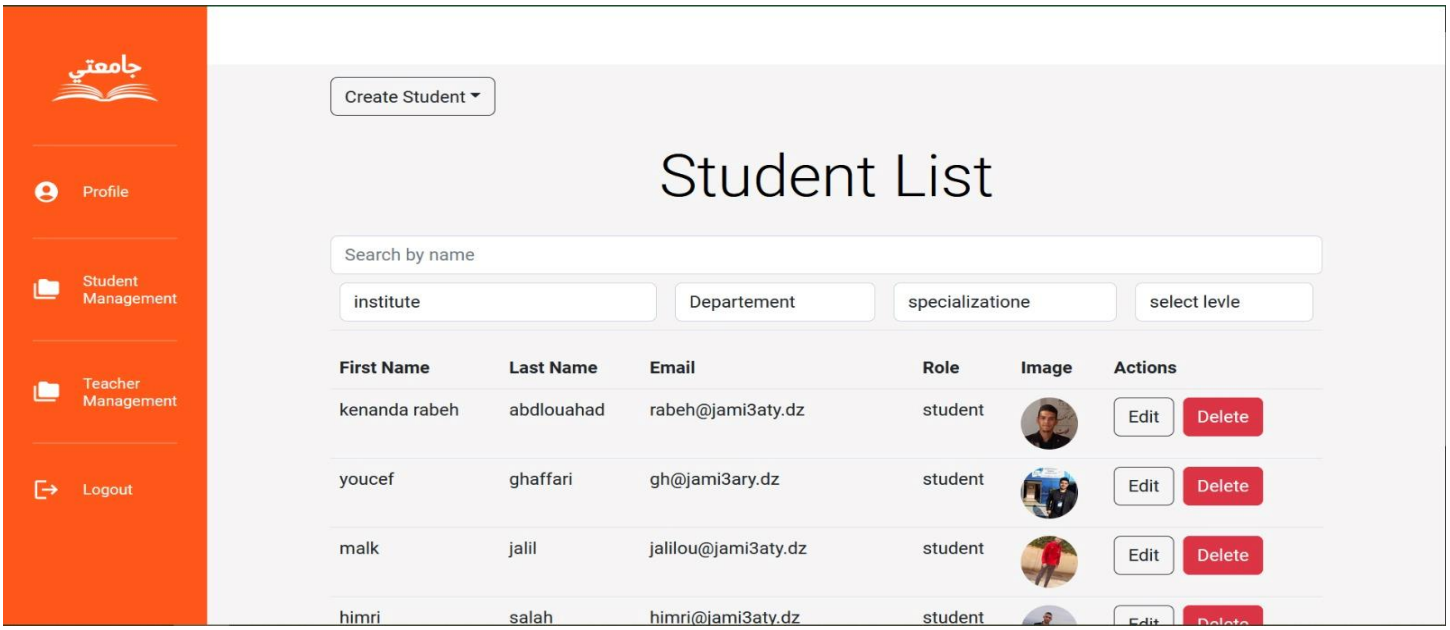


Figure 13 : Student List

4.5.3 Student view :

Student when First Time Log he go first Into the Modules List to see and Download The Files

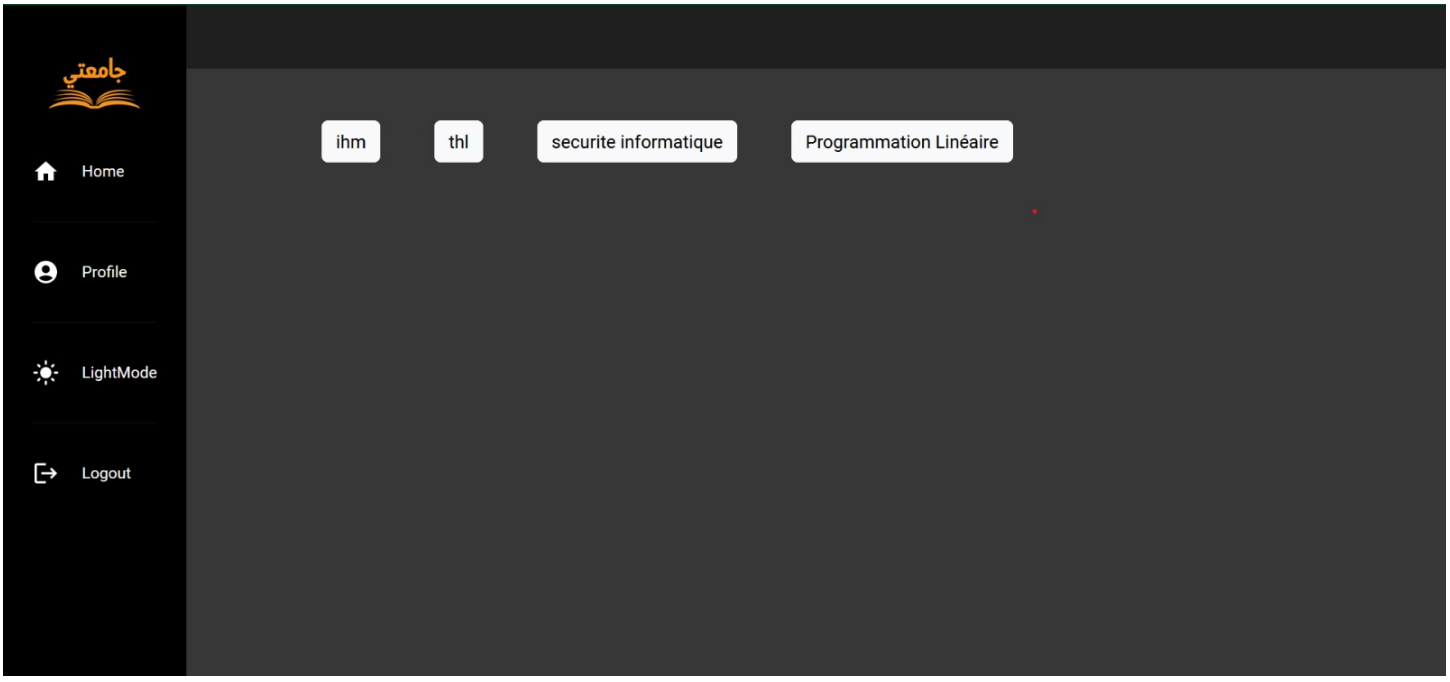


Figure 14: Student View

4.6 Conclusion :

In the present chapter, we have illustrated the implementation of our website project, as well as the different development tools used for this realization and finally, all the important windows to better understand the characteristics and of our website (Jami3aty.dz). The next chapter is a conclusion for the report, as well as a discussion of a set of perspectives for future improvements.

CHAPTER 5 :Conclusion and outlook .

In this final project thesis, we grouped all the steps of the creation of my website (Jami3aty.dz), we carried out the design by the UP formalization with the UML modeling language, we also used MongoDb for the database, For the implementation of queries which concerns data manipulation.
Finally, for the implementation of the executable of this site we used the Visual basic studio environment with programming languages, which provided us with all the necessary tools to develop, test and deploy our website (Jami3aty.dz).
To better improve our website in the near future, we can touch on the following points:
1/ Add the sharing feature on social networks such as Facebook, Twitter .....
2/ Build a mobile application for our website, which allows a better use of its features.

Bibliographie

- https://mui.com/
- https://www.lucidchart.com/pages/what-is-UML-unified modeling-language
- https://nodejs.org/en/docs
- https://react.dev/learn
- https://expressjs.com/
- https://www.mongodb.com/
- https://www.npmjs.com/
- https://getbootstrap.com/
- https://visualstudio.microsoft.com/