



Report of Intel Morin Project

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General Introduction:

In Tunisia private tutoring has became a very common thing among students and because of this many private tutoring centers has opened in the country, those centers play a vital role in the educational landscape, offering several benefits that contribute to the academic success and personal development of students.

Our project consists of developing a web app dedicated to those centers and those educational spaces , that facilitates the database management and it also can help the working staff to communicate with the tutors and the students too

During the developing phase of our project, we pursued Scrum as a working methodology and therefore had an aspects approach by splitting the project into the following chapters:

- Chapter One: Specification of requirements : In this chapter, we will delve into the use case diagram, explore the actors involved, and examine the project backlog in depth.
- Chapter Two: Sprint 0: In this chapter we will delve into the refinement,sprint and implementation of use cases with priorities 1.

1 Chapter One : Specification of requirements

1.1 Introduction

In this chapter we will focus on which study center we're going to work with, the problems that it is facing ,the solution that we're going to adapt, the functional requirements and ,non functional requirements,actors ,use case diagram identification and the global use case diagram.

1.2 Study of the existing

In a study support center called **Intel Morin**, we realized that the administrators are facing a frustrating problem that involves the use of **Microsoft Excel**. The admin has to write every student's name in the app and mark whether the student has paid their monthly fee. Additionally, the admin has to calculate how much a tutor should receive this month. Also, the admin should prepare a schedule for each professor.



Figure 1: Intel Morin.

1.2.1 Problems the admin has to face:

Our team realized the set of problems the admin has to face.

Absence of a Database

Microsoft Excel can't replace a database since it is decentralized and has a lot of problems with relations between tables, unlike relational databases.

Challenges in Communicating with All of The Students

An admin may need to communicate an announcement, such as the absence of a tutor for a week, to specific students. The admin has to call each student individually to convey this information.

A Lot of Manual Work

The admin has to do a lot of boring and repetitive manual work.

Anomalies Students and Tutors are facing

We've also identified anomalies faced by students and tutors at the center.

Lack of Knowledge About The Study Schedule

A student knows that he is going to study, for example, at 9 o'clock, but he doesn't know which classroom he should go to. He has to go back to the administrators to get the answer, and the same thing goes for the tutor.

Lack of Information about New Sales and Study Packs

A student may not be aware of monthly sales and study packs offered by the center, which could help reduce tuition costs.

Problems With Payment

Sometimes, students encounter issues with the administrators concerning the calculation of the monthly fee because there is no intelligent system that tallies the total for each student. Similarly, tutors face challenges, and administrators become frustrated when calculating the total monthly earnings for a tutor.

So, we came up with the idea of creating a website for the center to solve those problems for students, tutors, and administrators

1.3 Functional Requirements

Functional requirements are basically a description of the set of functions of a software during its development phase. And the set of the functional requirements of our web app is:

- Authentication
- Tutors management
- Students management
- Subjects management
- Classrooms management
- Check pay slip
- Check packs
- Check monthly fee
- Check schedule
- Check notifications
- Generate schedule
- Admin management

1.4 Non Functional Requirements

Non-functional requirements are aspects of a system that specify how it should act in terms of qualities.

- Performance: The measure of the response time of the website, how much time does it take for a user to retrieve, send, update or delete data.
- Reliability: Can this web application be reliable to the users, can it solve the problems that we previously stated.
- Security: Can this web application be safe for our users, so nobody can access their personal information or mess up the website with some attacks like SQL-Injections.
- Portability: Can this website be used in many platforms (Mobile, PC ...)
- Usability: Is the user comfortable when using our product, we need to make sure there are no complexities in using our product so it can be user-friendly.

2 Global Use Case Diagram



Figure 2: Use Case Diagram

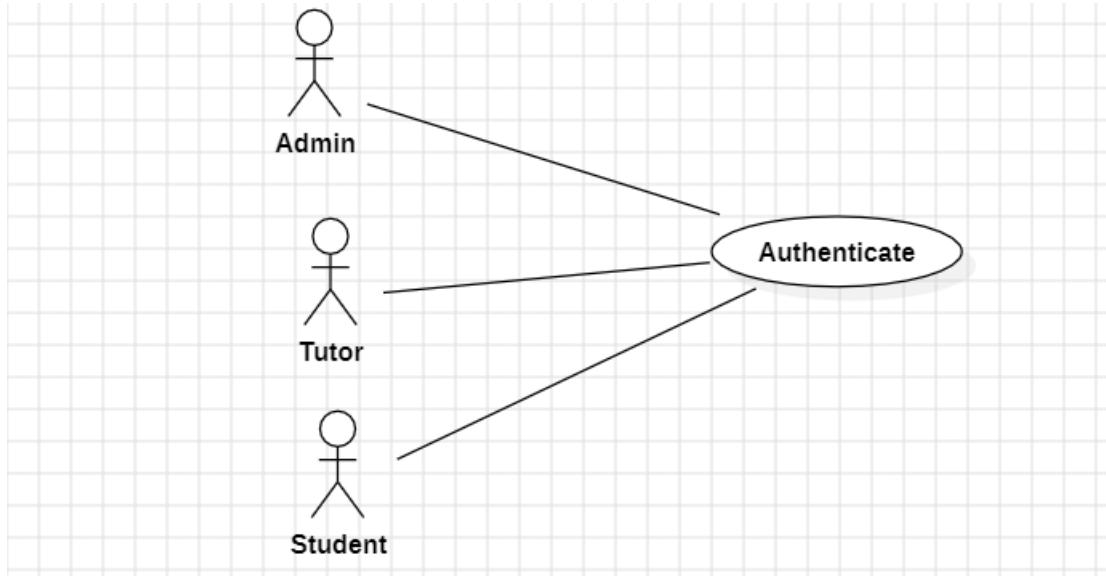
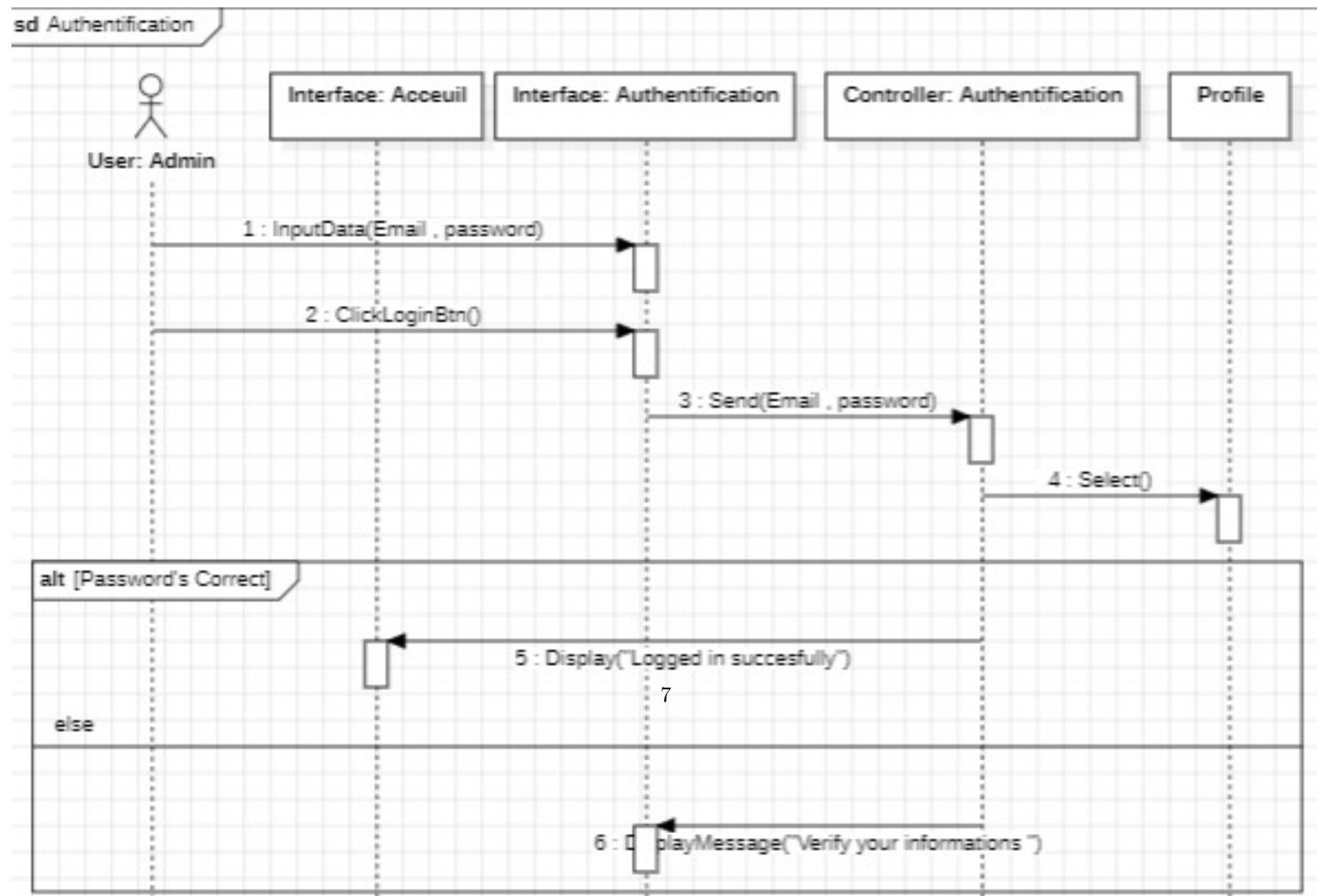


Figure 3: Use Case: Authentication
Sequence Diagram



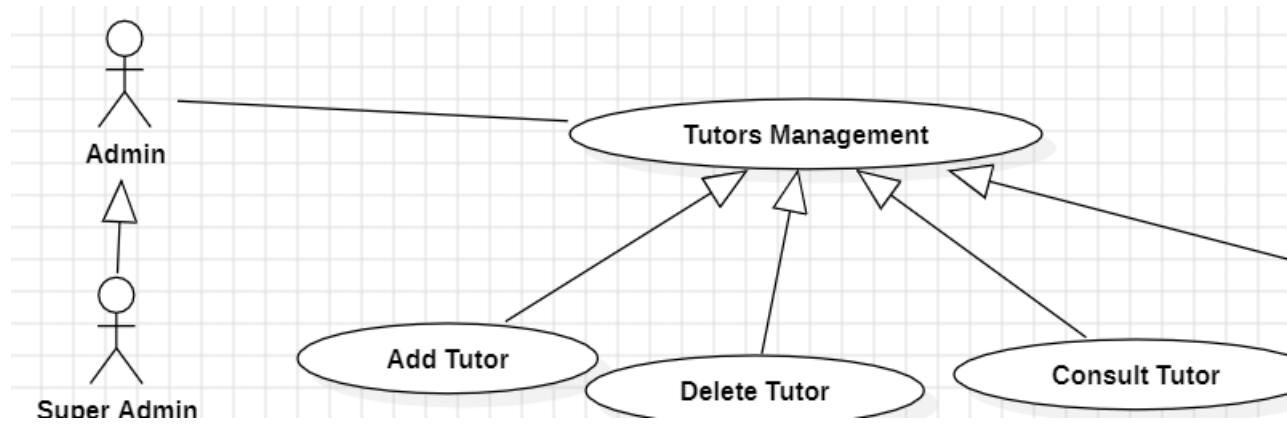


Figure 5: Use Case: Tutors Management

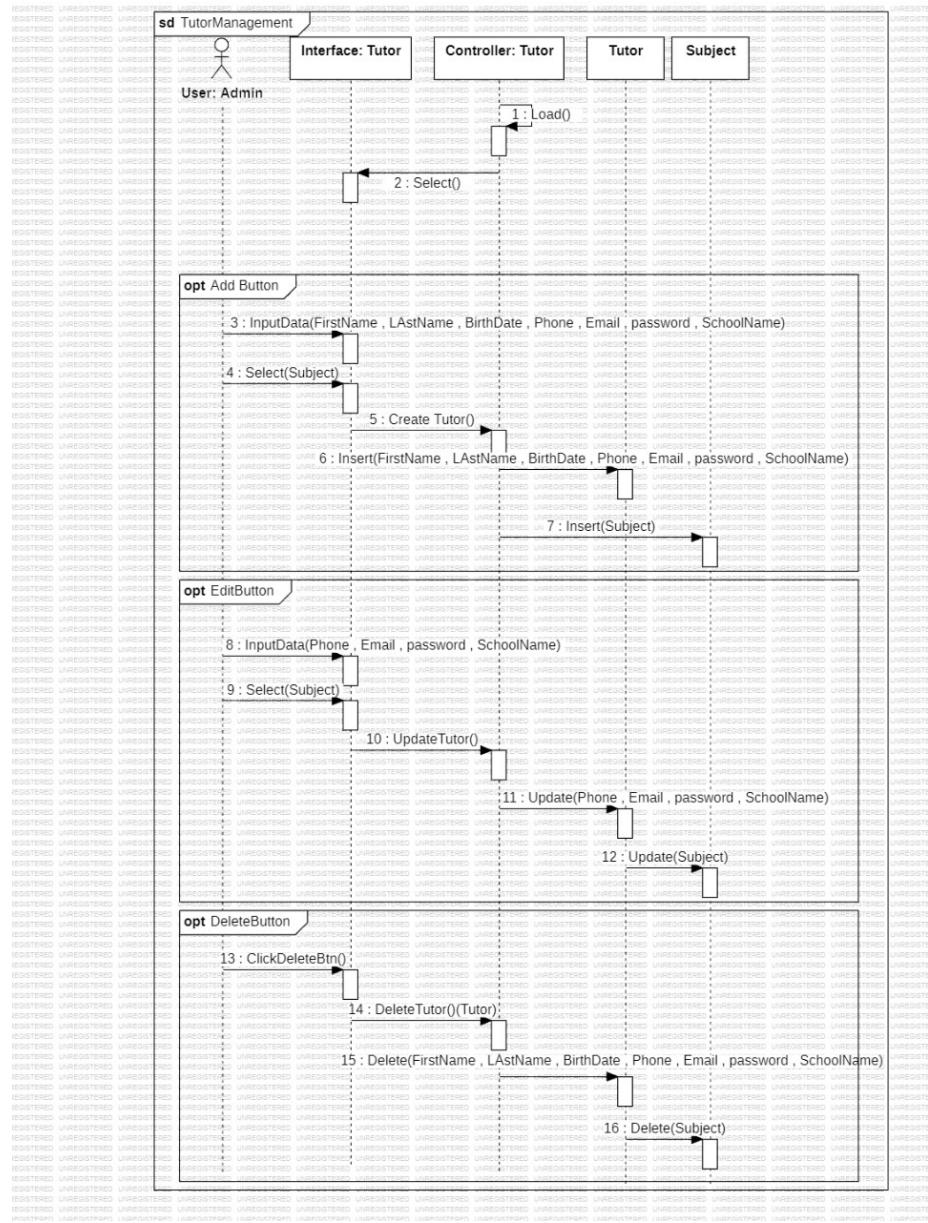


Figure 6: Class Diagram for Tutors management use case

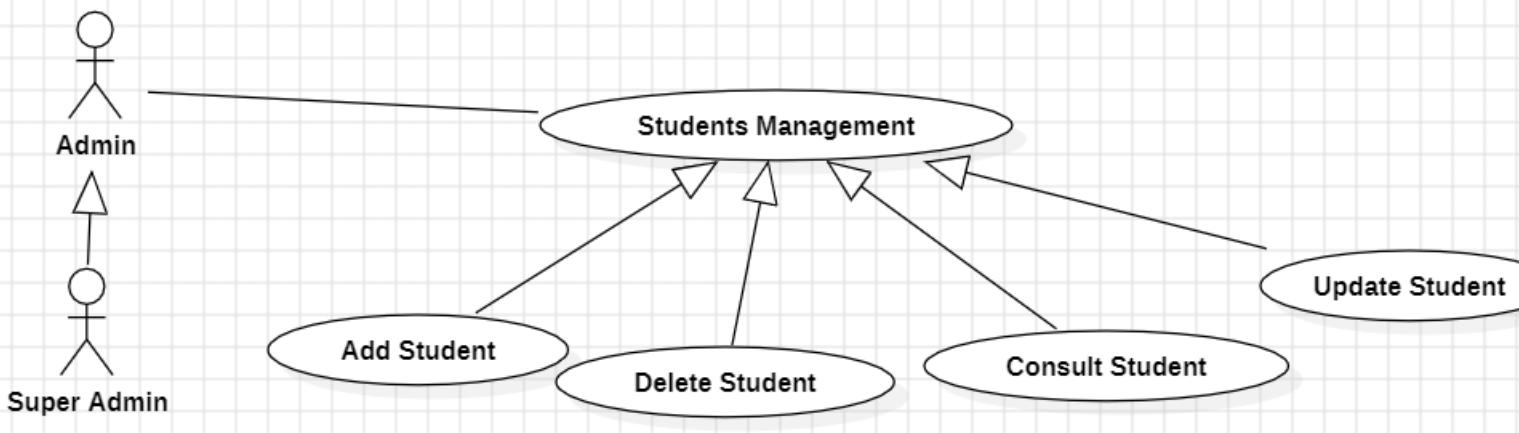


Figure 7: Use Case: Students Management

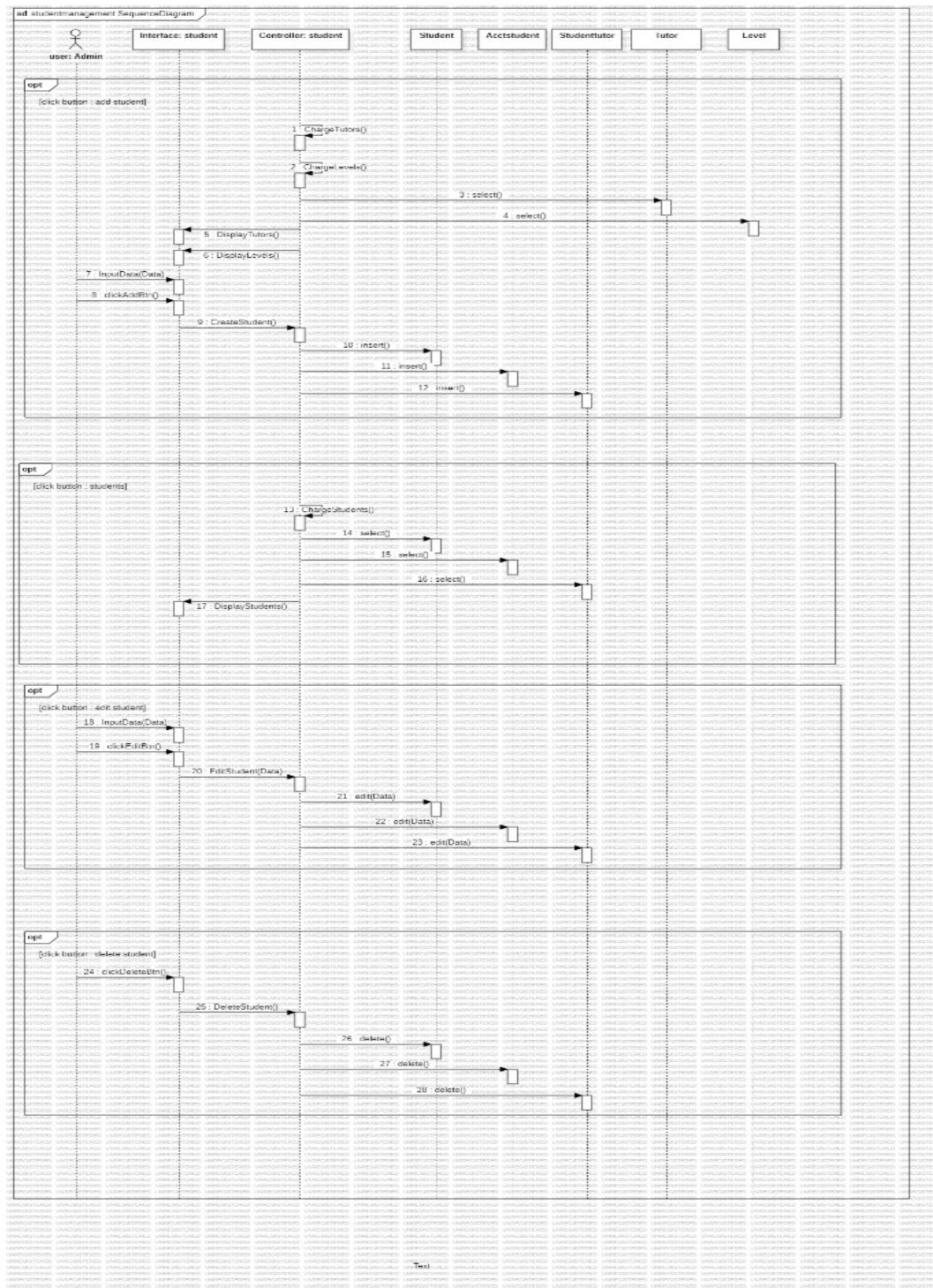


Figure 8: Sequence Diagram of use case "Students Management"

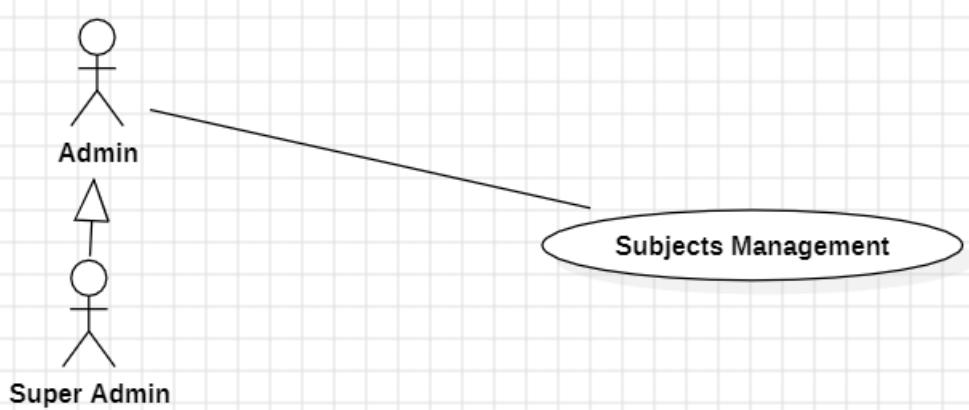


Figure 9: Use Case: Subjects Management

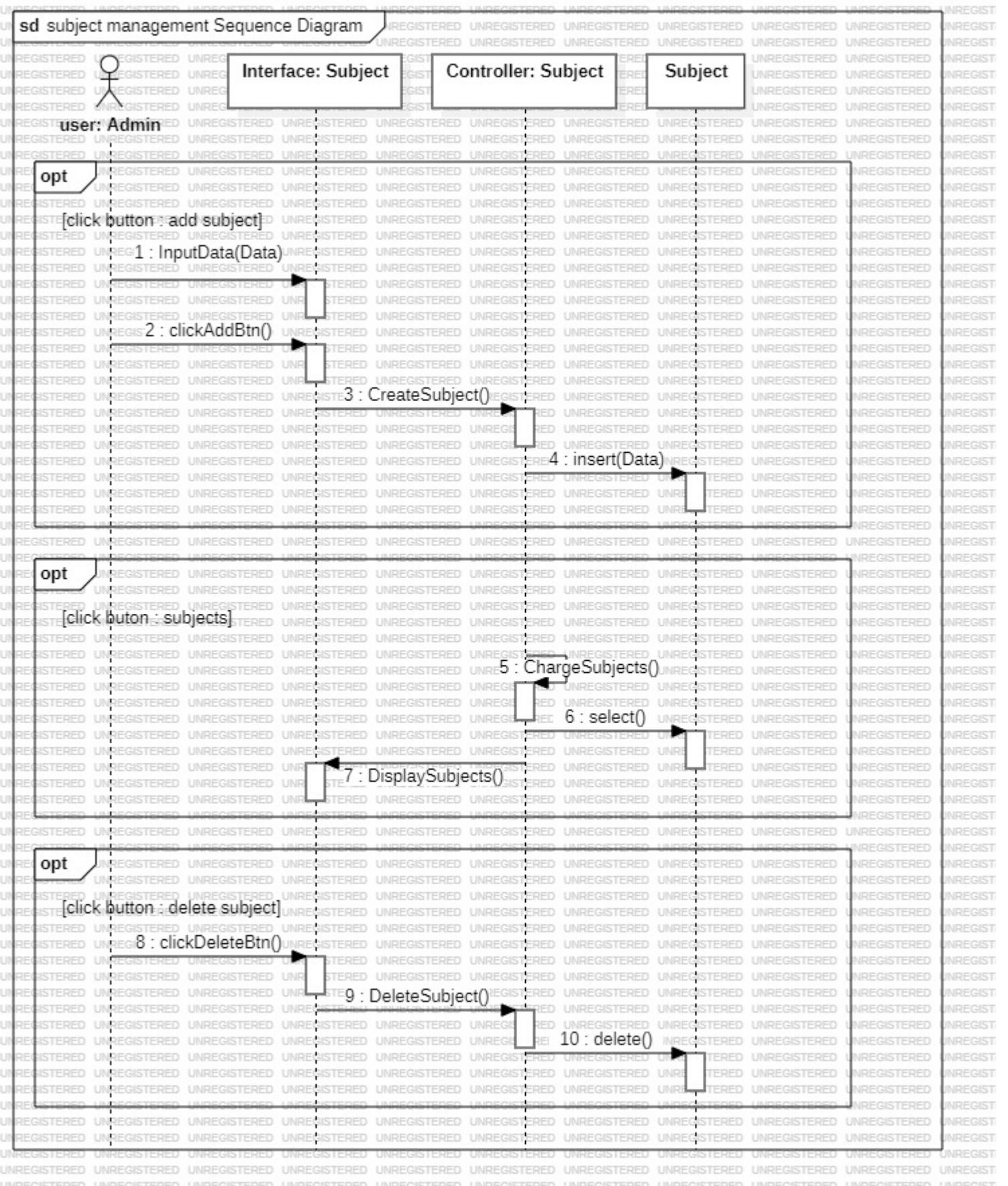


Figure 10: Sequence Diagram dBus case Subjects Management

The following figure represents the use case '**Classrooms Management**'

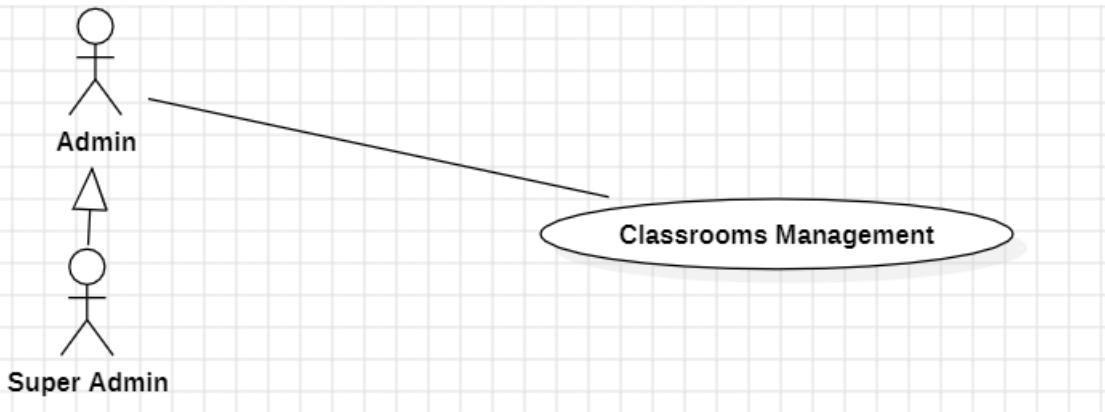


Figure 11: Use Case: Classrooms Management

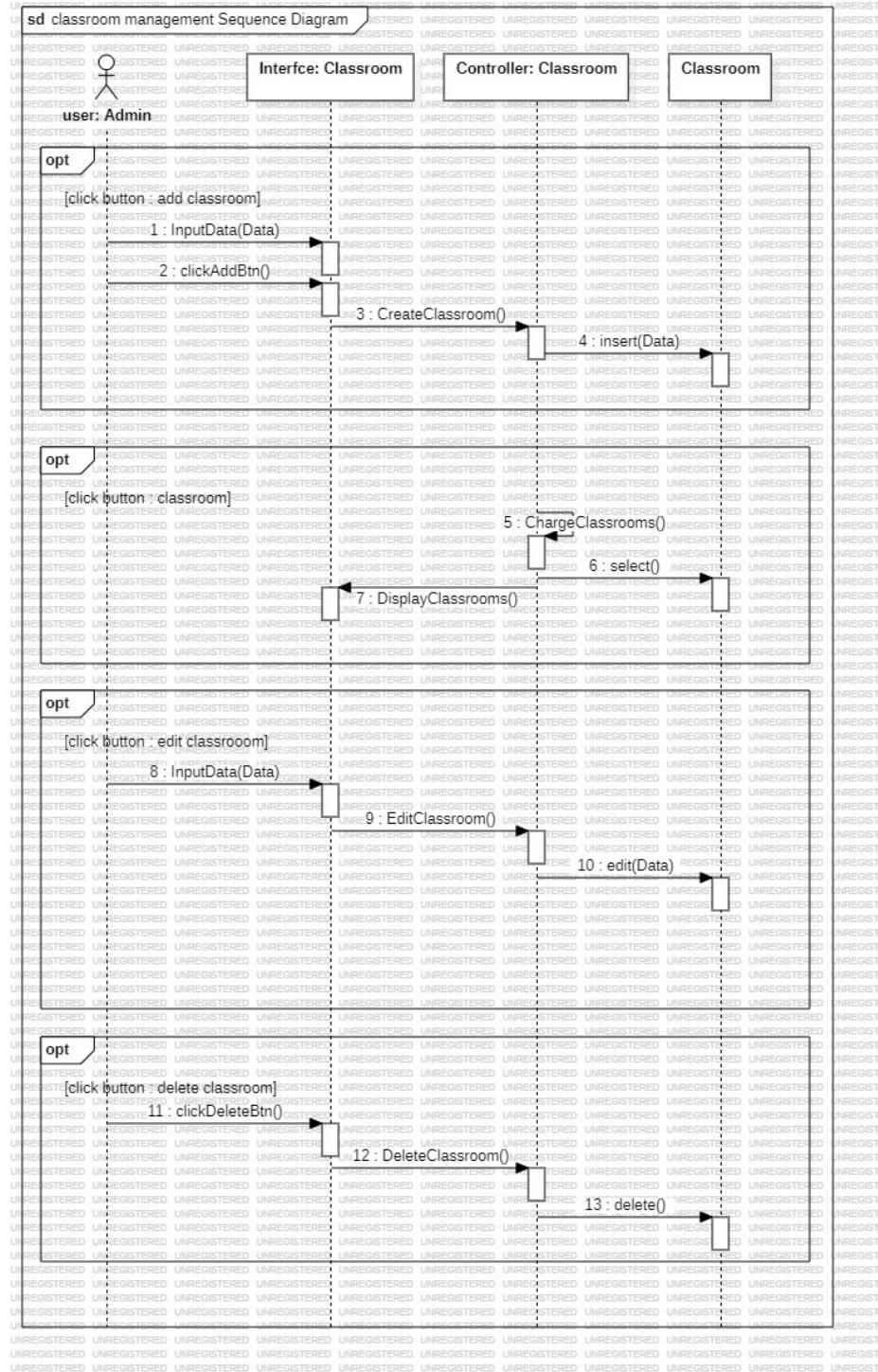
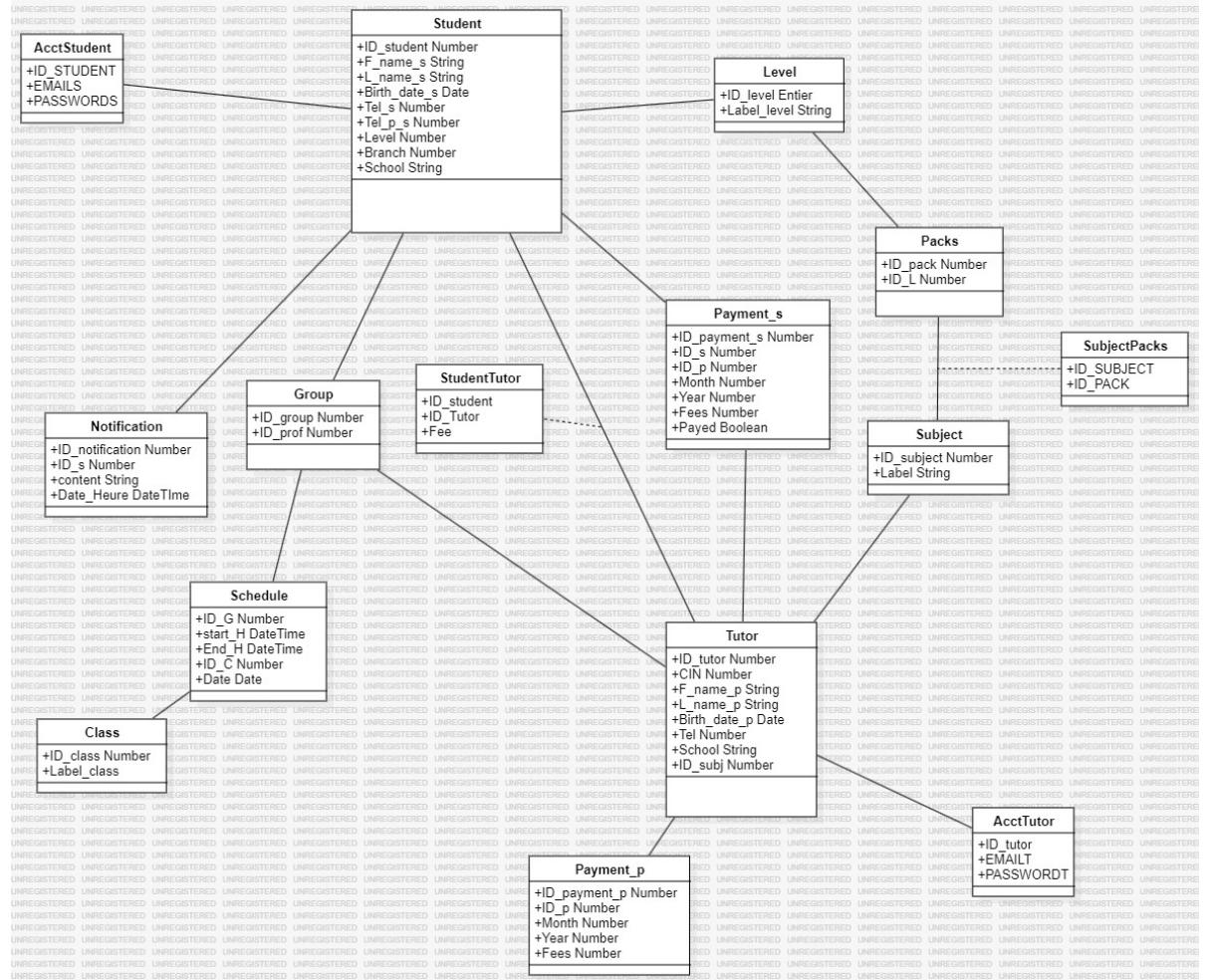


Figure 12: Sequence Diagram of use case "Classrooms Management"

3 Global Class Diagram



4 Figma Interfaces

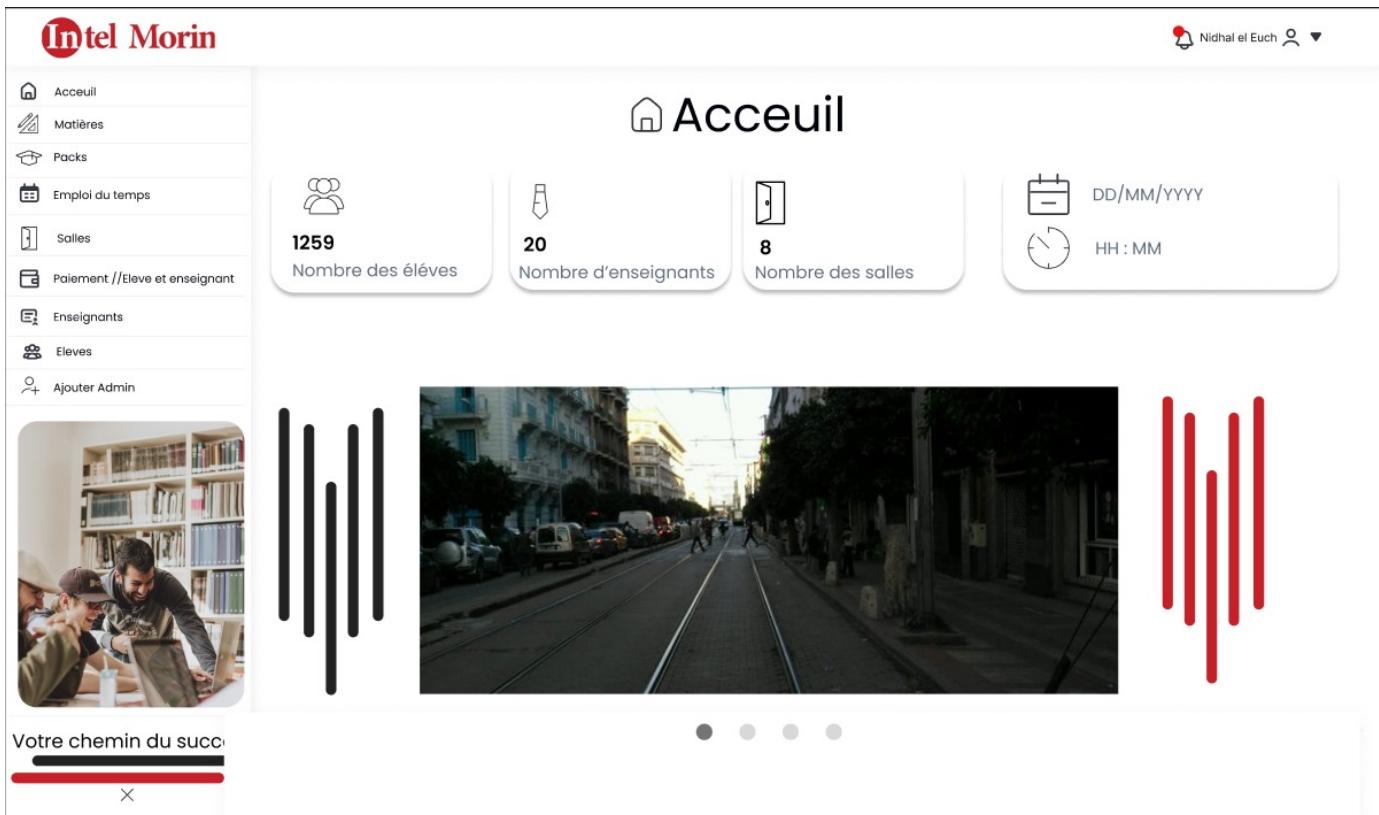


Figure 13: Home Page

The screenshot shows the Intel Morin application's 'Matières' (Subjects) page. At the top left is the logo 'Intel Morin'. On the right, there is a notification icon with 'Nidhal el Euch' and a user profile icon. A vertical sidebar on the left contains navigation links: Accueil, Matières (selected), Packs, Emploi du temps, Salles, Paiement //Eleve et enseignant, Enseignants, Eleves, and Ajouter Admin. Below these is a photo of two students in a library setting. A red banner at the bottom of the sidebar says 'Votre chemin du succès' with a progress bar.

Matières

Matière : Professeur : +
si le professeur n'existe pas, ajoutez le.

Ajouter

Listes des matières existantes :

Matiere 1	Professeur : <input type="text"/>
Matiere 2	Professeur : <input type="text"/>
Matiere 3	Professeur : <input type="text"/>
Matiere 4	Professeur : <input type="text"/>
Matiere 5	Professeur : <input type="text"/>
Matiere 6	Professeur : <input type="text"/>

Figure 14: Add Subject

Intel Morin

Nidhal el Euch

Acceuil

Matières

Packs

Emploi du temps

Salles

Palement //Eleve et enseignant

Enseignants

Eleves

Ajouter Admin



Votre chemin du succès

X

Packs

Ajouter un pack

Section :

Matière : Matière : +

Niveau :

Ajouter

Figure 15: Add Packs

Intel Morin

Nidhal el Euch

Acceuil
Matières
Packs
Emploi du temps
Salles
Paiement //Eleve et enseignant
Enseignants
Elevés
Ajouter Admin



Votre chemin du succès

Figure 16 shows the 'Emploi du temps' (Schedule) section of the Intel Morin application. The page title is 'Emploi du temps' with a calendar icon. Below it are two buttons: 'Consulter' (Consult) and 'Ajouter' (Add). The 'Ajouter' button is highlighted. There are four input fields: 'Groupe:' (Group), 'Heure debut:' (Start time), 'Heure fin:' (End time), and 'Date:'. A 'Repeter:' (Repeat) toggle switch is shown as off. A large 'Ajouter' button is at the bottom right. On the left, there's a sidebar with navigation links and a success progress bar.

Consulter Ajouter

Groupe: _____ Heure debut: _____

Heure fin: _____ Date: _____

Repeter: Ajouter

Votre chemin du succès

Figure 16: Add Schedule

Intel Morin

Nidhal el Euch

Acceuil
Matières
Packs
Emploi du temps
Salles
Paiement //Eleve et enseignant
Enseignants

Ajouter Admin

Salles

Nom Salle: Ajouter

Nom Salle: A001 A001 Editor Supprimer

Nom Salle: A002 A002 Editor Supprimer

Votre chemin du succès

X

Figure 17: Add Classroom

- [Accueil](#)
- [Matières](#)
- [Packs](#)
- [Emploi du temps](#)
- [Salles](#)
- [Paiement // Eleve et enseignant](#)
- [Enseignants](#)
- [Eleves](#)
- [Ajouter Admin](#)



Votre chemin du succès

X

Eleves

Ajouter un élève

Nom élève :

Prénom élève :

Date de naissance :

E-mail :

Mot de passe :

Lycée :

Section :

Niveau :

Tél :

Tél parent :

Ajouter

Prof

Prix

Mois

DT

+

Professeur

- [Accueil](#)
- [Matières](#)
- [Packs](#)
- [Emploi du temps](#)
- [Salles](#)
- [Paiement //Eleve et enseignant](#)
- [Enseignants](#)
- [Eleves](#)
- [Ajouter Admin](#)



Votre chemin du succès

X

Enseignants

Ajouter un enseignant

Nom Prof:

Prenom Prof:

Date de naissance:

Téléphone :

E-mail:

Password :

Nom lycée:

Matière :

Niveau :

+

[Ajouter](#)

20

Nombre d'enseignants

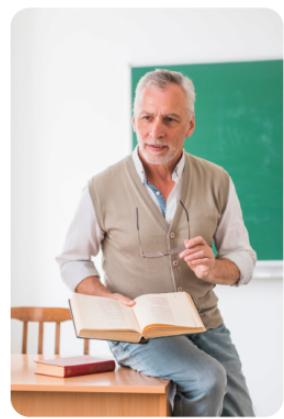


Figure 19: Add Tutor

Intel Morin

Nidhal el Euch  ▾

 Accueil
 Matières
 Packs
 Emploi du temps
 Salles
 Paiement //Eleve et enseignant
 Enseignants
 Eleves
 Ajouter Admin



Votre chemin du succès  X

Ajouter Admin

E-mail :

Mot de passe :

Ajouter

Figure 20: Add Admin

Paiement

Saisir Nom et prenom du Saisir le mois et annee Envoyer

Le format du date doit etre JJ/AAAA (exp 02/2024)

Le nom et prenom du prof sont obligatoire

Monji zormati

CIN: 1525665964
Tel:
Lycee

3eme math: 0 0 ▼

Bac Info : 0 0 ▼

Bac eco : 0 0 ▼

JAN FEB MAR AVR MAI JUIN JUIL OUT SEP OCT NOV DEC

Config
Pourcentage:

Figure 21: Payment Page

The screenshot shows a user interface for adding a group. At the top right is a black icon of three stylized human figures. To its right, the word "Ajouter" is written in a large, bold, black sans-serif font. Below this, the page title "Ajouter" is repeated in a smaller, regular black font.

The form consists of several input fields:

- Identifier du groupe:** A red-bordered input field containing the placeholder "l'identifiant" with a small red circle containing a question mark icon to its right.
- Niveau du groupe:** A green-bordered input field containing the text "1ère/2ème/3ème/BAC" with a green checkmark icon to its right.
- L'enseignant:** A dropdown menu with a white background and a small downward arrow icon.
- Nom du groupe:** A dropdown menu with a white background and a small downward arrow icon.

At the bottom center of the form is a blue rectangular button with the word "Ajouter" in white.

Figure 22: Payment Page

The screenshot shows a web application interface for managing groups. At the top left is a icon of three stylized human figures. To its right, the text "Consulter groupes" is displayed. Below this, there is a search bar with two input fields: "Nom du groupe" and "Rechercher".

Group 1

Below the search bar, the title "Groupe 1" is shown, followed by a small upward-pointing arrow icon.

The main content area displays a card for "Monji Rahwi". Inside the card:

- A placeholder image of a person wearing glasses and a suit.
- The name "Monji Rahwi" below the image.
- A section labeled "Identifiant du Groupe:" (Group Identifier:).
- A section labeled "Nom du groupe:" (Group Name:).
- A section labeled "Nombre des élèves:" (Number of students:).
- A red button labeled "Supprimer" (Delete) at the bottom.

Figure 23: Consult Group Page

The screenshot shows a web application titled "Consulter Emploi" with a calendar icon. Below the title is a search bar labeled "Rechercher Par Date:" with a date input field "jj/mm/aaaa" and a "Rechercher" button. The main area displays a table with four columns labeled A001, A002, A003, and A004. The rows represent time slots: 8-10 and 10-12. Each slot contains a list of subjects and their teachers. For the 8-10 slot, the subjects are Math (Monji Rahwi), Physique (Monji Zormati), Info (Monji Yahyaoui), and Info (Mounir Yahyaoui). For the 10-12 slot, the subjects are Math (Monji Rahwi), Physique (Monji Zormati), Info (Monji Yahyaoui), and Info (Monji Yahyaoui). Each subject entry includes "Editer" and "Supprimer" buttons.

Temps/Salle	A001	A002	A003	A004
8-10	Monji Rahwi Math Editer Supprimer	Monji Zormati Physique Editer Supprimer	Monji Yahyaoui Info Editer Supprimer	Mounir Yahyaoui Info Editer Supprimer
10-12	Monji Rahwi Math Editer Supprimer	Monji Zormati Physique Editer Supprimer	Monji Yahyaoui Info Editer Supprimer	Monji Yahyaoui Info Editer Supprimer

Figure 24: Consult Schedule Page

The screenshot shows a web-based application interface for managing students. At the top, there is a logo consisting of a stylized 'E' icon followed by the text "Consulter Eleves". Below the logo is a search bar with the placeholder "Nom du l'élève" and a "Rechercher" button. The main content area displays a student profile for "Seifeddine Jaziri". On the left, a vertical sidebar lists the student's name. To the right, there are two main sections: "Informations" containing basic details like identifier, school, phone number, and level; and "Matières" containing the student's subjects. At the bottom of the profile section are "Supprimer" and "Editer" buttons.

Seifeddine Jaziri

Seifeddine Jaziri
Identifier du l'élève: A9845
Nom Lycée: Lycée Mourouj 6
Tel: 65 545 445
Niveau :Bac Sport

Matières

Matière(s): [Physique , Math , Espagnol]
--

Supprimer Editer

Figure 25: Consult Student Page

The screenshot shows a web application interface for viewing teacher information. At the top, there is a logo consisting of a stylized 'E' and 'A' followed by the text "Consulter Enseignant". Below the logo is a search bar with the placeholder "Nom du l'enseignant" and a "Rechercher" button. The main content area displays a teacher profile for "Mme Nofikha". On the left, there is a card with the teacher's name and contact information: "Identifiant du l'enseignant: 900251485", "Nom Lycée: Lycée Jandouba", and "Tel: 54 233 009". On the right, there is a card titled "Matieres" with the entry "Matiere: Physique". At the bottom of the profile card are two buttons: "Supprimer" (red) and "Editer" (blue). A small upward-pointing arrow icon is located in the top right corner of the main content area.

Mme Nofikha

Mme Nofikha

Identifiant du l'enseignant: 900251485

Nom Lycée: Lycée Jandouba

Tel: 54 233 009

Matieres

Matiere: Physique

Supprimer Editer

Figure 26: Consult Tutor Page

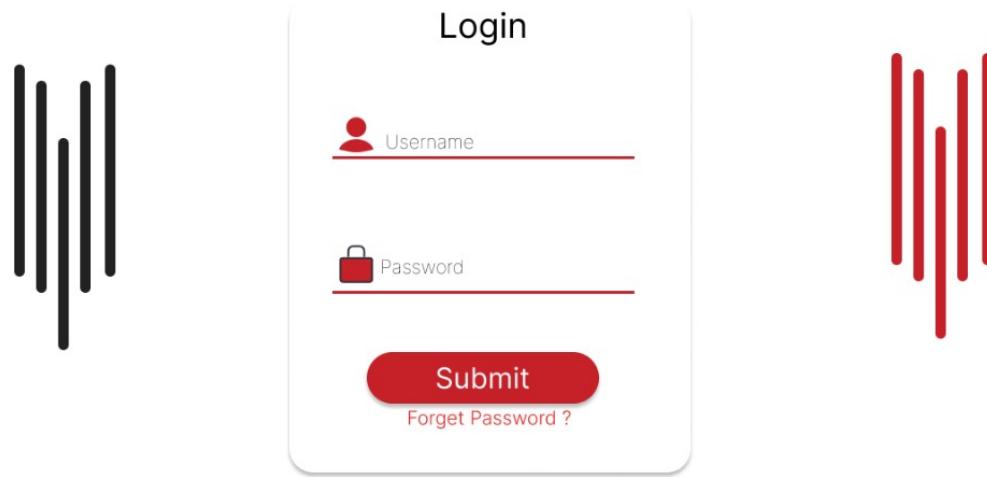


Figure 27: Login Page

5 SEO and Optimization Enhancements for a Single-Page Application (SPA)

This section details the optimizations implemented to make our Single-Page Application (SPA) more search engine friendly and performant. These optimizations address the unique challenges of SPAs and traditional SEO practices.

5.1 Content and Metadata

Unique and Descriptive Titles and Meta Descriptions: We ensured each view within the SPA has a unique and relevant title tag and meta description. These elements are crucial for search engines to understand the content displayed and entice users with compelling summaries in search results. We strategically incorporated targeted keywords within these tags to improve discoverability.

5.2 SPA-Specific SEO Techniques

Server-Side Rendering (SSR) or Pre-rendering: Since search engines rely on initial page content for indexing, we implemented either Server-Side Rendering (SSR) or pre-rendering. SSR renders the initial HTML on the server, while pre-rendering generates static HTML files at build time. Both approaches provide search engines with crawlable content, improving SEO performance.

Client-Side Routing with Dynamic URLs: While SPAs often use client-side routing, we ensured the URLs reflect the content displayed. This allows search engines to understand the structure of the SPA and potentially index individual views. JavaScript libraries offer features to manage client-side routing with SEO-friendly URLs.

Dynamic Content Indexing: We explored options for search engines to index dynamically generated content within the SPA. This might involve techniques like dynamic sitemaps or integrating with services that help search engines understand and process JavaScript-heavy content.

5.3 Performance Optimization

Website speed remains a crucial factor in SEO. We prioritized techniques like code-splitting, lazy loading components, and leveraging browser caching mechanisms. A faster loading SPA provides a better user experience and can positively impact search engine rankings.

By implementing these SEO and optimization strategies, we've aimed to make our SPA more discoverable in search results, improve user experience with faster loading times, and ultimately establish a stronger online presence.

5.4 Result

Now, after deploying for testing purposes we tested our website using the chrome extension **Ifloadfocus** and it gave us this review about our website:



Figure 28: Review of website

6 Conclusion

In this report we delved into specifying the needs, representing interfaces and handling SEO and optimization for SPA.