PEOPLE'S DEMOCRQTIC REPUBLIC OF ALGERIA
Ministry of Higher Education and Scientific Research

UNIVERSITY ECHAHID HAMMA LAKHDAR-EL OUED
FACULTY OF EXACT SCIENCES
Computer Science Department

End of Study Memory
Presented For the Diploma Of

LICENCE

Domain: Mathematics and Computer Science
Department: Computer Science
Specialty: Information Systems

Theme

Design and development of a web application for nursery management

Proposed and Supervised by:

- **Retima Farida**

Presented by:

- **Benferhat Amel**
- **Aouadi Saadia**
- **Dou Messaoud**

Academic year : 2024-2025

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بسم الله الرحمن الرحيم
١٤٣٨

إهـــداء

"وآخِر دَعْواهُم أنِ الحَمدُ لله ربِّ العَالمِين"

الحمد لله عند البدء وعند الختام

من قال أنا لها نالها

لحظة لطلما انتضرتها وحلمت بها في حكاية اكتملت فصولها.

إلى من زرعو في قلبي بذور الأمـل،وسقوني من نبع الحنان،

إلى من سهرو من أجلي الليالي، وتحملو عناء الحياة لأجل راحتي.

إلى من كانت دعواتهم سر نجاحي ورفعة شأني

إلى والدي العزيز:صادق، و والدتي الغالية:نبهات،

أهدي إليكما ثمرة جهدي ونتاج سنوات من التعب والمثابرة.

إلى نفسي، إليك أقدم هذا العمل المتواضع عربون تقدير لكل لحظة تعب،لكل ساعة سهر، لكل دمعة يأس قاومتيها بإبتسامة أمـل، لقد اجتزت الطريق رغم كل العقبات ،فهنيئا لك هذا الإنجاز.

إلى أخي الغالي: شعيب محمد الهادي، وأختي :أميرة ،

أتمنى لكما مستقبلا مشرقا يملؤه النجاح والتفوق.

إلى صديقاتي ورفاق دربي الذين ساندوني في كل لحظة.

إلى جدي الغالي:أحمد و جدتي العزيزة :حبيبة، أهديكما ثمرة تعبي، راجية من اللـه أن أكون سبب في فخركما بي.

إلى أخوالي الأعزاء: هشام،عُمَـار،زهيـر، وأبنائهم وبناتهم:

لـؤلـؤة،أروى،تولـين،منـة،ميـان،أحمد جاسر،محمد. حفظهم الله.

لكم أهدي هذا الإنجاز، أتمنى لكم مستقبلا مشرقا يملؤه النجاح والتفوق.

إلى خالتـي الغالية نسيمة، شكرا على دعائك، على تشجيعك،وعلى وجودك الجميل في حياتي.

إلى بنات خالتي الغاليات: أمنـية، شفـاء، كنتما و لازلتما مصدرا للفرح والراحة، أتمنى لكما مستقبلا مشرقا يملؤه النجاح والتفوق.

إلى روح جدي الغالي: بكـار رحمه اللـه، الذي كان دائما يفرح بنجاحنا ويشاركنا فرحنا.

إلى جميع أساتذتي الكرام الذين أثّـرو في مسيرتي الدراسية، شكرا لكم على العطاء اللامحدود، كنتم سببا في وصولي إلى هنا،

لن أنسى جهودكم ودعمكم أبدا.

أمـل بن فـرحات

إهـــداء

"وآخِر دَعْواهُم أنِ الحَمدُ لله ربِّ العَالمِين"

الحمد لله عند البدء وعند الختام

من قال أنا لها نالها

لقد كانت طريقا طويلة مليئة بالإخفاقات والنجاحات فخورين بكفاحنا

لتحقيق أحلامنا

لحظة لطالما انتظرتها وحلمت بها في حكاية اكتملت فصولها

إلى من علمني العطاء بدون انتظار إلى من أحمل إسمه بكل افتخار

إلى من كلله الله بالهيبة والوقار والدي العزيز

إلى حبيبتي قرة عيني إلى القلب النابض إلى من كانت دعواتها الصادقة

سر نجاحي أمي الغالية

إلى اخوتي سندي في الحياة أدامكم الله ضلعا ثابتا لي

إلى كل أفراد عائلتي و إلى كل صديقاتي بدون استثناء

إلى كل الأساتذة الأفاضل الذين قدموا لنا يد المساعدة

إلى كل هؤلاء أهدي هذا العمل وفقني الله وإياكم إلى الخير.

سعدية عوادي

شكر وتقدير

الحمد لله أولاً وأخيراً، حمدًا كثيرًا طيبًا مباركًا فيه،

على ما منّ به عليّ من نعمة العلم والصبر، وعلى توفيقه

الذي صاحبني في كل خطوة حتى بلغتُ هذا الإنجاز.

نتقدم بجزيل الشكر والامتنان لجميع أساتذتنا الأفاضل

على ما بذلوا من جهد وعطاء في سبيل تعليمنا وتوجيهنا،

فلكم كل التقدير والاحترام.

نتقدم بجزيل الشكر والامتنان لأستاذتنا المشرفة: **رتيمة فريدة**،

على ما قدمته لنا من دعم وتوجيهات قيّمة طوال فترة إعداد هذه المذكرة،

فقد كان لعنايتها العلمية وملاحظاته الدقيقة

الفضل الكبير في رفع مستوى هذا العمل وتحقيق أهدافه.

كما نتقدم بخالص الشكر والعرفان

إلى كل من وقف إلى جانبنا وساندنا خلال فترة إعداد هذه المذكرة،

من أفراد عائلتنا وأصدقائنا وزملائنا،

على دعمهم المعنوي وتشجيعهم المستمر

الذي كان له الأثر الكبير في تخطي الصعوبات.

Index

Index

List of shapes

Abstract

Abstract

Our graduation project is titled "Design and Development of a Web Application for Nursery Management." We created a website that facilitates interaction between the administrator, teachers, and parents. The application enables the administrator to manage the nursery's operations organizationally. It also allows parents to register their children and enter their information. Additionally, it helps teachers easily manage the children and all related reports.

In the development of this website, we relied on the following technologies:

- UML (Unified Modeling Language) for modeling.

- MySQL database management system (which uses the SQL language).

- PHP for interacting with the database within the Apache server.

- Laravel framework.

Keywords: UML , Laravel, php,Xampp,MYSQL ,web applications ,Nursery management.

Résumé

Notre projet de fin d'études est intitulé « Conception et développement d'une application web pour la gestion d'une crèche », dans lequel nous avons créé un site facilitant les interactions entre le directeur, les enseignants et les parents. L'application permet au directeur de gérer les affaires de la crèche de manière organisée. Elle offre également aux parents la possibilité d'inscrire leurs enfants et de saisir leurs informations. De plus, elle facilite aux enseignants la gestion des enfants ainsi que de tous les rapports les concernant.

Pour la réalisation et le développement de ce site, nous avons utilisé les technologies suivantes :

- UML (Unified Modeling Language) pour la modélisation.

- MySQL comme système de gestion de base de données (utilisant le langage SQL).

- PHP pour l'interaction avec la base de données via le serveur Apache.

- Le framework Laravel.

Mots_clés: UML , Laravel, php,Xampp,MYSQL ,applications web,gestion de la pépiniére.

Abstract

الملـخص

مشروع تخرجنا تحت عنوان تصميم وتطوير تطبيق ويب لإدارة الحضانة، حيث قمنا بإنشاء موقع يسهل التعامل بين المدير والمعلمين والأولياء، إذْ يمّكن المدير من تسيير أمور الحضانة بنظام، كما يتيح للأولياء إمكانية تسجيل أطفالهم وإدخال معلوماتهم، كذلك يسهل على المعلمين إدارة الأطفال وكافة التقارير الخاصة بهم.

اعتمدنا في انجاز وتطوير هذا الموقع على التقنيات الآتية :

- لغة النمذجة UML.

- نظام إدارة قواعد البياناتMYSQL "يعتمد التعامل معه على لغة SQL " .

- لغة PHP للتعامل مع قاعدة البيانات ضمن خادم APPACHE.

- اطار العملLARAVEL.

الكلمات المفتاحية: تطبيقات الويب,إدارة الحضانة,UML , Laravel, php,Xampp,MYSQL

General Introduction

General Introduction

Technology plays a significant role in various business sectors, as organizations across various sectors seek to organize and automate their operations. This includes educational institutions such as nurseries, which play a fundamental role in nurturing and raising children in their early stages.

Managing this institution faces numerous challenges, such as registering children, tracking attendance, organizing activities, and communicating with parents. The nursery relies on traditional methods that can be time-consuming. This highlights the need for a digital solution that improves operations and provides a better user experience.

This project aims to design and develop a web application for nursery management:

- Control daily operations smoothly.

- Allow parents to monitor their children and interact with the administration easily.

- Manage attendance and absence.

- Schedule activities and other tasks.

We divided our study into three chapters:

Chapter One: A Study of Web Applications.

Chapter Two: Includes a study about the management and operation of the nursery, as well as the UML diagrams.

Chapter Three: Providing illustrative images of the site, in addition to the programming languages and implementation tools used.

Chapter 01:

Web Applications

1. Introduction:

In light of the rapid digital transformations, web applications have become a pivotal element of daily life, making their study crucial in this technological age. This chapter aims to provide a comprehensive overview of web applications in terms of their concept, structure,importance,advantages and disadvantages.

2. Definition of web applications:

- A web application is any piece of code that can be accessed using web browsers, such as Mozilla Firefox and Google Chrome, running on the client's machine **[1].**

- It is something more than just a 'website.' It is a client/server application that uses a Web browser as its client program, and performs an interactive service by connecting with servers over the Internet (or Intranet) **[2].**

3. Web application architecture:

A. The presentation layer:

The presentation layer is the part users interact with through a web browser. It includes UI components that support communication with the system. Technologies like HTML define the content, CSS styles the appearance, and JavaScript makes the application interactive. Overall, this layer controls how users interact with the application **[3].**

B. The business layer:

The business layer is responsible for receiving user requests from the browser, processing them, and determining how to access the data. For example, in a chalet booking app like "Nuzhah," this layer manages the booking steps. It is built using languages such as PHP, Python, Java, Ruby, .NET, and Node.js **[3].**

C. Data persistence layer:

The data persistence layer contains the database server that stores and provides data for the application. It is closely connected to the business layer to identify and retrieve the data source **[3].**

4. The importance of web applications:

- Qualifies for the labor market **[4].**
- Support collaboration and teamwork **[4].**
- Motivate students to learn **[4].**
- Facilitate the exchange of resources and materials between teachers and learners **[4].**
- Provide smart monitoring tools **[5].**
- Flexibility and technological advancement **[5].**

5. The Features of web applications:

Data Recovery: You can quickly recover data in case of data loss or technical blunders using web apps **[16]**.

Better Security: Web apps offer better security to the users, which ultimately leads to gaining better customer loyalty for your business **[16]**.

Competitive Edge: You can put in your creative hats and come up with brilliant apps to keep the customers engaged and involved with your company. You can rest assured of the competitive edge with constant innovation **[16]**.

Improved Efficiency: The use of web apps will lead to improved efficiency and better business performance **[16]**.

Greater Visibility: Web applications help you streamline your business processes leading to greater accuracy. What's more, with all the data integrated into one place, your business can benefit from higher visibility **[16]**.

Flexibility and Scalability: As a custom web application is made specifically to your business needs, it's completely flexible and scalable to your business's demands and growth **[16]**.

6. Disadvantages of web applications:

Just as there are advantages, there are also cons. The first that we are going to mention is the need for the web app to be responsive, otherwise it will not be able to be used properly on some devices, such as tablets, mobiles and computers with a small monitor **[17]**.

They are not usually available in the Apple App Store or Google Play Store to download and install on a mobile device. In other words, they can only be used from a browser. This creates yet another disadvantage and that is that since native apps are usually downloaded, they are more likely to be used more frequently than those that need to be opened from the web **[17]**.

Also, web applications often need more Internet connectivity to function properly. An app that is installed is likely to continue working (depending on its purpose) despite not having an Internet connection **[17]**.

The fact that applications on the web necessarily require an internet connection can be a problem for those who do not have access to one or, if they do, it is unstable. This makes the user experience not very good **[17]**.

Likewise, they depend on the response of the browser that is used to run the application, and if it has errors, the app will not work **[17]**.

7. Conclusion:

This chapter provided a comprehensive overview of web applications in terms of their concept, structure, and importance. Through this presentation, it became clear how these applications have become an essential part of our daily use of technology, reflecting their impact on our personal and professional lives.

Chapter 02:

Analysis and Design

1. Introduction:

Nurseries are among the important places that children attend at an early age, and their management and administration are vital topics in the field of early childhood care. In this chapter, we will explore nurseries, their management, and the problems arising from traditional administrative methods, in addition to the mechanism of our web application and its main layouts.

2. Definition of nursery:

The first institution for children aged 4 to 6 years old, where they learn skills and interactions that help them integrate into society in an organized and purposeful manner, achieving comprehensive growth in all aspects [6].

3. Nursery management and administration:

It is the coordinated efforts undertaken by a team of workers in the field of education (kindergarten), administrators and teachers, with the aim of achieving educational goals within the kindergarten in line with the state's goals of raising children properly and on sound foundations [7].

3.1. Administrative structure of the nursery:

3.1.1. kindergarten director:

The kindergarten principal is entrusted with the tasks of leading the staff at the kindergarten and coordinating their efforts in order to achieve the goals of early childhood education and the objectives of nurturing the kindergarten child [8].

The tasks and responsibilities of the kindergarten principal are as follows [8]:

- Facilitating the educational and instructional process in the kindergarten, identifying its problems, and providing appropriate solutions in cooperation with the staff and parents.
- Achieving coordination and interaction between the kindergarten and its staff, as well as between parents, the kindergarten administration, and the teachers, in a way that promotes understanding and strengthens the bonds among these parties.
- Providing an appropriate educational environment characterized by joy, trust, affection, and a belief in the principle of human relations and good treatment based on respect and compassion.
- Having full awareness of the kindergarten's objectives, working to achieve them, providing the appropriate environment for that, and ensuring the availability of the necessary means and equipment required to accomplish those goals.

3.1.2. Kindergarten teacher:

The teacher is the person who deals directly with the child, and this role requires her to be aware of the goals and dimensions of the profession, in order to perform her administrative role to the fullest extent [8].

The most important activities of the teacher are the following [8]:

- Goal setting
- Effective educational communication
- Guiding and guiding students
- Evaluating school programs

4. Problems Faced by Nurseries in Management When Using Traditional Methods:

- **Weak or delayed communication with parents:** It becomes difficult to convey information related to the child to their guardian, such as daily notes, reports, etc.
- **Excessive reliance on paperwork:** Leads to poor organization or loss and damage of files.
- **Lack of efficiency in time management:** A significant amount of time is consumed in tasks such as preparing schedules and recording data.
- **Slow decision-making:** The lack of immediate and reliable information hinders management from making appropriate decisions at the right time.
- **Weak daily monitoring of children:** It is difficult for the management and teachers to accurately and continuously record and monitor the child's behavior and development.

5. How the site works:

- **Director:**

The director has full control over the management of teachers' and parents' accounts. They can accept or reject activity proposals and children's registration requests. The director can view statistics, monitor reports from teachers, and communicate with all users.

- **Teacher:**

The teacher can view the list of their students, create and access reports, and propose activities. They can also communicate with all users.

- **Parent:**

The parent can register their children and follow up on reports. They can also propose activities and enroll their children in them.

6. UML Modeling Language:

Unified Modeling Language (UML) is a standardized visual modeling language that is a versatile, flexible, and user-friendly method for visualizing a system’s design. Software system artifacts can be specified, visualized, built, and documented with the use of UML [9].

7. Use case diagram:

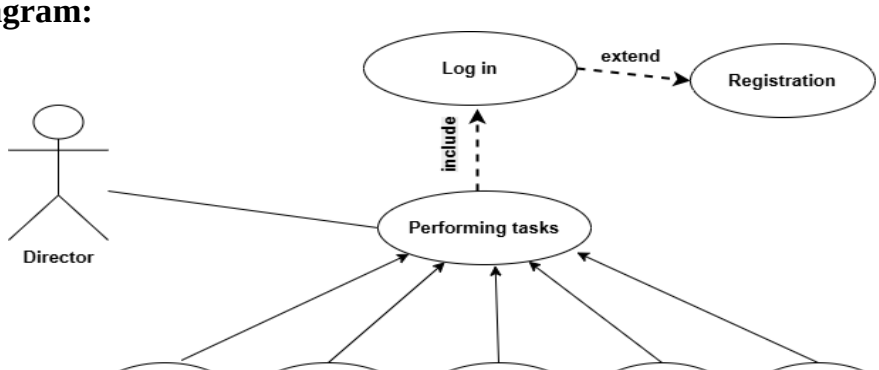

Figure 01: Use case diagram for manager.

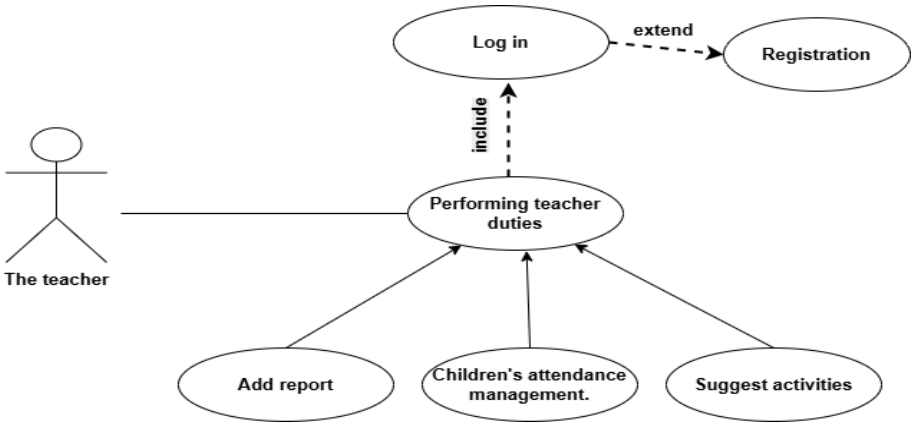

Figure 02: Use case diagram for teacher.

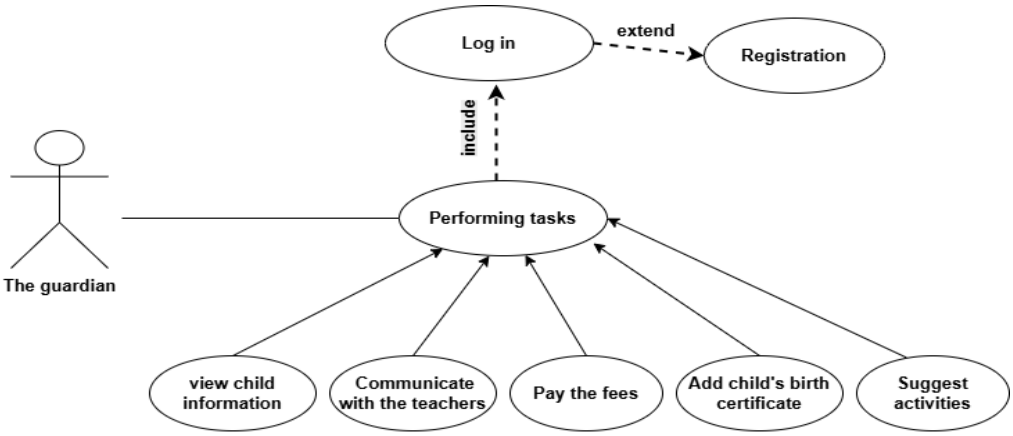

Figure 03: Use case diagram for guardian.

8. Sequence diagram:

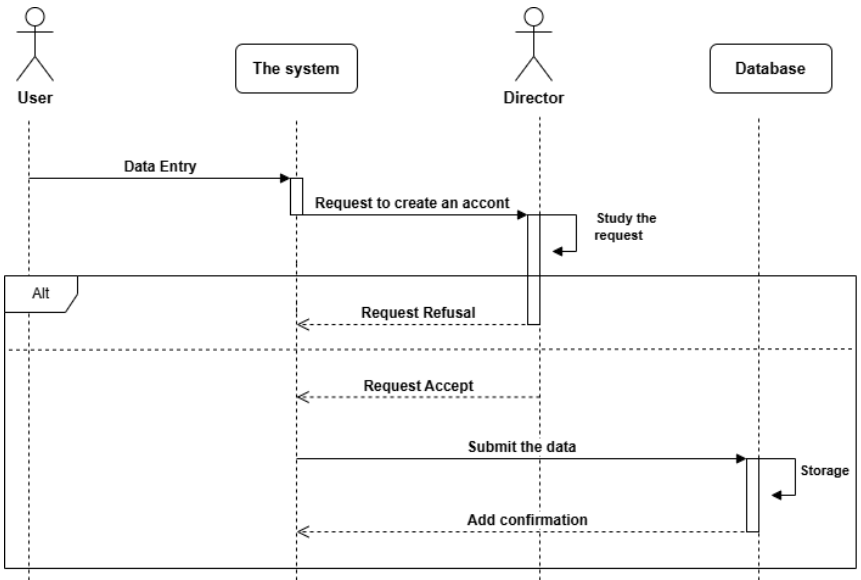

Figure 04: Sequence diagram for creating an account.

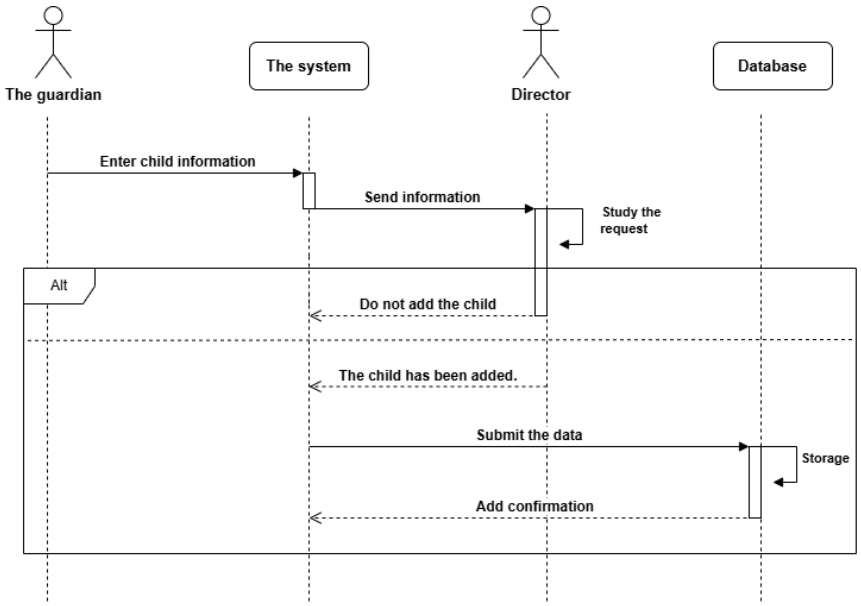

Figure 05: Sequence chart for registering a child.

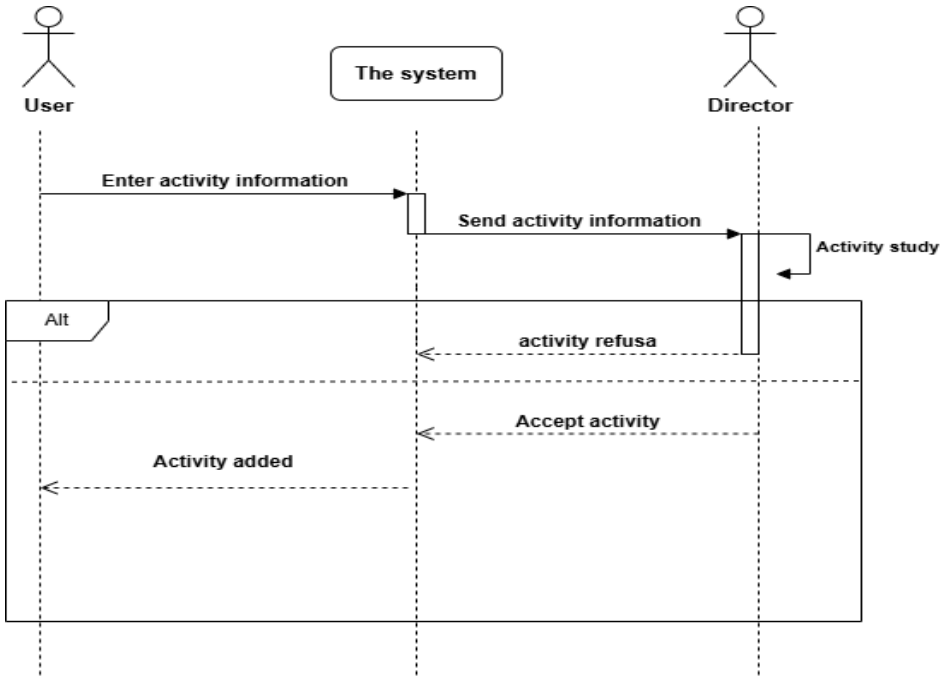

Figure 06: Sequence diagram for adding a new activity.

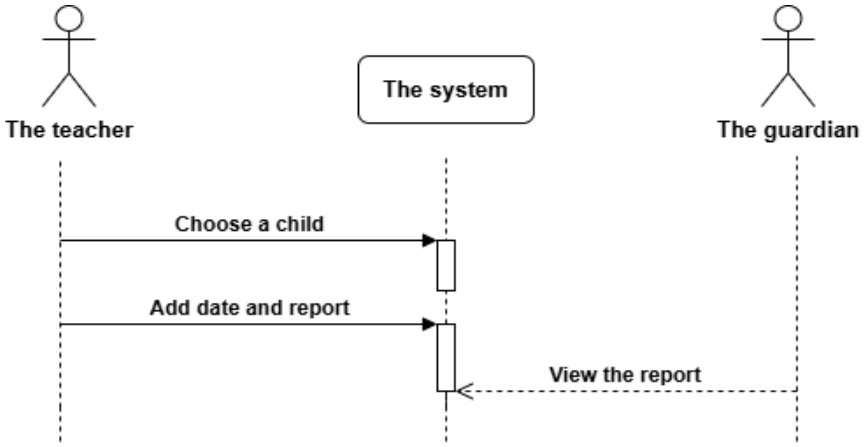

Figure 07: Sequence diagram for adding a report.

9. Class diagram:

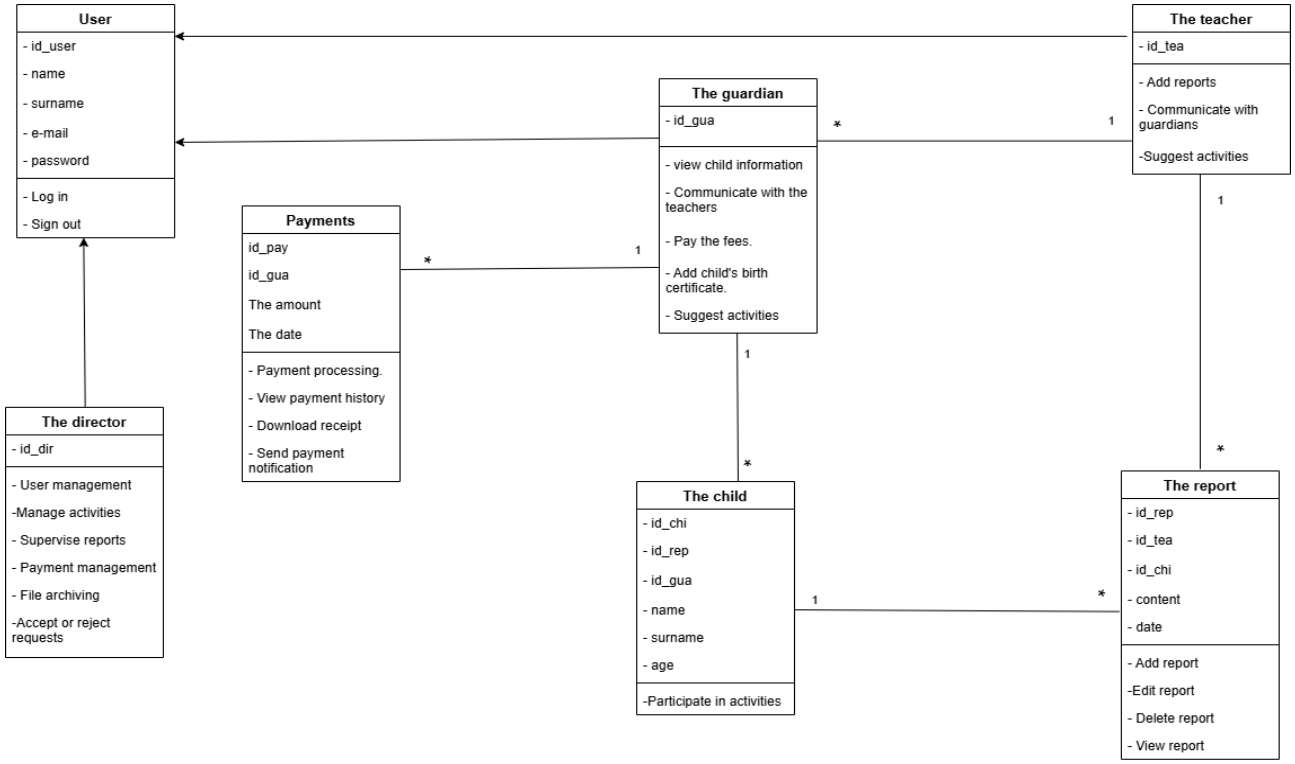

Figure 08: General class diagram.

10. Conclusion:

This chapter explains the importance of moving from traditional methods of managing the nursery to using a web application that facilitates the process and increases its efficiency. We also used some diagrams to explain how it works more clearly and easily, which reflects the project's benefit in supporting nurseries and parents.

Chapter 03:

Achievement and implementation

1. Introduction:

Choosing programming languages and development tools is a fundamental step in building any successful project. In this chapter, we will present the languages and technologies we used in the development and implementation of the project, such as HTML, CSS, and PHP, in addition to other techniques and tools that contributed to building the user interface and enhancing the user experience. The development environment used during the implementation of the project will also be discussed.

2. Implementation languages used:

2.1. MYSQL: MySQL is an open source RDBMS that uses SQL to create and manage databases. As a relational database, MySQL stores data in tables of rows and columns organized into schemas [10].

2.2. SQL: Structured Query Language (SQL) refers to a standard programming language utilized to extract, organize, manage, and manipulate data stored in relational databases [11].

2.3. PHP: A programming language for developing dynamic, server-side web applications [12].

2.4. HTML: HTML stands for HyperText Markup Language, a markup language that defines the content and layout of a web page.

HTML uses tags to mark different elements of a web page, such as headings, paragraphs, images, links, and forms [13].

2.5. CSS: CSS stands for Cascading Style Sheets. It is a style sheet language that describes how HTML elements are displayed on the screen. CSS uses rules to apply different styles to HTML elements, such as colors, fonts, backgrounds, borders, and margins [13].

2.6. Java script: JavaScript is a scripting language that adds interactivity and dynamic features to web pages. It can manipulate HTML and CSS elements, respond to user events, communicate with web servers, store and retrieve data, and perform complex calculations [13].

3. Applications used to complete the project:

3.1. Visual Studio Code:

It is a program designed by Microsoft specifically to edit programming codes for all programming languages, whether Microsoft or others. It is a code editor and is open source, meaning it is free, fast to code, and beautiful to use [14].

3.2. XAMPP:

It's primarily intended for web developers using PHP, Perl, and similar programming languages, as well as for website and blog owners who work with their website code almost daily to resolve any existing issues or add new developments or additions.
The program enables the user to create their own local server on their own computer [15].

3.3. LARAVEL:

It is an open source framework built using the PHP language that makes the process of developing websites and web applications much easier. It provides many ready-made components and packages that you can use to speed up your work instead of writing everything from scratch [12].

4. Web application interfaces:

4.1. Main Interface: The following interface shows the main interface of the site that the user sees.

Figure 09: Website home page.

4.2. Login Interface: This interface allows the user to log in to the site by entering his email and password.

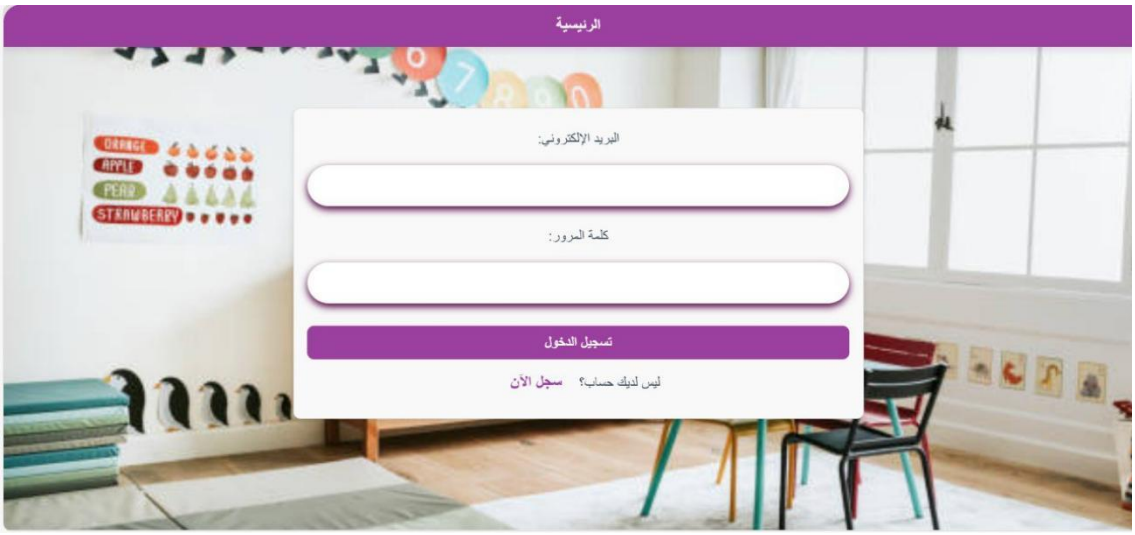

Figure 10: Login page.

4.3. New User Registration Interface: This interface allows the user to open a new account by entering their full name, email address, and password.

Figure 11: New User Registration page.

4.4. Profile Interfaces: This interface is specific to the user's profile page. If the user is a parent, a list of their registered children appears. But if the user is a teacher, a list of the children registered with him appears.

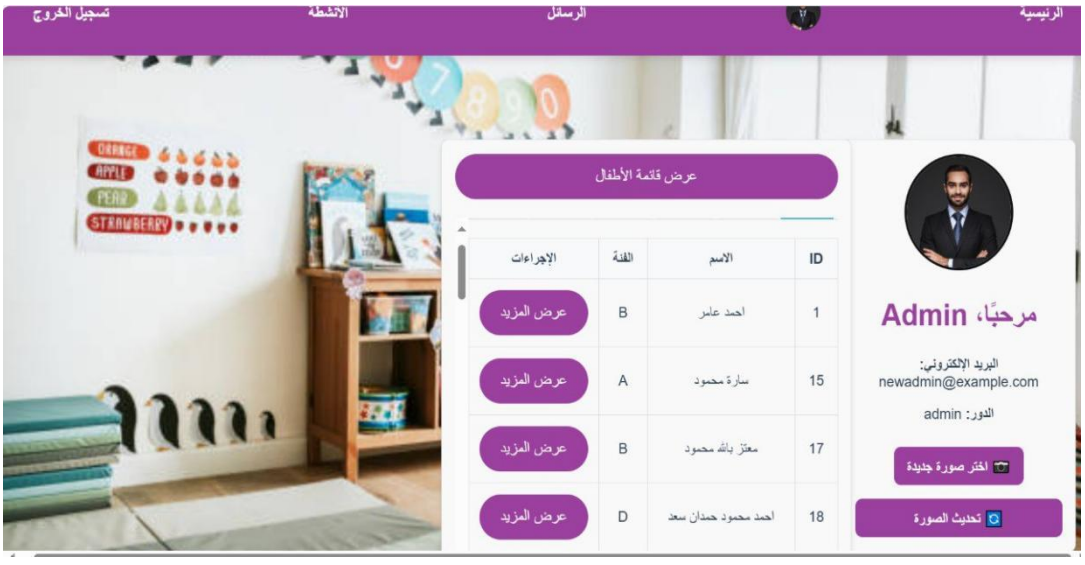

Figure 12 : Admin profile page.

Figure 13 : Teacher profile page.

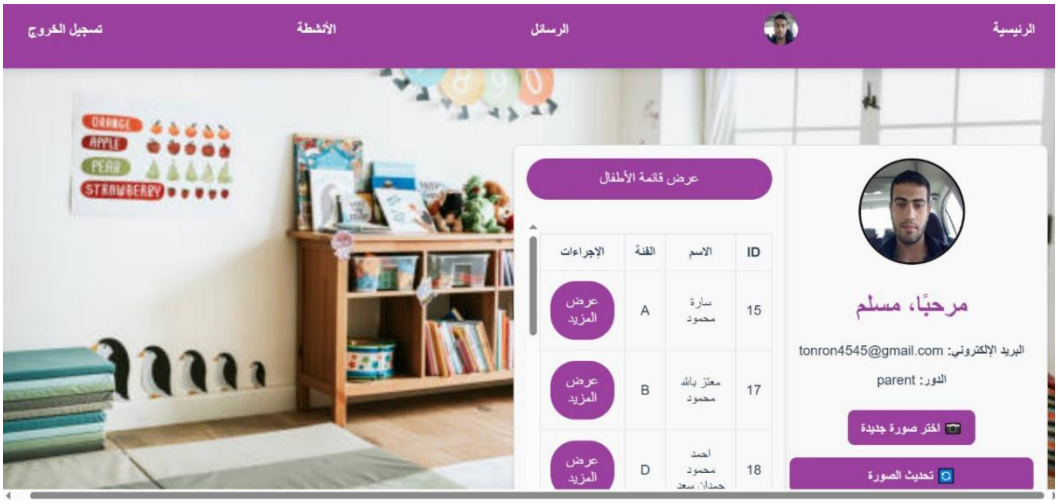

Figure 14: User profile page.

4.5. New Child Registration Interface: This interface is for registering a new child by entering his name, surname, and date of birth.

Figure 15: Child registration page.

4.6. Child Information Interface:

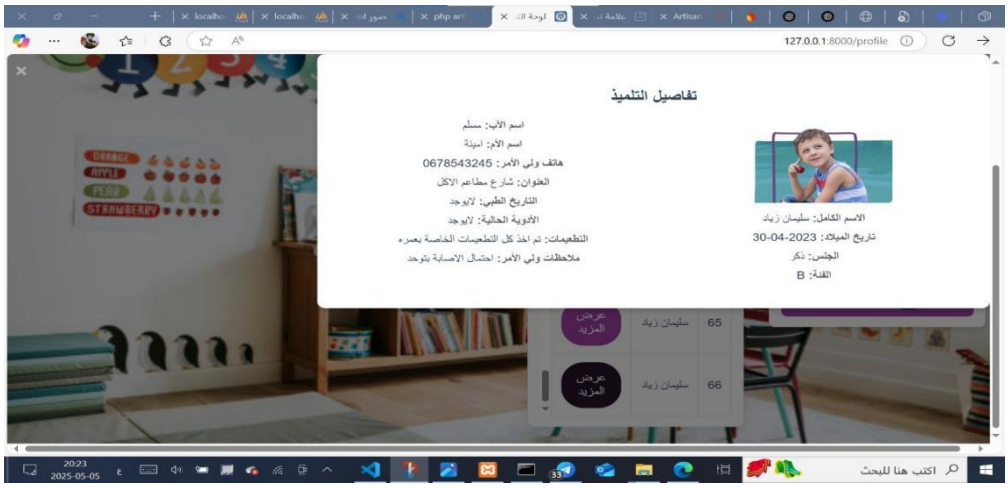

Figure 16: Child Information page.

4.7. New Report Creation Interface:

Figure 17: Create Report Page.

Figure 18: Report display page.

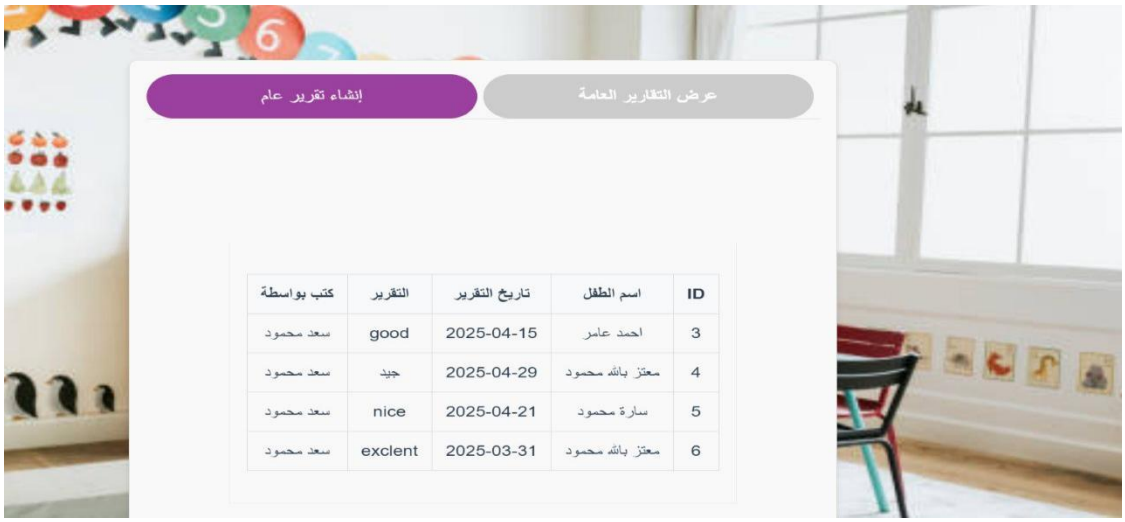

Figure19: Reports View Page.

5. Conclusion:

In this chapter, we presented the software tools and technologies used in the development of the project. We integrated design languages such as HTML, CSS, and JavaScript with programming and server-side languages like PHP and Laravel, along with databases such as MySQL and SQL, and the simulation program XAMPP. We also used UML language to design and analyze the system before implementation. This variety of technologies helped us gain comprehensive practical experience and achieve a functional and professional project, as reflected in the attached illustrative images. The coordination between tools and languages was a key factor in the success of the project and the achievement of its goals.

General Conclusion

General Conclusion

At the conclusion of this memorandum entitled "Design and Implementation of a Web Application for Nursery Management," it can be said that technological development has greatly contributed to improving management methods and simplifying administrative processes, especially in educational institutions such as nurseries.

Through the stages of analysis and design, we were able to identify the most important requirements and essential functions that the website must include, such as registering children, preparing reports, managing communication with parents, etc.

As for the implementation stage, we used a set of tools and technologies in programming, interface development, and databases, which enabled us to produce an integrated application that is easy to use and has a practical interface.

In conclusion, this project was not only an application of the theoretical knowledge we acquired during our studies, but it also represented a challenge that helped us develop our skills in software design, database management, and working within an integrated project.

We hope that this application will contribute to improving the reality of nursery management and that it will serve as a model upon which similar IT solutions can be built in the future to serve other institutions in various sectors.

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