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WEB APPLICATION FOR DISTANCE EDUCTION

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GENERAL INTRODUCTION

Context of the Study

Nowadays, the Internet is a phenomenon in facilitating interaction between people and access to information. Everyone, companies, individuals and governments use the web. It allows you to share your ideas and areas of interest with other users around the world.

Among the areas of web application, e-learning, and online learning, has witnessed a great demand by users because of the ease of obtaining information, or because it is free or at good prices, and its basic concept depends on the presence of the learner in a place different from the source of education, which may be book, teacher, or even a group of learners. Distance education is the transfer of an educational program from its location on the campus of an educational institution to geographically dispersed places. It aims to attract students who under normal circumstances would not be able to continue with a traditional educational programme. This usually involved correspondence courses where the student corresponded with the school by mail, but today it includes online education, and there was a common mistake in considering distance education synonymous. For education via the Internet, and in fact, education through the Internet is one of the means of distance education, but due to the prevalence of the first, it has often been considered synonymous with distance learning. The distance-learning program can be completely distance learning or a combination of distance learning Traditional education in the classroom (in this case, it is called the hybrid education system or the co-educational system).

In light of the Corona crisis that afflicted the world, and in order to preserve the public safety of students and teachers alike, and to ensure the continuity of education in good conditions, and in these difficult circumstances, remote study has become an inevitable matter. It includes the other phases, and other difficulties have emerged, represented in communicating the information correctly and easily, supervising students by teachers and parents, and on the other hand ensuring understanding and understanding. The goal of our project is to build a platform dedicated to running schools so that students can communicate quickly and smoothly with the administration and teachers It also provides the possibility of raising lessons and sharing them with students, and also provides the possibility of monitoring the student’s activities by his guardian, by providing the opportunity for communication between parents, administration and teachers, and facilitating the work of administrators in grouping students for exams by knowing the number of students in

an exact manner in all phases. Facilitating the work of professors through rapid assessment and feedback, reducing human potential and saving time.

CHAPTER 01

Web technology

1.1. Introduction

In the last five years, a real revolution has occurred in the world of computing; this revolution is the explosion of the Internet more particularly the foundation on which it is built: the Web, considered as a tool for communication, research/publication of information, and creation of new services.

This chapter first introduces the Internet in general and the web in particular, and then defines the websites and their characteristics.

1.2. Internet

The internet is now widely used by most people for a wide range of services: file sharing, information retrieval, online shopping, banking, social media, etc.

However, as the Internet continues to evolve, it not only connects people with each other or with a service, but also allows objects to connect with each other to get and share information or to take action. The Internet of Things is currently translating into an increase in the number of connected objects. These objects carry a growing number of sensors and actuators allowing them to measure the environment and act on it, thus making the link between the physical world and the virtual world. Specifically, the Internet of Things poses several problems, in particular because of its very large scale, its dynamic nature and the heterogeneity of the data and the systems that compose it (powerful / not very powerful, fixed / mobile devices, powered by batteries / DC power supplies, etc.). These characteristics require tools and methods for the creation of applications capable of extracting useful information from the many available data sources and of interacting with the environment, by means of actuators, as well as with users, through dedicated interfaces. Indeed, the Internet of Things must be designed for easy use masking the underlying technological complexity, and quiet handling preventing threats and potential risks. In the IoT, any object is potentially connected to the Internet and capable of communicating with other objects. This creates new security threats. In the past, the Internet linked traditional objects such as PCs, tablets, etc. But currently the internet has to connect non-traditional objects [1]

1.2.1. Objective

The objective was to operate a network that was supposed to withstand a nuclear attack and sabotage, by compensating for the excessive centralization of existing infrastructure.

The network initially only allowed the exchange of texts, which is called e-mail. This network was developed and extended by academics in the late 70s.

In 1977, the Internet became a reality because TCP / IP was effectively used to connect various networks to Arpanet.

In the 1990s, its popularization went through the appearance of the World Wide Web. The Internet as we know it was born! It is now the largest network in the world, bringing together people from all countries.

1.3. The web

The Web was invented several years after the Internet, but it was it that contributed to the explosion of Internet use by the public, thanks to its ease of use. Since then, the Web is frequently confused with the Internet when it is actually only one of its services

1.3.1. WWW

The World Wide Web, literally the "world spider web", commonly known as the Web, sometimes the Web or the WWW, symbolizing the mesh network of information servers, is a public hypertext system operating on the Internet that allows the consultation of information, thanks to links created between documents : web pages.

The web page allows both the display of texts, images and input forms but can call and display different other types of digital documents: sound, video, applications... (This list is not exhaustive in view of technical progress).

Its consultation by the Customer requires a navigation software (browser or browser).

The concept of the World Wide Web was created in 1989 at CERN by Tim Berners-Lee, and then developed by himself and Robert Cailliau in 1990 with the aim of designing a system to navigate simply from one space to another of the Internet using hypertext links and thanks to a browser.

1.3.2. Evolution du web

The Web is characterized by a constant evolution of the substance and form of web pages.

In its initial design.

1.3.2.1. Le Web 1.0

Web 1.0 has inserted in people's minds an intensifying disaffection with channels and libraries by directing people towards diverse, varied, instantaneous responses, at their fingertips, without physical displacement, all thanks to the Internet. It has become the great universal encyclopedia, where we find all the desired information (more or less verified!). It guarantees the free flow of information; there is no question of censorship, especially since the network has no identifiable head; at most, efforts can be made to temporarily restrict its dissemination (some governments are still trying to do so).

Web 1.0 has an answer to everything; we refer to it spontaneously. Are we looking for something? We immediately resort to the Internet: temperature, route, price, etc. Talk to the doctors: their "patients / Internet" arrive with a diagnosis thought in advance and discuss the type of drugs to take without too many side effects…

The major institutions understood that, henceforth, they had to be present on this new "universal encyclopedia", under pain of ceasing to exist in public opinion. All social, political, economic, educational, sports, religious groups have returned to school, in order to produce and maintain their own sites on Web 1.0. These sites present above all the origin, history, goals, services offered by the organization.

However, it is claimed that there are well beyond a million religious sites on the Internet. We quickly saw the arrival of institutional sites at all levels. For example in the Catholic Church: individuals, parishes, associations, dioceses, religious communities, monasteries, shrines... and even the Vatican, which was in the first users. It offers objectives, descriptions, official documents, spiritual paths, biblical texts, retreats, sacred art, personal opinions, etc. There are no limits.

Sometimes these sites quickly become frozen, fossilized for lack of volunteers to maintain them or competent people to take care of them. Static, they age quickly. To make them more alive, institutions and individuals have launched an initiative with major consequences for the future: blogs. That is, a space for dialogue between sites (or individuals) and Internet users interested in a common theme. This behavior was going to spawn a real second revolution in communication through the Internet, with formidable consequences for religions: Web 2.0. [2]

1.3.2.2. The Web 1.5

A first evolution was realized by solutions based on a dynamic web called web 1.5. This dynamic web is usually based on the association of PHP programming language and MySQL databases. When the internet user accesses the dynamized site, he makes run on the server the PHP language, which will fetch the information in the database to transcribe it in the HTML page on the user station. [2]

1.3.2.3. The Web 2.0

The web has undergone a new evolution with the appearance of new technologies such as the AJAX language that makes pages interactive and fluid and the RSS Feed, which allows staying informed of the news of a web interface. This is the advent of the collaborative, interactive and participatory web.

Web 2.0 induces a complete change of attitude. It introduces interactivity as an obligatory function. It changes everything. Web 2.0 fundamentally promotes socialization, through constant exchanges. No interactivity, no interest! Participating becomes the rule; otherwise, one "disembarks from the train".

The current presence of religions on the Web is divided into two types...: "new religions" and traditional religions. The "new religions" were born directly on the Web from the initiative of individuals or small groups: they were designed and

organized only for the Web; they intend to render all kinds of services at the religious level (meditation, prayer, sermons, religious songs, and objects for sale...).Pour leur part, les religions plus classiques proposent sur leurs sites les grands principes évoqués plus haut (histoire, buts, services, etc.), souvent avec une visée jusqu'ici plutôt utilitariste : « se servir » des nouveaux médias pour répandre leur foi.

Many practices are already in place; there are various examples in the United States. Let's remember one : faced with a desire in vogue to confess via the Internet, the archdiocese of New York has offered, on the Web, a process of complete confession, except that at the end the internet user is invited to present himself to a priest to receive absolution.

Beyond this pragmatism displayed in the United States by different religious groups, there remains a reality: many religious stakeholders have difficulty coping now on arrival from a very new culture, to an unprecedented cultural upheaval. It is a complete reframing of the way of thinking of people – and mainly young people – into a new social fabric, which will never be as before and which opens up new horizons. However, this new vision of the world directly affects the construction of meaning and identity, especially among the rising generations. To new media, new schemes of thought and action, personal and collective. What are the characteristics that emerge from these destabilizing changes? What will be the potential consequences for religions?

Before answering these questions directly, let us dwell briefly on the good sides of the Web, before mentioning some weaknesses – many books deal with it, so we will only give an overview of it.

Remember the positive that we find in Web 1.0: documentation accessible 24 hours a day, 7 days a week; no need to travel to have access to full of information : we transcend places and times. No more censorship, full freedom of access to anything.

Web 2.0, on the other hand, is based on interpersonal and equal exchanges, «friendly ". Useful blogs for reflection and dialogue. Existential dimensions attract: the entertainment found there often promotes a search for meaning. Web 2.0 satisfies both the personal interest (the "I") and the community aspect (the "we"). It transforms the worldview, in direct line with globalization, creating new connectivity, even between distant people... Several group leaders play a positive role: they connect with each other. Web 2.0 responds to the need to meet collectively and help each other. It often has a so-called viral, contagion effect, for good causes: for example, the Arab Spring. It contributes to the building of an online community that can also respect the varying degrees of belonging of its audiences, etc.

On the other hand, ethicists – especially Christian churches – have repeatedly pointed out the potential weaknesses or dangers of the Web. Isolationism: unrestrained individualism, narcissism and alienation. Superficiality of relationships, which adversely affects real interpersonal contacts. Bombardment of information and endless choice. Immorality: sexuality, violence. Dependence: impossible to detach from it. Non-respect for others: attacks, desire to impose one's power. Camouflage, thanks to avatars. Take the other as a "he-object" and not as an "I-person". Disincarnating: the body becomes heavy in the face of the imaginary (kind of revenge

on the too notional or the too scientific?) Recovery of new media by the economic, materialistic and hedonistic system. Generalized relativism. Disengagement from any action on the ground. [2]

1.4. The web site and web application

1.4.1 The web site

A website (also called a website) is a coherent set of web pages that are hyper-linked to each other, designed to be accessed with a web browser, published by an owner (a company, an administration, an association, an individual, etc.) and hosted on one or more web servers.

1.4.1.1. Web site creation steps

The creation of a website is a project in its own right comprising a large number of phases including:

Design

The design of a site makes it possible to set up a model on which we will rely during the implementation. This step should lead to the development of a specification describing all the functionalities planned for the realization of the website. The design of a website thus follows directly from the definition of needs. The analysis of the needs of the site then concerns the following points:

+ The choice of the type of site to realize (showcase, merchant, etc.)

+ + the type of content to integrate into the site

+ Determine the audience of the site

+ The shape of the data

+ Define the structure of the site

+ Define the graphic charter of the site

Achievement

After the web, design comes the realization, which is the stage of technical concretization of the client project. This is the phase of pure development, the one where you have to produce the code necessary for the needs of the site. This is when the graphical mockups are transformed into HTML pages.

The realization of a website is based on a set of tools and web development technologies. We distinguish:

- Side technologies: This is the set of tools supported by the browser

- Server-side technologies: This is the set of tools running on the web server.

Association of a domain name

A website is identified on the Internet through a web address. The web address is usually made up of three parts:

- Service.

- The root i.e. the name corresponding to the domain name itself.

- The suffix commonly called extension (or domain name).

Hosting and uploading

In order to make a website available on the Internet, it is necessary to have it hosted on a web server. Hosting is a service provided by a specialized provider called Internet hosting that provides the site, a dedicated disk space on a web server permanently connected to the Internet.

SEO and promotion

SEO is the set of activities that allow a website to appear in the first pages of search engines when a user performs a search from a few keywords. This service has the advantage of making the site known to Internet users, increasing its visibility and thus increasing the number of prospects.

1.4.2. Web Application

A web application is an application that is invoked with a web browser on the Internet. Since 1994 when the Internet became accessible to the public and especially in 1995, when the World Wide Web put a usable face on the Internet, the Internet has become a platform of choice for a large number of increasingly sophisticated and innovative web applications. In just a decade, the Web has evolved from being a repository of pages used primarily to access static, mostly scientific information, to a powerful platform for application development and deployment. New technologies, languages and web methodologies make it possible to create dynamic applications that represent a new model of cooperation and collaboration between large numbers of users. Web application development has been quick to adopt standard component and component orientation software engineering techniques. [3]

1.4.2.1 Modern Web application:

Examples

Early Web applications offered mostly textual user interfaces and limited interactivity. Today’s Web applications offer rich interfaces, are interactive, and support collaboration among users. Here we examine several applications that represent the current generation of Web applications, sometimes collectively called Web 2.0.

1. Google docs

Google docs and spreadsheets is a recent service offered by Google that provides the traditional word processing and spreadsheet functionalities as a Web application. They are streamlined services that support the most often-used features and do not support many features that are offered by commercial word processors. The interface looks very much like a typical desktop application. The user does not have to press a submit button after every change (a hallmark of the first generation Web applications). The user's data is automatically saved in the background. You can even drag a piece of text in the window. In addition to the usual word processing features, Google docs offers features that are associated with Web 2.0. A document may be shared with other users so that different people may collaborate on editing it. Naturally, the document may be searched using keywords. Additionally, documents may be tagged with terms the user chooses so that documents may also be searched for based on tags. Documents may be saved in a variety of formats (on the Google servers) and mailed to other users. Other users may be given read-only or read-write access to the document. Tagging and collaboration are two features common to modern Web applications.

2. Flickr

Flickr is a photo-sharing site where users store their photos and tag them for future retrieval. Further, users may tag any of the photos on the site that are available publicly. Similar to Wikipedia, Flickr is à site that would have nothing without its users. As more and more users participate, the volume of content grows and tags allow photos to be found easily.

3. Wikipedia

Wikipedia has become one of the most popular sites on the Internet. It is used by many as an authoritative source of information, from finding definitions of technical terms to explanations of current events. The key feature of Wikipedia is that users produce its content. Anyone can add or edit the information on Wikipedia. In contrast to a traditional printed or on-line encyclopedia that employs professional editors and writers to produce, structure, and authenticate its content, Wikipedia relies on social structures to ensure the creation and correction of its content. The vast numbers of users of the Internet form a large pool of potential volunteers. The Wikipedia is updated constantly rather than following the multi-year release cycle of a traditional encyclopedia. An innovative aspect of the Wikipedia application, considered a characteristic of Web 2.0 applications, is that it provides a platform for users to collaborate to create a valuable product. What makes Wikipedia valuable, its content, is indeed produced by the users themselves. This aspect creates what is called the network effect: The more users there are, the more useful the product becomes. Amazon already introduced early forms of user collaboration to enhance the product by encouraging users to provide book reviews. Wikipedia is based on the concept of a wiki, described later.

4. Myspace

Myspace is a site for social networking. A user registers and creates a profile detailing his, her, or its characteristics (Profiles exist for animals and companies and products, presumably created by real humans). Each user's space is open to be visited by other users. Users seem to enjoy sharing all kinds of information about themselves and to communicate and interact with other users. The basic thesis that makes Myspace work is that people like to interact with other people. Myspace provides a platform for social interaction, albeit in virtual space. Users have populated Myspace with a variety of multimedia documents including images and videos. The site constantly changes its appearance to maintain the interest of its users.

1.5. Web technology

The realization of a website is based on a set of tools and web development technologies. We distinguish:

1.5.1. Client-side technologies * Front-End *:

This is the set of tools supported by the browser

HTML (Hyper Text Markup Language)

HTML is a language for describing the layout and form of the content of a web document and including hyperlinks

An HTML page is thus a simple text file with an extension .htm or html, and whose data set is between tags (called markers or tags).

Hypertext is a system using the HTML language, which allows the creation of hypertext links. A hypertext document is therefore a document that contains hyperlinks. When documents are not only textual, but also audiovisual, we can talk about hypermedia system and documents.

CSS (Cascading Style Sheet)

CSS is a formatting language that describes the presentation of a document (element positioning, alignment, fonts, colors, margins and spacing's, borders, background images, etc.) written in HTML or XML regardless of its structure.

JS (JavaScript)

JavaScript (often shortened to JS) is a lightweight, interpreted, object-oriented language with first-class functions, and is best known as the scripting language for Web pages, but it is used in many non-browser environments as well. A prototype-based, multi-paradigm scripting language is dynamic, and supports object-oriented, imperative, and functional programming styles.

JavaScript runs on the client side of the web, which can be used to design / program how the web pages behave on the occurrence of an event. JavaScript is an easy to learn and powerful scripting language, widely used for controlling web page behavior.

Contrary to popular misconception, JavaScript is not "Interpreted Java". Briefly, JavaScript is a dynamic scripting language supporting prototype based object construction. The basic syntax is intentionally similar to both Java and C++ to reduce the number of new concepts required to learn the language. Language constructs, such as if statements, for and while loops, and switch and try ... catch blocks function the same as in these languages (or nearly so).
JavaScript can function as both a procedural and an object-oriented language. Objects are created programmatically in JavaScript, by attaching methods and properties to otherwise empty objects at run time, as opposed to the syntactic class definitions common in compiled languages like C++ and Java. Once an object has been constructed, it can be used as a blueprint (or prototype) for creating similar objects.

JavaScript's dynamic capabilities include runtime object construction, variable parameter lists, function variables, dynamic script creation (via eval), object introspection (via for ... in), and source code recovery (JavaScript programs can decompile function bodies back into their source text). [4]

1.5.2. Server-side technologies*Back-End*:

This is the set of Tools running on the web server.

PHP (Hypertext Preprocessor)

PHP is a popular general-purpose scripting language that is especially suited to web development.

Fast, flexible and pragmatic, PHP powers everything from your blog to the most popular websites in the world. [6]

1.6. Conclusion

In this chapter, we provided an overview of the nature of the Internet from its history, the services it provides, including the Web, and the methods of developing the Web from techniques and tools once through generations until we reached our generation, and now we are about to take a curve or in other words delve into the field, and we By this we mean the field of distance education

CHAPTER 02

Management Information Systems on School Administration

2.1. Introduction

The use of information technology in educational management has rapidly increased due to its efficiency and effectiveness. In the initial stages of its development, management information systems (MIS) main purpose and usage was to improve the efficiency of school office activities. It was used to store student and personnel data. The most concern was being focused on data entry and collation, rather than upon data transfer or analysis. The value of management information was recognized during its integration stages. Overall review of literature highlighted positive impact of MIS on school administration and management including better accessibility to information, more efficient administration, higher utilization of school resources, reduction in workload, better time management, and improvement in the quality of reports. A number of inhibitors to MIS use are evident in the literature; foremost among these are lack of time, lack of confidence or skills, lack of training, lack of senior management support, and lack of technical support. MIS can provide administrators and teachers with the information required for informed planning, policy-making, and evaluation. MIS have changed school management in the areas of leadership, decision making, workload, human resource management, communication, responsibility, and planning. These systems can assist the school manager in determining the aims of the school, formulating strategic plans, distributing resources, and evaluating staff performance as well as organizational success.

Computers are seen to have the potential to make a significant contribution to the teaching, learning, and administration in schools. An extensive amount of investment that has gone into introducing information and communication technology (ICT) into schools including hardware, software, networking, and staff development will be considered worthwhile if there is evidence that it has made a commensurate impact on school performance and effectiveness .

The use of information technology in educational management has rapidly increased due to its efficiency and effectiveness. School managers

who used to spend large amount of time in solving complex allocation problems (e.g., staff allocation, resource allocation, timetabling) and monitoring the school operations have now better options due to enhanced technology. Information technologies facilitate the decentralization of work tasks and their coordination in an interactive network of communication in real time . They allow for greater flexibility and networking that emphasizes interdependence, interaction, and constant adaptation to an ever-changing environment .

Management information systems (MIS) are being used by schools to support a range of administrative activities including attendance monitoring, assessment records, reporting, financial management, and resource and staff
allocation. MIS provide managers with the information required to manage organizations efficiently and effectively. These systems are distinct from other information systems in that they are designed to be used to analyze and facilitate strategic and operational activities in the organization .

Waston et al. (1987) describes management information system (MIS) as ‘an organizational method of providing past, present and projected information related to internal operations and external intelligence. It supports the planning, control and operation functions of an organization by furnishing uniform information in the proper time frame to assist the decision makers’. Telem (1999) defines MIS as ‘a management information system designed to match the structure, management task, instructional processes, and special needs of the school’. O’Brien (1999) referred MIS as ‘a term given to the discipline focused on the integration of computer systems with the aims and objectives of an organization’.

Based on the foregoing definitions, MIS refers to a system that uses the information required by the organization’s management at every level in making operational, tactical, and strategic decisions. Its main objective is to design and implement procedures, processes, and routines that provide suitably detailed reports in an accurate, consistent, and timely manner.

MIS plays a vital role in the area of decision-making as it can monitor by itself disturbances in a system, determine a course of action and take action to get the system in control. It is also relevant in non-programmed decisions as it provides support by supplying information for the search, the analysis, the evaluation and the choice and implementation process of decision making (Obi, 2003).

These systems have the ability to provide its users the processed information, analytical models, real-time updates and hypothetical scenarios to assist their decision-making process. This paper will give an account of the studies that have examined the impact of MIS on school administration and management. Some of these studies have also highlighted the factors that hinder MIS usage in school administration. [8]

2.2. Definitions

A School Management System is an information management system for educational institutions to manage all student's data. It provides abilities such as registration of students in classes, documenting of grades and analytical marks of each student and other evaluation elements. In addition, an SMS is used for planning students' curriculums, recording their attendance and managing all student-related needs within a school.

School Management systems vary in size, scope, and abilities, from packages implemented in relatively small organizations to cover student records only, to enterprise-wide solutions, which aim to cover most aspects of the operation of large organizations and their online schools with significant local responsibility. Many systems can be staggered at different levels of functionality, by purchasing additional "modules" and usually formed by their home institutions to meet local needs.

2.3. What does the School Management System include?

- Maintenance and reporting of student data including family, demographics and other records.
- Processing inquiries from prospective students.
- Manage the admission or registration processes.
- Enrolling new students and activation of online scheduling.
- Managing extra-curriculum activities and/or related services
- Managing Student accounts and processing of financial aid
- Fees & Billing management (billing of tuition fees or other services)
- Monitoring & Registering of notes, remarks, incidents and actions (Educational CRM)
- Managing internal documents and workflows.
- Creating and managing timetables.
- Managing records of exams, assessments, grades and academic progress.
- Providing official grade reports
- Keeping records of absences, attendance & behavior.
- Provision of statistical reports.
- Communicating student data to parents or other person authorized by the student through a portal or via email, SMS or push notification.

- Special education/training.
- Human resources services.
- Accounting and budgeting services.
- Student health records.
- Administration of canteens.
- Transportation management.

2.4. The advantages of school management software

There are many advantages of a school management system, which supports the operational performance and interaction between students, teachers, and parents. Top 12 approaches a school management software benefit organizations are explained below:

- **Preserves time of teachers and administrators**

  It preserves the valuable time of teachers from daily admin works. This is accomplished by automating the time-consuming everyday duties like timetable invention, attendance administration, parent-teacher conversation, etc. The school management software can also create various reports that help the teachers and principals, which saves expensive time in the process. Directors can also save time by the efficient use of modules like payslip formation, online fee collecting, transportation, etc.

- **Bridge Communication Gap**

  Usage of Short Messaging Service(SMS), organizations interact with the parents immediately and efficiently. A short text message can convey a significant report to the parents. Most of the school management software now gives mobile-apps also, which help communication more reliably. The transmission is passed as push notification and also permits parents to interact with parents.

- **Human Resource Management**

  The HR feature in the school management system takes care of the life-cycle of the worker in school. The operator can be any staff like the educator, director, or other non-teaching faculty. The software takes care of employee selection, leave management, payroll distribution, payslip creation, etc. Payment can be automated by installing up for one time, supplying all the breakups and auto deduction method.

- **Student lifetime data**

The primary objective of school software is to handle real data of a student's lifetime data, starting from the admission platform to the day student leaves the institution. Throughout this phase, the student operates through many classes and experiences different exams. All those data, attendance, teacher notes, and numbers of other information connected with the school's student, are collected and maintained by the school management software.

- **Timetable management**

Timetable invention is the most time spending procedure within a school, and with the timetable module in school ERP system assists in producing and handling various types of timetables. Teachers and managers can create plans using simple drag and drop functionality. The created timetables will be available as school timetable, teacher timetable, class timetable, and institutional timetable.

- **Fee collection**

The fee collection and certificate production in a school can be clarified and digitized with school management system software. With the amalgamation of a fee gateway, the parents can give the fee amounts online without going to the institution or college and standing in long lines. Due days and penalties for late payments will also be automated as per pre-set controls and hinted to parents in the system.

- **Gradebook formation**

Institutions can automate exam management and grade book production using a school management system. All the examination timetables are often created and published for college kids and fogeys to access within the information gateway or mobile application. After the examination is done, professors can modernize the marks scored in each subject within the software. Hence the grade books for all scholars are going to be automatically created in a pre-designed template of the institution.

- **Safety of students**

School management software combines excellently with attendance and student bus-tracking devices like biometric systems. Using these integrations, the location of students will be available to parents in real-time

by mobile applications. It includes SMS alarms of the student's presence in or out of the timing and location of the transport on the map.

- **Library management**

The library is the most used department in the school environment and is a significant part of the institutional means. All library management processes like calculating and distributing books, publishing books, tracing books, etc. can be done with school management software guidance.

- **Inventory Management**

Manually maintaining inventory is a time needing task, so this feature handles the whole method digitally. Inventory management software is used for following inventory purchases, deals, and deliveries. It can also be used in the production industry to create work management, bill of supplies, and other production-related reports.

Inventory management systems could play an exciting role in improving productivity and performance when executed correctly. Most of the difficulties connected with inventory management systems emerge from failing to understand best methods or using outmoded methods, such as manual Documentation and inconsistent storage layouts and processes.

The inventory management operation consists of software-hardware that can record each item. Trace its specifications, delivery status, etc. With MySchoolr inventory management system or store management can easily trace goods stock and map purchase and sell. Also, our invoicing operation is helpful when it comes to sharing a purchase order or sell receipt.

- **Reports Making**

The foremost benefit of school management software for the managers and directors of a school are the different reports prepared inside the software that can be used to obtain fast and accurate judgments. There are many papers available from each of the modules, and the news from various modules can be linked using custom reporting stories. For best reporting, these tools can be combined with the school management system.

- **Multischool management**

The group of organizations with multiple schools under one organization can profit from a school management system because of the capacity to connect the digital processes and provide a multischool super-

admin panel from reporting and fine control. There are many more benefits when you execute a multi-functional school management software like MySchoolr. Let us know your thoughts and contact MySchoolr

2.5. The disadvantages

The drawbacks in Student Management System software can be counted on fingers; with mostly only benefits, these systems have a few countable downsides. Often, applications face minor technical glitches and these systems are no exception but, ratification is immediate. Only, people who are accustomed to regular use of smartphones or computers can operate this software. Extensive modules and features make it difficult for a user to utilise the application. With huge flow in traffic the application is prone to performance issues. Few companies market their products at extravagant price, which are not affordable by growing organizations. Absence of proper internet-network makes it difficult for a user to access information, which is a significant disadvantage. The risk of data mishandling might be bothersome; but all these drawbacks can be evaded by choosing proper, cost-efficient and best software that best benefits an organization.

2.6. Famous School Management Software

1. Gradelink SIS

Gradelink helps administrators save time and improve student performance through a grade book and Student Information System software. The cloud-enabled school software includes integrated lesson plans.

2. iGradePlus

An affordable, easy-to-use, web-based grade book and school management system offering a wide array of features that appeal not only to individual teachers but to schools and districts. The software's features include student and classroom management, tracking of attendance and behavior, plus customized report generation and user-friendly communication features. The package includes student and parent portal accounts.

3. Your Agora

Your Agora provides ESL Schools with valuable analytics and insights to truly optimize the school's performance. It provides teachers with powerful, comprehensive tools to improve workflow and make teaching more collaborative and interesting. With features such as auto grading, course management, interactive assignments, a dynamic calendar, and customizable syllabi, Your Agora makes classroom management a seamless experience for both students, teachers, and administration.

4. FamilyID

FamilyID is making it easy to register and find important information on academic programs, school sports, fundraisers, clubs and activities. FamilyID's online registration management platform eases the process of registering for programs and securely keep track of the students' personal information.

5. FreshSchools

FreshSchools is a customizable management software, which contains end-to-end functionality to streamline the school enrollment process. This includes school selection, recruitment management, application and registration management, and year-round form for both families and school administrators. These solutions are available via user-friendly online and mobile interfaces, making them more accessible to all families.

6. ParentLocker

This web-based school management and communications software manages and streamlines all aspects of school administration. This includes report cards, assignments and tests, data analysis, scheduling, admissions, enrollment and many more. It gives parents and the school complete and seamless way to exchange important information and mentor students' academic progress.

7. School Diary

School Diary allows schools to manage all the updates that schools send and receive every day. The various updates, including messages, notices, pictures, homework, attendance, fee reminders, etc, may be shared through a single platform. This eliminates the need for endless emails or print alerts. School Diary utilizes the push and pull mechanism to make communication easy, engaging and effective.

8. BoardDocs

BoardDocs has allowed over 2,000 schools and other organizations to lower operations costs, increase transparency with customers and reduce time-of-staff. The solutions are so easy to use and may be implemented right away. BoardDocs allows organizations to significantly improve the way they create and manage board packets, access information, and conduct meetings.

9. USA Scheduler

USA Scheduler is a master scheduling software for schools is user-friendly and highly accurate. It is cloud-based, fully automated and creates complete, accurate schedules. The company offers a free evaluation with your school's data.

10. Bloomz

Bloomz has the features educators need to connect, communicate and coordinate with parents. It includes features from messaging, easy photo and video sharing, schedule coordination, signup forms for volunteers, meetings and field trips. It also holds a platform for students' behavior management and personality portfolios. The app is available on mobile.

2.6. Conclusion

Information technology in educational management is a relatively new field that not only needs in-depth studies on systems utilization in schools but also on their effects on the school processes and maybe outcomes. further supports this argument stating that although there are many studies on the role of information systems on class and teaching, few studies have been done on the use of them in educational management and their effects on the managers. states that one of the key priority areas for future research is the investigation of MIS assistance in effective school management. There are issues in this area both with the forms of technology being used, and with the lack of techniques available to enable users to make use of data currently available. Research could have a major role to play in supporting educational endeavour and practice in this area. The overall review of literature indicates a very positive impact of ICT use in the area of educational management. Principals and teachers' skills in working with ICT have developed significantly over the years and they are using ICT to support a range of administrative

activities at both class and school level. School management information systems have greatly improved over the last two decades and most of them incorporate several important functions required by school administration; however, every school has its own specific needs. Further studies are needed to explore the areas of improvement as most of these systems are not developed according to the site-based needs. These systems are usually adopted from outside and may need further enhancement according to the site-based management. As suggests that in order to be utilized effectively, it should be designed through an inductive process that includes stakeholders from all levels of the organization in order that faculty will take ownership of the system and actually use it. Studies on MIS should also focus on finding ways of enhancing its use by school principals and administrators. Appropriate training and effective leadership could escalate the benefits in the area of school management.[8]

CHAPTER 03

Conception

3.1. Introduction

In this chapter, we will provide you with a set of diagrams and techniques used in order to accomplish the project, accompanied by some screenshots for clarification

3.2. General project presentation

In light of the great expansion of schools in Algeria, the operation of each school separately takes a lot of time and additional labor, in addition to many documents submitted, and we do not forget the scheduling of teachers and students, whether from the timing of daily education, exam dates, the timing of guarding for teachers and many other problems .

So we present to you the School Management System that we created to help facilitate the problems mentioned above.

3.3. Tools and techniques used

In this paragraph, we can distinguish between two approaches, BackEnd and FrontEnd, their technologies and tools, in order to divide the work and effort into two separate sections.

3.3.1. BackEnd (Server side) and FrontEnd (Client side)IDE: WebStorm

WebStorm is an integrated development environment for coding in JavaScript and its related technologies. Just like IntelliJ IDEA and other JetBrains IDEs, WebStorm will make your development experience more enjoyable, automating routine work and helping you handle complex tasks with ease.

Here are some key features you get with WebStorm :

- Out-of-the-box support for JavaScript, TypeScript, React, Vue, Angular, Node.js, HTML, style sheets, and others.
- Smart editor with code completion, on-the-fly error detection, safe code refactoring, and fast navigation across the entire codebase.
- A variety of built-in developer tools that allow you to debug and test your client-side and Node.js apps as well as to work with version control, linters, build tools, terminal, and HTTP client.
- Tools for efficient teamwork, including a service for remote collaborative development and pair programming and the ability to share your project configuration with others.

- The ability to customize your work environment by experimenting with things like themes and plugins.[12]

3.3.2. BackEnd (Server side) Tools and Techniques

- **PHP (Hypertext Preprocessor)**

PHP, for Hypertext Preprocessor, is a computer language, or scripting language, used primarily for designing dynamic websites. It is a freely licensed programming language that can therefore be used by anyone completely free of charge.

Created in the early 1990s by the Canadian and Greenlandic Rasmus Lerdorf, the PHP language is often associated with the MySQL database server and the Apache server. Along with the Linux operating system, it is an integral part of the LAMP free software suite.

On a technical level, PHP is mostly used on the server side. It generates HTML, CSS or XHTML code, data (in PNG, JPG, etc.) or even PDF files. For many years, it has been the subject of specific development and today enjoys a good reputation in terms of reliability and performance. [7]

- **php laravel**

As in the majority of professional sectors, in programming also new tools are emerging to facilitate various tasks. These tools also make it possible to achieve much more efficient results. Thus, LARAVEL is a Framework of the programming language PHP. Created by Taylor Otwel, this framework brings together the best useful libraries to create a website. In addition, the excellent laravel framework integrates many other exclusive features as well. This is particularly the case with its Blade template engine.

If version 4 of Laravel is very popular, we will instead present version 5.4 of this large programming tool, although today the latest versions of Laravel are around 7.x. To get started, we'll cover features related to the logic of a web application. Next, it will be about the experience of data storage. Finally, you learn about the prerequisites and installation procedures for this technology. [13]

- **SQL (Structured Query Language)**

is a computer language used to exploit databases. It generally allows the definition, manipulation and control of data security.

In practice, the SQL language is used to create tables, add records in the form of rows, query a database, update it, or even manage the rights of users of this database. It is well supported by the vast majority of database management systems (DBMS). Created in the early 1970s by Donald D. Chamberlin and Raymond F. Boyce, both at IBM, SQL is now recognized as an international standard.

Many databases are based on the SQL language. This is the case of MySQL which is part of the LAMP free software suite, but also of Oracle database servers, D2B, Microsoft SQL Server, etc. [14]

- **JSON Web Token (JWT)**

  JSON Web Token (JWT) is an open standard (RFC 7519) that defines a compact and self-contained way for securely transmitting information between parties as a JSON object. This information can be verified and trusted because it is digitally signed. JWTs can be signed using a secret (with the HMAC algorithm) or a public/private key pair using RSA or ECDSA.

  Although JWTs can be encrypted to also provide secrecy between parties, we will focus on signed tokens. Signed tokens can verify the integrity of the claims contained within it, while encrypted tokens hide those claims from other parties. When tokens are signed using public/private key pairs, the signature also certifies that only the party holding the private key is the one that signed it. [16]

- **Postman**

  Postman is the collaboration platform for API development. Postman simplifies each step of building an API and streamlines collaboration so you can create better APIs—faster. [17]

3.3.3. FrontEnd (Client side)Tools and Techniques

- **Vue js**

  Vue (pronounced /vjuː/, like view) is a progressive framework for building user interfaces. Unlike other monolithic frameworks, Vue is designed from the ground up to be incrementally adoptable. The core library is focused on the view layer only, and is easy to pick up and integrate with other libraries or existing projects. On the other hand, Vue is also perfectly capable of

powering sophisticated Single-Page Applications when used in combination with modern tooling and supporting libraries. [18]

Features:

- Tiny size.
- Virtual DOM rendering and performance.
- Reactive two-way data binding.
- Single-file components and readability.
- Integration capabilities and flexibility.
- Solid tooling ecosystem.
- Easy to learn.
- Concise documentation.

- **BootstrapVue**

With Bootstrap Vue you can build responsive, mobile-first, and ARIA accessible projects on the web using Vue.js and the world's most popular front-end CSS library — Bootstrap [19]

3.3.4. Connecting the FrontEnd and the BackEndREST API:

- **Representational state transfer**

Also known as, RESTful API is an application-programming interface (API or web API) that conforms to the constraints of REST architectural style and allows for interaction with RESTful web services. REST stands for representational state transfer and was created by computer scientist Roy Fielding.

An API is a set of definitions and protocols for building and integrating application software. It’s sometimes referred to as a contract between an information provider and an information user—establishing the content required from the consumer (the call) and the content required by the producer (the response). For example, the API design for a weather service could specify that the user supply a zip code and that the producer reply with a 2-part answer, the first being the high temperature, and the second being the low.

In other words, if you want to interact with a computer or system to retrieve information or perform a function, an API helps you communicate what you want to that system so it can understand and fulfill the request.

You can think of an API as a mediator between the users or clients and the resources or web services they want to get. It is also a way for an organization to share resources and information while maintaining security, control, and authentication—determining who gets access to what.

Another advantage of an API is that you do not have to know the specifics of caching—how your resource is retrieved or where it comes from.

Example :

In this simple example, we will try to fetch the list of students

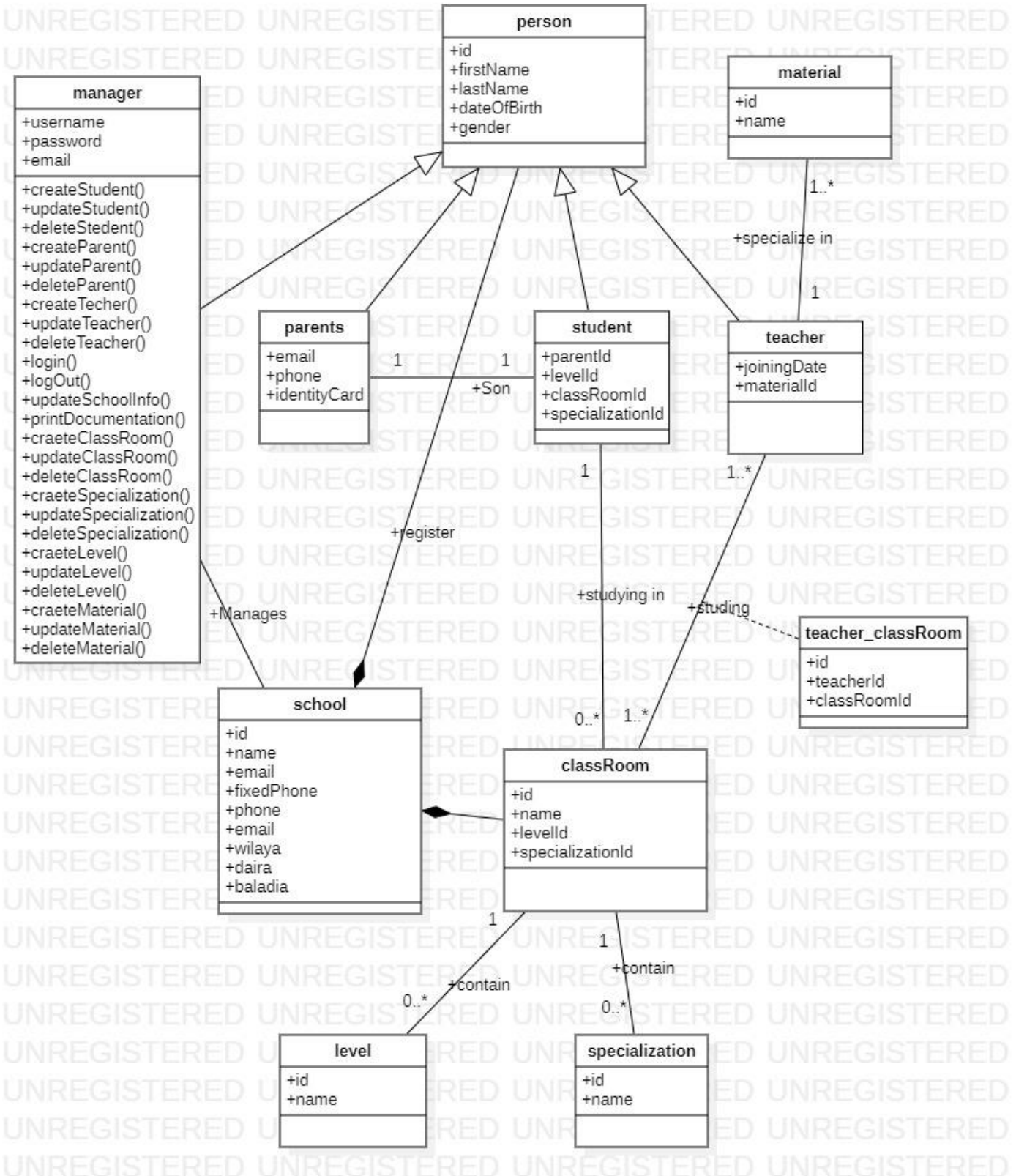
```
axios.get("/dashboard/:" + this.$route.params.schoolName + "/students",
        { headers: {'x-auth-token': this.token }}) .then(res => {
          this.users = res.data;
      }).catch((error) => {
           console.error(error);
    });
```

registered in the school

3.4. Uml and Screenshot

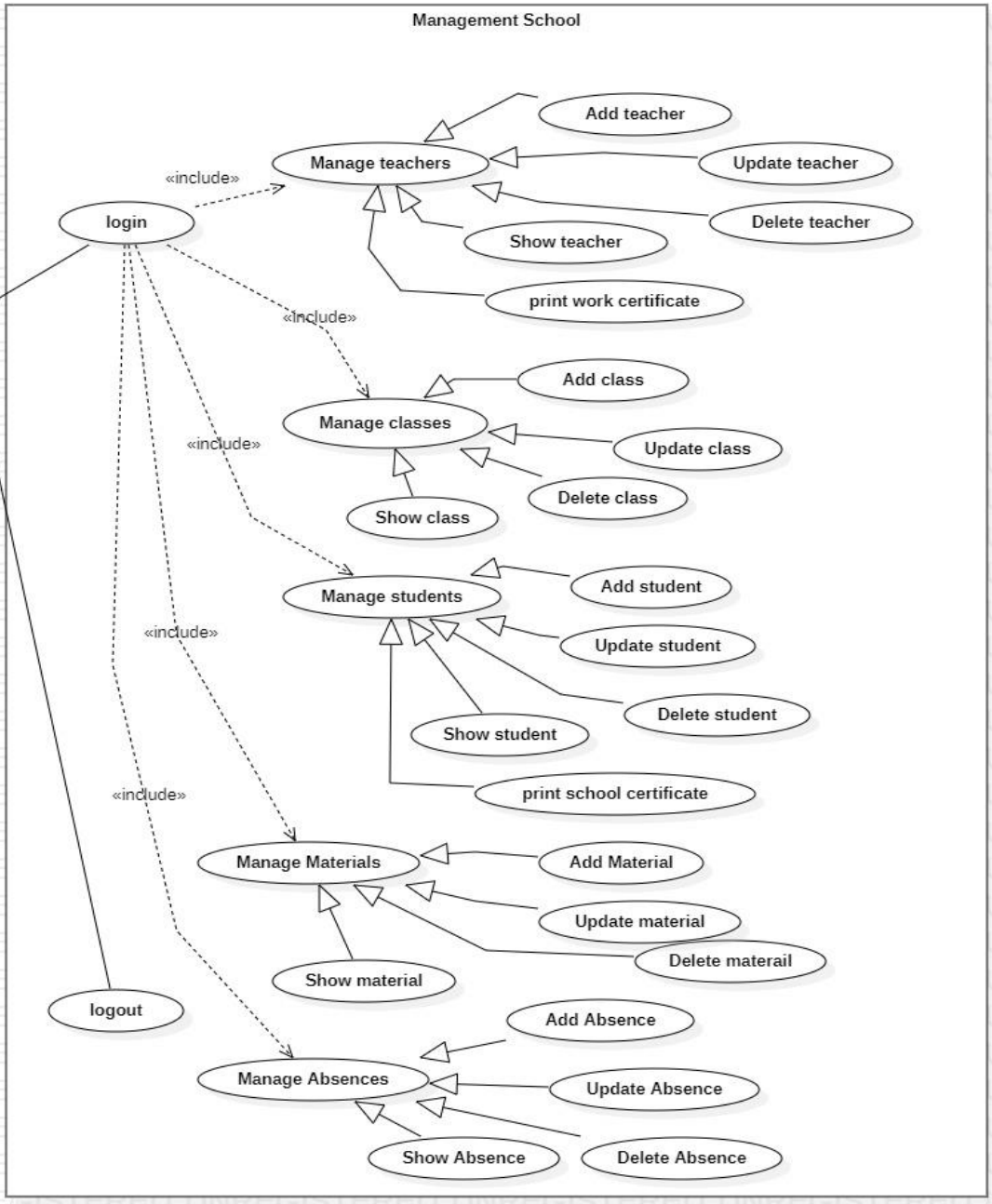
In this paragraph, we can distinguish between two approaches, BackEnd and FrontEnd, their technologies and tools, in order to divide the work and effort into two separate sections

3.5. Class diagram School

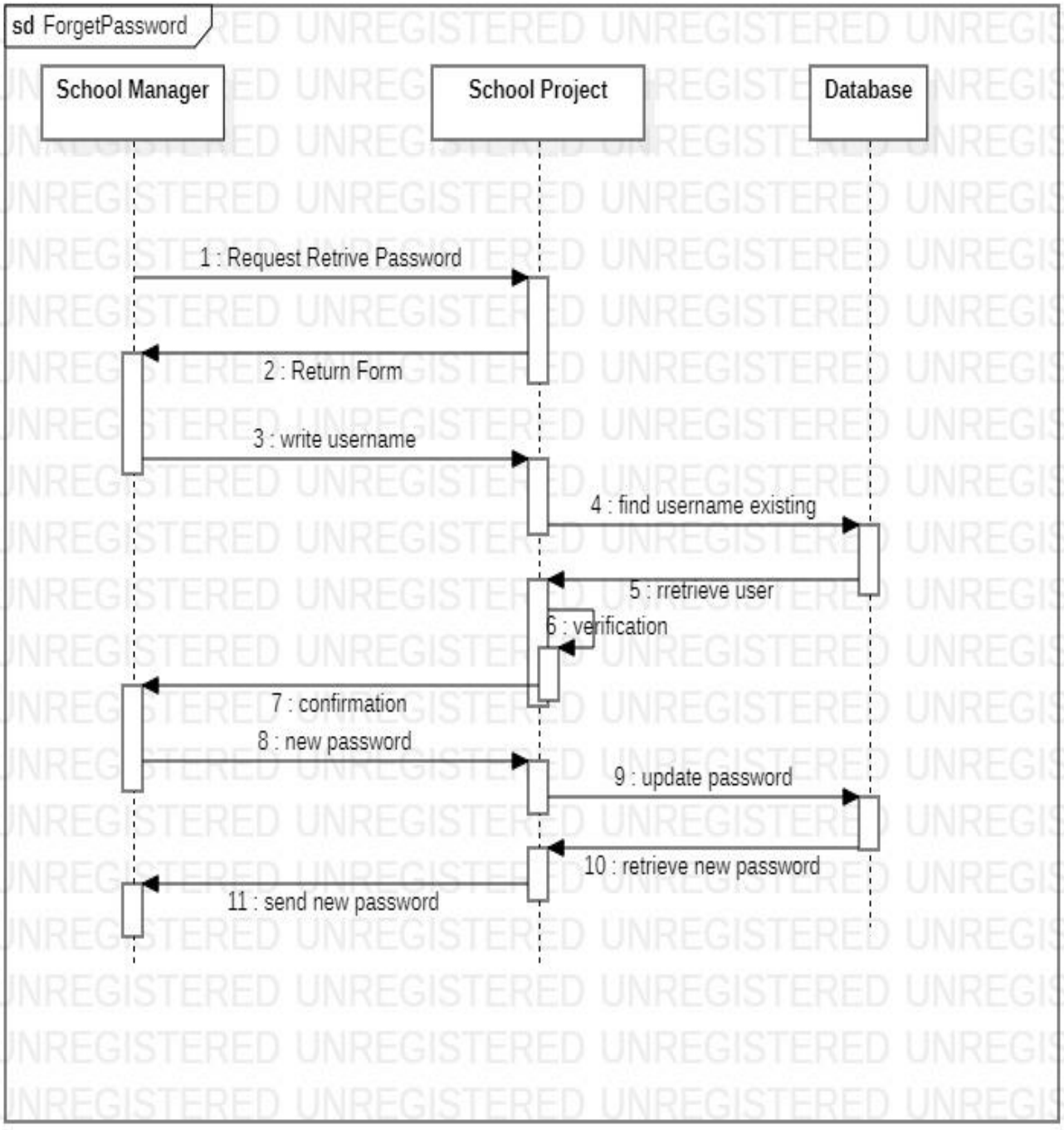


School Class Diagram

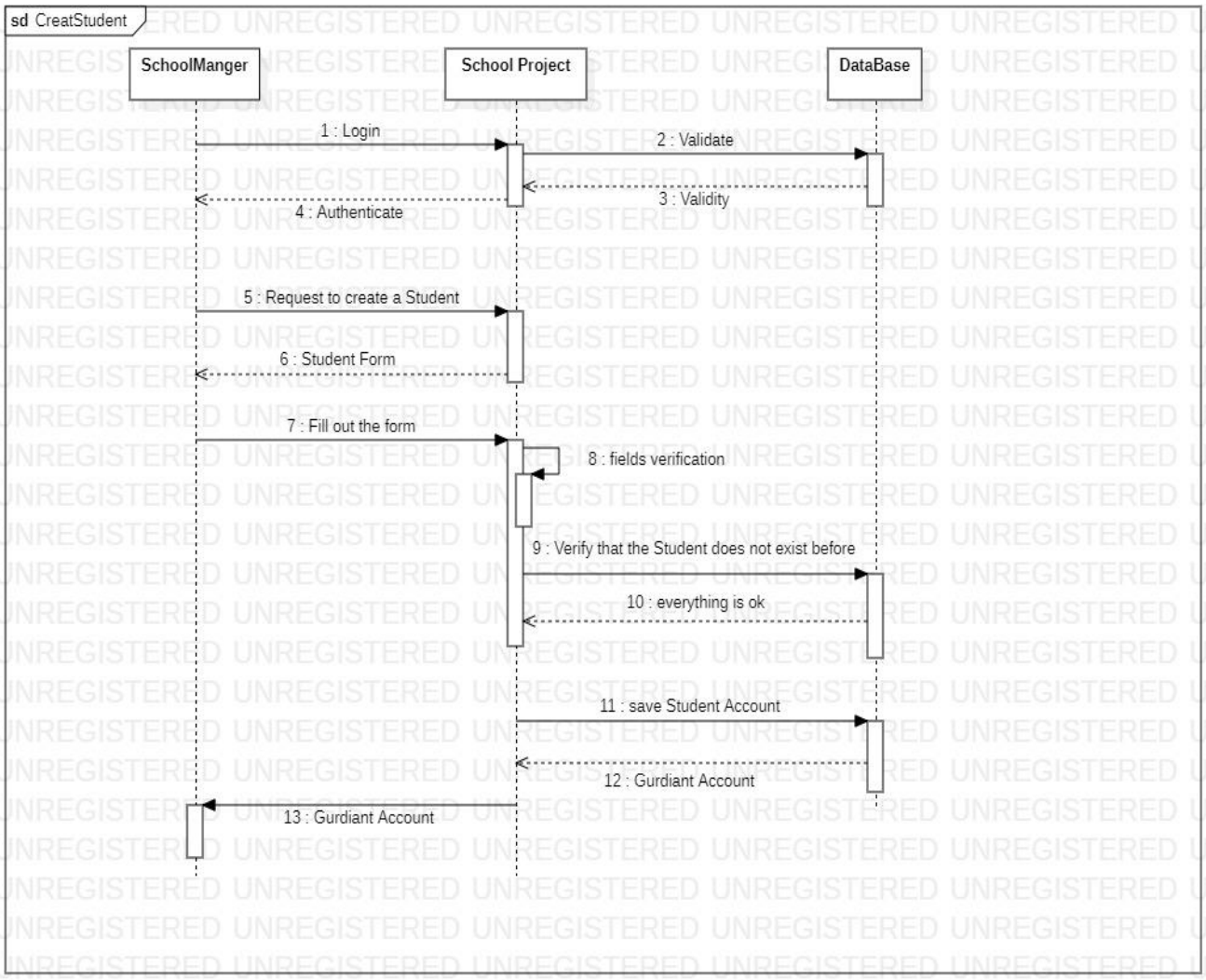
3.6. Use case diagram



3.7. Sequence diagram:

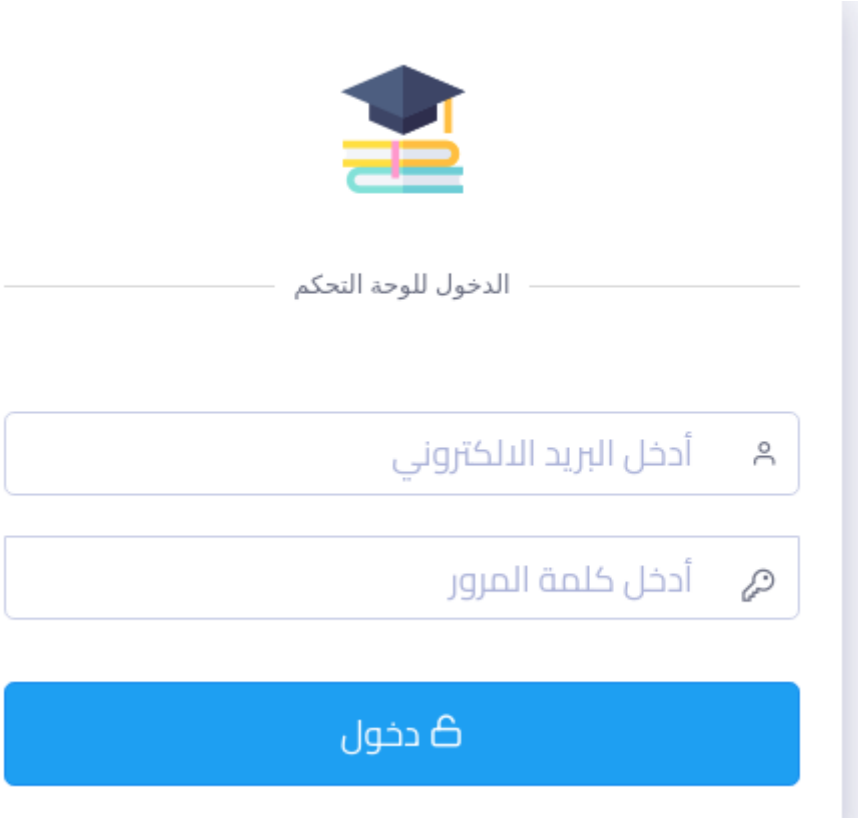


Sequence diagram: Forget password



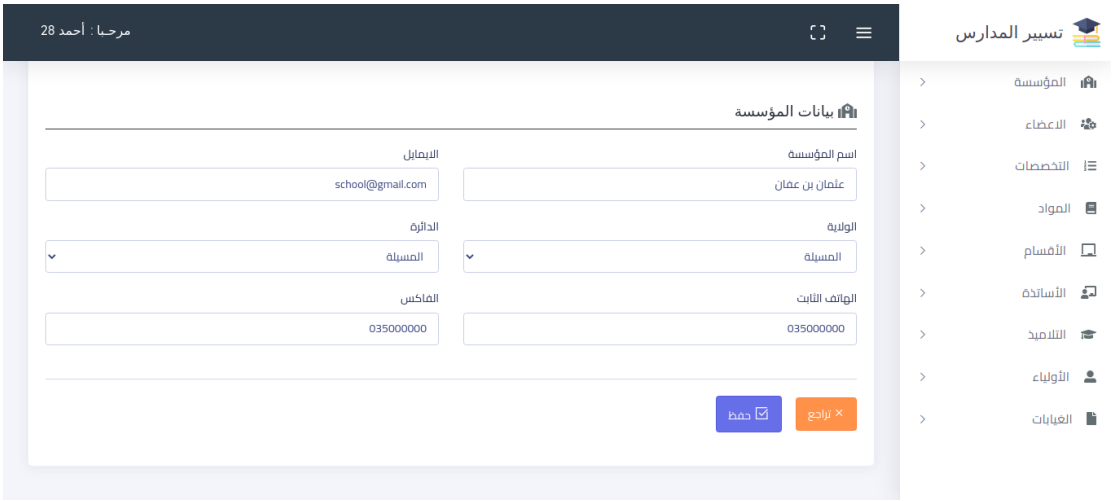
Sequence diagram: Create Student

3.8. screenshots



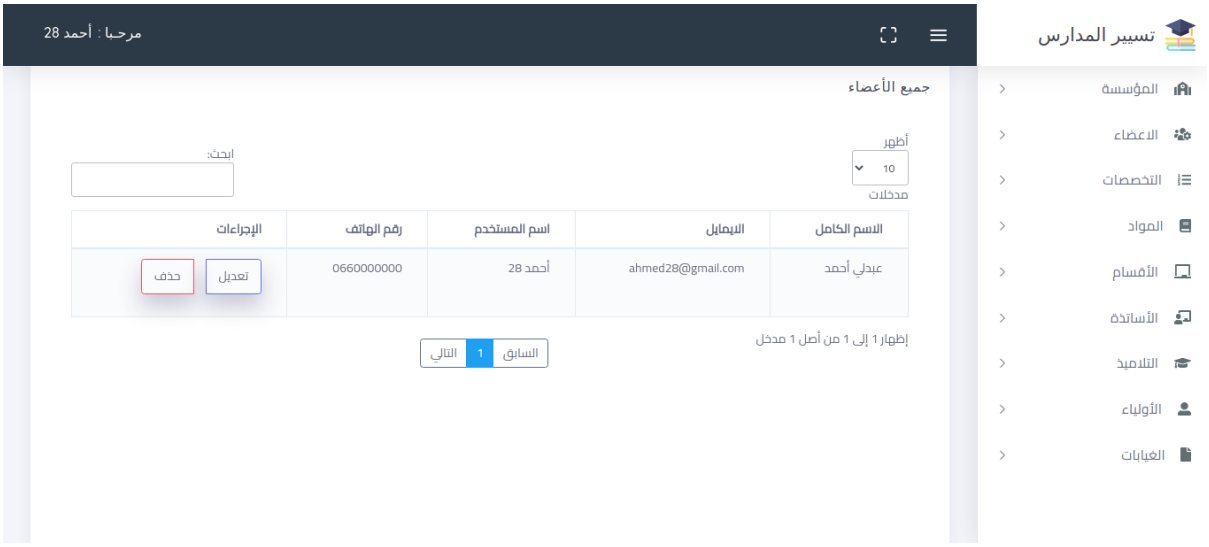
log in

3.8.1. The school

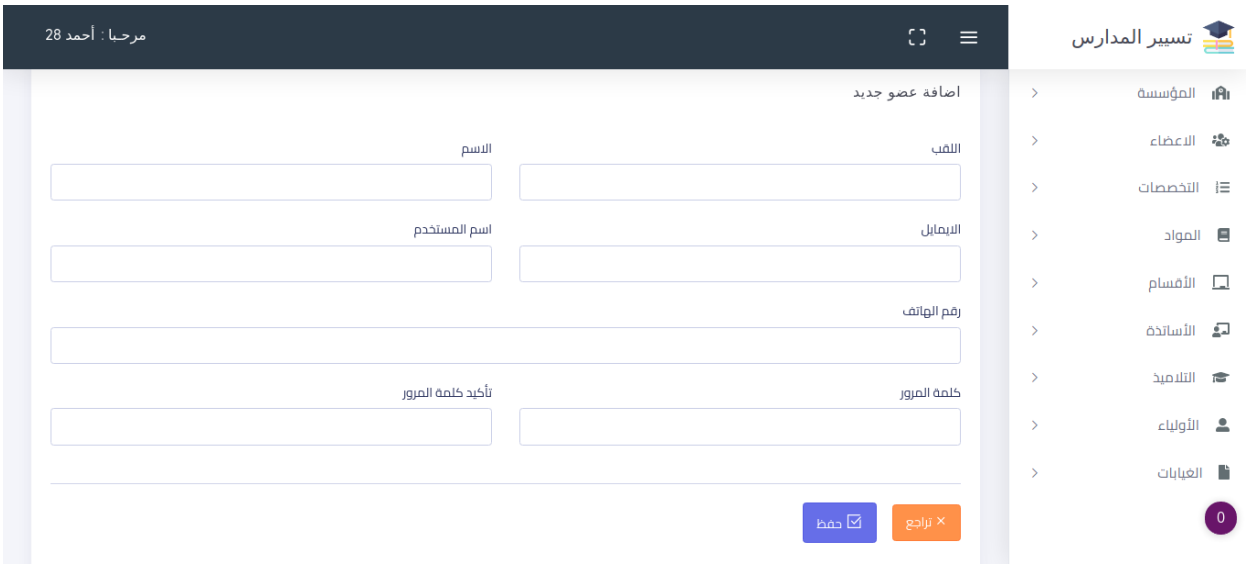


Edit school information

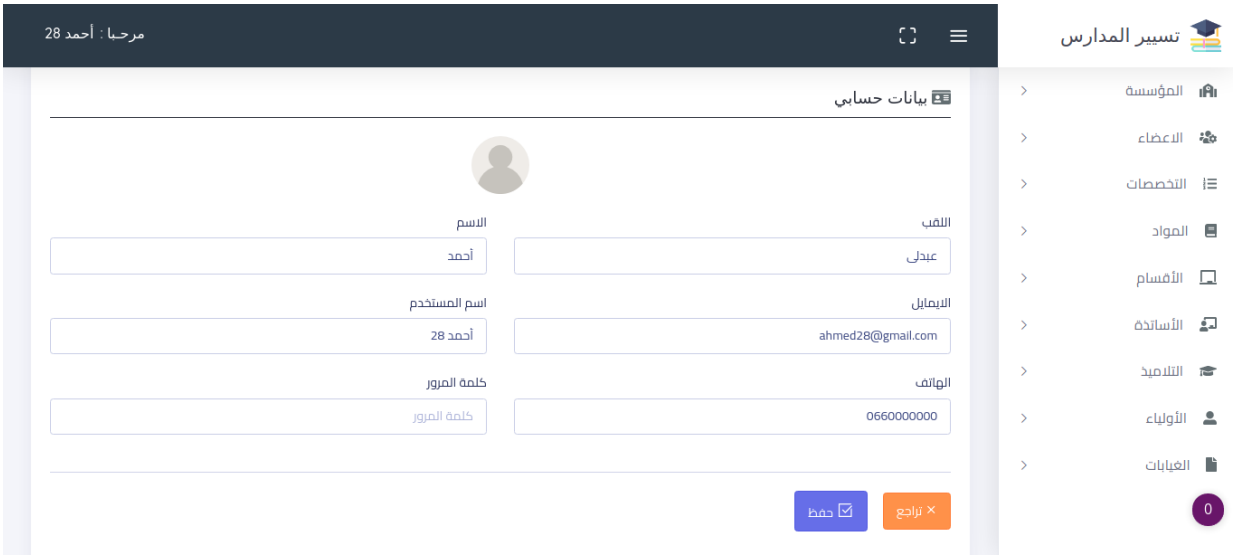
3.8.2. The controlling members of the organization



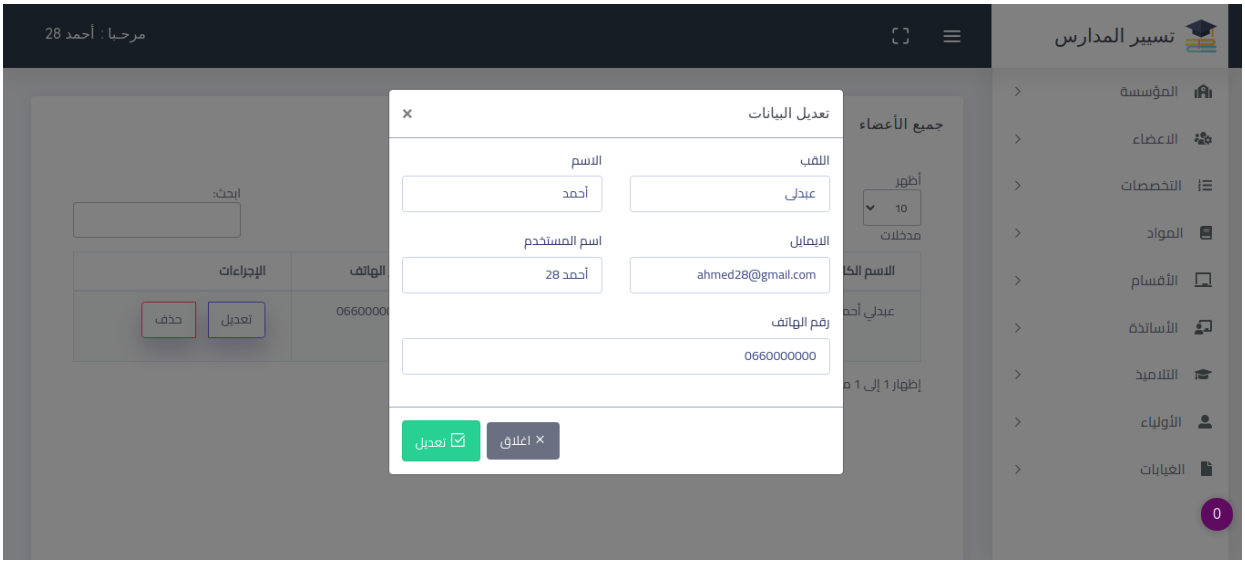
All members



add member

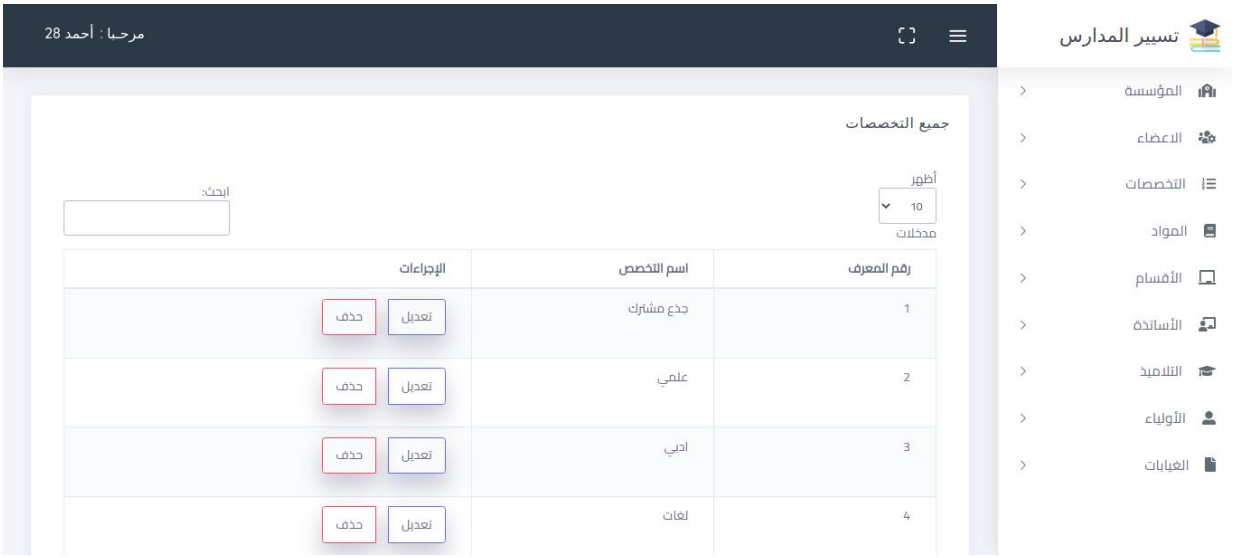


Account details

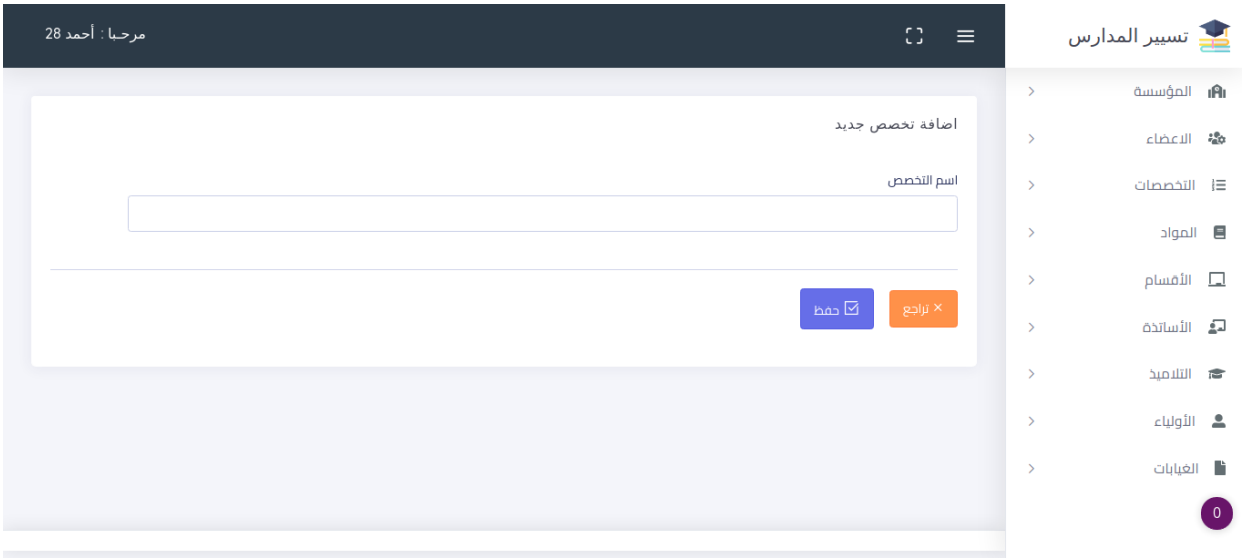


Edit account

3.8.3. School specialization management



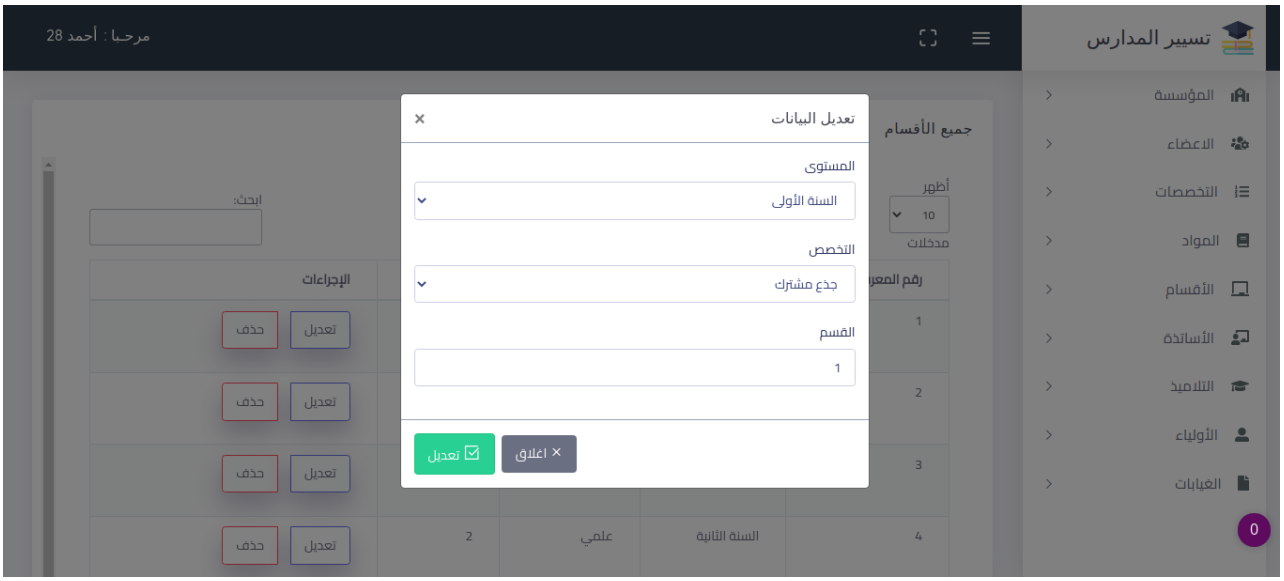
All specialties in the school



Add new specialties

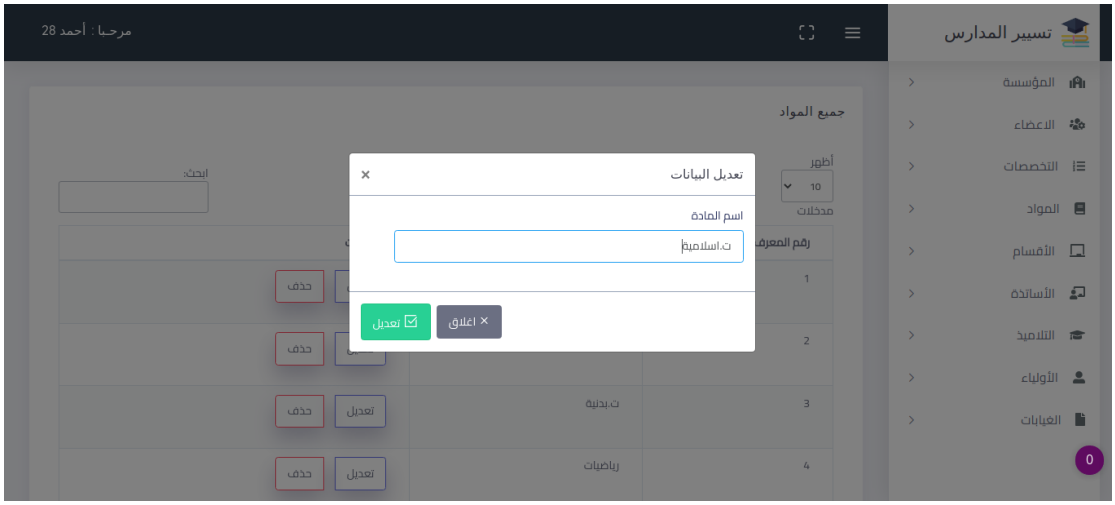
3.8.4. Classes available in the school

All Classes



Edit Classes

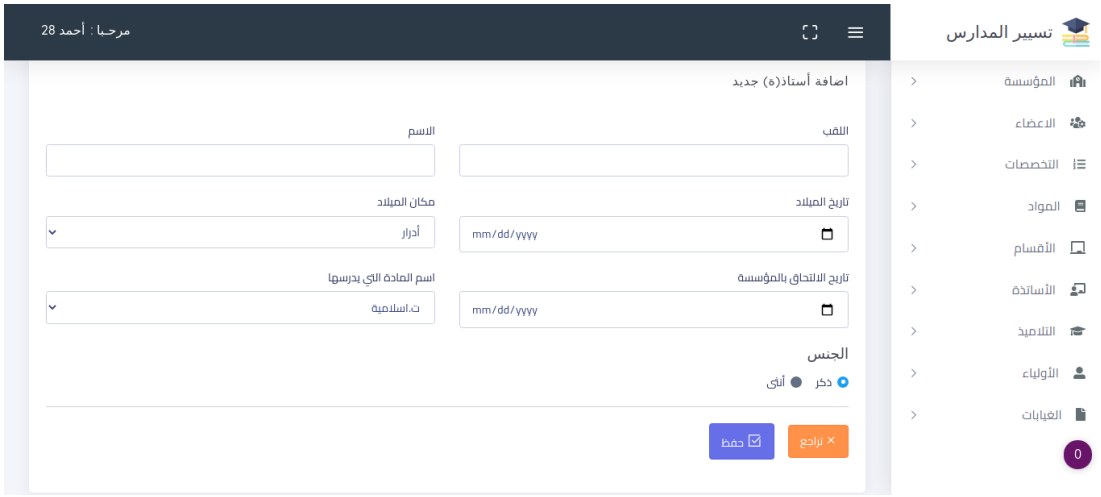
3.8.5. Materials offered at school



Edit the name of the Material

3.8.6. School teachers management

All teachers

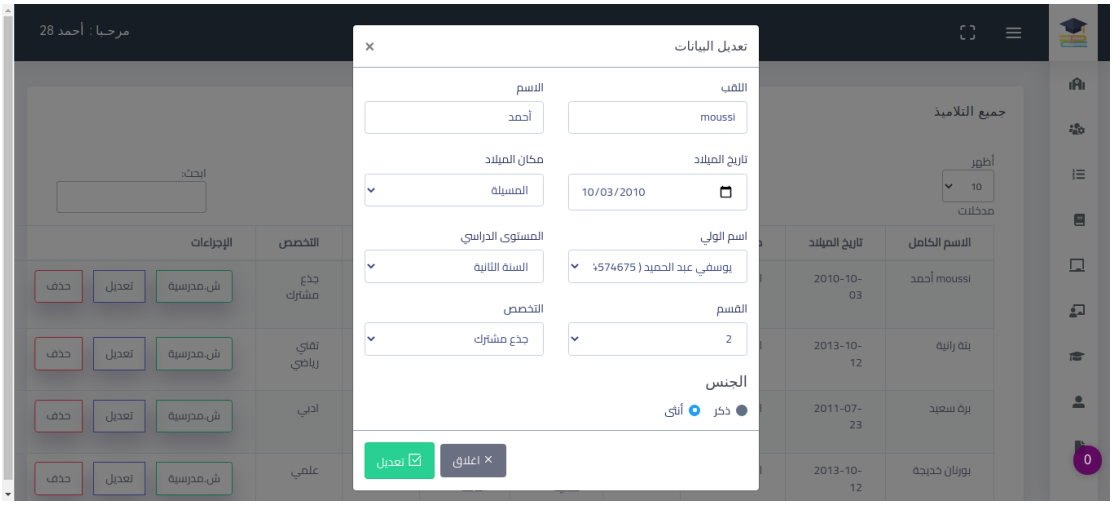


Add teacher

3.8.7. School Students Management

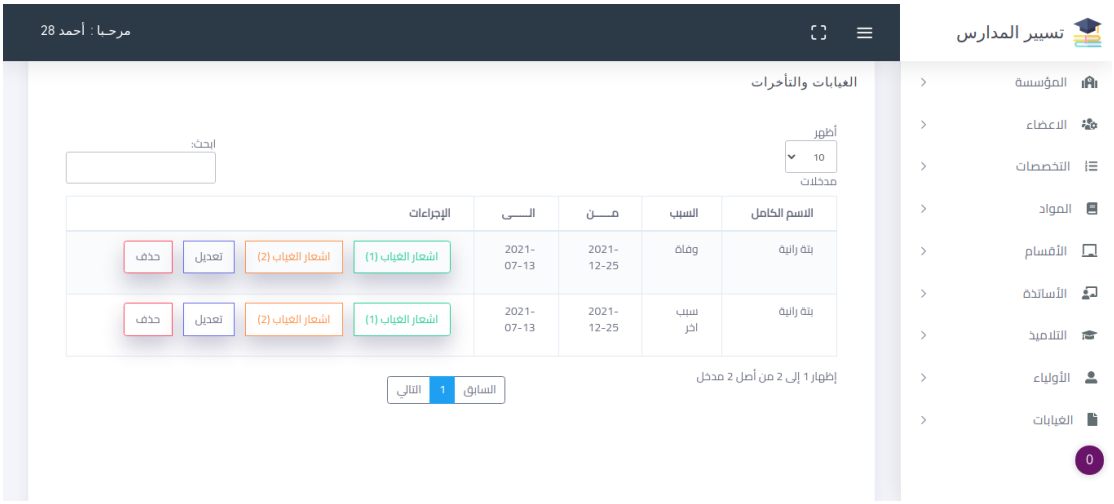
All Students

Add Student

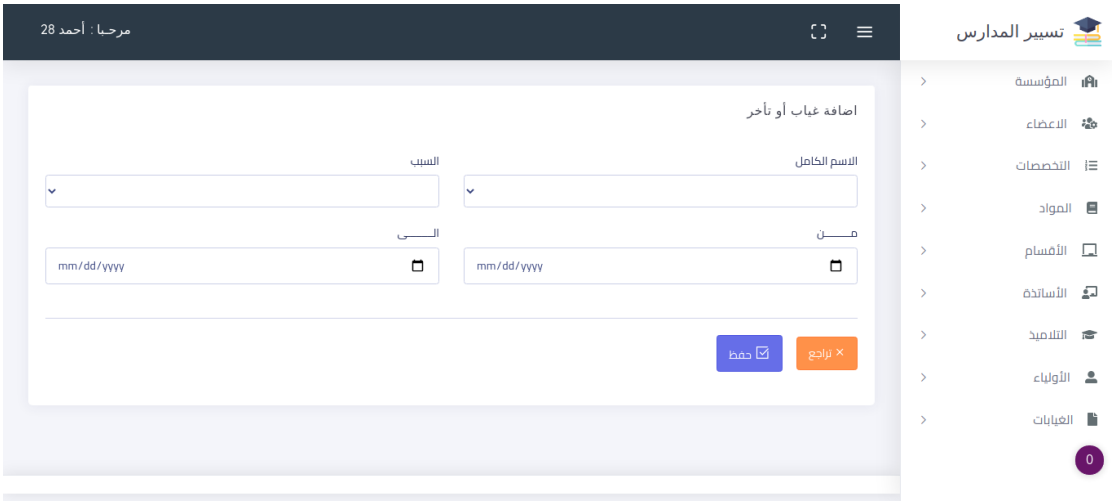


Edit Students

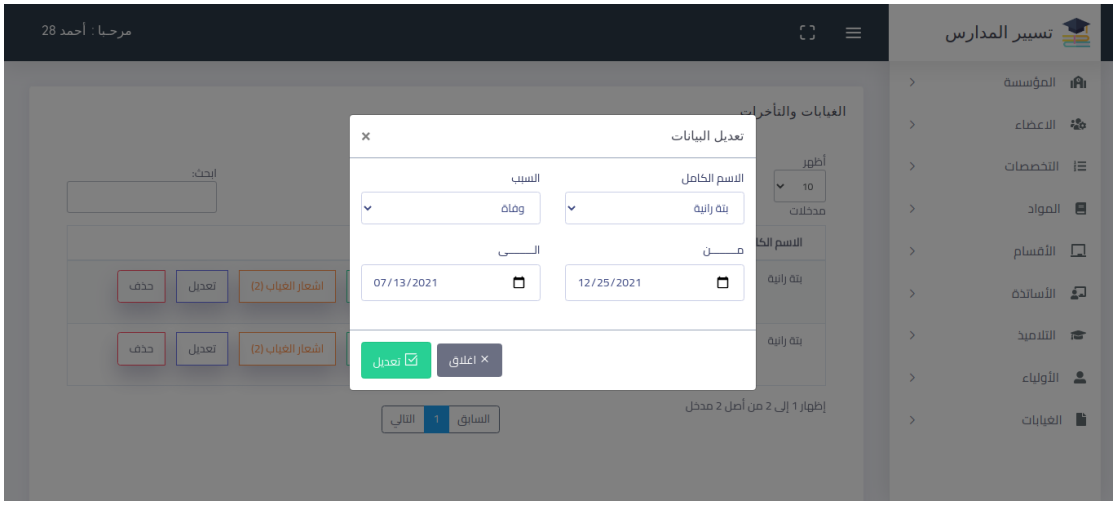
3.8.8. School absenteeism management



Absences and tardiness’s

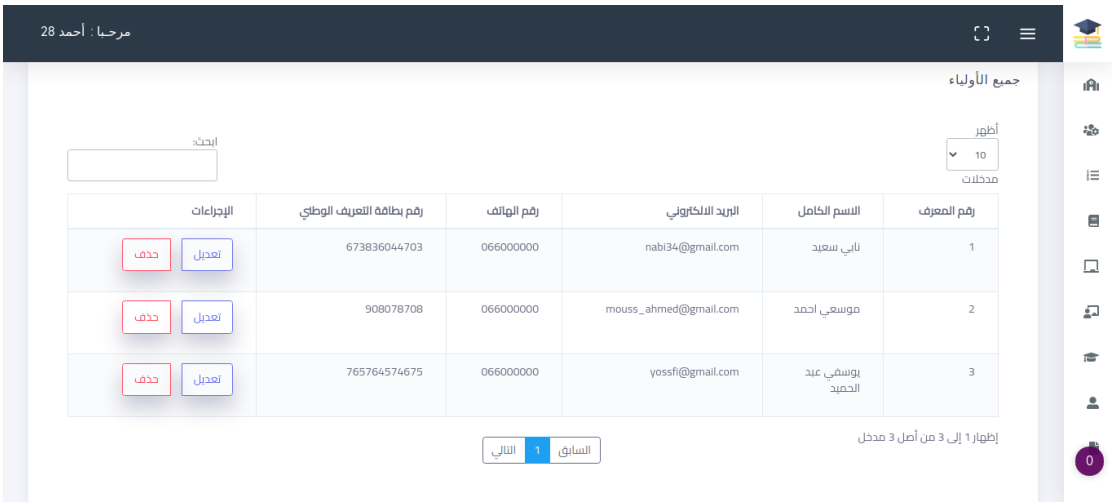


Add absence



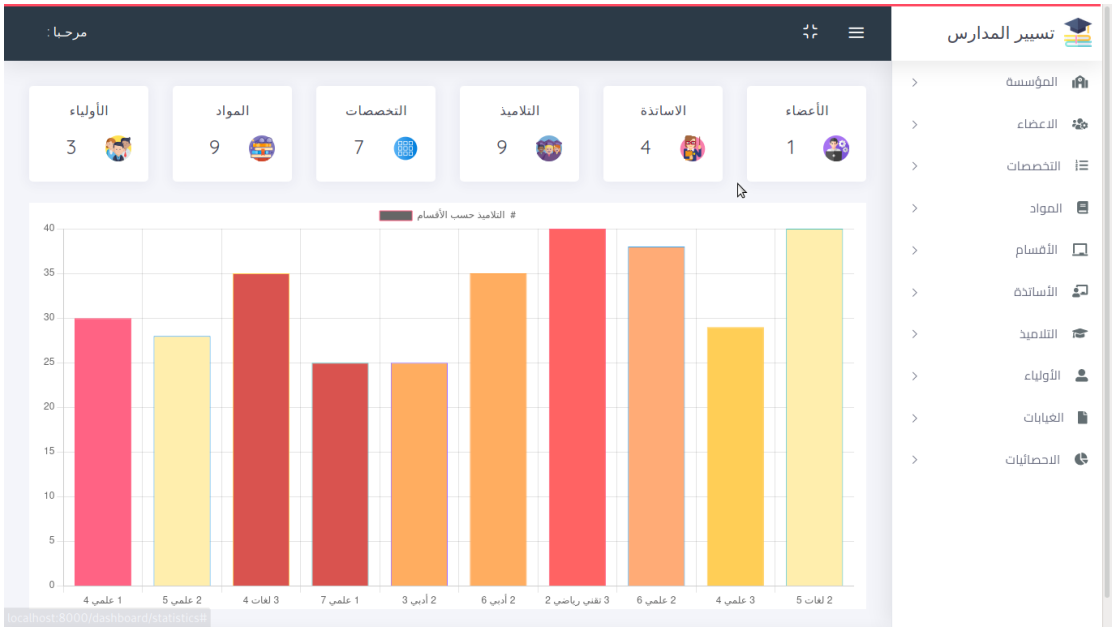
Edit absence

3.8.9. Student Parents management



All Parents

3.8.10. School Statistics



School Statistics

General Conclusion

General Conclusion

The completion of an automated information program for an institution or a department is an important and accurate work, and requires effort is not easy, and the preliminary studies, which are the study of documents, their nature and tasks... is very difficult, especially in some departments because of the sensitivity of the leakage of some documents, At other times, the lack of serious cooperation from these institutions, which increases the difficulty of the matter. But the serious attempt and overcoming obstacles to complete this project is an important and necessary matter, and this is to create an information environment at all levels where the work of automated media and its harnessing is inevitable, and this is what we look forward to through our achievement, and this despite the presence of shortcomings and pitfalls that are inevitable in the first Program for this management

In the end, we hope that we have succeeded in achieving a program and theoretical study work that can be relied on first in the department concerned with this achievement (the program), which is the goal of this memorandum, and secondly, that it be adopted as a reference for studies of this kind to facilitate for students and those interested to take firm steps towards better achievements and deeper studies than Programmatic and analytical aspects. We also note in the end that we welcome all constructive criticism, and we are ready to cooperate with everyone who wants to develop this program.

Recommendations:

- Implementing training courses in the use of computers, the Internet et and digital floors

for e-learning, such as Moodle and Brokers, for students and professors;

- Providing a strong internet connection at the national level and spreading it in remote

areas;

- Providing the professor and students with electronic devices that assist him in elearning;

- E-learning requirements whether electronic devices or software, must be secured in

advance and maintained on an ongoing basis.

- Spread awareness of the concept of e-learning and its importance, and how to benefit

from it at the level of higher education institutions, especially in the light of the Corona

crisis and circulate it even after the crisis;

- Increasing support for universities to upgrade the e-learning infrastructure;

- Increase financial allocations for e-learning;

- Providing rooms equipped with devices and equipment necessary for the e-learning

process;

- Conducting studies on the requirements and obstacles to e-learning in Algerian

universities;

- Conducting comparative studies between the requirements of e-learning in Algeria and

in the leading countries in this field;

- Establishing an independent department specialized in e-learning at the local level

(universities) and at the central level (the Ministry of Higher Education) to follow up its

implementation;

- Forming a working group at the level of all colleges of the university that studies and

directs the use of e-learning and its applications in all Its branches; and the creation of a

platform that helps implement the principles of governance, on top of which is electronic monitoring.

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[19] https://bootstrap-vue.org