**PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA**

**MINISTERY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH**

**UNIVERSITY OF MOHAMED BOUDIAF - M'SILA**

**FACULTY: Mathematics and Computer Science**

**DEPARTMENT: Computer Science**

**N°:…….**

**DOMAIN: Mathematics and Computer Science**

**BRANCH: Computer Science**

**OPTION: Software Engineering**

## A Dissertation in Fulfillment
## For the Requirements of the Degree of Master

**By**: SAADI Khaled

## SUBJECT

# Web application for student follow-up at educational institutions

**Defended publicly on: 12/06/2017**

**Board of Examiners:**

| | | |
|---|---|---|
| Mrs. BOUDIA Malika | University of M'sila | Chairman |
| Mrs. BOUZAROURA Ahlem | University of M'sila | Supervisor |
| Mr. THERAFI Abdellah | University of M'sila | Examiner |

**Academic Year: 2016/2017**

**PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA**

**MINISTERY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH**

**UNIVERSITY OF MOHAMED BOUDIAF - M'SILA**

**FACULTY: Mathematics and Computer Science**

**DEPARTMENT: Computer Science**

**N°:…….**

**DOMAIN: Mathematics and Computer Science**

**BRANCH: Computer Science**

**OPTION: Software Engineering**

## A Dissertation in Fulfillment
## For the Requirements of the Degree of Master

**By**: SAADI Khaled

## SUBJECT

# Web application for student follow-up at educational institutions

**Defended publicly on: 12/06/2017**

**Board of Examiners:**

| | | |
|---|---|---|
| Mrs. BOUDIA Malika | University of M'sila | Chairman |
| Mrs. BOUZAROURA Ahlem | University of M'sila | Supervisor |
| Mr. THERAFI Abdellah | University of M'sila | Examiner |

**Academic Year: 2016/2017**

# Acknowledgement

This study would have been impossible without the support and encouragement of many people. This was a journey worthwhile taking.

First of all i would like to thank **Allah**, the merciful, for giving us the health and the strength to finish this memoir.

I would like to thank my supervisor teacher **BOUZAROURA Ahlem** for his insightful direction and support during the period of writing the thesis

Also I like to give many many thanks and gratitude to my number one for me **My mom** And to the special men in my life **My dad**
Also to My Brothers, My Sisters, and My All Family for the support they give me

## Thank you my family

Second there is people they don't need invitation to my heart because they already in

**Yassine, Mokhtar, Homaida, Ali, Belkacem, Riad, Zain, Rami, Hamza, Lazhar, Bilal, Cheyma, Soumia, Siham, Assia and Marry**

And the brilliant **Issam**.

## Thank you my Friends

And I will not forget the TEAM

**Nouh, Khalati, Oussama** and **Ali.**

## Thank you all

SAADI Khaled.

# Contents

# List of Figures

# List of Tables

# Global Introduction

# Introduction

Students learn best when the significant adults in their lives -parents, teachers, and other family and community members - work together to encourage and support them. This basic fact should be a guiding principle as we think about how schools should be organized and how students should be taught. Schools alone cannot address all of a student's developmental needs: The meaningful involvement of parents and support from the community are essential.

The need for a strong partnership between schools and families to educate children may seem like common sense. In simpler times, given the role that family engagement plays in not only academic success, but life success.

However, we also noted that parent engagement remains a challenge for many schools. Neither educators nor parents have enough time to get to know one another and establish working relationships on behalf of children. In many communities, parents are discouraged from spending time in classrooms and educators are expected to consult with family members only when a student is in trouble. The result, in too many cases, is misunderstanding, mistrust, and a lack of respect, so that when a child falls behind, teachers blame the parents and parents blame the teachers.

It is vital for parents and teachers to communicate effectively with one another. Each has a piece of the picture of a student's development, and each can be more effective when information is shared. Constant communication helps ensure that both schools and homes are responsive to students' unique needs and therefore support children's overall development.

Technology can allow educators and parents to be linked into a web of mutual support than ever before. Schools and homes can be connected through computer networks that allow them to freely share information, via email or website, 24 hours a day.

Therefore, in our project we aspire to work in this field by designing a system that can make the home close to school as possible. All parents will be able to quickly call up information such as a student's schedule for the week, current assignments, and suggestions from teachers, about what they can do to support learning goals at home. They will be able to locate where their child is right now.

The organization of this memory will be spread over three chapter.in the first chapter , we talk about school management systems and their importance in improving the level of

education in addition to the responsibilities of both the parents, teacher and administration in the care of the student. The Second chapter will concentrate on smartphones, principles and its Operating systems and developers view the best operating system for mobile phones in addition to the impact of some applications on our daily life.

In the last chapter, we will detail the conception and testing of our application, and we will present the results, where we will explain the implementation.

Finally, we conclude this work by a general conclusion, perspectives and we will mention the principal difficulties encountered.

# CHAPTER I

# SCHOOL MANAGEMENT SYSTEM

# 1. Introduction

School Management System (SMS) is the primary system for efficiently operating schools. It includes applications like registration, attendance, scheduling, grade book and exams. SMS are centralized systems used by educators and administrators to collect information needed to manage education delivery, improve student achievement, and ensure accountability. In this chapter, we will focus on SMS, their strategy, their importance, and the SMS in our country and other developed countries.

# 2. Traditional School Management System

In the past, schools administration and the parents communicated in a traditional way by convocation or through the correspondence book.

The correspondence book was the first form of school management and it occupied an interesting role in the educational assistant. The correspondence book is an important document that is intended to facilitate the role of the student's parents and school management. It is a means of communication and a common assessment of the work of the student among the parents on the one hand and the teachers and administration in the educational institution. On the other hand, it is a tool for monitoring its activities and behavior, and the evaluation of its results in the classroom. The parents can access the correspondence book.

A comprehensive document accompanying the student is considered for all the needs of the monitoring and evaluation process as follows:

- Part to codify the internal law of the institution.
- Special part of timetables for exams.
- Days of receiving the institution (teachers and administration) for parents of pupils.
- Continuous assessment part, for each subject (such as participation in classes and homework) in each month of the academic year.
- A list of the rewards and penalties.
- Department of school health (Observations and decisions of school health authorities).

- A part of the registration of the absences and delays of students to see them and justified by the parents.
- Correspondence section between the guardians - school. General correspondence.

## 3. School Management System

School Management System E-school is a complete school information management solution. Today's schools need to manage more information than ever before. Without a solid internal infrastructure for teachers, administrators and departments to share data, critical school and student information a be lost, or worse leading to a host of problems that can effect of a school's image and endurance. To remain competitive, school needs a simple solution that can run individual function, connect their entire operation, use the web as a key communication tool and simplify day to day operational responsibilities, giving staff more time with students.

School Management System automates various scheduling activities of school and optimizes the use of premium resources. Concerned authorities can now easily and seamlessly use the system to create timetables, otherwise a time consuming and tedious task. [6]

Since School Management System (SMS)are centralized systems, the ministry and schools obtain improved reporting capacity beyond reports just for individual schools or districts. Robust SMS supports policy changes and new education delivery methods to achieve the highest student achievement outcomes.

These improved information management systems are now required as timely access to data about student and school performance is critical to achieving education goals.

The successful deployment of SMS is critical for schools to gain full advantage of other education solutions such as learning management systems and library automation, as these applications rely on student data. [8]

### 3.1. School Management System for Management

- Single points school management software
- Manage multiple schools.
- Enable internet front-end for the school.
- Connect with Parents and other stakeholders effectively
- Build and Manage community of parents, teachers and students
- Manages all administrative records with zero redundancy
- Achieve best possible resource optimization
- Automate all operational functions like fees, Attendance, Exam Management.
- Automatic generation and regeneration of timetable with dynamic substitute management. [6]

### 3.2. School Management System for teacher

- Complete attendance automation.
- Complete marks/grade management
- Publish articles for others.
- Interact with parents efficiently and effectively.
- View analytical reports
- Email and Internal messaging system.
- Participate in forum and share knowledge with others.
- View own attendance.
- View Timetable in advance. [6]

### 3.3. School Management System for student

- Real time exposure for better learning.
- Publish article to share knowledge, experience and views.
- Participate in forums.
- View online marks and timetable for exams.
- Interaction with other students, teachers and parents.
- Access library Transaction.

- View own attendance.
- View Timetable in advance.
- View current events and holidays at school. [6]

### 3.4. School Management System for parent

- Get latest updates about school through image Gallery, News etc..
- Share knowledge and views with other parents and school through various features like article and forums.
- Get connected with schools effectively and easily
- Interact with teachers through internal messaging system.
- know status about her child through attendance, marks, fees etc ... [6]

## 4. SMS in Algeria (Digital Book Messaging):


**Figure 1.1** home page of the official web site of SMS in Algeria – Wilaya Medea- [11]

In the framework of improving Education public service procedures, The Ministry of Education has released digital book messaging to enable guardians to follow their children electronically. Note that the process pertain to all directorates of education across the country and stressed the need for guardianship periodic access to correspondence parents and deal seriously with their concerns and respond to them.

The Ministry of National Education announced the issuance of a new experiment in the digital book of correspondence via a web site of educational institutions across the country. This new process enabled the parents to follow the course of their children's education in terms of access to the schedule of use of time. The parents can receive the monthly absence of students, as well as the student's points of observation, "continuous monitoring, timely assignments, and a full view of the score sheet with the possibility of withdrawing.

This digital correspondence book will also enable parents to view the quarterly test calendar and test schedule, along with the rules of procedure of the school. The ministry also opened e-mail window communication between them and their children's school enables guardians to provide suggestions and justify the absences of their children or raise any concern.

This mechanism also enables school principals and directors of education to know about the content of this correspondence and the detailed statistics.

In this regard, the educational institutions activate this service using the program to transfer data to the site and take several steps, such as data transmission for the first time, delivery cards to the site to parents of students and to ensure delivery to them. The transfer of timetables and schedules of the reception of teachers to the parents, the internal rules of the school and homework. In addition to the export of absences, points of continuous monitoring, the provisions once completed, and this through the program to transfer data to the site. The site allow us to edit the calendar of the quarterly exams immediately agreed upon and then test schedules. The ministry also confirmed manager’s regular access to correspondence parents, deal seriously with their concerns, and respond to them.

## 5. Related work

In the next section, we will set forth the most well known SMS in the developed countries. We will reveal some of advantages and disadvantages:

## 5.1. School Time

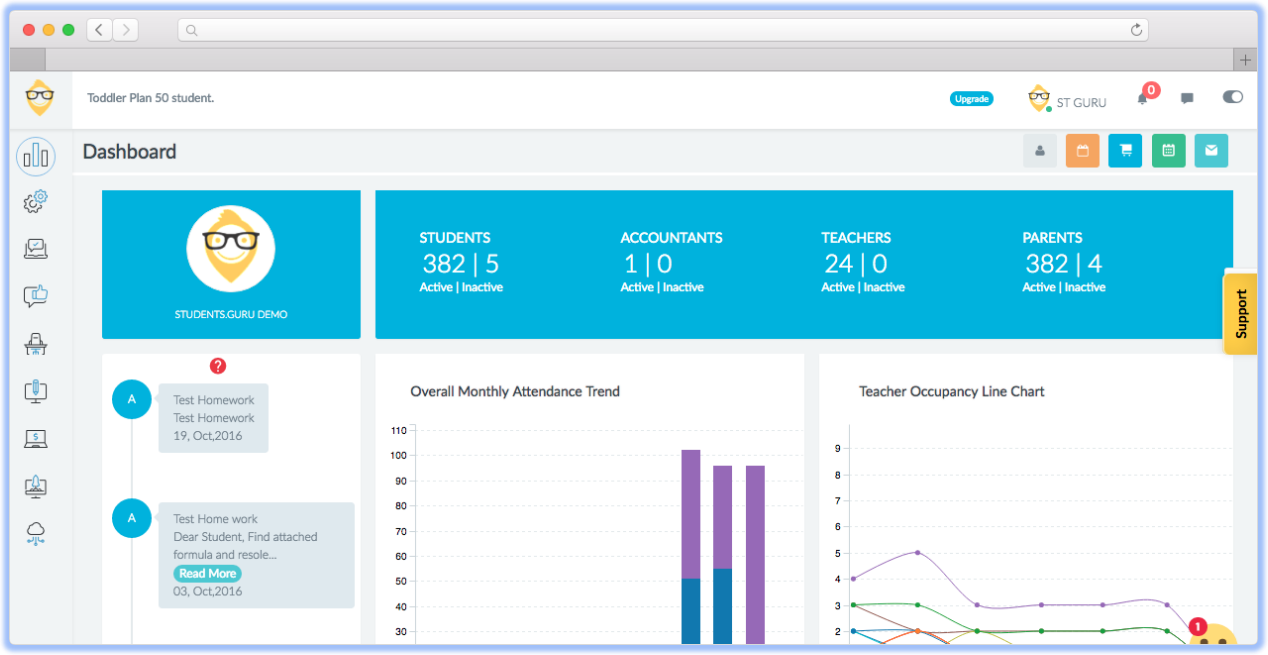


**Figure 1.2: school time screenshot**

If you are a smaller school, such as a private elementary or preschool with 50 students or less, the free version of School Time may be just what you are looking for.

### 5.1.1. Advantages:

No financial obligations or credit cards are required for the free version of the program and it never expires. Features include board management, grading systems, library databases, exam management, transportation, attendance, and even dormitory management.

### 5.1.2. Disadvantages:

The most obvious disadvantage would have to be the limit on the amount of students that can be accounted for in the free version of School Time. Of course this issue can be solved by upgrading to the not-so-free versions of School Time, but doing so would negate the “free and open source” solution you were looking for. So, as long as your school falls at or below 50 students, School Time can be a fit for you.

## 5.2. FeKara

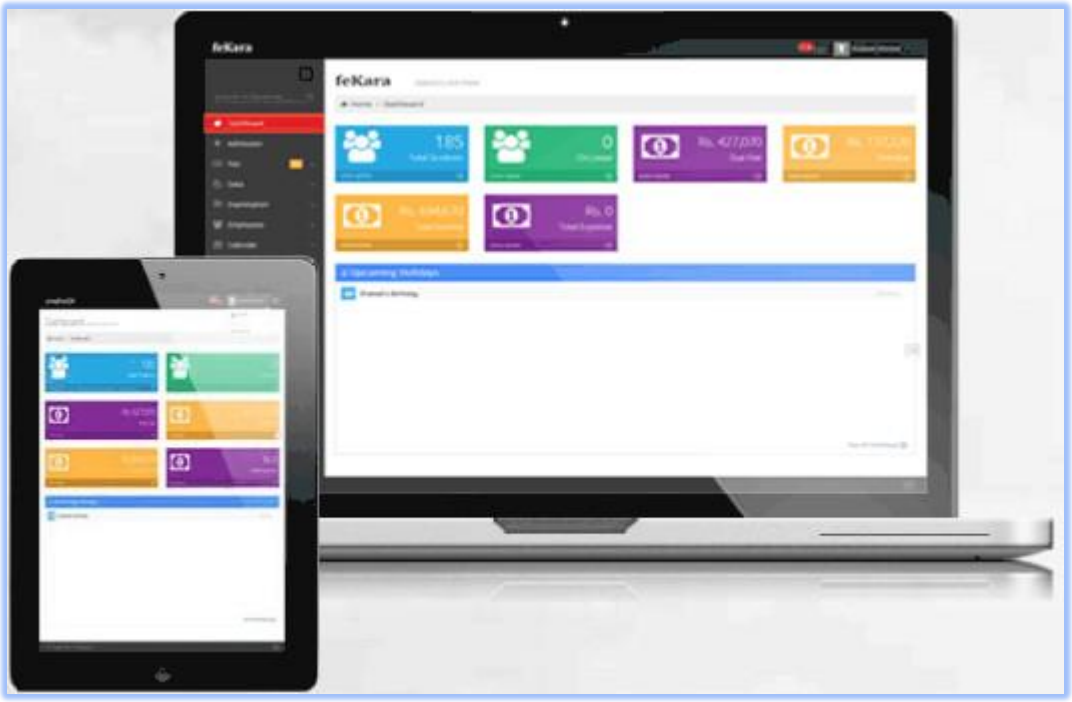


Figure1.3 : Fekara screenshot

Fekara is a free school software, which is available free for small schools. It is an online school management software in the cloud. It will manage your school as you want, starting from admissions to attendance and exams to result cards.

### 5.2.1. Advantages:

FeKara is a clean and modern school administration and management software option which covers everything from exams and assignments to budgeting and internal messaging for all staff. FeKara even includes a mobile app which can work on all tablets and smartphones for convenient on-the-go use.

### 5.2.2. Disadvantages:

Similar to School Time, FeKara is limited by the amount of students, bandwidth, and storage which can be managed on the free version of its software. A $10 per month upgrade to premium

gives you further options, including per student pricing model, increased bandwidth, and additional data storage with all of the previously mentioned features.

### 5.3. Fedena

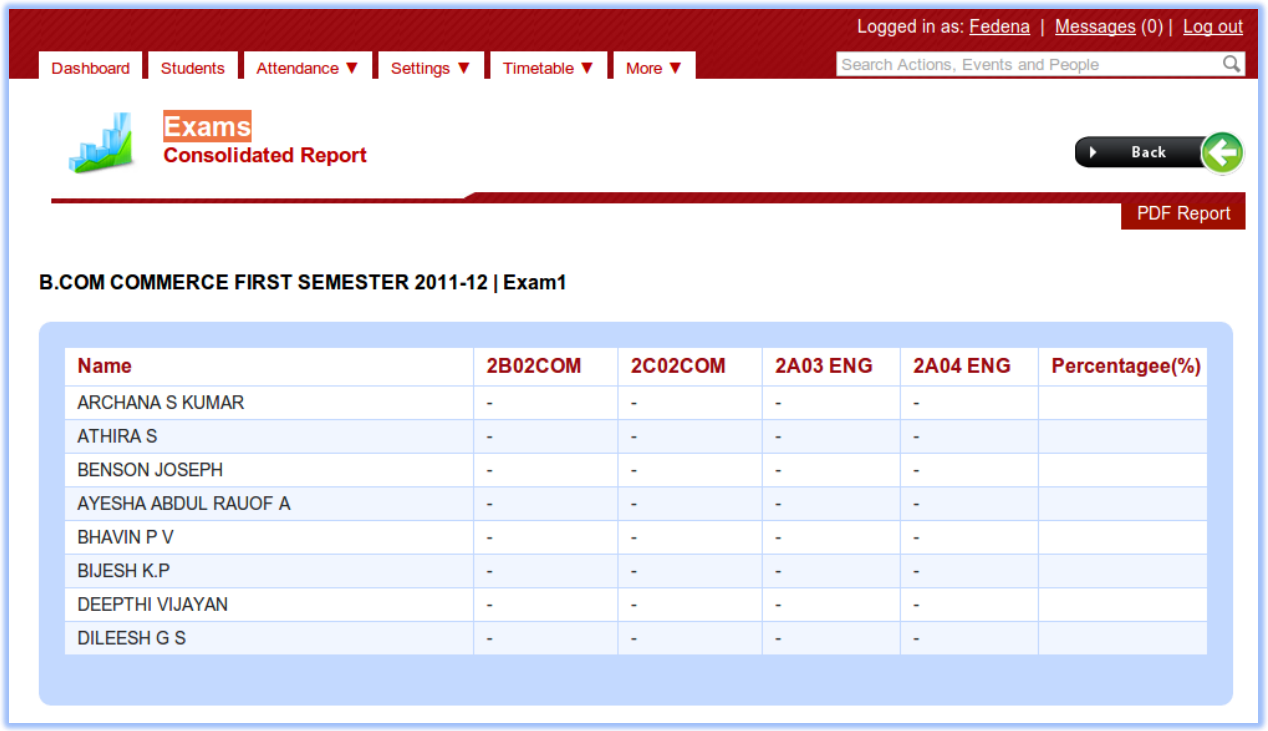


**Figure 1.4: Fedena screenshot**

Fedena is an open source school management software developed on Ruby on Rails. It is a web 2.0 application, which can be installed and accessed using cloud computing.

#### 5.3.1. Advantages:

Fedena offers unlimited administration and student logins to use their system, along with unlimited courses and batches. The system was developed using Ruby on Rails, so schools can easily customize the code to their school's needs. The system includes human resources, a calendar, financial management, examination management, and student/parent logins.

5.3.2. Disadvantages:

Fedena is the free version of another school administration software of the same name. When comparing the free version to the paid version, it becomes clear that the open-source version is lacking in a number of features, including inventory, custom reports, registration, and discipline.

## 5.4. SchoolTool

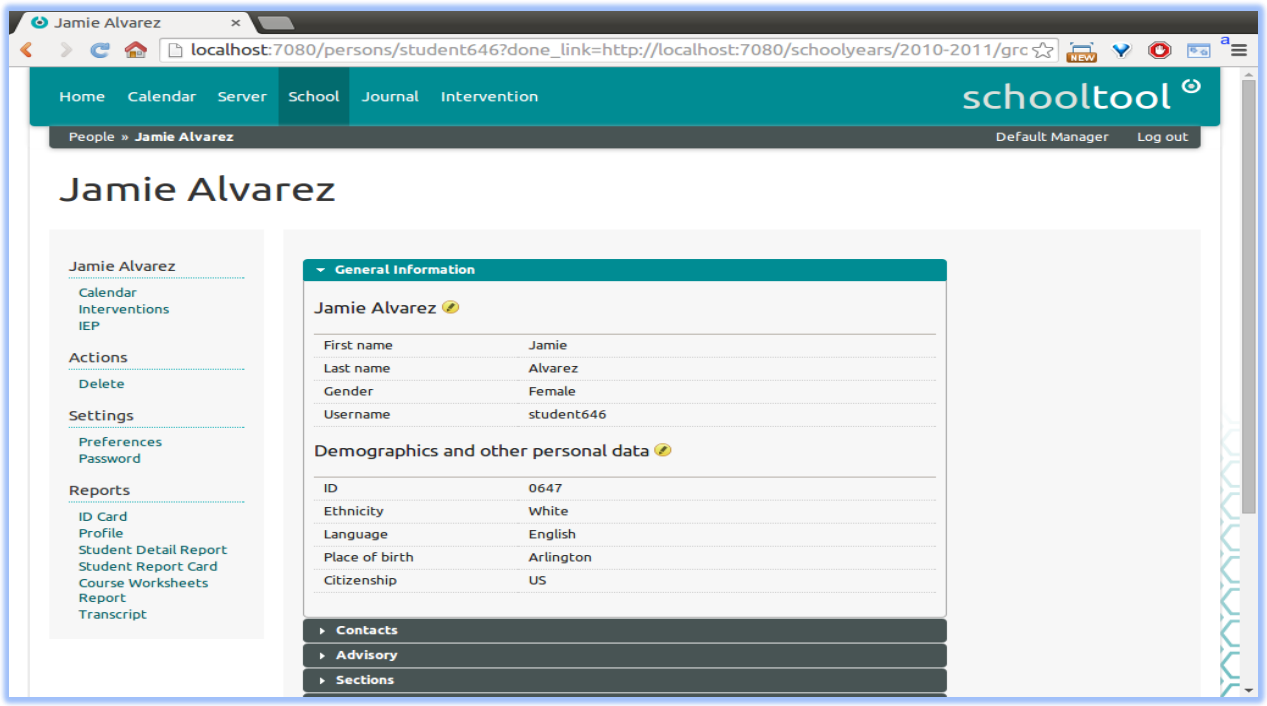


**Figure 1.5: schooltool screenshot**

School tool is a cloud-based open-source school administration software made for schools in the developing world.

### 5.4.1. Advantages:

School tool has a ton of features that largely appeal to teachers. It provides educators with what they need to run their classrooms (grade books, skill assessment documents, class attendance sheets, and daily participation journals), strong organization features (including a calendar that plugs in with popular calendar applications like Google Calendar), and a great report card generator. School tool was made with Python, is largely secure, and is run on Linux Ubuntu.

5.4.2. Disadvantages:

School tool is a great starting software for smaller schools, but it isn't an all-inclusive piece of software. For example, schools will have to find other applications to do human resources, reporting, and financial management. School tool is far more a tool for teachers than it is for administrators.

### 5.5. Comparison between related works

| Features | E-School | Fekara | School Time | Fedena | School Tool |
|---|---|---|---|---|---|
| Support Large System | ✓ | ✗ | ✗ | ✓ | ✗ |
| Support Mobile working | ✓ | ✓ | ✓ | ✗ | ✓ |
| Cover Everything | ✓ | ✓ | ✗ | ✗ | ✓ |
| Free Version | ✓ | ✓ | ✓ | ✓ | ✗ |

**Table 1.1 : Comparison between SMS**

As shown in table , the e-school system will be free and it will support mobile working by using bootstrap framework that make the website responsive with all devices that will help the users to access to the website from anywhere and anytime, and it will have a free version to try all features that the e-school are provided. [6]

## 6. Students With Chronic Illnesses

Chronic illnesses effect of many children, responding to the needs of students with chronic conditions, such as asthma, allergies, diabetes, and epilepsy (also now as seizure disorders), in the school setting requires a comprehensive, coordinated, and systematic approach. Students with chronic health conditions can function to their maximum potential if their needs are met. The benefits to students can include better attendance, improved alertness and physical stamina, fewer symptoms, fewer restrictions on participation in physical activities and special activities, such as field trips, and fewer medical emergencies.

Schools can work together with parents, students, health care providers, and the community to provide a safe and supportive educational environment for students with chronic illnesses and to ensure that students with chronic illnesses have the same educational opportunities, as do other students [1].

- In the following section, we will cite the responsibilities of each actor in a SMS [1] :

### 6.1. Family's Responsibilities:

- Notify the school of the student's health management needs and diagnosis when appropriate.
- Notify schools as early as possible and whenever the student's health needs change.
- Provide a written description of the student's health needs at school, including authorizations for medication administration and emergency treatment, signed by the student's health care provider.
- Participate in the development of a school plan to implement the student's health needs like Meet with the school team to develop a plan to accommodate the student's needs in all school settings and authorize appropriate exchange of information between school health program staff and the student's personal health care providers.
- Provide the school a means of contacting you or another responsible person at all times in case of an emergency or medical problem.

### 6.2. School's Responsibilities:

- Identify students with chronic conditions, and review their health records as submitted by families and health care providers
- Clarify the roles and obligations of specific school staff, and provide education and communication systems necessary to ensure that students' health and educational needs are met in a safe and coordinated manner.

- Implement strategies that reduce disruption in the student's school activities, including physical education, recess, offsite events, extracurricular activities, and field trips.
- Be prepared to handle health needs and emergencies and to ensure that there is a staff member available who is properly trained to administer medications or other immediate care during the school day and at all school-related activities, regardless of time or location.

### 6.3. Student's Responsibilities

• Notify an adult about concerns and needs in managing his or her symptoms or the school environment.

• Participate in the care and management of his or her health as appropriate to his or her developmental level.

## 7. Conclusion

In this chapter we have introduced the school management system, their history, their role and their influence to the student, the teacher and the administration. Also, we have presented some of the most known SMS in the world, and the one known in Algeria. Finally, we have concluded the chapter by speaking of one of the major issues in the student life which is the chronic illness and the responsibilities of each actor in the SMS to prevent catastrophic consequences. In the next chapter, we will provide a general look on the smartphone, their operating system, and we will expose some of the android application of the SMS.

# CHAPTER II

# SMARTPHONES

## 1. Introduction

With the growing speed of technological advancement, Smart phones have become the essential components of our daily performance. As we look for convenience, we also respect the devices, which can combine multiple features and which give us more mobility and entertainment. As the whole world is going into the new phase of technological performance, our needs become more sophisticated. On the one hand, we need speed, quality, and effectiveness on the other hand, these features should be combined in a solution small enough to carry it in the pocket.

Smart phones have come to exemplify one of the wisest and the most convenient technological ideas in the history of mankind. The unique combination of features makes Smart phones extremely usable and useful for different purposes. In business or in pleasure Smart phones expand our capabilities and help us resolve our problems in timely manner.

## 2. Smartphone


**Figure 2.1:** Smartphone

Smartphone is a mobile phone that includes advanced functionality beyond making phone calls and sending text messages. Most smartphones have the capability to display photos, play videos, check and send e-mail, and surf the Web. Modern smartphones, such as the iPhone and Android based phones can run third-party applications, which provides limitless functionality.

While mostly business users initially used smart phones, they have become a common choice for consumers as well. Thanks to advancements in technology, modern smartphones are smaller

and cheaper than earlier devices. Users also have a much wider range of smartphones to choose from than before.

Since smartphones have a wide range of functionality, they require advanced software, similar to a computer operating system. The smartphone software handles phone calls, runs applications, and provides configuration options for the user. Most smartphones include a USB connection, which allows users to sync data with their computers and update their smartphone software. [10]

## 2.1. History

It seems as though just about everyone owns a smartphone, even though it wasn't that long ago that the technology was first introduced to the general public. With their advanced computing capabilities and other features, smartphones have quickly gained popularity. Prior to the invention of smartphones, there were several devices that were used including regular mobile phones, and PDA devices. Eventually technology was combined and the concept of the smartphone was born.

The first concepts that eventually led to the invention of the smartphone date back to the 1970s. It was not however until 1992 that IBM came up with a prototype mobile phone that incorporated PDA features. The device was demonstrated the same year at a computer industry trade show called COMDEX. In 1994, BellSouth came up with a more refined version of the phone and called it the Simon Personal Communicator. This is the first device that could really be referred to as a smartphone. The Simon Personal Communicator was able to make and receive calls, send faxes and emails, and more.

In the later part of the 1990s, many mobile phone users began carrying PDAs (personal digital assistants). Early PDAs ran on various systems such as Blackberry OS, and Palm OS. Nokia released a phone combined with a PDA in 1996. The device was called the Nokia 9000. In 1999, Qualcomm released a smartphone. The pdq smartphone, as it was called, featured a Palm PDA with internet connectivity capabilities. Smartphone technology continued to advance throughout the early 2000s. These advances in technology brought about the introduction of the iPhone, the Android operating system and more. [11]

## 2.2. Operating Systems

The technology and features of the smart phones are varies to one operating system to another. Depends upon the operating system used in the smart phones the smart phones are classified. This classification mainly focuses on two major operating systems such as Android and iOS

### 2.2.1. Android


**Figure 2.2:** Android Logo

Android is Linux based operating system designed for mobile devices such as mobile phone and e-reader tablet PCs. Its first public version was released on 12th Nov, 2007 and first mobile phone with this operating system came in business market on 23rd Sep, 2008. It is an open source operating system which is based on Linux kernel which enables the developers to write and modify

Applications initially in Java. It is also support C/C++. It provides easy access for users to public sites like YouTube, Facebook and smooth integration with Gmail and Google calendar etc. It becomes more popular among hardware manufacturers and also in eneral public in recent years. One best thing which play a very important role in its popularity that it is absolutely free operating system for mobile devices and it has been selected by many hardware manufactures to run it on several devices like mobile phones, net books tablet PCs and others.[5]

- **Android OS Architecture**

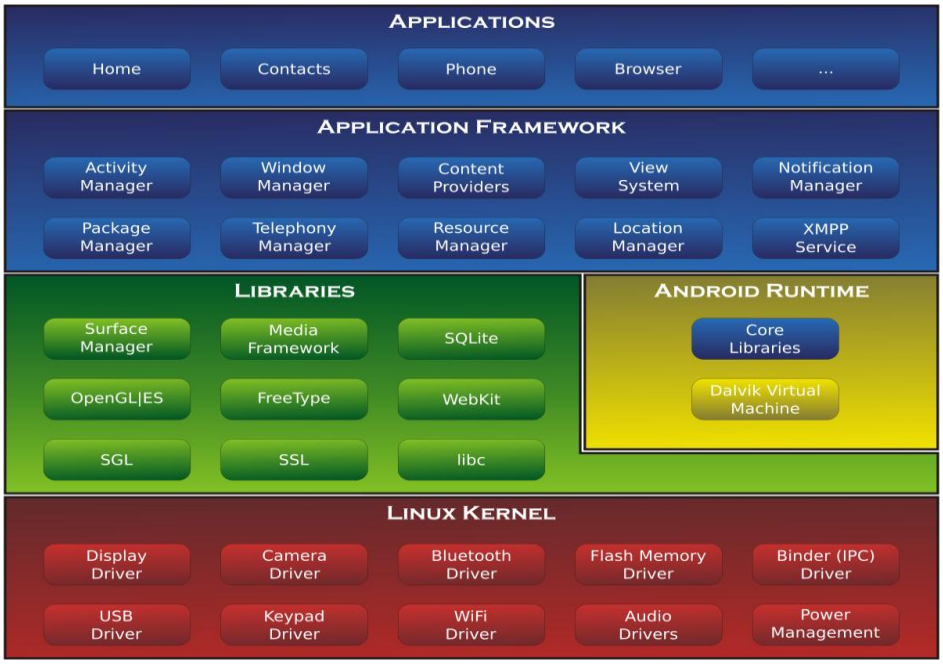


**Figure 2.3:** Android architecture

Android OS can be divided into four layers (see Figure 2.3) , the Linux Kernel, libraries, application framework, and applications:

- In Android OS Linux kernel provides virtual memory, drivers, power management and networking.
- The libraries in Android OS provide data storage, graphics and media applications. Android run time is embedded within the libraries which contains Dalvik Virtual Machine (DVM), which gives power to the applications.
- The applications framework in which all application suse to access the lowest level's architecture.
- The application framework provides most important APIs, in which the applications use sharing data, receiving the notifications and also accessing the telephony system. The software of Android is completely written in Java is interpreted by Dalvik Virtual Machine.

On observing the kernel dispatched with the Android's source code, there are not any important changes to the main functions of the kernel. The local libraries layer provides Android OS with the potentials for its main features. Packaging of Android OS with SQLite provides most data storage. SGL embedded in local libraries acts as the primary 2D graphics

provider and open GL/ES provides 3D graphics support. The WebKit web tendering engine modified to make web pages for smaller screen sizes. The Dalvik VM is a byte code predictor, highly optimized for executing on mobile phone.

Phones and contacts applications reside in applications layer which are most important key features. We may expect in this given modal that Android becomes much stronger and the users will easily identify that what applications should handle specific events( [5]:

- **Concurrency Model**

As we discuss above, Android OS is Linux based. Android offers almost the same features regarding concurrency model. The third party developers are able to run background services but it is not guaranteed that the services will run. The operating system will try to kill the processes when memory will be low it is not harmful for user's experience. It means that foreground running will be alive together with services which are used by the application's Background process can be killed at any moment and these has no effect on the user's experience.

- **Virtual Memory**

As we know that Android OS is Linux based and it proves that it can run with minimum hardware resources.

Application on Android run inside the Dalvik Virtual Machine but not executed as local applications. The Dalvik Virtual Machine allows multiple virtual machine instances to run at once and Dalvik Virtual Machine is registered based virtual machine which optimizes for low memory requirements. The Dalvik Virtual Machine (DVM) is made to run Java applications, but DVM is not a JVM. DVM runs Java applications that are converted into Dalvik executable file format. The lack of a just in time compiler is huge difference between DVM and other JVMs. As it optimized for low memory needs to run the application inside the VM is without any hesitation memory compared to an architecture which uses local application and lack of just in time compiler could minimize the performance.

### 2.2.2. iPhone OS


**Figure 2.4:** iOS Logo

Apple released first generation iPhone on June 29, 2007 in USA and the most recent version of iPhone, iPhone 7 plus released on September 16, 2016. The mobile device which uses the iPhone OS is similar to Mac OS X. The fundamental organization of iPhone OS is given in Figure 2.5.

The Core OS layer resides in the bottom of iPhone OS architecture. Core services layer contains an additional abstraction layer, media and cocoa touch layer. The Core OS layer also contain the scheduler, Mach kernel, fill system, hardware drivers and is in charge of control the memory system, network and inter process communication and security framework to secure the system and program data. As said that the core services layer contain an abstraction setup. It contains access to the network availability, basic framework for objective-C programming, state of mobile device, access to location information and address book.

Media layer includes various frameworks to deal with audio, video, 2D and 3D graphics. The Cocoa Touch layer resides at the top level of iPhone OS architecture and provides basic building blocks to develop graphical event driven applications the iPhone OS. In order to access the higher level APIs objective-C programming is required but as objective-C is a strict superset of C language and possible to contain C code in any objective-C class freely. [5]

- Concurrency Model

Apple has restricted the multitasking capabilities of the iPhone OS in order to maximize the amount of memory available to the foreground application. Apple give permission to only one third party application to run at a same time, when the mobile phone user goes back to the home screen the application is terminated, state information is archived and when the active user goes

back then application is reinstated. This is very sensitive obstacle for pervasive computing application since people often want to do work in the background without any user intervention. The restrictions that are imposed by Apple are not natural, near about ten applications or services mostly running concurrently on the iPhone OS, but it is only recommended by Apple's own application.

Only one third party service or application can run at the same time and it should be in foreground state, applications and services that run concurrently are core services such as email checking, calling, playback music, mobile synchronization and Bluetooth. Safari is allowed to run continuously when extra free memory is available and it is Apples own application.

- Memory Use

The 1st generation iPhone offer 128 MB memory while 3rd generation iPhone offers 256 MB that is twice as compared to the 1st generation iPhone, allowing to improve the performance as well as multitasking (D. Albazaz). Near about 11 MB of 128 MB is used for virtual RAM and operating system itself uses a large chunk of memory and remaining approximately 76 MB memory is for user. iPhone OS does not contain swap file for virtual memory, this indicates that when RAM is full then there is not any available memory any more. Current 3GS iPhone has quite advantage of much speed when user running the standard Apple applications that supports the multitasking. In previous iPhone models when another application is launched then safari browser is almost always closed, but in new 3GS it can continue running in the background

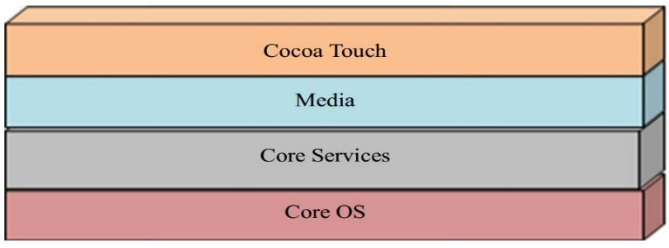


**Figure 2.5:** iOS architecture

## 2.3. Security

Using client-based endpoint security is one method of protecting mobile devices from malware. Protecting your corporate data and network begins with protecting its connecting devices. In this solution an actual client software app protects the device from viruses, malware, spam, and other threats.

Software is usually designed to run in the background, scan the device periodically for threats, and introspect (analyze) data received on the device for viruses and malware. Such software typically alerts the user when a threat is detected, and automatically quarantines or deletes the source of the threat as well. Symantec, Trend Micro, F-Secure, McAfee, and Juniper offer client software based mobile security solutions.

Software applications are typically deployed to mobile devices via the following two ways:

- Downloaded via the app store by the users themselves or deployed via a mobile device management system by the IT department.
- Deployed automatically over the air (OTA) from a server that the device connects to. This approach typically happens with no user intervention. Virus signatures are typically updated in a central system periodically. Then devices either download the signatures at regular intervals or they're pushed out to devices periodically.

## 2.4. Hardware

**Figure 2.6 :** Hardware of smartphone

### 2.4.1- Central Processing Unit (CPU)

The processor is the "brain" of a device. It's what handles the instructions of software apps.
All phones have a processor of some kind. it may be integrated into the main cell phone chip, or be a separate computer chip.
A better and/or faster processor allows apps to run faster. Raw processor speed is measured in MHz or GHz. (1 GHz = 1,000 MHz.) However some processors are more powerful than others, so even if two different processors both run at 1 GHz, if one is more powerful, it may run software apps much faster

### 2.4.2-Random access memory (RAM)

This is the memory where the software resides while it is running along with the data it is using. RAM is used by both OS and application software.

RAM is very fast but volatile, meaning that all information is lost when electric power is cut off. That makes it useful for temporary storage of data that requires fast access.

Normally, devices with RAM also have another type of storage memory (flash memory or a hard drive) that stores the information while the power is off.

Devices with more RAM can run more complex software and multiple applications at the same time.

### 2.4.3-Display

There are various display devices used in mobile phone such as LCD(liquid crystal display), TFT(Thin-film transistor) screen,OLED(organic light emitting diode),TFD(thin film diode), touch screen of capacitive and resistive type etc.

### 2.4.4-Camera

Some phones feature a camera that gives them the ability to work as a digital camera. Often (though not always) the camera is also able to shoot video.

The most important characteristics of a camera are the resolution (measured in megapixels), lens focus type (either fixed or automatic) and the presence of a flash. The flash could be either LED (single or even double) or xenon.

The number of megapixels is not always a good measurement of the quality of the photos, but if you plan to print pictures, you would generally get higher quality ones out of higher megapixel cameras.

Auto focus lens are not a guarantee of better image quality, but fixed focus cameras are usually inferior. Most importantly, only auto focus cameras can allow shooting of really close objects - i.e. macro shooting.

Some phones offer optical zoom but those are rare. Most use digital zoom, which degrades the quality of the photo.

Cameras that can work in "video mode" are characterized by the maximum resolution and framerate (frames per second or fps) of the recorded video.

### 2.4.5- Connectivity (WLAN, Bluetooth, USB, GPS)

To make data transfer fast enough between mobile phone and other computing devices (laptop, desktop, tablet) or between mobile and mobile various technologies are evolved which include WLAN, Bluetooth,USB. GPS(global positioning system) is used for location assistance and will enable google map to work efficiently.

### 2.4.6-Sensor

Modern mobile phones come with a variety of sensors that automate or easy many of our daily tasks. This field takes into account the presence of an accelerometer, a gyroscope, a compass, and a barometer

## 3. Developers Point of view

When someone has an idea to develop a mobile app, everyone wants their app to reach most of the users and in the Arabic world market; most of the people use android mobiles rather than iPhone or windows mobile. In the same way American market has most of the iPhone users than Android similarly you can find most of the people developing apps for iOS there.

In developers Point of view, its very easy to develop apps for android than iOS or Windows why because it’s not about the technology but the economy considerations for the develop.

When we consider a developer in Arabic world Market probability is more that he cannot afford an apple Mac laptop, because developing iPhone apps definilty needs a Mac and an iPhone you will not find much of iOS developers.

Even though its easy and faster to develop the apps for windows mobile, The market share of windows mobile is not comparable with the market share of android or iOS. So even if he develops a great app his users would be less and his revenue would be less.

Now it's Android, its open source. When things are open source they are developer friendly because they dont involove the sole authority to a single firm like microsoft does windows mobile.

In Android, everything is free and it does cost only $25 to put your app into the Playstore and even there are many other stores out there. To develop the app you just need a good configured PC and an android device, which are very much cheaper when compared to windows mobile or iPhone.

One more thing is that to develop an app for iPhone you definitely need Mac OS on a Mac computer. to develop a Windows mobile you can do it only on a Winodws PC. But in the case of android you can develop the apps on any computer either Mac or windows or Linux.

## 4. Influence of smartphones in everyday life

Now we cannot even remember the last time we actually did not use our smartphone for a whole day. Mobile smart devices and mobile Internet are changing the way we do things and how we connect with other people. Android applications are the most widely used in the world, where the most important applications are free and open source. In the following, We will mention the most important domains where smart phones help us:

### 4.1. Applications for Health Care

Mobile devices have become commonplace in health care settings, leading to rapid growth in the development of medical software applications (apps) for these platforms. Numerous apps are now available to assist with many important tasks, such as: information and time management; health record maintenance and access; communications and consulting; reference and information gathering; patient management and monitoring; clinical decision-making; and medical education and training, Of the most famous applications Samsung Health and Instant Heart Rate

## 4.2. Applications for Education

The impacts of mobile phones on educational field are identified in the Learning literature educational outcomes by improving access to education while maintaining the quality of education delivered. The most important applications for education domain are : Dictionaries app and language learning application .

## 4.3. Apps for school management system

as we have seen in the first chapter, les school management system are very important in the student life and the teacher as well. there for there is a numerous android application that deal with the SMS issues, such as: different tasks of management, planning improvement...etc. Next, we will present some of this android applications :

### 4.3.1. eSchool

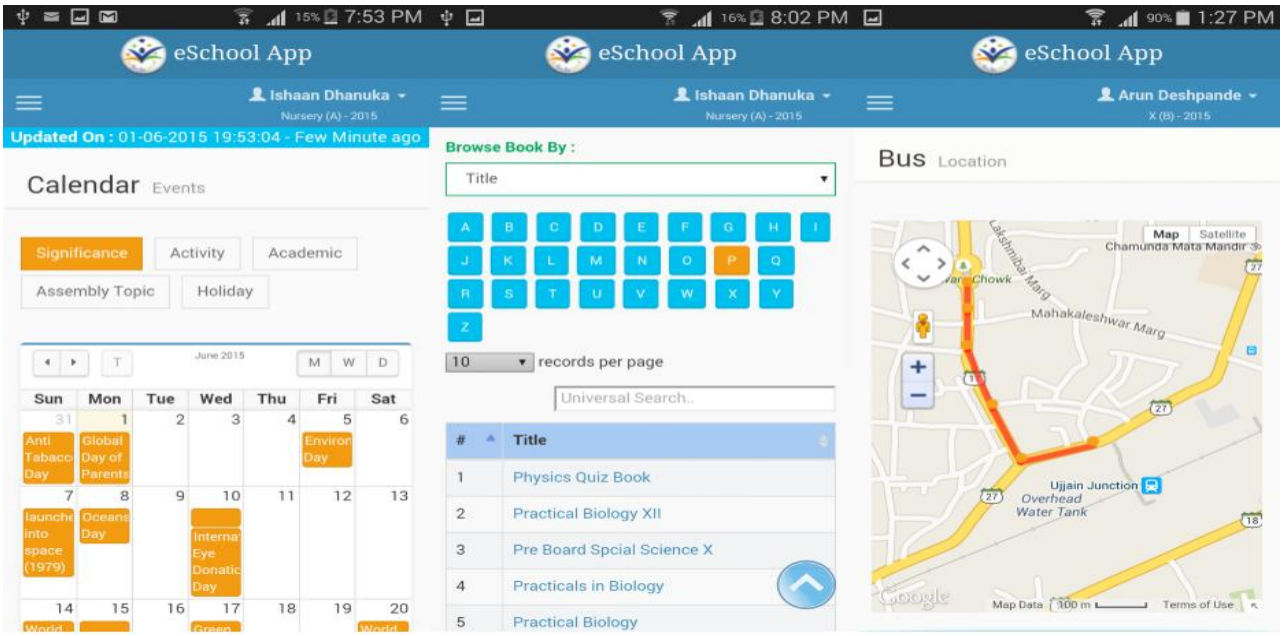


**Figure 2.7 :** eSchool screenshots

eSchool is a state of the art school management software which helps school manage complex functions such as fees, results, attendance, library, stock, timetable, staff, salary, notifications, scholar, documents, transport, online examination, hostel, etc. The eSchool App is a revolutionary mobile/tablet communication tool between a school, its students and their parents, which helps keep the parents informed, happy and impressed.

### 4.3.2. School management system

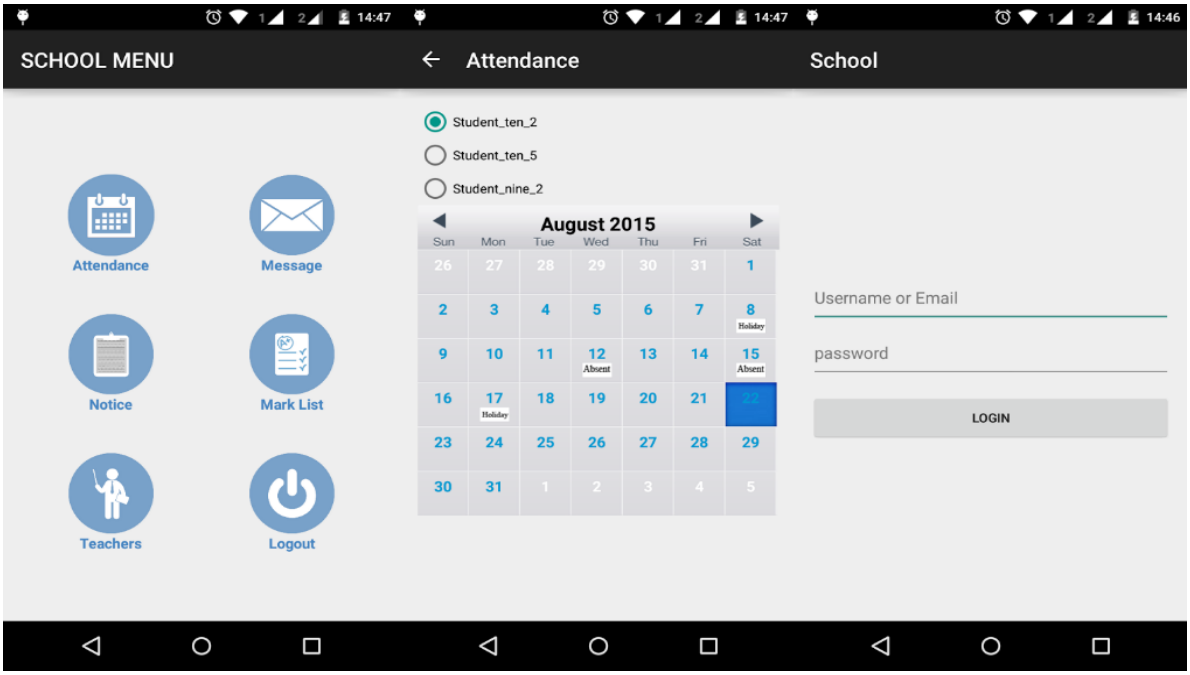


**Figure2.8 :** School management system screenshots

School Management System is a comprehensive web-based School Management Software. It is designed for better interaction between students, teachers, parents & management. This system reduces manual work and administrative hassles of your esteemed institution. the system can be accessed from anywhere in the world using smartphones or tablet or pc which enables parents, teachers, students and staff administration to be in touch at all times

## 5. Conclusion

In this chapter, we have presented some of the most important characteristic of the smartphones, in the hardware or the software side. We have highlighted the Android system, and try to present some of the applications that depends on it. Especially, those that take place in the school management system. in the next chapter, we will present our contribution on the SMS field and we will explain our work that is based on the principal tasks of the SMS.

# CHAPTER III

# IMPLEMENTATION

# 1. Introduction

Education, Students, teachers and parents should be empowered to benefit from the contribution of innovative technologies in education and contribution, through school, to improving the use of the Internet as an educational tool.

In Algeria, schools do not enjoy the benefits of the Internet. Especially those aimed at additional education for students, make parents aware of the educational level of the child in the institution, where the child is located at any time, contact the educational institution for any reason related to the study and health of the child for the reasons we tried to make a work that meets these needs.

# 2. System Design

Systems developed now are more complex than ever, and old software development methods simply do not efficiently scale up to the size of current systems. New paradigms are needed to keep up.

Engineers in other disciplines have long used blueprints and models to design and construct complex systems. They are concise, precise and allow the viewer to understand at a glance what is going on. Not so anymore. The Unified Modelling Language (UML) is a standard widely adopted graphical language that describes the artefacts of software systems with a focus on conceptual and physical representations. It provides a good bird's eye view as well as the minute details of the structural and behavioral aspects of a single system through the various views offered by UML.

## 2.1. Problematic

Child safety is every parent’s top priority. However, they can’t look out for them most of the time, especially when they start going to school, where we are suffering in Algeria from the increasing number of abductions and missing children

Schools and universities have every brain drive development, should enjoy the benefits of the Internet by improving the quality of information provided to students and students and facilitate study and communication between management and parents especially in adolescence, how can they achieve this? And are they the key elements that lead there?

### 2.2. Goals and interests of work:

The purpose of this work is: design a teaching and educational system followed by a website and an Android application that used to:

2.2.1. for parents:

- Communication between parents and management.
- Download school certificates and report cards.
- Know the location of his child (children) via ***Google Maps API***.

2.2.2. For students:

- Communication between the administration and students outside school hours.
- Get to view different tables and display texts.
- Download various educational materials (lectures, corrective exercises, correcting exams)

### 2.3. Methodology

The presentation of the work based on the following phases:

- Design with UML
- Creation of dynamic website
- Creation android application

## 3. UML (Unified Modeling Language)

The OMG specification states: "The Unified Modeling Language (UML) is a graphical language for visualizing, specifying, constructing, and documenting the artifacts of a software intensive system. The UML offers a standard way to write a system's blueprints, including conceptual things such as business processes and system functions as ‘well as I concrete things such as programming language statements, database schemas, and reusable software components.".[3]

## 3.1. Overview of UML diagrams

A model is a simplified representation of a problem. UML allows to express the object models through a set of diagrams. The latter are Means of description of the objects as well as the links that connect them.

## 3.2. UML Utility

UML used to specify, view, modify and construct the documents necessary for the good development of an object-oriented software. UML offers a modeling standard. To represent the software architecture. The different elements that can represented by:

- Activity of an object / software
- Actors
- Process
- Database schema
- Software components
- Reuse of components

To model our project we will use three diagrams, which are:

- Use Case Diagram
- Class diagram
- Sequence diagram

## 3.3. UML diagrams

UML 2 has many types of diagrams, which are divided into two categories. Some types represent structural information, and the rest represent general types of behaviour, including a few that represent different aspects of interactions. These diagrams can be categorized hierarchically as shown in the following class diagram.

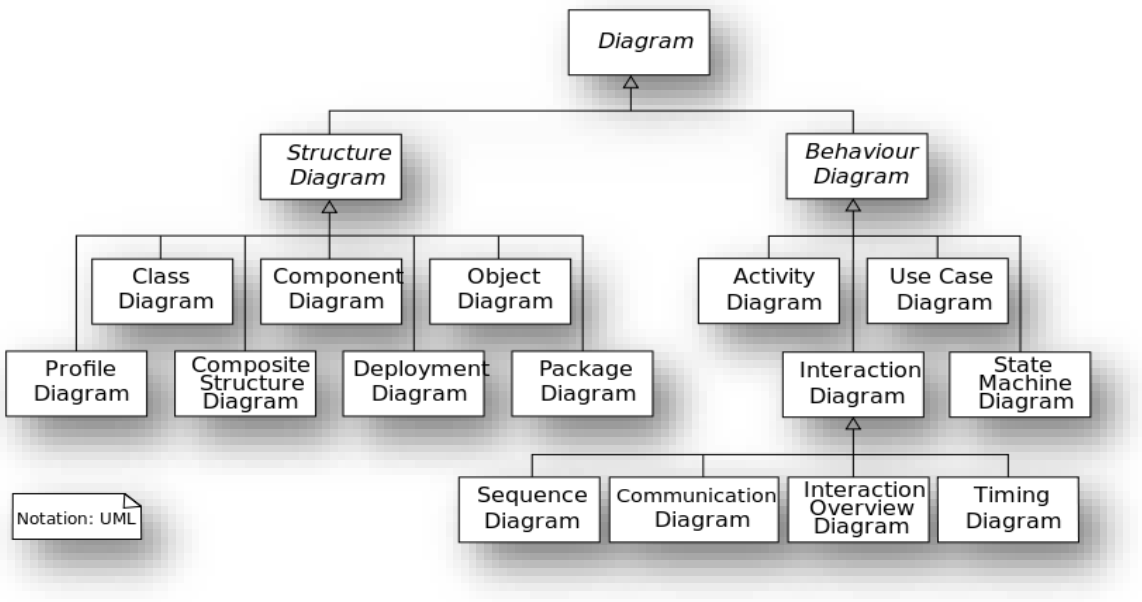


**Figure 3.1 :** Uml Diagrams [12]

### 3.3.1. Use case diagram

Use case illustrates a unit of functionality provided by the system. The main purpose of the use-case diagram is to help development teams visualize the functional requirements of a system, including the relationship of "actors" (human beings who will interact with the system) to essential processes, as well as the relationships among different use cases. Use-case diagrams generally show groups of use cases either all use cases for the complete system, or a breakout of a particular group of use cases with related functionality (e.g., all security administration-related use cases). To show a use case on a use-case diagram, you draw an oval in the middle of the diagram and put the name of the use case in the centre of, or below, the oval. To draw an actor (indicating a system user) on a use-case diagram, you draw a stick person to the left or right of your diagram (and just in case you are wondering, some people draw prettier stick people than others). Use simple lines to depict relationships between actors and use cases. [7]

- Admin

Admin can do After Login process the following function:

- Teacher management (Add/Update/Delete).
- Student management (Add/Modify/Delete)

- Parent management (Add/Modify/Delete).
- Class management (Add/Modify/Delete).
- Subject management (Add/Modify/Delete).
- Absent management (View absent list).
- Mark management (View marks list).
- Lesson Management (View lessons list).

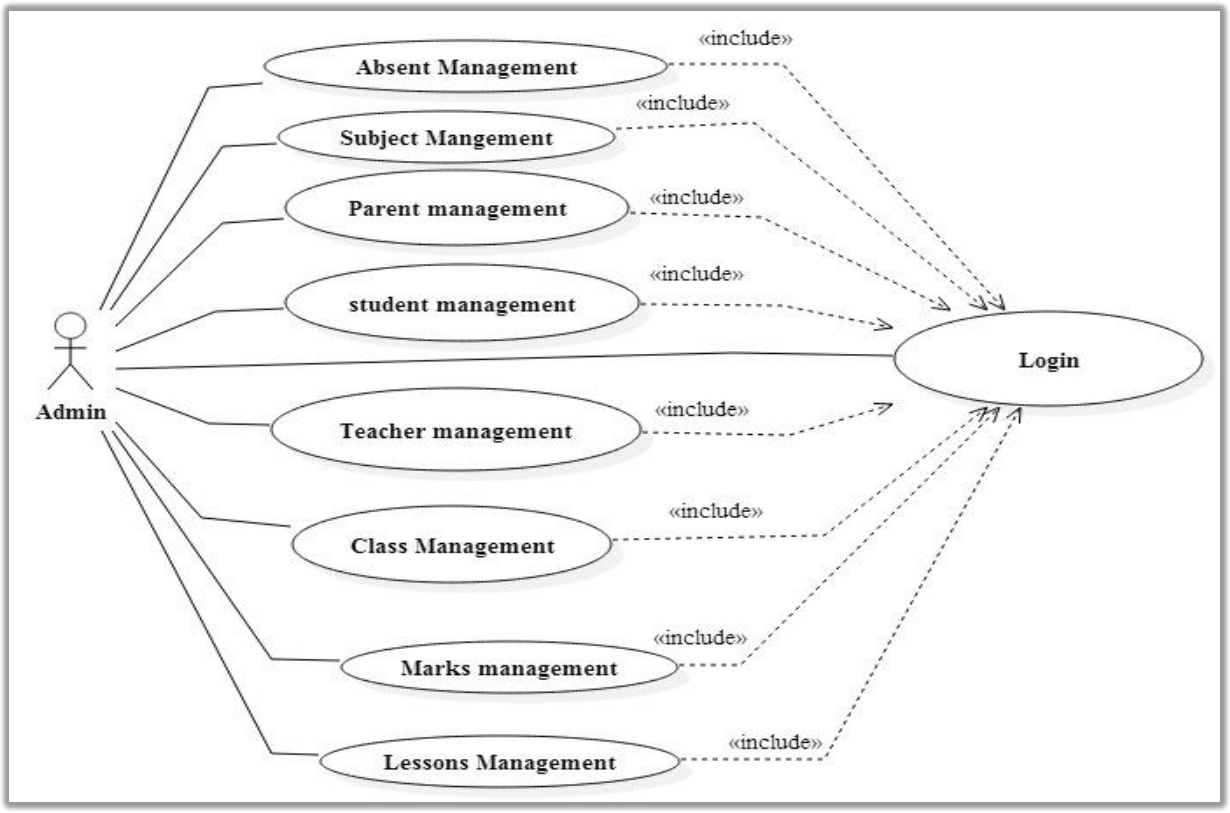


**Figure 3.2:** Administrator use case diagram

- Student

Student can do After Login process the following function:

- View Personal Information.
- View Timetable.
- View Marks.
- View Lessons.
- View teacher's information.
- View absents.

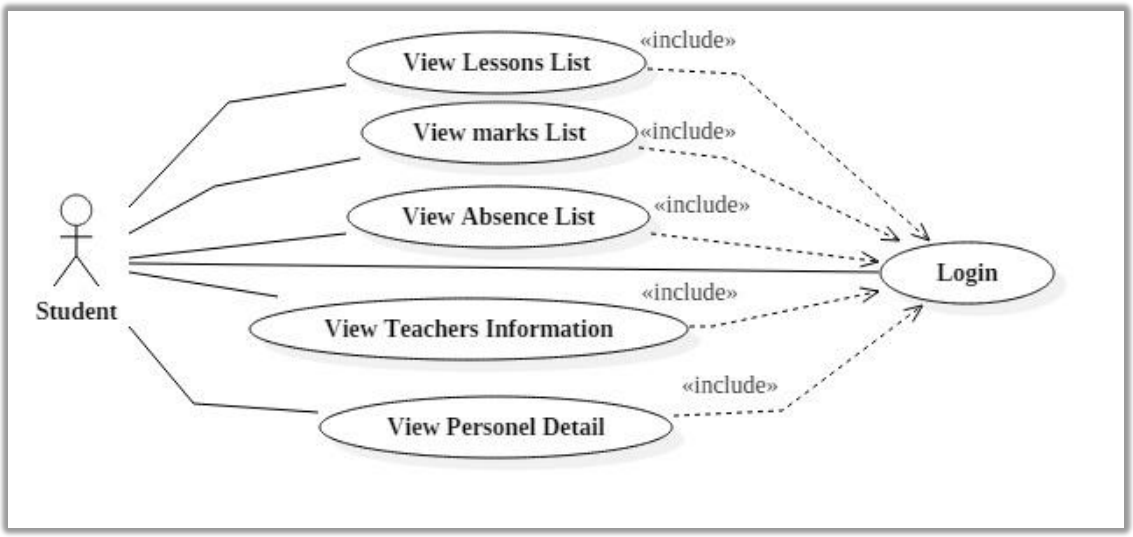


**Figure 3.3:** Student use case diagram

- Teacher

The Teacher can do After Login process the following function:

- Lessons management (Add/Modify/Delete).
- Marks management (Add/Modify/Delete).
- Absent management (Add).
- View Parents.
- View personnel detail.

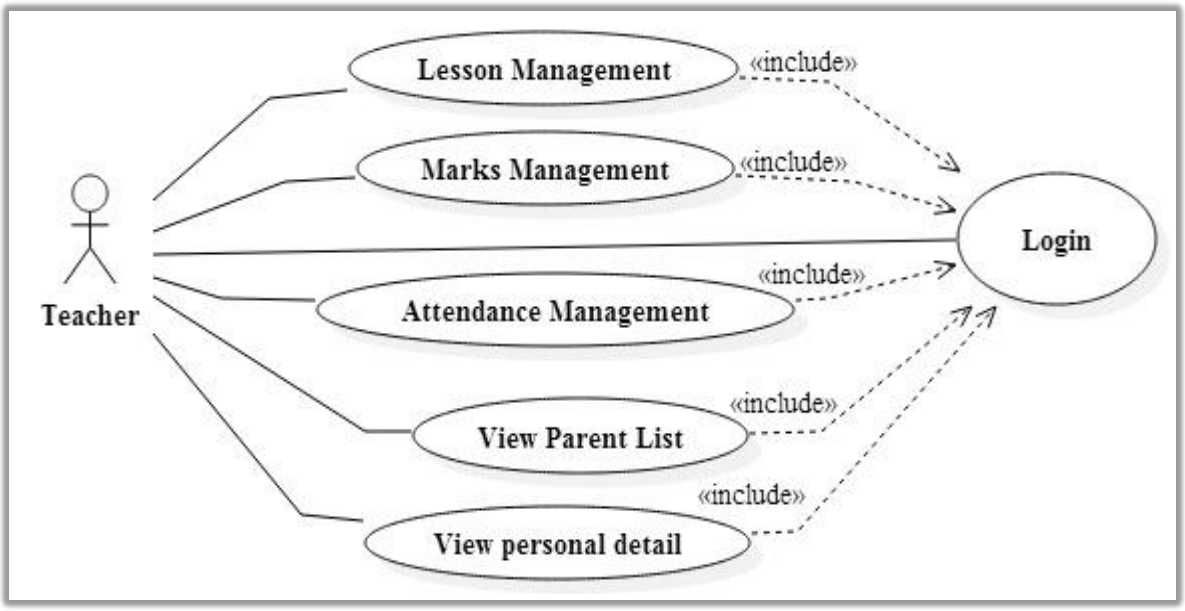


**Figure 3.4:** Teacher use case diagram

- Parent

The Parent can do After Login process the following function:

- View the list of teachers.
- View marks (show their child marks).
- View absents (show their child absents).
- View report (show their child report).
- View location (show their child location).
- View personal details.

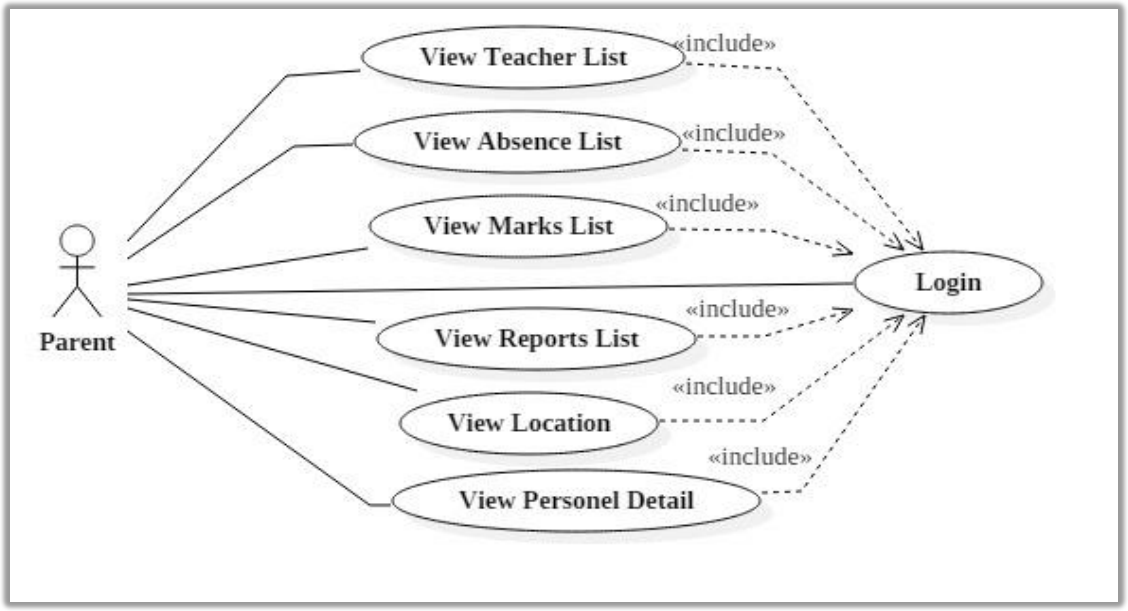


**Figure 3.5:** Parent use case diagram

3.3.2. class diagram

The class diagram shows how the different entities (people, things, and data) relate to each other; in other words, it shows the static structures of the system. A class diagram can be used to display logical classes, which are typically the kinds of things the business people in an organization talk aboutrock bands, CDs, radio play; or loans, home mortgages, car loans, and interest rates. [2]

Class diagrams can also be used to show implementation classes, which are the things that programmers typically deal with. An implementation class diagram will probably show some of the same classes as the logical class's diagram. The implementation class diagram won't be drawn with the same attributes, however, because it will most likely have references to things like Vectors and Hash Maps.[2]

Class is depicted on the class diagram as a rectangle with three horizontal sections, as shown in last Figure, The upper section shows the class's name; the middle section contains the class's attributes; and the lower section contains the class's operations (or "methods").

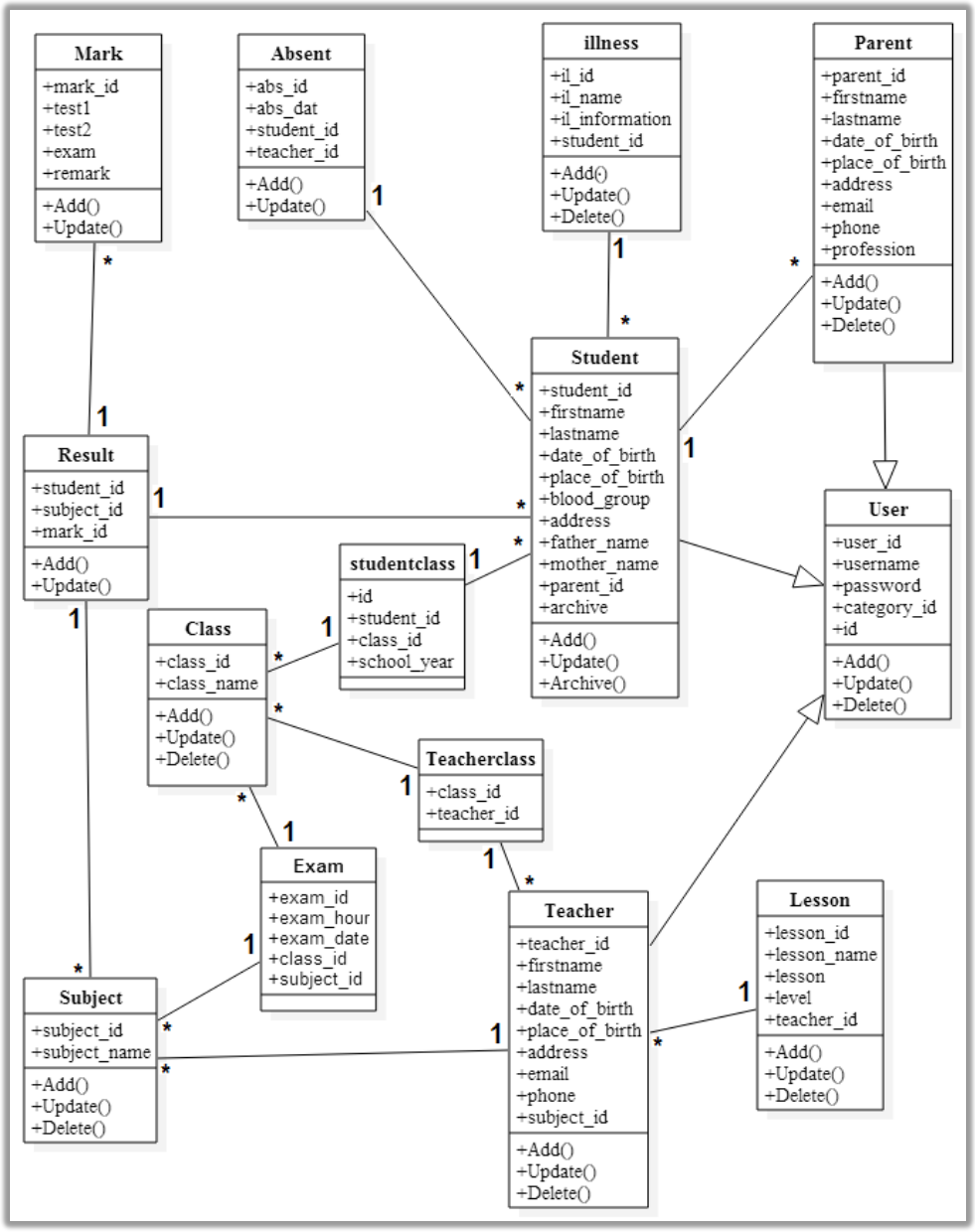


**Figure 3.6:** Class diagram

### 3.3.3. Sequence diagrams

Sequence diagrams show a detailed flow for a specific use case or even just part of a specific use case. They are almost self-explanatory; they show the calls between the different objects in their sequence and can show, at a detailed level, different calls to different objects.

Sequence diagram has two dimensions: The vertical dimension shows the sequence of messages/calls in the time order that they occur; the horizontal dimension shows the object instances to which the messages are sent. [7]

- Login sequence diagram
  - Any user able sign in

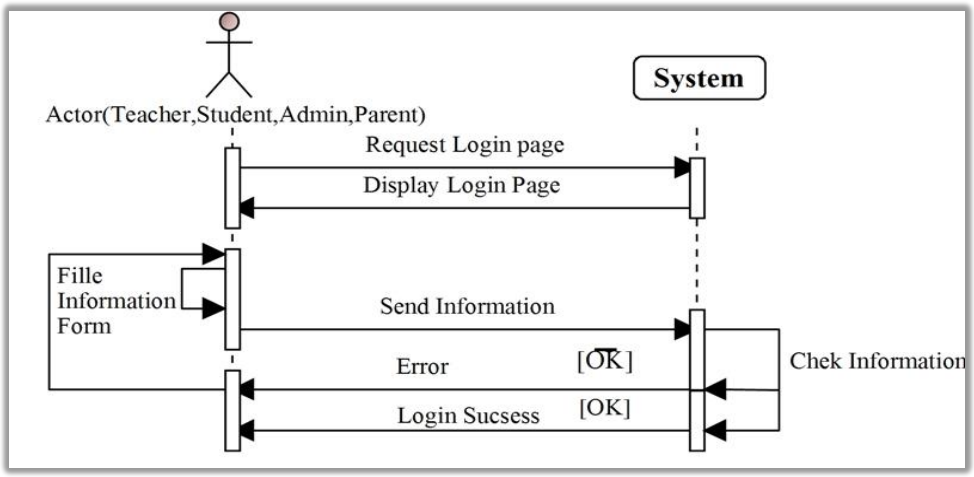


**Figure 3.7:** Login sequence diagram

- Delete user
  - Admin can delete any user

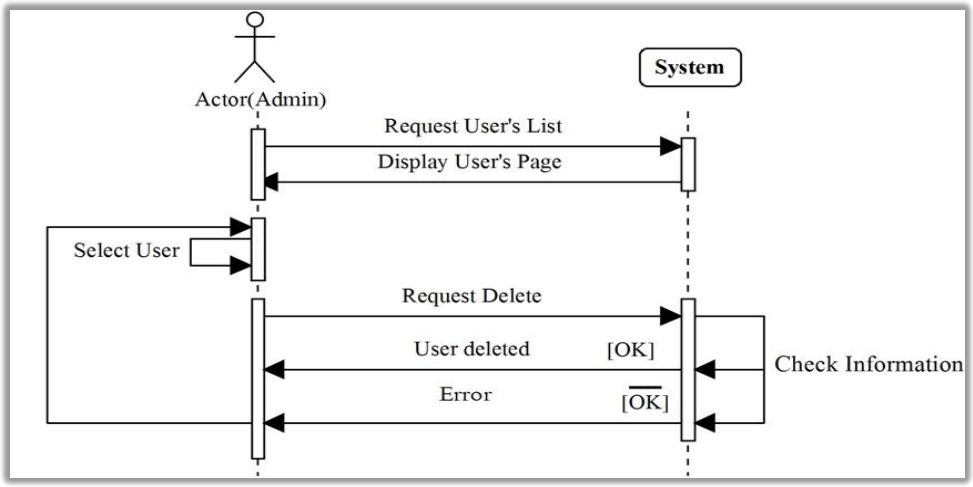


**Figure 3.8:** Delete user sequence diagram

- Add student as absent:
  - Teacher can register student at absent

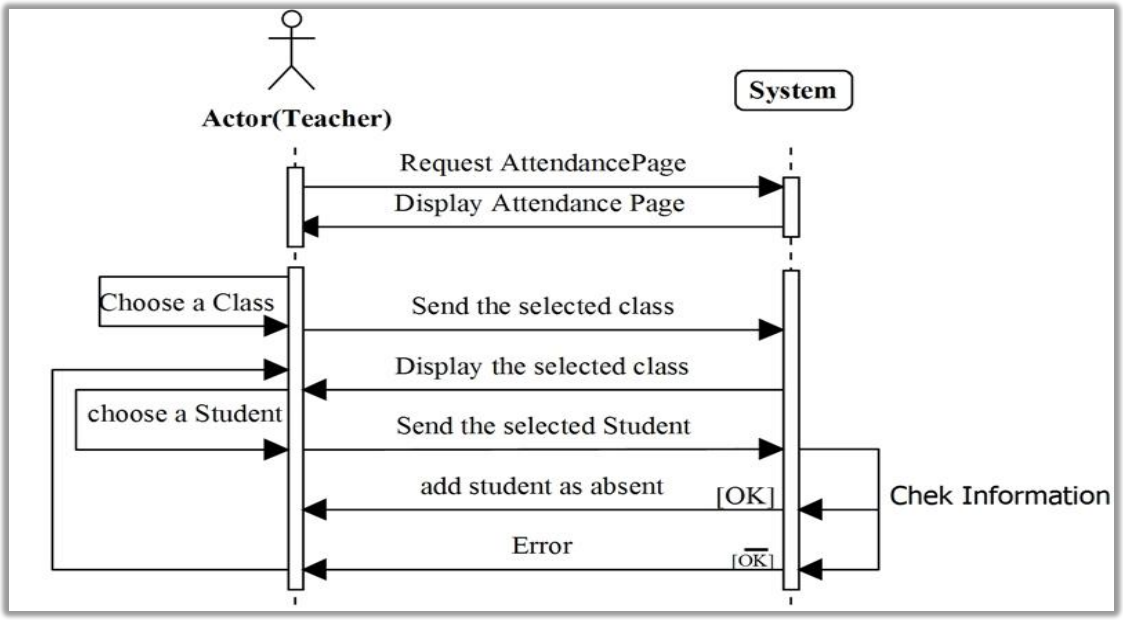


**Figure 3.9:** Add student as absent sequence diagram

- Download Lessons
  - Student can download any Lesson

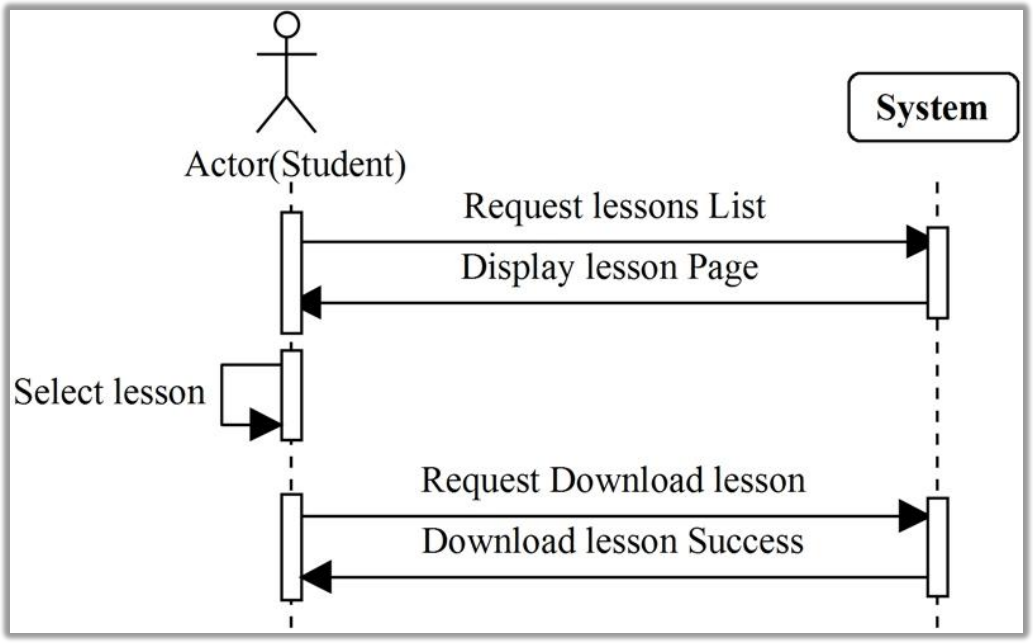


**Figure 3.10:** Download lessons sequence diagram

- View Location of Child:

  - Parent can view location of his child in any time

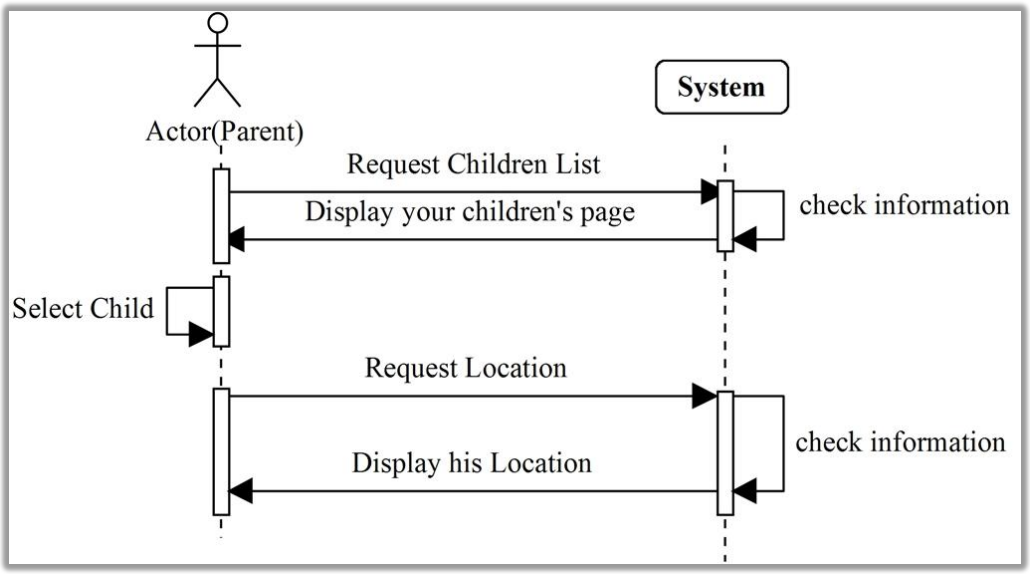


**Figure 3.11:** Location child sequence diagram

## 4. Used tools and technologies for the implementation

Besides the website of school management system, we have created an Android application with additional task : determining the geographical location of student via the Google Maps API . Web technologies like HTML, PHP, CSS3 as well as MySQL are used in design and web application. We used other techniques such as: JQuery to take advantage of updating the information on the web page at the real time, without reloading the page. The Json is used to connect the application with the server.

### 4.1. Google Maps API

The Google Maps API allow for the embedding of Google Maps onto web pages of outside developers, using a simple JavaScript interface or a Flash interface. It is designed to work on both mobile devices as well as traditional desktop browser applications. The API includes language localization for over 50 languages, region localization and geocoding, and has mechanisms for enterprise developers who want to utilize the Google Maps API within an intranet. Google Maps API Premier customers can access the API HTTP services over a secure (HTTPS) connection.

### 4.2. RFID tags

Radio-Frequency Identification (RFID) is the use of radio waves to read and capture information stored on a tag attached to an object. A tag can be read from up to several feet away and does not need to be within direct line-of-sight of the reader to be tracked.


**Figure 3.12**: RFID logo

The RFID tag consists mainly of an electronic chip and an antenna, The electronic chip consists of a memory and a microprocessor capable of processing the information and providing several levels of security (encryption, passwords, etc.). The serial number ensures the identification, which is unique; the size of the chip can be reduce to a point.

The antenna ensures reception and transmission of information signals. When the label is passive (without battery), the antenna allows the supply of the chip. Multiple chips can be read together by the same drive.The whole label is activated by a variable radio frequency signal, emitted by a reader composed of an electronic chip and an antenna. The reader may be stationary or mobile, and its antenna may take several forms, for example integrate within the framework of a door, for an access control application.[4]

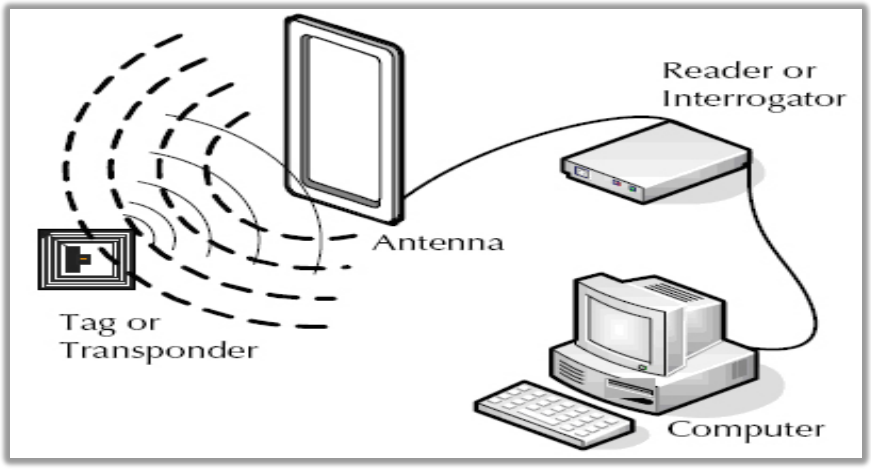


**Figure 3.13:** Explain RFID

Details on the different ranges and technical characteristics of RFID tags:
When the labels are "awakened" by the reader, a dialogue is established according to a predefined communication protocol, and the data is exchanged. The label can be affixed, carried or inserted into an object (package, card, vehicle ..).

unfortunately, the RFID technology is not yet supported in Algeria, we have tried to replace it by the telecommunication puce used in the ordinary phone to test our android application of geolocalisation. we must mention that the use of mobile phone is not allowed in school establishments in Algeria.

### 4.3. jQuery


**Figure 3.14 :** jQuery Logo

jQuery is a JavaScript library that allows web developers to add extra functionality to their websites. It is open source and provided for free under the MIT license. In recent years, jQuery has become the most popular JavaScript library used in web development.[9]

To implement jQuery, a web developer simply needs to reference the jQuery JavaScript file within the HTML of a webpage. Some websites host their own local copy of jQuery, while others simply reference the library hosted by Google or the jQuery server. For example, a webpage may load the jQuery library using the following line within the <head> section of the HTML:

```
<scripttype="text/javascript"src="//ajax.googleapis.com/ajax/libs/jquery/1.9.1/jquery.min.js">
</script>
```

Once the jQuery library is loaded, a webpage can call any jQuery function supported by the library. Common examples include modifying text, processing form data, moving elements on a page, and performing animations. Since jQuery runs on the client side (rather than the web server), it can update information on a webpage in realtime, without reloading the page. A

common example is "autocomplete," in which a search form automatically displays common searches as you type your query. In fact, this is how TechTerms.com provides search suggestions when you type in the search box.

Besides its free license, the other main reason jQuery has gained such popularity is its cross-browser compatibility. Since each browser renders HTML, CSS, and JavaScript differently, it can be difficult for a web developer to make a website appear the same across all browsers. Instead of having to write custom functions for each browser, a web developer can use a single jQuery function that will work in Chrome, Safari, Firefox, and Internet Explorer. This multi-browser support has led many developers to switch from standard JavaScript to jQuery, since it greatly simplifies the coding process.

### 4.4. Json

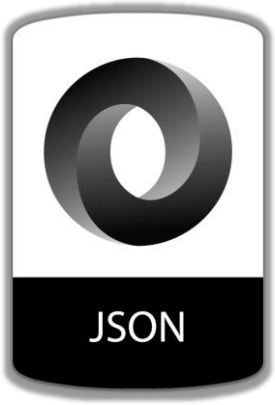


**Figure 3.15:** JSON Logo

Short for JavaScript Object Notation, JSON is a lightweight data-interchange format that is easy for humans to read and write, and for machines to parse and generate. JSON is based on the object notation of the JavaScript language. However, it does not require JavaScript to read or write because it is a text format that is language independent.

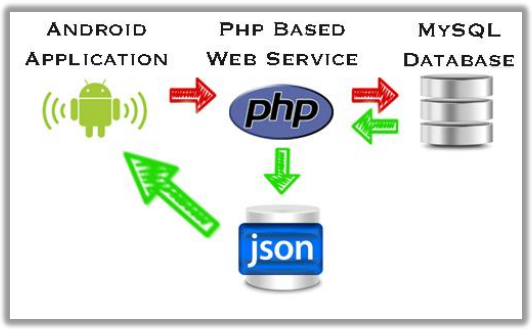


**Figure 3.16 :** Explain JSON

# 5. Presentation of the system

In the following section, we will present snapshot of the most important pages of our managing web application and the android application in relation

## 5.1. Website

Our website *Pro School* is dynamic with a back office or dash broad designed for the administration. From this board you can configure all the tasks and determine the settings of the education establishment such us:

- Number of classroom
- Number of teacher and their affectation of subject.
- Planning and timetable…. ect


**Figure 3.17:** Website/App logo

- Login Form
    - Any user able sign in

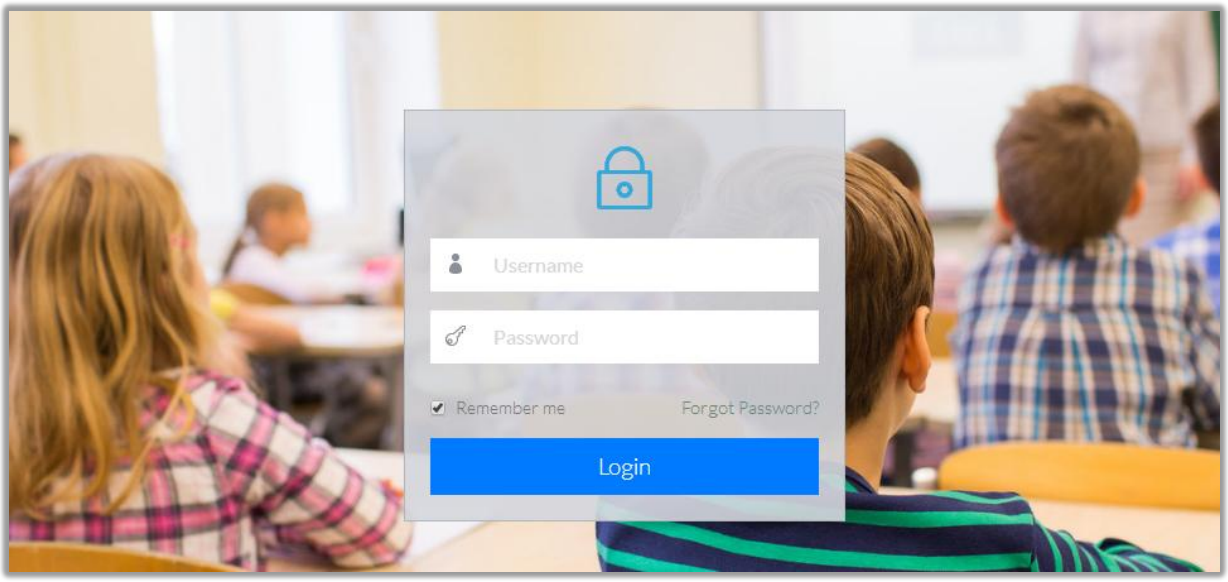


**Figure 3.18**: Login page

- Dashboard Admin
  - From the dashboard Admin can manage the website

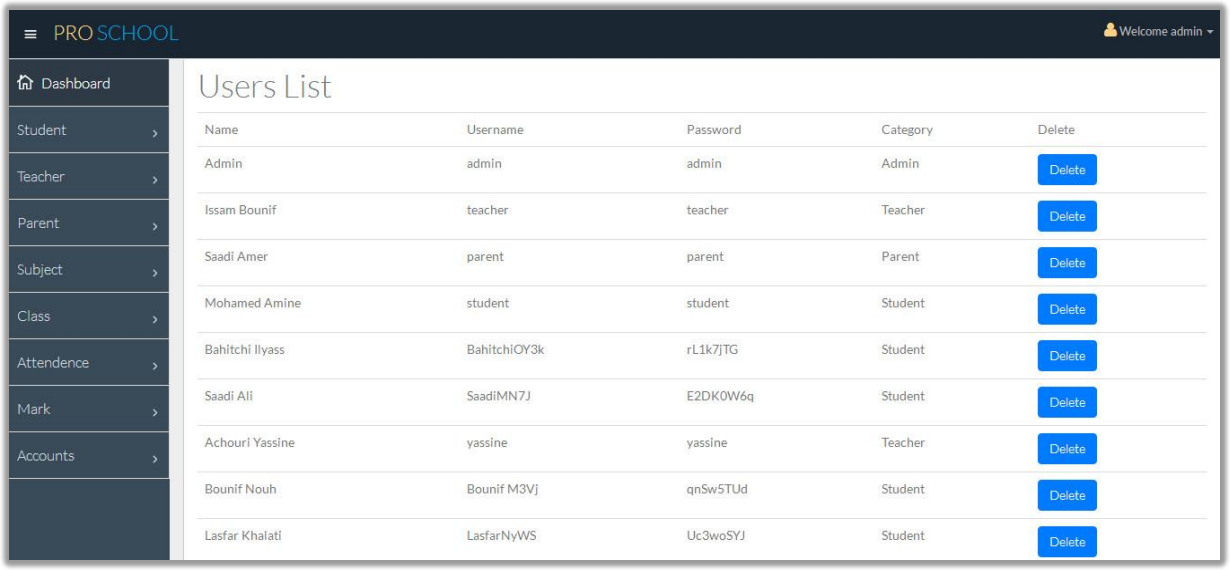


**Figure 3.19:** Dashboard admin

- Teacher list
  - Admin can manage teacher information

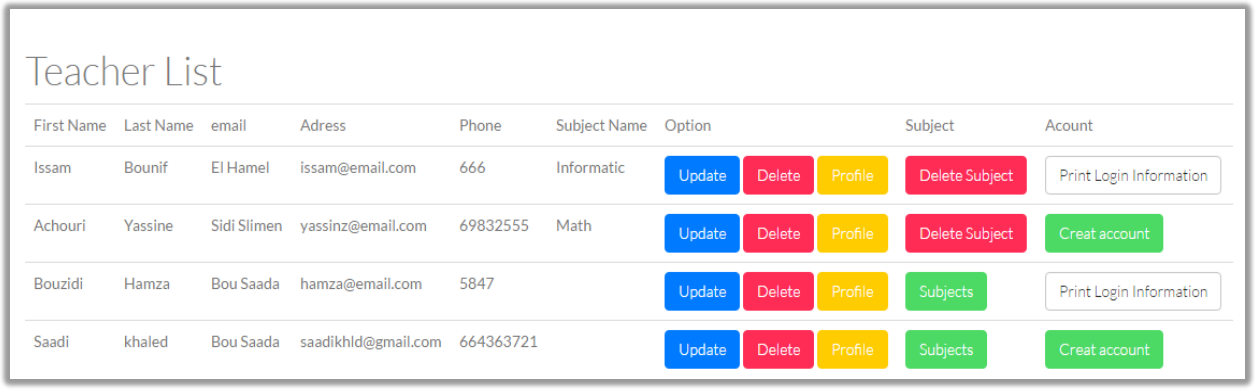


**Figure 3.20:** Teacher list page

- Add lesson form
  - Teacher can add lessons


**Figure 3.21:** Add lesson page

- Add marks form
  - Teacher can add marks for student

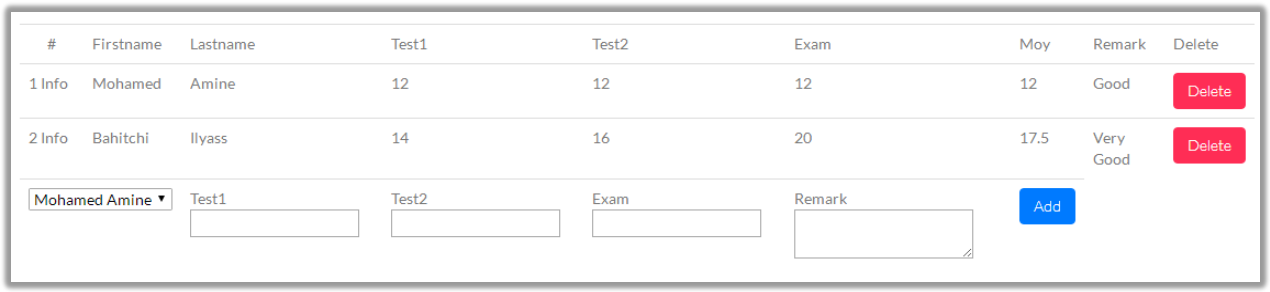


**Figure 3.22:** Add marks page

- Lesson list
  - Student can view or download any lesson

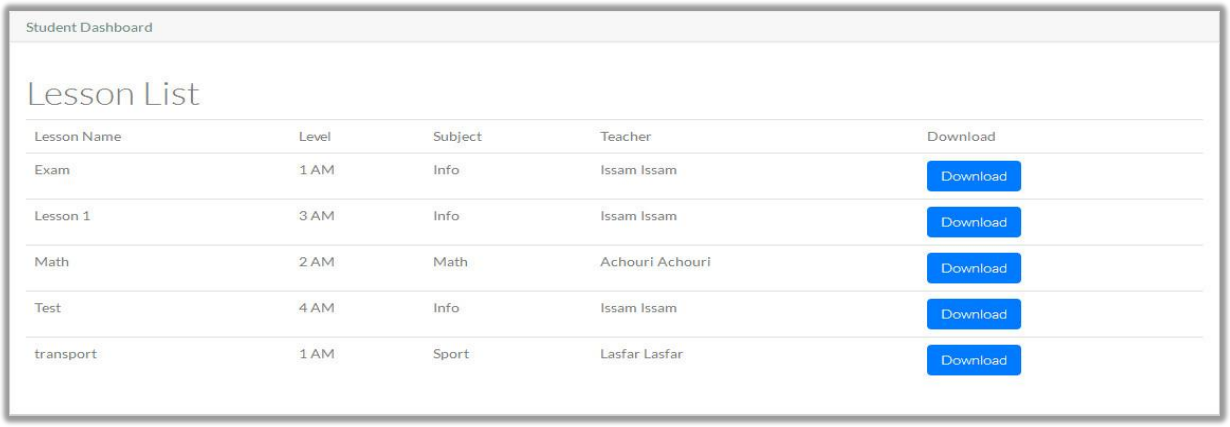


**Figure 3.23:** Lesson list page

- Student marks
    - Student can see his marks

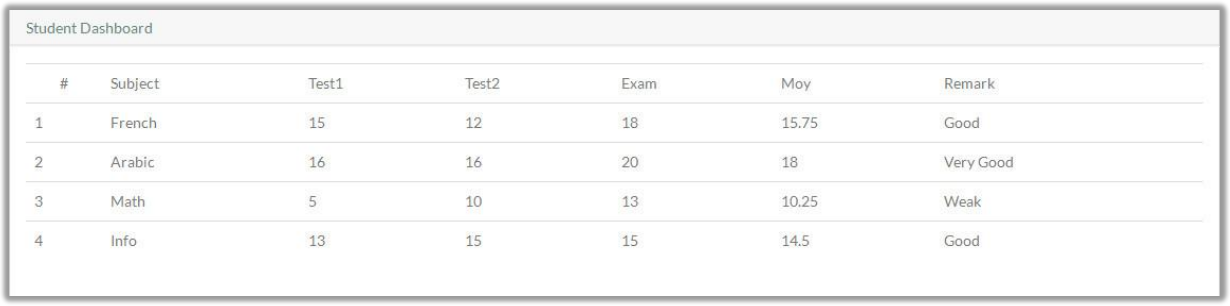


**Figure 3.24:** Marks list page

### 5.2. Android application

Our android application is accompanied with a geolocalisation system that helps parents to know the exactly location of their children. The parents can also track back and know the  the path that their child takes. We added this features because of the large number of kidnap of the student especially the primary level. And School dropout for the other levels.

In the following section we will present our app through a number of screenshots, and we will introduce some code fragment.

- **Login**
    - Only the Parent can sign in


**Figure 3.25:** Login form of mobile application

- login.java

  - This is sample login code in Android that use MySQL database. To connect to MySQL database from Android device/emulator I am sending an HTTP request.

```
Username = (EditText) findViewById(R.id.txtUsername);
Password = (EditText)  findViewById(R.id.txtPassword);
Button btnLogin = (Button) findViewById(R.id.btnLogin);

btnLogin.setOnClickListener(new View.OnClickListener() {

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        ArrayList<NameValuePair> postParameters = new ArrayList<NameValuePair>();
        postParameters.add(new BasicNameValuePair("username", Username.getText().toString()));
        postParameters.add(new BasicNameValuePair("password", Password.getText().toString()));
        //String valid = "1";
        String response = null;
        try {
            response = CustomHttpClient.executeHttpPost("http://"+ IP +"/school/phone/login.php", postParameters);
            String res=response.toString();
            res = res.trim();
            res= res.replaceAll("\\s+","");

           if(res.equals("1")) {
               Toast.makeText(getApplication(), Username.getText().toString()+" Is login", Toast.LENGTH_LONG).show();
               Intent MenuIntent = new Intent(getApplicationContext(),Pmenu.class);
               startActivity(MenuIntent);
           }
            else
                Toast.makeText(getApplication(), "Error In Username Or Password", Toast.LENGTH_LONG).show();
        } catch (Exception e) {

        }
    }
});
```

- **Figure 3.26:** screenshot of login.java

- Login.php

This endpoint accepts username and password as POST parameters. After receiving the username and password, it checks in database for matched user. If the user is matched, it echoes the success the json response.

```
<?php
require("../includes/config.php");

    $username = $_POST['username'];
    $password = $_POST['password'];
    $query = ("SELECT * FROM user WHERE username='$username'
                                    AND password='$password' AND user_cat = 4");
    $result = mysqli_query($conn,$query);
    $result = mysqli_num_rows($result);
    if ($result) echo 1;
    else echo 0;

?>
```

**Figure 3.27:** screenshot of login.php

- location of child
    - The Parent can know where his child

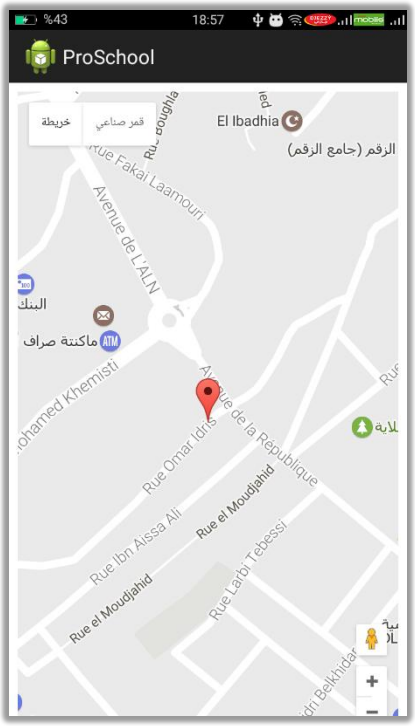


**Figure 3.26:** screenshot of location child

- Track trace
    - Parent can follow the path of his child

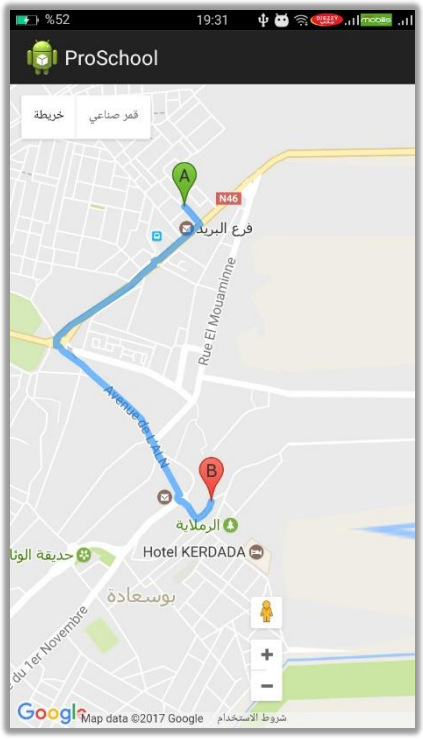


**Figure 3.26:** screenshot of Track trace

## 6. Conclusion

So far, we have presented the essential of our work. We have started by introducing UML modeling and the principal diagrams for the website and the android application. Also, we have explain in details the most important tasks of our website of management and highlighted the important characteristics of it : it can be used by any level of education establishment from the primary to the secondary level. This is due to the dynamic creation of the databases and the automatic generation of the website pages. Besides, we have presented the android application where we have enlarge our work by a system to geolocate student specially children and adolescent one. the geolocalisation system use the Google Maps API and should use the RFID tags, but unfortunately the RFID technology is not supported in our country. We have add this features to help the parent to feel more secure.

# Conclusion

Our project is divided on two subsystems. One is a website that allows the administration of a school in terms of adding teachers, students and monitoring the daily attendance of students. In addition to allowing teachers to score points, see the information of students, monitoring, call the parents in case of need to do. The parents can stay informed about everything related to the study of their children. The other part, is a mobile application that alerts parents in case of issues , used to maintain communication between the parents and the administration or teachers, and allow the parents to know the exact location of their children at any time via a geolocation system embarked .the parents can also track back their child to know the path he tack to school.

During the implementation of this system, we encountered many difficulties, the most important of which is the application technology of RFID tags and its impossibility to apply in Algeria because of the unavailability of the special antenna. for it, to demonstrate and to test our android application we have use an ordinary telecommunication puce.

In future, the system can be extended and make it available at all levels of study and integration with the Algerian educational system.

# Bibliography

## Books:

[1] M. Kay Libbus, Journal of School Health, American School Health Association, USA, October 2003

## Articles:

[2] Anthony J. Rhem, UML for developing knowledge management systems, taylor francis group boca raton new york , January 1, 2005

[3] Cris Kobryn, Communications of the ACM, 10/Oct/1999

[4] Domdouzis, Konstantinos, Bimal Kumar, and Chimay Anumba "Radio-Frequency Identification (RFID) applications: A brief introduction." Advanced Engineering Informatics 21.4 (2007)

[5] Nasser Ahmad, Muhammad Waqas Boota and Abdul Hye Masoom, Comparative Analysis of Operating System of Different Smart Phones, Department of Computer Science, Virtual University of Pakistan, Lahore, Pakistan,4 March 2015

## Thesis:

[6] Rasha Attalla, E-School – School Management System, University of Palestine, Palestine, May, 2016

## Website:

[7] Ibm https://www.ibm.com/developerworks/rational/library/769.html Consulted on 16/05/2017

[8] Sakhr http://www.sakhr.com/index.php/en/education-platform/school-management-system consulted in 15.05.2017 Consulted on 13/03/2017

[9] Techterms https://techterms.com/definition/jquery Consulted on 10/05/2017

[10] Techterms https://techterms.com/definition/smartphone Consulted on 16/03/2017

[11]Thesnugg http://www.thesnugg.com/a-brief-history-of-smartphones.aspx Consulted on 03/02/2017

[11] Medea http://www.medea-de.com/ Conselted on 16/05/2017

[12] Wikipedia https://en.wikipedia.org/wiki/Unified_Modeling_Language Conselted on 10/05/2017

**ملخص:**

يركز العمل المنجز في هذه الأطروحة على الحاجة الماسة لشراكة قوية بين العائلة والمدرسة لتعليم أبنائهم وضمان النجاح الأكاديمي لهم، في هذا السياق قمنا بإنشاء نظام يسمح بتقريب المدرسة من الاولياء والمتمدرسين حيث صممنا تطبيق خاص بالاندرويد يعمل على تنبيه الآباء على هواتفهم الذكية بكل الأمور الدراسية المتعلقة بأبنائهم بالإضافة الى مكان تواجدهم في كل لحظة والمسار الذي سلكوه خلال اليوم

**كلمات مفتاحية:** متابعة بيداغوجية، موقع إلكتروني، الاندرويد، **GPS**.

**Abstract:**

The work carried out in this thesis focuses on the need for a strong partnership between families and schools. For the best children education and the academic success. In this context, we have created a system that connects parents and schools manager. Also, we have developed an android application that alerts parents on their smartphone about the various activities that concern their children's education. In addition, we have integrated a system that provides the location of the child at every moment and the path he took during the day

**Key words:** school management system, website, android application, GPS

**Résume :**

La réussite des enfants dans leur vie scolaire nécessite une solide relation entre la famille et l'école. Dans ce contexte nous avons créé un système du suivi pédagogique permettant de rendre plus proche l'école aux parents. Ainsi, nous avons développé une application Android qui informe les parents via les Smartphones de toutes les activités qui concerne leurs enfants. En outre, nous avons embarqué un système de localisation pour connaitre l'emplacement de l'enfant à chaque instant et le chemin qu'il a pris au cours de la journée.

**Mots clé :** système du suivi pédagogique, site web, Android, localisation, GPS