

Palestine Polytechnic University
College of Information Technology and Computer Engineering
Department of Information Technology

Electronic School

Project submitted to fulfill the requirements of the graduation degree in
Information Technology

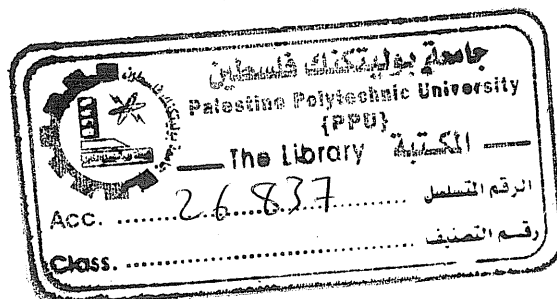
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Dedication

To our parents, brothers and families who taught us patience, Perseverance and success...

To our supervisor Dr.Dia Abu zeinah, who support us in all stages, given us advice and guidance that helped us to accomplish this project...

To everyone who knows us...

To our country...

To each researcher illuminates the way of the future by His effort and hard work contribute to the progress of the nation and the advancement...

Project team

Acknowledgment

The team advances great thank to our God who gives us the mind and blessed us the grace of thinking...

The team member advances deep thanks to supervisors Dr.Dia Abu zeinah who have granted us support, guidance and advices...

Thank You...!"

Declaration

The project team members declare that this project has been written and developed by them. So, the team members are ready for any questioning.

Project team

Abstract

Today, because of the great developments in communications, networks, and the Internet, the information can be found easily, and the information can't be difficult to be obtained because of distances. No doubt, the educational system in many countries utilizes the new technologies to enhance the educational process, which becomes an electronic process.

In fact, it has become necessary to find electronic educational system that support traditional education system in a school to get rid of the constraints of traditional education, and Poor communication between school members (students, parents, teachers, administrator, manager, and ministry of education). Having a stable online communication method between school members will highly improve the outcome of the educational process. In order to improve the educational system here in Palestine, we have decided to develop a project called the "Electronic School".

This project is designed for schools to facilitate the online communication between the school members throughout a web portal. Students can download, upload lectures data, view attendance, certificate and marks, and interact with their teachers throughout their school website. Also it helps the ministry of education to interact with the schools and to access students data through the system, and manage student transfer request issued by school manager. The system includes access control list to manage users permissions and allowed actions for the ministry, schools, teachers, students and their parents. System helps the ministry to issue status reports about students. Also parents follow up the academic status of the children easily. The manager approve student certificate that created by teacher.

المخلص

في يومنا هذا، وبسبب التطورات الهائلة في مجال الاتصالات، والشبكات، والإنترنت، فإنه أصبح بإمكاننا الحصول على المعلومات بسهولة، متجاوزين قيود المسافة. كما أن النظام التعليمي في كثير من البلدان التي تستخدم التكنولوجيا الجديدة لتعزيز ودعم العملية التعليمية أصبح إلكترونياً.

لقد أصبح من الضروري إيجاد نظام إدارة للمدارس لدعم النظام التعليمي التقليدي، والتخلص من قيود التعليم التقليدي، وسوء التواصل بين أعضاء العملية التعليمية (الطلاب، أولياء الأمور، المعلمين، المدراء و مديرية التربية والتعليم)، إذ أن وجود أسلوب تواصل عبر الإنترنت بين أعضاء المدرسة يساهم بشكل كبير في تحسين العملية التعليمية. و من أجل تحسين العملية التعليمية في فلسطين، قررنا تطوير مشروع "المدرسة الإلكترونية".

يهدف هذا المشروع إلى تسهيل عملية التواصل بين أعضاء العملية التدريسية عبر شبكة الإنترنت. حيث يمكن الطلاب من تحميل ورفع المواد التعليمية، و استعراض العلامات والشهادات وتقرير الحضور والغياب، والتفاعل مع معلمهم عبر موقع مدرستهم. كما أنه يساعد وزارة التعليم على التفاعل مع المدارس والوصول لبيانات وعلامات الطلاب من خلال النظام، إضافة إلى إدارة طلبات نقل الطالب الصادرة من قبل مدير المدرسة، كما ويمكن الوزارة من إصدار تقارير عن حالة الطلاب. أما الآباء فبإمكانهم تتبع حالة أبنائهم الدراسية باستمرار. يقوم المدير بتصديق الشهادة المدرسية في نهاية الفصل.

Table of content	
Dedication	I
Acknowledgment	II
Declaration	III
Abstract	IV
Abstract in Arabic	V
Table of content	VI
List of figures	IX
List of tables	XII
Chapter One (Planning) Introduction	
1.1 Introduction	2
1.2 Problem statement	2
1.3 Objectives	2
1.4 Methodology	3
1.5 Project scope	3
1.6 Tasks and Time Schedule / Gantt chart	3
Chapter Two (Analysis) System Requirement	
2.1 Introduction	6
2.2 Analysis of current system	6
2.3 Alternatives	6
2.4 Analysis of proposed system	7
2.5 Requirements	7
2.5.1 Functional Requirements	7
2.5.1.1 Functional Requirements for the Ministry of education	7

2.5.1.2 Functional Requirements for the Administrator	8
2.5.1.3 Functional Requirements for the Manager	8
2.5.1.4 Functional Requirements for the Teacher	9
2.5.1.5 Functional Requirements for the StudentAndParent	9
2.5.2 Non-functional Requirements	10
2.6 Feasibility study	10
2.6.1 Development System Costs	10
2.6.2 Operational System Costs	12
2.7 Limitations and constraints	13
2.8 Risk analysis and solutions	13
2.8.1 Risk analysis	13
2.8.2 Risk solutions	14
Chapter Three (Analysis) System Specification	
3.1 Introduction	16
3.2 General description of the system main functionalities	16
3.3 Requirement specifications	16
3.4 Validation	31
3.5 Analysis models	32
3.5.1 Use case	32
3.5.2 Class diagram	33
Chapter Four System Design	
4.1 Navigation diagram	35
4.2 User input/output design	36
4.3 Database design	88
4.3.1 Database mapping	88
4.3.2 Database description	89
4.3.3 Database diagram	102
4.3.3 Entity relationship diagram	103

Chapter Five	
System Implementation	
5.1 Introduction	105
5.2 Development tool and environment	105
5.2.1 Programming Language and Development Environment	105
5.2.2 Building the database	107
5.3 System interface	112
Chapter six	
Testing	
6.1 Introduction	116
6.2 Unit testing	116
6.3 Sub-system testing	120
6.4 Integration testing	127
6.5 System testing	127
6.6 Interface testing	127
Chapter Seven	
Maintenance	
7.1 Introduction	131
7.2 Maintenance plan	131
7.3 Migration	131
Chapter Eight	
Conclusions and Recommendations	
8.1 Introduction	134
8.2 Conclusions	134
8.3 Recommendations	134
8.3 Overall evaluation	135
References	136

Lists Of Figures	
Figure 1.1: Gantt chart (First semester)	4
Figure 1.2: Gantt chart (Second semester)	4
Figure 3.1: system use cases	32
Figure 3.2: Class Diagram for system	33
Figure 4.1: Navigation diagram for system	35
Figure 4.2: Student transfer request	36
Figure 4.3: View student profile	37
Figure 4.4: Administrators and managers account	38
Figure 4.5: Add administrator or manager account	39
Figure 4.6: View school information	40
Figure 4.7: Add new school	41
Figure 4.8: View student marks	42
Figure 4.9: Report generating	43
Figure 4.10: private message	44
Figure 4.11: Create message	45
Figure 4.12: View message	46
Figure 4.13: Administrator home page	47
Figure 4.14: Manage teacher and StudentAndParent account	48
Figure 4.15: Manage teacher and StudentAndParent account	49
Figure 4.16: Add family information	50
Figure 4.17: Manage class	51
Figure 4.18: Add course	52
Figure 4.19: Add class manager	53
Figure 4.20: Manage student	54
Figure 4.21: Backup	55
Figure 4.22: Private message	56
Figure 4.23: View message	57
Figure 4.24: Create message	58
Figure 4.25: Manager home page	59
Figure 4.26: View student	60
Figure 4.27: View student profile	61

Figure 4.28: Attendance report	62
Figure 4.29: Manage announcement	63
Figure 4.30: Approve certificate	64
Figure 4.31: View class	65
Figure 4.32: Private message	66
Figure 4.33: View message	67
Figure 4.34: Create message	68
Figure 4.35: Teacher home page	69
Figure 4.36: Manage course	70
Figure 4.37: Manage file	71
Figure 4.38: Manage marks	72
Figure 4.39: Certificate	73
Figure 4.40: Create certificate	74
Figure 4.41: Private message	75
Figure 4.42: View message	76
Figure 4.43: Create message	77
Figure 4.44: Student home page	78
Figure 4.45: Student courses	79
Figure 4.46: Course content	80
Figure 4.47: View student marks	81
Figure 4.48: Student attendance	82
Figure 4.49: Student profile	83
Figure 4.50: Student certificate	84
Figure 4.51: Private message	85
Figure 4.52: View message	86
Figure 4.53: Create message	87
Figure 4.54: Database diagram	102
Figure 4.55: ER diagram	103
Figure 5.1: Open the Sublime Text 2	106
Figure 5.2: Application environment	107
Figure 5.3: Select MySQL Workbench 5.2	108
Figure 5.4: Open MySQL Workbench 5.2	108

Figure 5.5: MySQL Workbench 5.2 EER Diagram	109
Figure 5.6: Create new database	110
Figure 5.7: Create table	110
Figure 5.7: Entry data on table	111
Figure 5.8: View student profile	112
Figure 5.9: Attendance report	112
Figure 5.10: Manage announcement	113
Figure 5.11: Course resource	113
Figure 5.12: View marks	114
Figure 5.13: View certificate	114
Figure 6.1: Login with valid user name and password	116
Figure 6.2: Login with invalid user name and password	117
Figure 6.3: Enter valid data to create account	117
Figure 6.4: Enter invalid data to create account	118
Figure 6.5: Administrator home page	121
Figure 6.6: Manage StudentAndParent and teacher account	121
Figure 6.7: Add new StudentAndParent or teacher account	122
Figure 6.8: Update StudentAndParent or teacher account	122
Figure 6.9: Add, update StudentAndParent or teacher families account	123
Figure 6.10: Manage classes	123
Figure 6.11: Add classes	124
Figure 6.12: Course teacher	124
Figure 6.13: Add course	125
Figure 6.14: Class manager	125
Figure 6.15: Manage student in class	126
Figure 6.16: Backup	126
Figure 6.17: Private message	127
Figure 6.18: Create user account successfully	128
Figure 6.19: Invalid create announcement with empty field	128
Figure 6.20: update user account successfully	129
Figure 6.21: Invalid upload file with empty value	129

List Of Tables	
Table 1.1: Time Division Task (First semester)	3
Table 1.2: Time Division Task (Second semester)	4
Table 2.1: Development hardware cost	11
Table 2.2: Development software cost	11
Table 2.3: Development human cost	11
Table 2.4: Operational hardware cost	12
Table 2.5: Operational software cost	12
Table 2.6: Total development cost	12
Table 2.7: Total operation cost	13
Table 2.8: Total system cost	13
Table 4.1: user table	89
Table 4.2: usermeta table	90
Table 4.3: usertype table	90
Table 4.4: message table	91
Table 4.5: announcement table	91
Table 4.6: attendance table	92
Table 4.7: certificate table	92
Table 4.8: class table	93
Table 4.9: classmanager table	93
Table 4.10: courceteacher table	94
Table 4.11: course table	94
Table 4.12: courseresource table	94
Table 4.13: grade table	95
Table 4.14: school table	96
Table 4.15: schoolclass table	97
Table 4.16: schoolcourse table	97
Table 4.17: studentclass table	97
Table 4.18: studentfamily table	98
Table 4.19: studentinfo table	99
Table 4.20: studenttransfer table	100
Table 4.21: studyyear table	100

Table 6.1: User login testing unit	118
Table 6.2: Create account testing unit	119

Chapter One

(Planning)

Introduction

1.1 Introduction

1.2 Problem statement

1.3 Objectives

1.4 Methodology

1.5 Project scope

1.6 Tasks and Time Schedule / Gantt chart

1.1 Introduction

Today, because of the great developments in communications, networks, and the Internet, the information can be found easily, and the information can't be difficult to be obtained because of distances. No doubt, the educational system in many countries utilizes the new technologies to enhance the educational process, which becomes an electronic process. This automation of the educational process facilitates the communication between educational members such as ministry, StudentsAndParent, teachers, administrator, and manager. In fact, having a stable online communication method between students and teachers will highly improve the outcome of the major sides of the educational process. In addition, developing an electronic school system will also provide the parents the opportunity to track their kids, as well as the manager to track the events in his/her school. In order to improve the educational system here in Palestine, we have decided to develop a project called the "Electronic School".

1.2 Problem statement

The current educational system relies on traditional methods to manage the schools. In such system, the students have no way to online access to the contents presented in the class, as well as the teachers who have no ability to electronically distribute his/her lecture's contents. In addition to exchanging materials problem, it is hard for the educational process members to electronically communicate. Hence fore, we propose to automate the educational process by developing an electronic system which electronically manages the educational school activities.

1.3 Objectives

The main objectives of this system are:

1. Facilitate the communication between the school members (students, parents, teachers, administrator, manager, and ministry of education).
2. Ease of uploading and downloading of educational material.
3. Ease of follow up the academic status of the students.

4. Provide a process of electronic transfer for students between schools.
5. Ease access of students marks in schools for the ministry of education.
6. Track students attendance electronically.
7. On-time reports generating about students status in schools by ministry.

1.4 Methodology

We have decided to use the Object Oriented analysis and design technique in the analysis and development of this system. We also have decided to use the Unified Modeling Language (UML) toolkit to create the required diagrams throughout the system development cycle.

1.5 Project scope

In this project we will consider the general requirements for such kind systems. It includes a website that can be remotely accessed by the school educational members in Palestine. It also includes a general purpose database that can be used to fulfill the school requirements activities.

1.6 Task Time Schedule / Gantt chart

We use the Gantt charts to illustrate the time schedule of the project in weeks, as shown below in figure 1.1. Table 1.1 shows a brief description of the project key activities.

Table 1.1: Time Division Task (First semester)

Tasks	Description	Weeks
1 st	Collecting information and planning	4
2 nd	System requirement	4
3 rd	Requirement specification	6
4 th	Documentation	All time

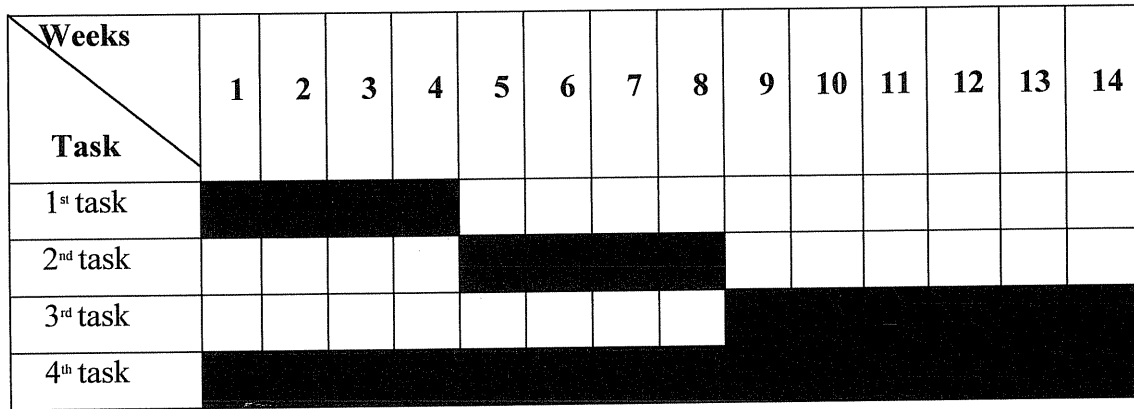


Figure 1.1: Gantt chart (First semester)

Table 1.2: Time Division Task (Second semester)

Tasks	Description	Weeks
1 st	System design	4
2 nd	System development	10
3 rd	System installation	1
4 th	System testing	All development time
5 th	Documentation	All time

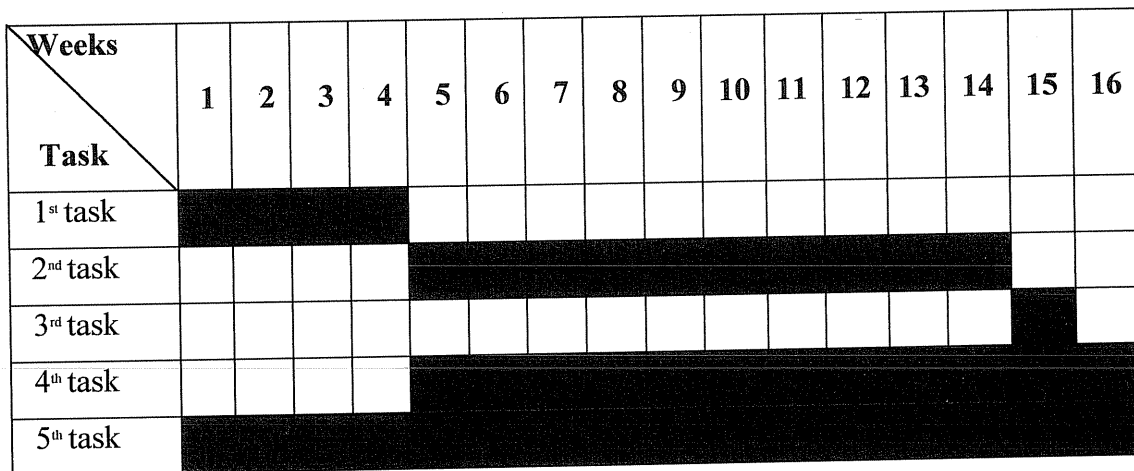


Figure 1.2: Gantt chart (Second semester)

Chapter Two

(Analysis)

System Requirement

2.1 Introduction

2.2 Analysis of current system

2.3 Alternatives

2.4 Analysis of proposed system

2.5 Requirements

2.6 Feasibilities

2.7 Limitations and constrains

2.8 Risks and solutions

2.1 Introduction

In this chapter we discuss the current system, alternatives, limitations, constraints, and risks. Then we will demonstrate the proposed system. After that we will describe in details the system requirements and the feasibility study.

2.2 Analysis of current system

Currently, the existing schools' educational systems are paper-based at most of its operation, which are costly and time consuming. Such system consists of physical entities such as classroom, boards, white board pen, etc. In case of absence, there is no way, but personally, to get a soft copy of the lecture notes. Additionally, the parents should call the manager or the teacher to inquiry about their student academic status. If the student would like to change his current school, he must get the destination school permit for the transfer process, then he can get his file to the new school, in some cases students should get the ministry approval too.

At the end of each semester every school should transfer the marks report to the ministry using a removable storage like CD's. Also by the end of each semester, students take their certificate. As we see, all the process is not electronically documented which is error-prone.

2.3 Alternatives

It is hard to imagine a crucial development out of advanced technology. However, school may partly improve the educational process by development of an electronic system to do the educational process electronically.

2.4 Analysis of proposed system

The education in Palestinian occupied territories must be developed to be part of modern educational system in the world as the Palestinians must care about education to face the occupation policies that try to make Palestinians give up their education. So the research team decides to help in developing education in Palestine by presenting the Electronic School project to have the educational system more developed.

2.5 Requirements

In this part, we demonstrate the functional and the non-functional requirements.

2.5.1 Functional Requirements

In term of Object Oriented analysis, the Electronic School has several actors who perform the system activities. These actors are Ministry of education, administrator, manager, teacher, StudentAndParent (we combined student and parent in one word throughout this project). We also divide the functional requirements of the system into several requirements, including:

1. Functional requirements for the Ministry of education.
2. Functional requirements for the Administrator.
3. Functional requirements for the Manager.
4. Functional requirements for the Teacher.
5. Functional requirements for the StudentAndParent.

2.5.1.1 Functional Requirements for the Ministry of education

The system enables the Ministry of education to:

- Approve a Students transmission.
- Create a school account.
- Update a school account.
- Create administrator account.
- Update administrator account.

- Create manager account.
- Update manager account.
- View student mark.
- Report generating.
- View a message.
- Create a message.

2.5.1.2 Functional Requirements for the Administrator

The system enables the administrator to:

- Create teacher account.
- Update teacher account.
- Create StudentAndParent account.
- Update StudentAndParent account.
- Add a class.
- Update a class.
- Add a course.
- Add teacher to course.
- Add student to the course.
- System backup.
- View a message.
- Create a message.
- View an announcement.

2.5.1. 3 Functional Requirements for the Manager

The system enables the manager to:

- Create an announcement.
- Update announcement.
- View certificate.
- Approve certificate.
- View a message.
- Create a message.

- View class.
- View course.
- Attendance report.
- View student information.
- Create student transfer request.

2.5.1.4 Functional Requirements for the Teacher

The system enables the teacher to:

- View a course.
- View a file.
- Upload a file.
- Delete a file.
- Add a mark.
- View a mark.
- Edit a mark.
- Create event.
- Create a message.
- View message.
- Upload a certificate.
- View an announcement.

2.5.1.5 Functional Requirements for the StudentAndParent

The system enables the StudentAndParent to:

- View a course.
- Upload a file.
- View a file.
- View attendance.
- View a mark.
- View event.
- Create a message.

- View message.
- View a certificate.
- View an announcement.
- View personal information.

2.5.2 Non-functional Requirements:

1. Security:

The system will provide a security mechanism that will allow the authorized users to access the allowed pages depending on their roles (StudentAndParent, school managers, administrators, ministry and teachers).

2. Usability:

The system performs the schools operations in an easy and fast way. With just 2 to 3 clicks users can do most of operations.

3. Comfortable user interface:

Users can access the management portal through a clear and fancy web interface that meet the W3C standers using the HTML5 technologies.

4. Accessibility:

Any user can access the application through any device with a web browser.

5. Ease to use:

System provides a tooltips to help users in performing the operations.

6. Integrity:

The system validates all input from users before saving the data into the DB.

7. Backup:

The system administrators can do a database backup with 2 clicks. Also they can save it on any movable storage device, as CDs..etc.

2.6 Feasibility study

2.6.1 Development System Costs:

1. **Hardware cost:** the following table lists the hardware resources costs required to develop this project.

Table 2.1: Development hardware cost

Item	Number of unit	Unit cost	Total costs
Laptop, 3rd Generation Intel Core i5, 500 GB Hard Disk Drive, 4 GB DDR3 RAM	2	\$1600	\$1600
Flash memory 8G.B	2	\$10	\$20
Total		\$1620	

2. **Software cost:** the following table list the software resources costs required to develop this project.

Item	Number of unit	Unit cost	Total costs
Microsoft windows 7	1	Packed with machine	FREE
Sublime text 2	1	FREE	FREE
Google chrome browser	1	FREE	FREE
Rational rose	1	\$150	\$150
Total		\$150	

Table 2.2: Development software cost

3. **Human Resources cost:** The following table lists the human resources costs.

Table 2.3: Development human cost

Members	Hours/week	Cost /Hour \$	Total/Week
Team(2)	30	\$10	\$300
Total		\$300	

The human resource cost during one month:

$$\$300 * 4 \text{ week} = \$ 1200$$

The human resources cost during 14 weeks:

$$\$300 * 14 \text{ week} = \$ 4200$$

4. **Other costs:**

We need another \$250 to cover the cost of other areas (papers, pens, transportations, communicate ... etc).

2.6.2 Operational System Costs:

1. **Hardware operational Costs:** The following table lists the hardware costs required to operate this project.

Table 2.4: Operational hardware cost

Item	Number of unit	Total cost
Online dedicated server	1	\$600
Total	\$600	

2. **Software operational costs:** The following table lists the software costs required to operate this project.

Table 2.5: Operational software cost

Item	Number of unit	Total costs
Linux OS	1	FREE
Xamp Server	1	FREE
MySQL server	1	FREE
Total	FREE	

Total System Development Costs: The following table lists the total costs for the resources required to develop this project.

Table 2.6: Total development cost

Resources	Cost
Hardware Resources development Costs	\$1620
Software Resources development Costs	\$150
Human Resources development Costs	\$4200
Other Resources development Costs	\$250
Total development Costs	\$6170

Total System Operational Costs: The following table lists the total costs for the resources required to operate this project.

Table 2.7: Total operation cost

Resources	Cost
Hardware Resource Operational Costs	\$600
Software Resources Operational Costs	FREE
Total operation Costs	\$600

Total System cost: The following table lists the total costs for the resources required to develop and operate this project.

Table 2.8: Total system cost

Total cost	Cost
Total development Costs	\$6170
Total Operational Costs	\$600
Total System Costs	\$6770

2.7 Limitations and constraints

1. The time is limited by the end of course, only 14 weeks.
2. As the change is always difficult, we have concern that we are, probably, unable to replace the current traditional school system with the proposed Electronic School system.

2.8 Risk analysis and solutions

2.8.1 Risk analysis

1. Absences of some members of the team.

2. Challenge in understanding the project requirements.
3. Lost data from the database.

2.8.2 Risk solutions

1. Scheduling the tasks accurately; we can do all the tasks required from the absent team members.
2. Commitment to time schedule.
3. Study and understand the project requirements accurately.
4. Make an effective electronic school system.
5. Backup must be done for the system.

Chapter Three

(Analysis)

System Specification

3.1 Introduction

3.2 General description of the system main functionalities

3.3 Requirement specifications

3.4 Validation

3.5 Analysis models

3.5.1 Use case

3.5.2 Class diagram

3.1 Introduction

In this chapter we propose the general description of the system main functionalities and the requirements specifications. After that we present the analysis models (use cases, class diagram, and activity diagrams).

3.2 General description of the system main functionalities

The Electronic School system will allow the Ministry of education to manage school account, approve student transaction, and generate report. The administrator can manage user account, manage class, and make system backup. The system enables the manager to manage announcement issued by the school, review and approve the school certificate, and track student attendance. Every user can send message to other users. Teachers can view course, manage file, add or view or edit mark, create event, upload certificate, and view announcement. The StudentAndParent also can view course, upload or view file, view attendance, mark, event, certificate, and announcement.

3.3 Requirement specifications

- Create user account

Description of create user account

Function: Create user account.

Description: This function enables administrator and ministry to create user account.

Inputs: User table, userType table.

Source: Database, administrator, ministry.

Outputs: Message shows that the account has been created successfully.

Precondition: login into the site as administrator, ministry.

Post condition: The new account added to the database.

Procedure: Administrator, ministry login into his account, and create the user account.

- Update user account

Description of Update user account

Function: Update user account.

Description: This function enables administrator, ministry to update user account.

Inputs: User table, userType table.

Source: Database.

Outputs: Message shows that the user account is updated successfully.

Precondition: login into the site as administrator, ministry and enter to user list to select account to update it .

Post condition: Update the user account in the database.

Procedure: Administrator, ministry login into his account, and views the all user account then selects the user account that is to be updated.

- Manage a class

Description of Manage a class by administrator

Function: Manage a class.

Description: This function enables the administrator to add and update a class.

Inputs: Class table.

Source: Database.

Outputs: Message shows that the class is added.

Precondition: Enter to add, update class form page.

Post condition: Class stores in the database.

Procedure: Administrator login into his account, and clicks on the “add class” button to add the class, or to “update class” update class information.

- Create a message

Description of creating a message

Function: Create a message.

Description: This function enables the user to create a message.

Inputs: Message table.

Source: User.

Outputs: Message shows that the data is sent.

Precondition: Enter to create message form page.

Post condition: Message stores in the database.

Procedure: User enters into the system main page then selects create message, after that the user enters the required field in the form and clicks into “send” button.

- View a message

Description of view a message by user

Function: View a message.

Description: This function enables the view to view a message.

Inputs: Message table.

Source: Database.

Outputs: The message displayed on the screen.

Precondition: login into the site.

Post condition: Nothing.

Procedure: User login into his account, and click on the “view message” button.

- Create an announcement

Description of create an announcement

Function: create an announcement.

Description: This function enables the manager to create any announcement.

Inputs: announcement table.

Source: Manager.

Outputs: Message shows that the announcement is created.

Precondition: Enter to add announcement form page.

Post condition: announcement stores in the database.

Procedure: manager or teacher login into his account, and clicks on the “add announcement” button then fills required fields of announce.

- View an announcement

Description of view an announcement

Function: View an announcement.

Description: This function enables the user to view announcement.

Inputs: announcement table.

Source: Database.

Outputs: Announcement.

Precondition: Login to the site.

Post condition: Nothing.

Procedure: user login into his account, then the announcement will appear in the home page.

- Approve a certificate

Description of approval of a certificate by manager

Function: Approve a certificate

Description: This function enables the manager to approve a certificate.

Inputs: Certificate table.

Source: Manger.

Outputs: The message shows that the certificate is approved.

Precondition: login into the site as manager.

Post condition: certificate store in the database.

Procedure: Manager login into his account, and approves the certificate.

- View a certificate

Description of view a certificate

Function: View a certificate.

Description: This function enables the manager, teacher, StudentAndParent to view a certificate.

Inputs: certificate table.

Source: Database.

Outputs: The certificate displayed on the screen.

Precondition: login into the site as manager, teacher, StudentAndParent.

Post condition: Nothing.

Procedure: User login into his accounts, and click on the “view certificate” button.

- Upload a certificate

Description of upload a certificate by teacher

Function: Upload a certificate.

Description: This function enables the teacher to upload a certificate.

Inputs: certificate table.

Source: Database.

Outputs: The certificate uploaded on the site.

Precondition: login into the site as teacher.

Post condition: Certificate stored in the database.

Procedure: teacher login into his account, and clicks on the “upload certificate” button.

- Upload a file

Description of upload a file

Function: upload a file.

Description: This function enables the teacher and StudentAndParent to upload a file.

Inputs: CourseResource table.

Source: Teacher, StudentAndParent.

Outputs: The file uploaded on the site.

Precondition: login into the site as teacher or StudentAndParent.

Post condition: File store in the database.

Procedure: teacher or StudentAndParent login into his account, and click on the “upload file” button.

- Delete a file

Description of delete a file by teacher

Function: Delete a file.

Description: This function enables the teacher to delete a file.

Inputs: CourseResource table.

Source: Database, teacher.

Outputs: Message shows that the action is occurred.

Precondition: login into the site as teacher.

Post condition: Delete the file from the database.

Procedure: teacher login into his account, and views all file names then selects the file to be deleted.

- View a file

Description of view a file

Function: View a file.

Description: This function enables the teacher or StudentAndParent to View a file.

Inputs: CourseResource table

Source: Database.

Outputs: File.

Precondition: login into the site as teacher or StudentAndParent.

Post condition: Nothing.

Procedure: teacher or StudentAndParent login into his account, and view the file.

- Add a mark

Description of add a mark by teacher

Function: Add a mark.

Description: This function enables the teacher to add student mark.

Inputs: Grade table.

Source: teacher.

Outputs: Message shows that the mark is stored.

Precondition: Enter to add mark.

Post condition: Mark stored in the database.

Procedure: Teacher login to his account then selects add mark, enters the mark in the

form and clicks into “save” button.

- View a mark

Description of view mark

Function: View mark.

Description: This function enables the teacher, StudentAndParent, ministry to view mark.

Inputs: Grade table.

Source: Database.

Outputs: Displays the student mark on the screen.

Precondition: Login to the site as teacher, StudentAndParent, ministry.

Post condition: Nothing.

Procedure: Teacher, StudentAndParent, ministry login to his account then clicks on the “view mark” button.

- Attendance report

Description of attendance report

Function: Attendance report.

Description: This function enables the manager to report student attendance.

Inputs: Attendance table.

Source: Manager.

Outputs: Message shows that the report is stored.

Precondition: Enter to create attendance report.

Post condition: Report stores in database.

Procedure: Manager login to his account then selects attendance report, enters the attendance report information and fill the absence student name in the attendance form.

- View attendance

Description of view attendance

Function: View attendance.

Description: This function enables the StudentAndParent to view attendance report, when and how many times the student absence.

Inputs: Attendance table.

Source: Database.

Outputs: Display the attendance report on the screen.

Precondition: Login to the site as StudentAndParent.

Post condition: Nothing.

Procedure: StudentAndParent login to his account then click on the “view Attendance report” button.

- Manage course

Description of manage course

Function: Manage a course.

Description: This function enables the administrator to add, update a course.

Inputs: Course table.

Source: Administrator.

Outputs: Message shows that the course is created.

Precondition: Enter to create course form page.

Post condition: Course stores in the database.

Procedure: Administrator login into his account, and clicks on the “add course” button.

- View a course

Description of view a course

Function: View a course.

Description: This function enables the teacher, StudentAndParent to view a course.

Inputs: Course table.

Source: Database.

Outputs: Display the course.

Precondition: Login to the site as teacher or StudentAndParent.

Post condition: Nothing.

Procedure: Teacher or StudentAndParent login to his account then click on the “view course” button.

- Update a mark

Description of update mark by teacher

Function: update a mark.

Description: This function enables teacher to update student mark.

Inputs: Grade table.

Source: Database, teacher.

Outputs: Message shows that the mark is updated.

Precondition: Login into the site as a teacher and select mark to update .

Post condition: update the mark in the database.

Procedure: Teacher login into his account, and view the all student mark then select one wants to update it, then make the update and click on “save” button.

- Create an event

Description of create an event

Function: Create an event.

Description: This function enables teacher to create event.

Inputs: CourseResource table.

Source: teacher.

Outputs: Message shows that the event is created.

Precondition: Login into the site as a teacher.

Post condition: Event stores in the database.

Procedure: Teacher login into his account, and then create event.

- View an event

Description of view an event

Function: View an event.

Description: This function enables StudentAndParent to view event.

Inputs: CourseResource table.

Source: Database.

Outputs: Event.

Precondition: Login into the site as a StudentAndParent.

Post condition: Nothing.

Procedure: StudentAndParent login into his account, and view event.

- Update user information

Description of update user information

Function: Update personal information.

Description: This function enables administrator, ministry to update user information.

Inputs: User table.

Source: Database.

Outputs: Display the updated user information.

Precondition: Login to the site as administrator, ministry.

Post condition: Update user information in the database.

Procedure: Administrator, ministry login to his account then click on the “update personal information” button.

- Create report

Description of create report

Function: Create statistical information report.

Description: This function enables the ministry to create status report.

Inputs: Report information.

Source: Ministry.

Outputs: Message shows that the report is created.

Precondition: Enter to create statical information report.

Post condition: Report stores in database.

Procedure: Ministry login to his account then click into “ create report ” button.

3.4 Validation

1. The password mustn't contain spaces.
2. The password is a case sensitive.
3. The username mustn't contain spaces.
4. The username is a case sensitive.

3.5 Analysis models

3.5.1 Use case

Use cases describe interactions between actors (Ministry of education , administrator, manager, teacher, StudentAndParent) and the system. Figure 3.1 shows the use cases that fulfils the system requirements.

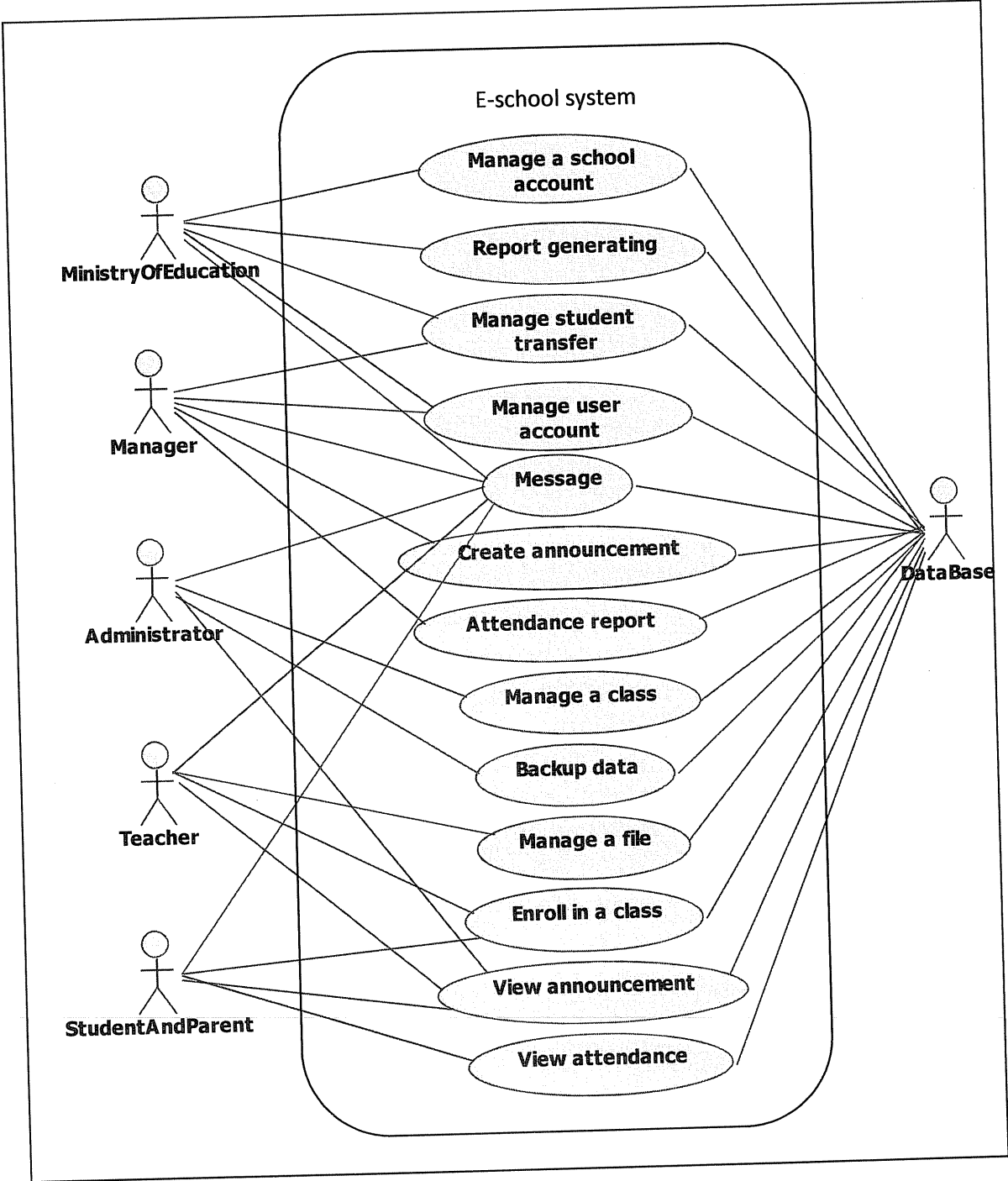


Figure 3.1: system use cases

3.5.2 Class diagram

Class diagram describes the conceptual class diagram. Each class consists of a class name, attributes, methods, and the classes relationships. Figure 3.2 shows the class diagram for our system.

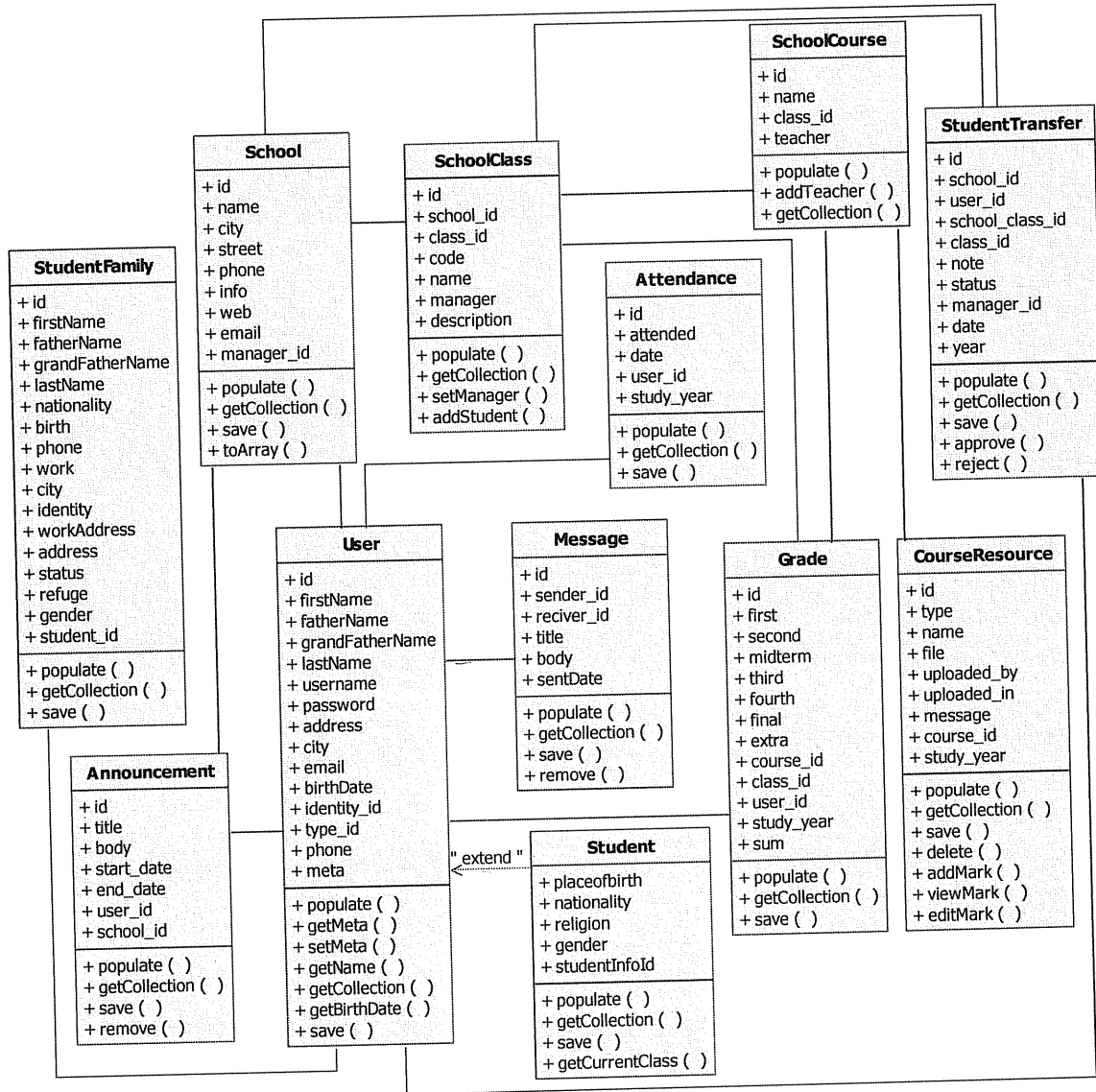


Figure 3.2: Class Diagram for system

Chapter Four

System Design

4.1 Navigation diagram

4.2 User input/output design

4.3 Database design

4.3.1 Database mapping

4.3.2 Database description

4.3.3 Database diagram

4.3.4 Entity relationship diagram

4.1 Navigation diagram

A navigation diagram is a type of navigation plan in which pages arranged in levels from top to bottom. Figure 4.1 shows the hierarchical navigation diagram for our system.

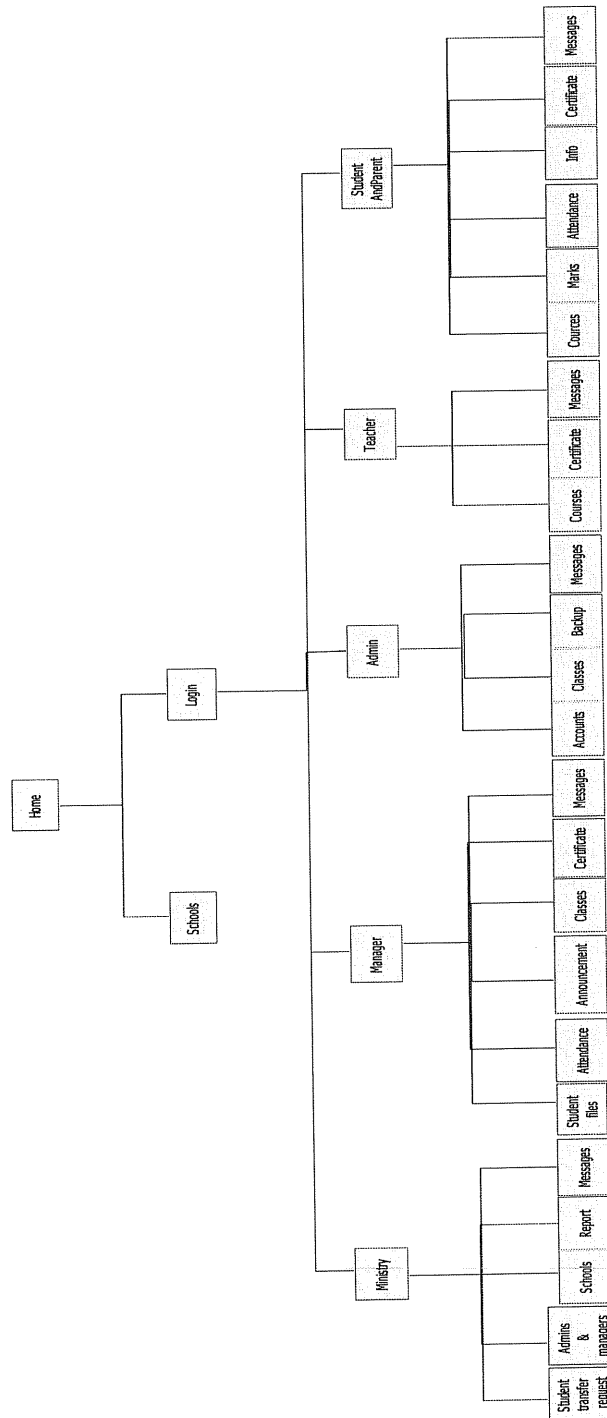


Figure 4.1: Navigation diagram for system

4.2 User input/output design

In this section we will put the user interfaces that are essential in the system development.

- **Student transfer request**

The ministry of education can review the transfers requests before accepting or rejecting the request. It can review the student profile by following the links on the requests screen. The Figure 4.2 shows the outline of requests page for the ministry of education.

رقم الطلب	اسم الطالب	من مدرسة	الصف	إلى مدرسة

بواسطة	بتاريخ

قبول رفض

التربية والتعليم
طلبات نقل الطلاب
مدراء المواقع والمدارس
المدارس
تقارير
الرسائل الخاصة

Figure 4.2: Student transfer request

- View student profile

The Figure 4.3 shows the View the student profile by ministry of education.

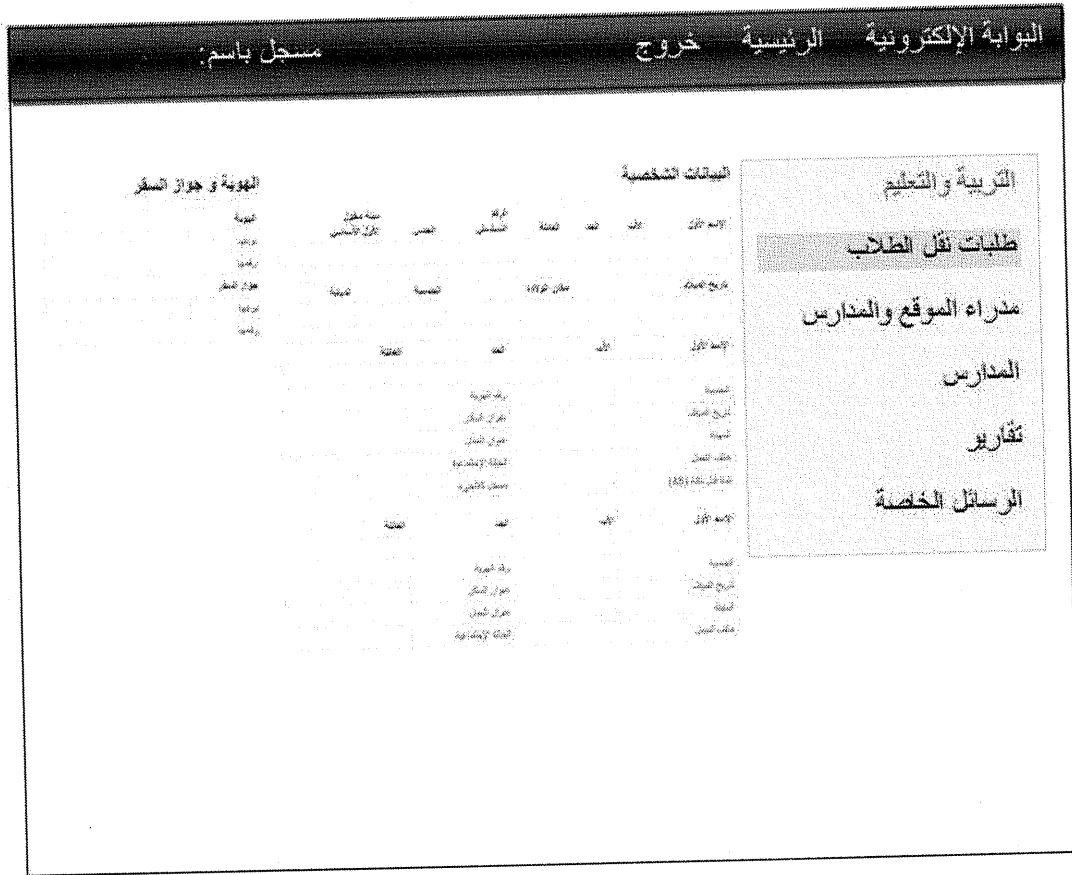


Figure 4.3: View student profile

- **Manage administrators and managers account**

The ministry user could list all manager/admin account, also he can create a new manager/admin account by click on “add account” button then entering the related information, ministry account can search, edit any manager/admin information. As shown in the Figure 4.4.

سجل باسم: الخروج الرئيسية

ابحث

النوع

ابحث عن الإسم

حساب جديد

الرقم	الإسم	تاريخ الميلاد	النوع	المدينة	الإيميل

الهاتف	العنوان	المنرسمة	تعديل

التربية والتعليم

طلبات نقل الطلاب

مدراء الموقع والمدارس

المدارس

تقارير

الرسائل الخاصة

Figure 4.4: Administrators and managers account

- **Add administrator or manager account**

Managers/Administrators account information should be filled to create a new account as shown in Figure 4.5, the form will be validated for any invalid input.

The screenshot shows a web application interface for adding an administrator or manager account. The page title is 'التربية الإلكترونية الرئيسية خروج مسجل باسم'. The form is titled 'حساب جديد' (New Account) and contains the following fields and elements:

- رقم الهوية** (National ID Number): Text input field.
- الإسم الأول** (First Name): Text input field.
- اسم الأب** (Father's Name): Text input field.
- اسم الجد** (Grandfather's Name): Text input field.
- اسم العائلة** (Family Name): Text input field.
- اسم المستخدم** (Username): Text input field.
- كلمة المرور** (Password): Text input field.
- اللقب** (Surname): Text input field.
- الجنس** (Gender): Text input field.
- المدينة** (City): Text input field.
- البريد الإلكتروني** (Email): Text input field.
- تاريخ الميلاد** (Date of Birth): Text input field.
- المدرسة** (School): Text input field.
- نوع الحساب** (Account Type): Dropdown menu with a selection icon.
- حفظ** (Save): Button.

On the right side, there is a sidebar menu with the following items:

- التربية والتعليم
- مطلبات نيل الطلاب
- مدراء الموقع والمدارس
- المدارس
- تطوير
- الرسائل الخاصة

Figure 4.5: Add administrator or manager account

- **View school information**

Ministry could list all schools, edit school information, view student marks, and add new schools by click on “new school” button. The Figure 4.6 shows the school list page.

مسجل باسم
الخروج الرئيسية الرئيسية

+ مدرسة جديدة

#	الإسم	الهاتف	المدينة	الشارع	الموقع	البريد

المدير	ملاحظات	تعديل	العلامات

التربية والتعليم
طلبات نقل الطلاب
مدراء الموقع والمدارس
المدارس
تقارير
الرسائل الخاصة

Figure 4.6: View school information

- **Add new school**

The Figure 4.7 shows the required fields for creating a new school in the system. The form will be validated for any invalid input.

The screenshot shows a web application interface for adding a new school. The header bar contains the text "الولاية الإلكترونية الرئيسية خروج" and "مسجل باسم". The main form area contains the following fields and labels:

- اسم المدرسة (School Name)
- الهاتف (Phone)
- المدينة (City)
- الشارع (Street)
- الموقع الإلكتروني (Website)
- البريد الإلكتروني (Email)
- المدير (Manager)
- معلومات وملاحظات (Information and Notes)

A sidebar menu on the right contains the following items:

- التربية والتعليم (Education and Training)
- طلبات نقل الطلاب (Student Transfer Requests)
- مدراء المواقع والمدارس (Site and School Administrators)
- المدارس (Schools)
- تقارير (Reports)
- الرسائل الخاصة (Private Messages)

A "حفظ" (Save) button is located at the bottom right of the form.

Figure 4.7: Add new school

- **View student marks**

Ministry could list all student and their marks at specific school, specific class and course. The Figure 4.8 show the student mark list page.

مسجل باسم
الخروج الرئيسية الرئيسية

الصف

اختر المادة

الإسم	الأول	الثاني	الثالث	الرابع

المعدل	المشاركة	النهائي

التربية والتعليم

طلبات نقل الطلاب

مدراء المواقع والمدارس

المدارس

تقارير

الرسائل الخاصة

Figure 4.8: View student marks

- **Report generating**

This screen represents the report page in our system. When the ministry user clicks on the report, this screen will appear. He must choose the school name, then choose the target class, after that the status report will appear. The Figure 4.9 shows the report generating page.

المدة	الناجحين	الراسبين	العند الكلي

Figure 4.9: Report generating

- **Private message**

This screen represents the private message page. When the ministry user clicks on the private message, this screen will appear. He will be able to view messages or add new messages. The Figure 4.10 shows the private message page.

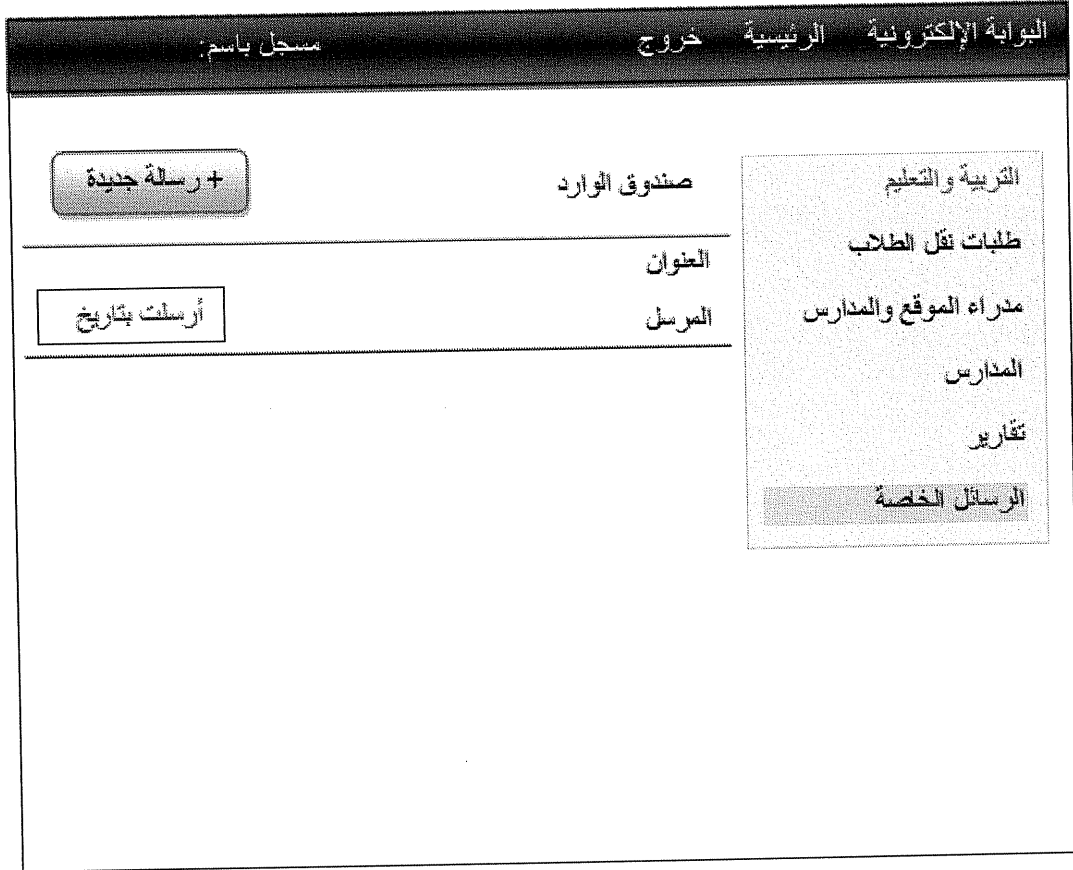


Figure 4.10: private message

- **Create message**

This screen represents the create message page. When the ministry user clicks on the new message, this screen will appear. He must enter the title, receiver email and the message body, then clicks on the “send” button to send email. As shown in Figure 4.11. The form will be validated for any invalid input.

The screenshot shows a web interface for creating an email message. At the top, there is a header with the text 'البريد الإلكتروني الرئيسية خروج' and 'مسجل باسم:'. Below the header, on the left, is a button labeled '+ رسالة جديدة'. The main form area contains a label 'البريد الإلكتروني' above a text input field. Below this is a label 'العنوان' above another text input field. Further down is a label 'نص الرسالة' above a larger text input field. At the bottom center of the form is a button labeled 'إرسال'. On the right side, there is a sidebar menu with the following items: 'التربية والتعليم', 'طلبات نقل الطلاب', 'مدراء الموقع والمدارس', 'المدارس', 'تقارير', and 'الرسائل الخاصة'.

Figure 4.11: Create message

- **View message**

The Figure 4.12 shows the view message in the system.

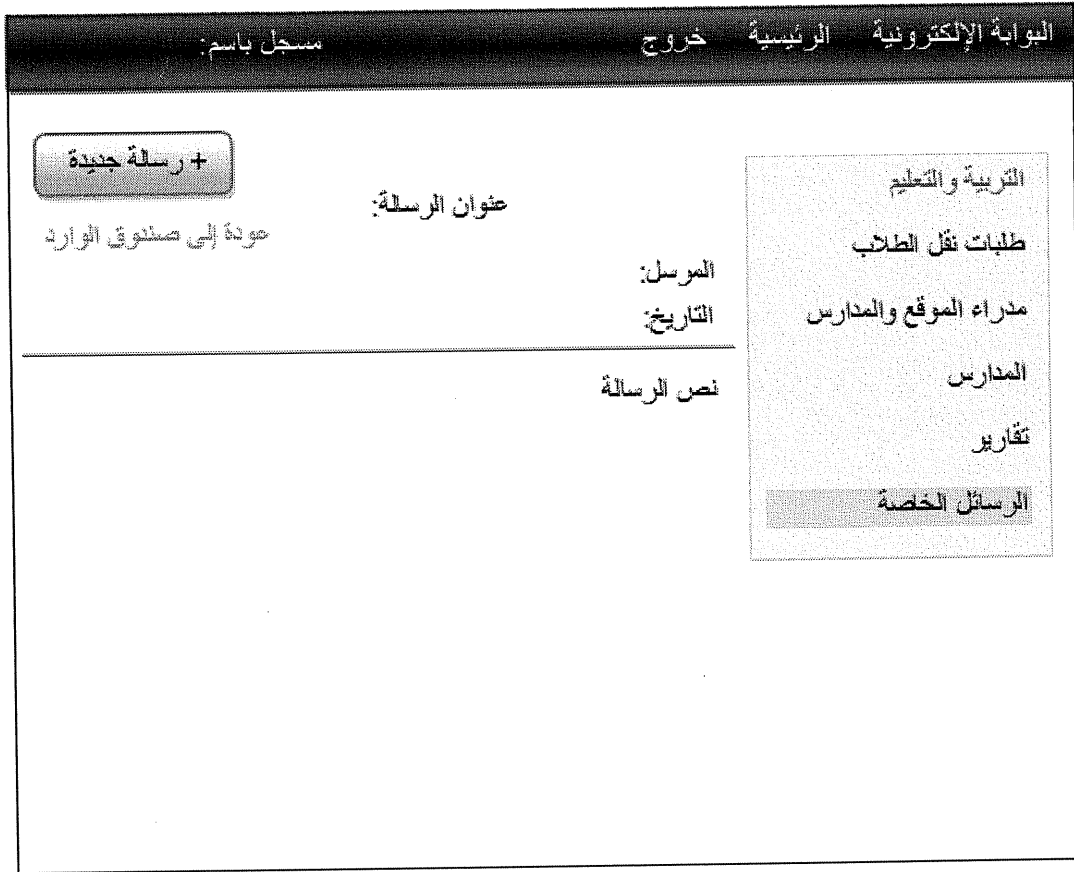


Figure 4.12: View message

- **Administrator home page**

This screen represents the home page for administrator. When the administrator login its account, this screen will appear, the admin will interact with system and view announcement through this page. The Figure 4.13 shows the administrator home page.

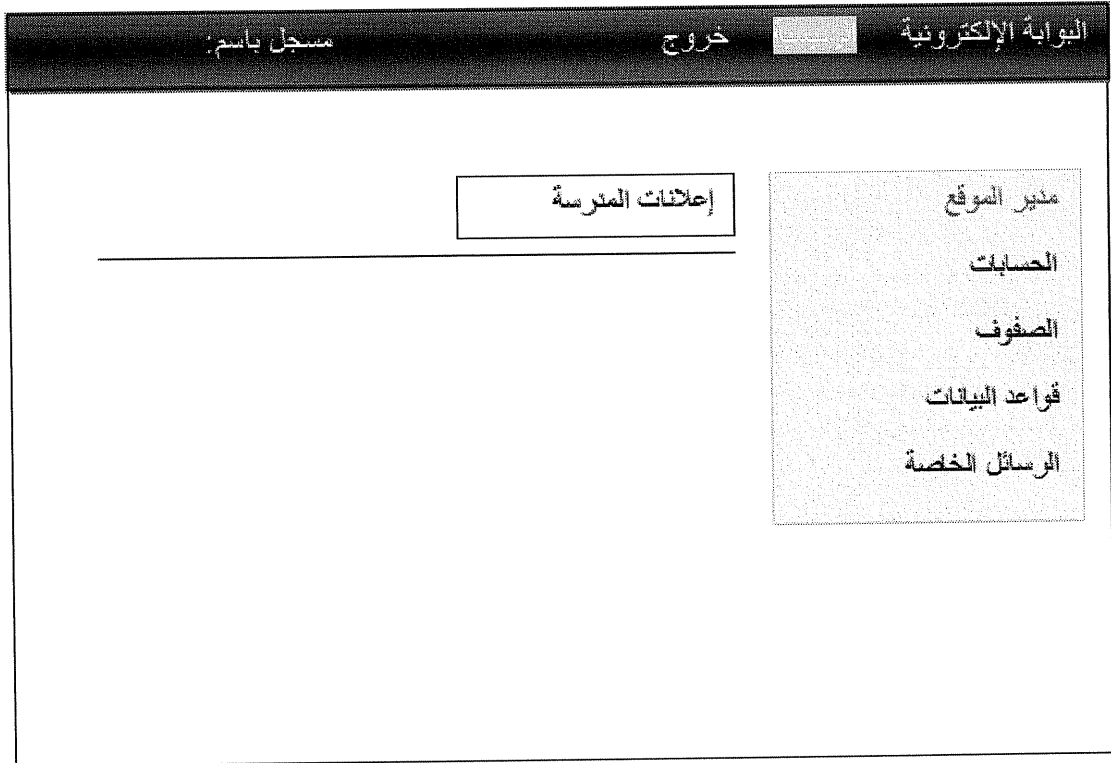


Figure 4.13: Administrator home page

- **Manage teacher and StudentAndParent account**

The administrator could list all teacher/StudentAndParent account, can add teacher, StudentAndParent and their families by entering the related information, administrator account can search, edit any teacher/StudentAndParent information, also he can create a new teacher/StudentAndParent account. As shown in the Figure 4.14.

سجل باسم:
البوابة الإلكترونية الرئيسية خروج

#	الإسم	النوع	المتينة	الإيميل	الهاتف

العنوان	تعديل	العائلة
	تعديل	العائلة

مدير الموقع

الحسابات

الصفوف

قواعد البيانات

الرسائل الخاصة

Figure 4.14: Manage teacher and StudentAndParent account

- **Add teacher and StudentAndParent account**

Teacher and StudentAndParent account information should be filled to create a new account as shown in Figure 4.15, the form will be validated for any invalid input.

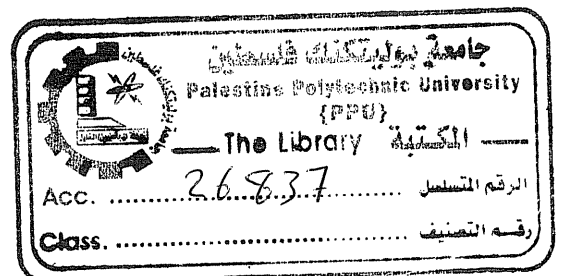
The screenshot shows a web application interface for adding a teacher and StudentAndParent account. The interface is in Arabic and features a dark header with navigation links: 'مسجل باسم' (Registered as), 'الخروج' (Logout), 'الرئيسية' (Home), and 'الجامعة الإلكترونية' (Electronic University). The main content area is a form with the following fields:

- المدينة** (City): Text input field.
- البريد الإلكتروني** (Email): Text input field.
- تاريخ الميلاد** (Date of Birth): Text input field.
- نوع الحساب** (Account Type): Text input field with a dropdown arrow icon.
- مكان الولادة** (Place of Birth): Text input field.
- الجنسية** (Nationality): Text input field.
- الديانة** (Religion): Text input field.
- الجنس** (Gender): Text input field with a dropdown arrow icon.
- حساب جديد** (New Account): Text input field.
- رقم الهوية** (ID Number): Text input field.
- الإسم الأول** (First Name): Text input field.
- إسم الأب** (Father's Name): Text input field.
- إسم الجد** (Grandfather's Name): Text input field.
- إسم العائلة** (Family Name): Text input field.
- إسم المستخدم** (Username): Text input field.
- كلمة المرور** (Password): Text input field.
- الهاتف** (Phone): Text input field.
- الجنون** (Mental Health): Text input field.

At the bottom left of the form is a button labeled 'حفظ' (Save). On the right side, there is a sidebar menu with the following items:

- مدير الموقع (Site Manager)
- الحسابات (Accounts)
- الصفوف (Classes)
- قواعد البيانات (Databases)
- الرسائل الخاصة (Private Messages)

Figure 4.15: Manage teacher and StudentAndParent account



- **Add family information**

Teacher and StudentAndParent family information should be as shown in Figure 4.16, the form will be validated for any invalid input.

The screenshot shows a web application interface for adding family information. The header bar contains the text "البنية الإلكترونية الرئيسية خروج" and "مسجل باسم". The main form area is divided into two columns. The left column contains a vertical list of input fields with labels: "الإسم الأول", "إسم الأب", "إسم الجد", "إسم العائلة", "العنصرية", "تاريخ الميلاد", "العنوان", "الهاتف", "العنصرية", "رقم الهوية", "عنوان العمل", "العنوان", "العنصرية", "الهاتف", "العنصرية". The right column has a label "بيانات العائلة" above a text input field labeled "الإسم:". To the right of this field is a dropdown menu with the following options: "مدير المواقع", "الحسابات", "الصفوف", "قواعد البيانات", "الرسائل الخاصة". At the bottom left of the form, there is a "حفظ" button and a small icon.

Figure 4.16: Add family information

- **Manage class**

Administrator could list all class information, edit/add courses, class manager and student. And add new class when clicks on “add class” button. The Figure 4.17 shows the manage class page.

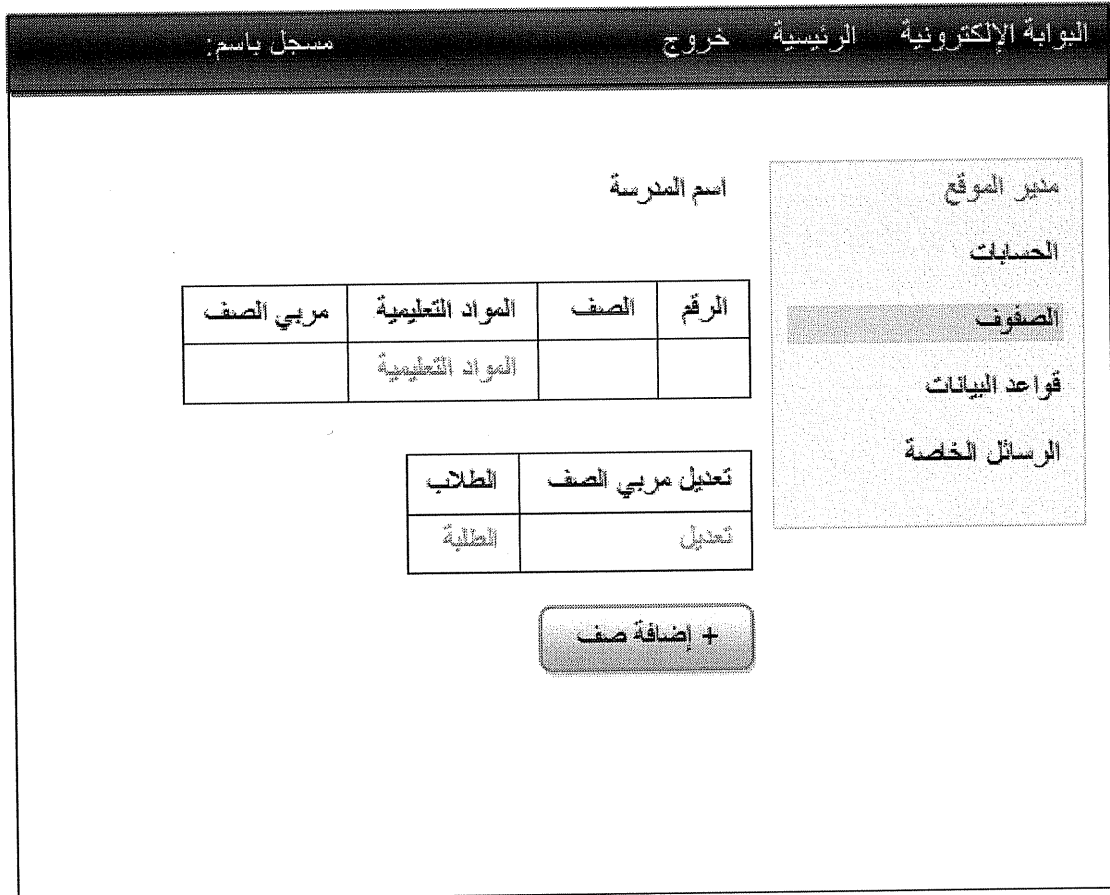


Figure 4.17: Manage class

- **Add course**

This page enables the administrator to add new courses when click on the “add new course” button, and update the course teacher. Figure 4.18 shows the add course page.

الرقم	اسم المساق	اسم المدرس
		أختار المدرس

+ إضافة مادة تعليمية

- مدير الموقع
- الحسابات
- الصفوف
- قواعد البيانات
- الرسائل الخاصة

Figure 4.18: Add course

- **Add class manager**

The administrator can add/edit class manager form class manager page. As shown in Figure 4.19.

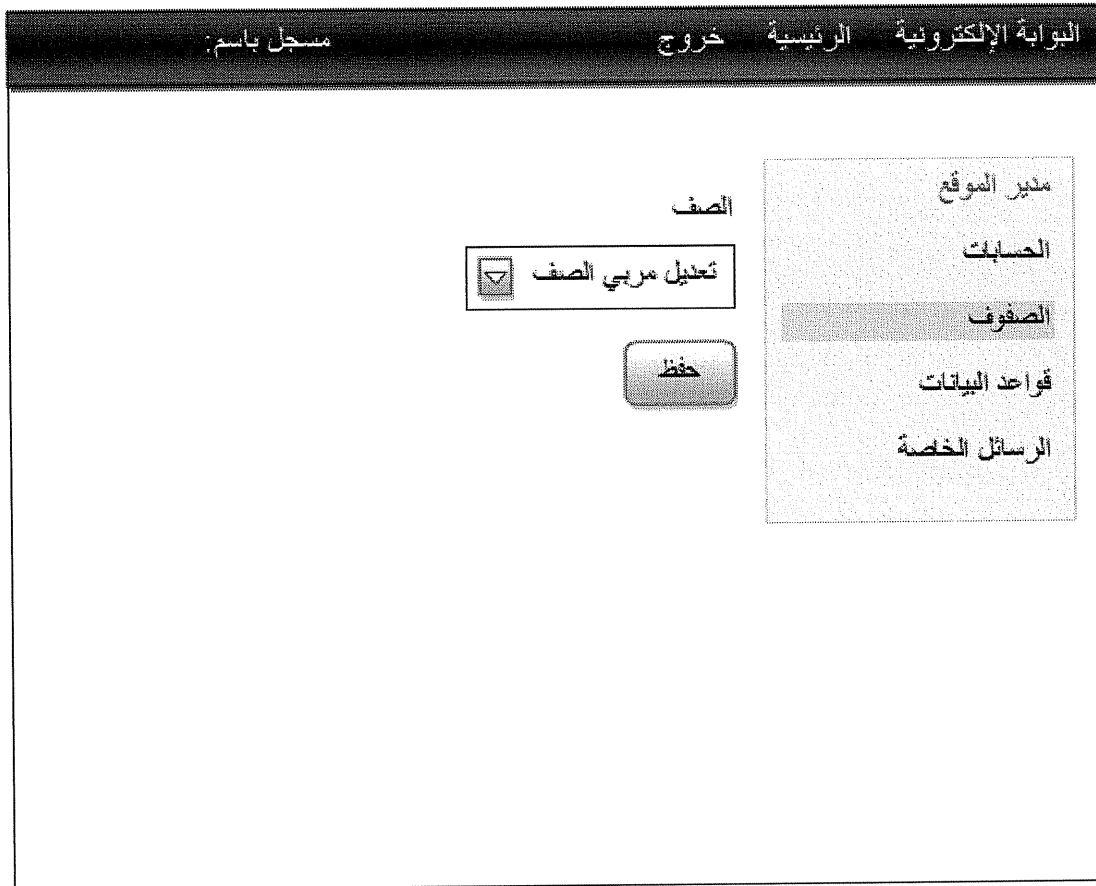


Figure 4.19: Add class manager

- **Manage student**

Ministry could list all students in specific class, add/edit student in a class. The Figure 4.20 shows the manage student page.

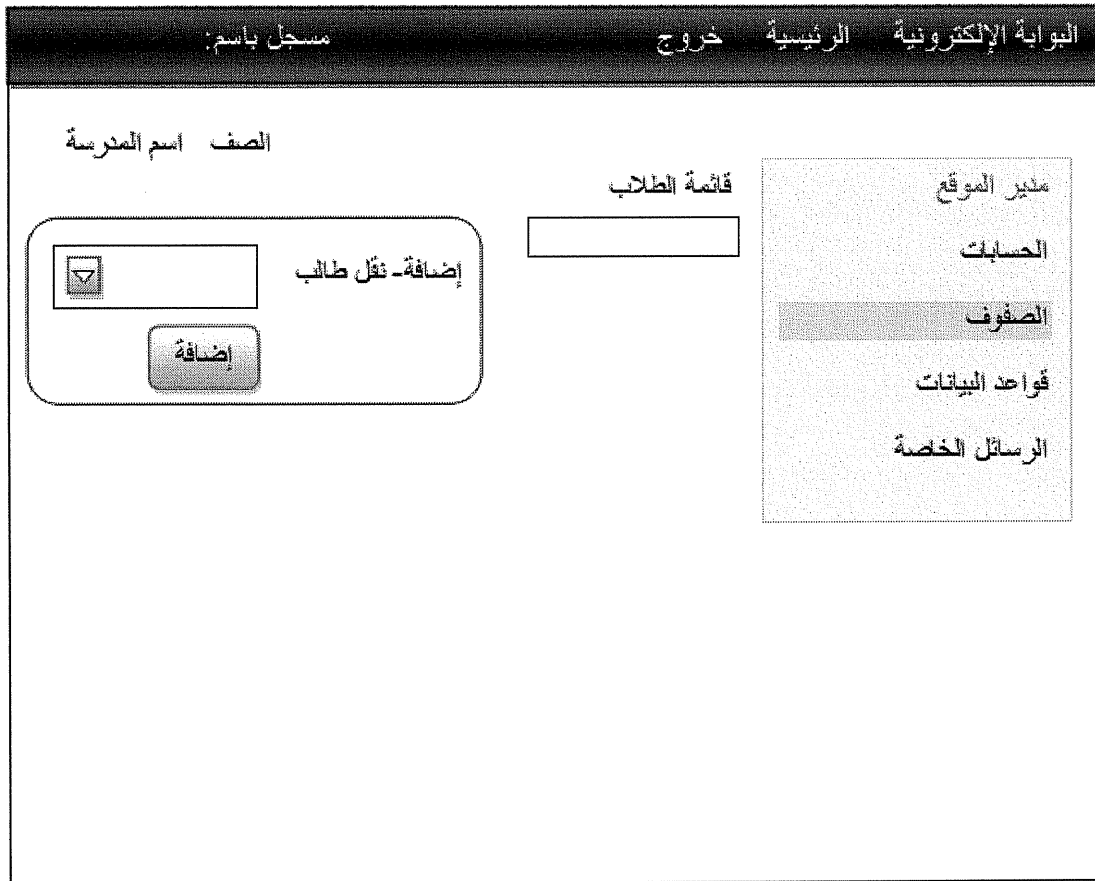


Figure 4.20: Manage student

- **Backup**

The administrator make data backup by click on “create backup” button. As shown in Figure 4.21.

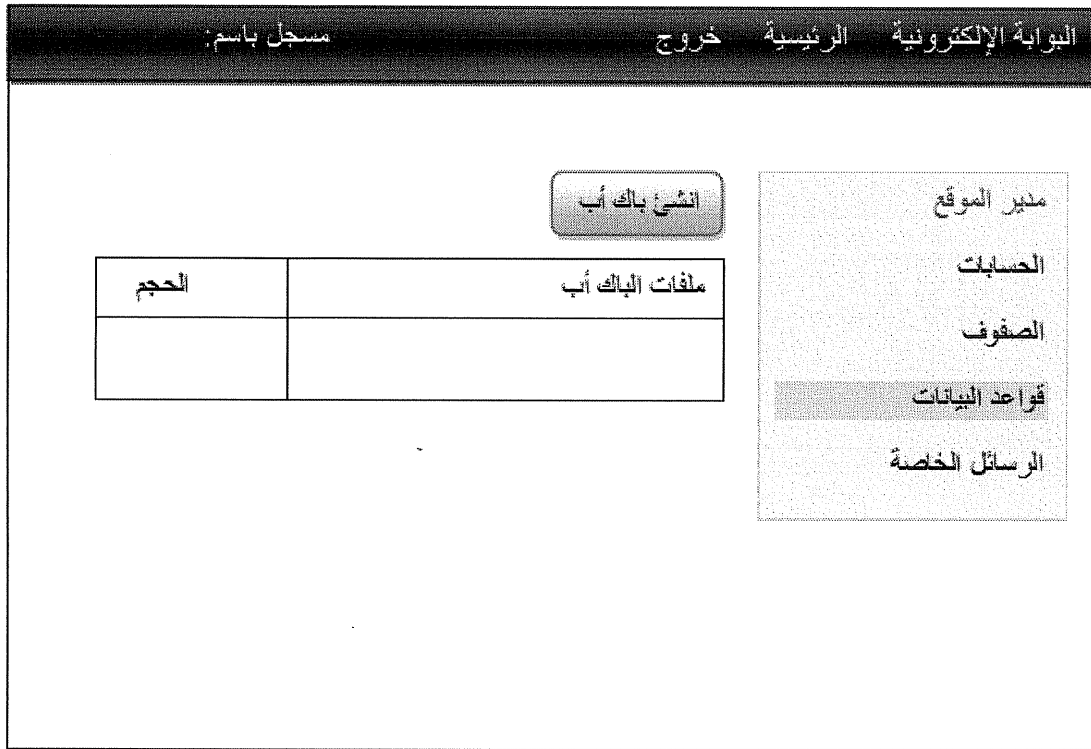


Figure 4.21: Backup

- **Private message**

This screen represents the private message page. When the administrator clicks on the private message, this screen will appear. He will be able to view messages or add new messages. The Figure 4.22 shows the private message page.



Figure 4.22: Private message

- **View message**

The Figure 4.23 shows the view message in the system.

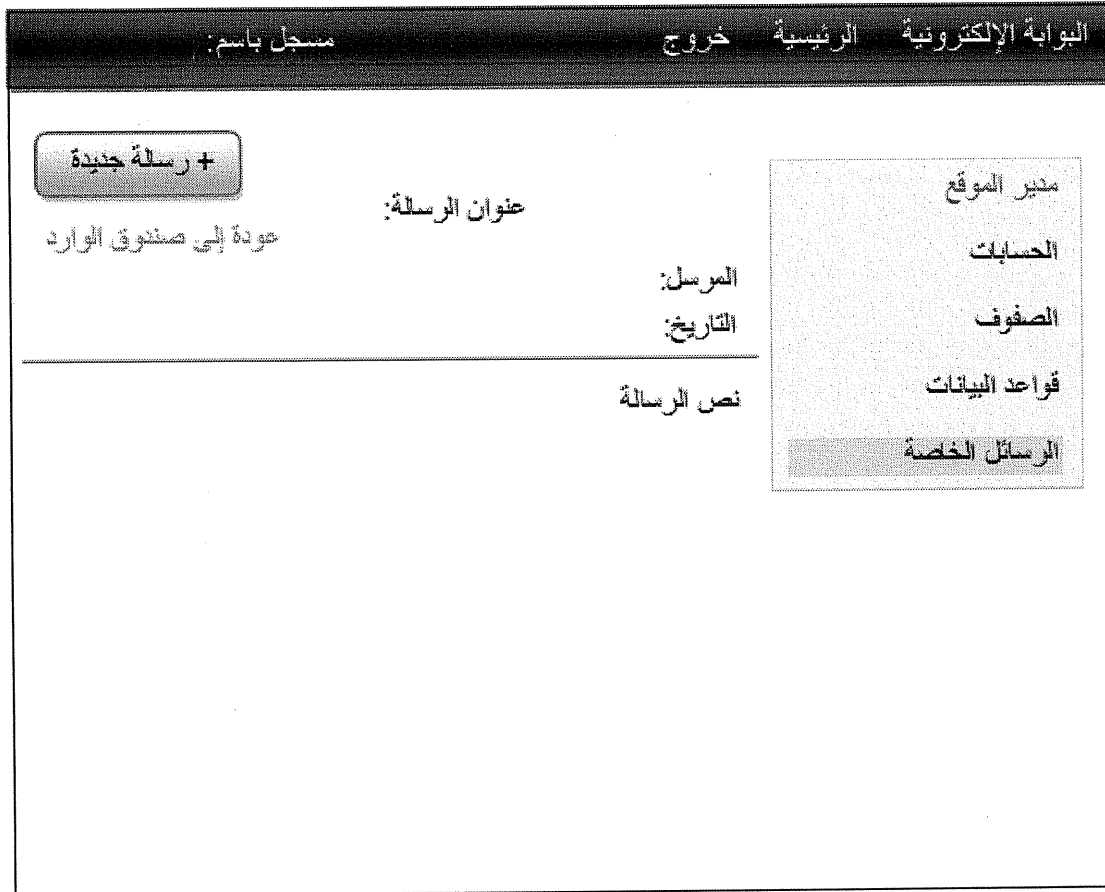


Figure 4.23: View message

- **Create message**

This screen represents the create message page. When the administrator clicks on the new message, this screen will appear. He must enter the title, receiver email and the message body, then clicks on the “send” button to send email. As shown in Figure 4.24. The form will be validated for any invalid input.

البريد الإلكتروني الرئيسية خروج

مسجل باسم:

+ رسالة جديدة

البريد الإلكتروني

العنوان

نص الرسالة

إرسال

مدير الموقع
الحسابات
الصفوف
قواعد البيانات
الرسائل الخاصة

Figure 4.24: Create message

- **Manager home page**

This screen represents the home page for manager. When the manager login its account, this screen will appear, the manager will interact with system and view announcement through this page. The Figure 4.25 shows the manager home page.

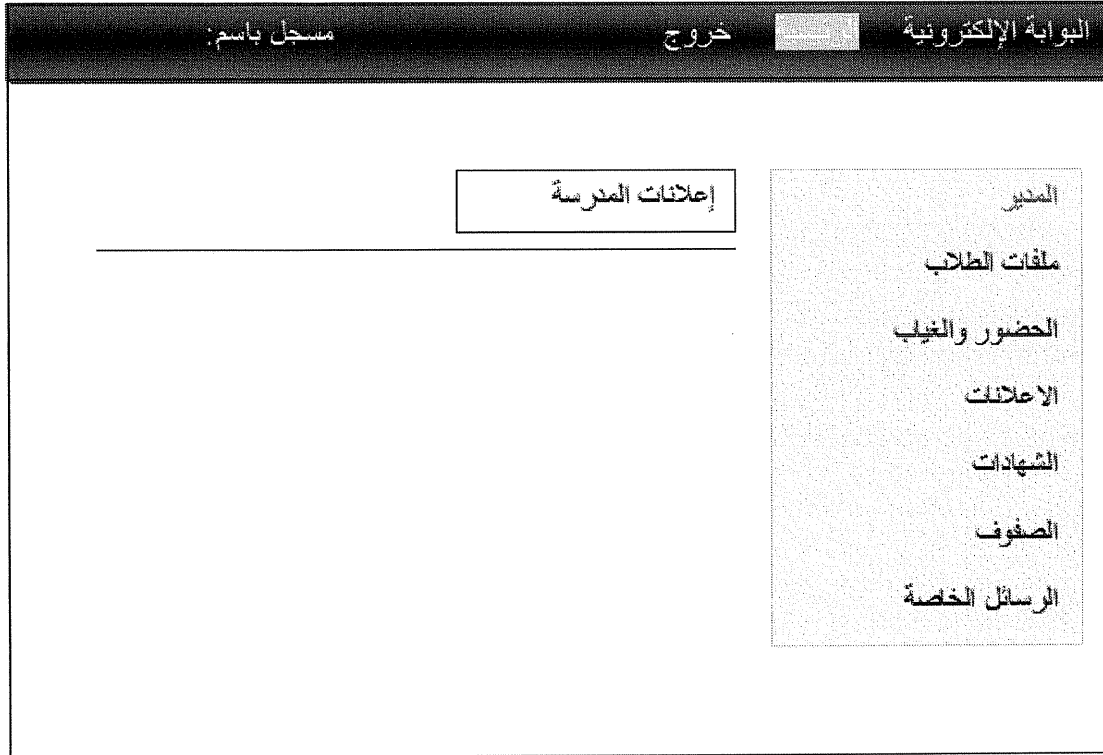


Figure 4.25: Manager home page

- **View student**

In this page there is a list of all student information, manager can make search about any student by name or type, when click on the student name, the student profile will appear. Figure 4.26 shows the view student page.

مسجل باسم:
البوابة الإلكترونية الرئيسية خروج

ابحث

ابحث عن الاسم

الصف

قائمة الطلاب

اسم المترسة

المدير

ملفات الطلاب

الحضور والغياب

الإعلانات

الشهادات

الصفوف

الرسائل الخاصة

#	الإسم	البريد الإلكتروني	رقم الهوية	الفصل الدراسي

تاريخ الميلاد	المدينة	الهاتف

Figure 4.26: View student

- **View student profile**

When the manager click on student name link that shows in The Figure 4.26, the student profile will appear, manager can send the student transfers requests to the ministry, also he can cancel the request. The Figure 4.27 shows the View the student profile by manager.



Figure 4.27: View student profile

- **Attendance report**

In this screen we have a calendar that allows manager to track student attendanc, when the manager select a class and click on the day, the search screen will appear, he search about target student, and then click on absence button, after that the student name will appear on the calender as absence student. Figure 4.28 shows the attendance report.

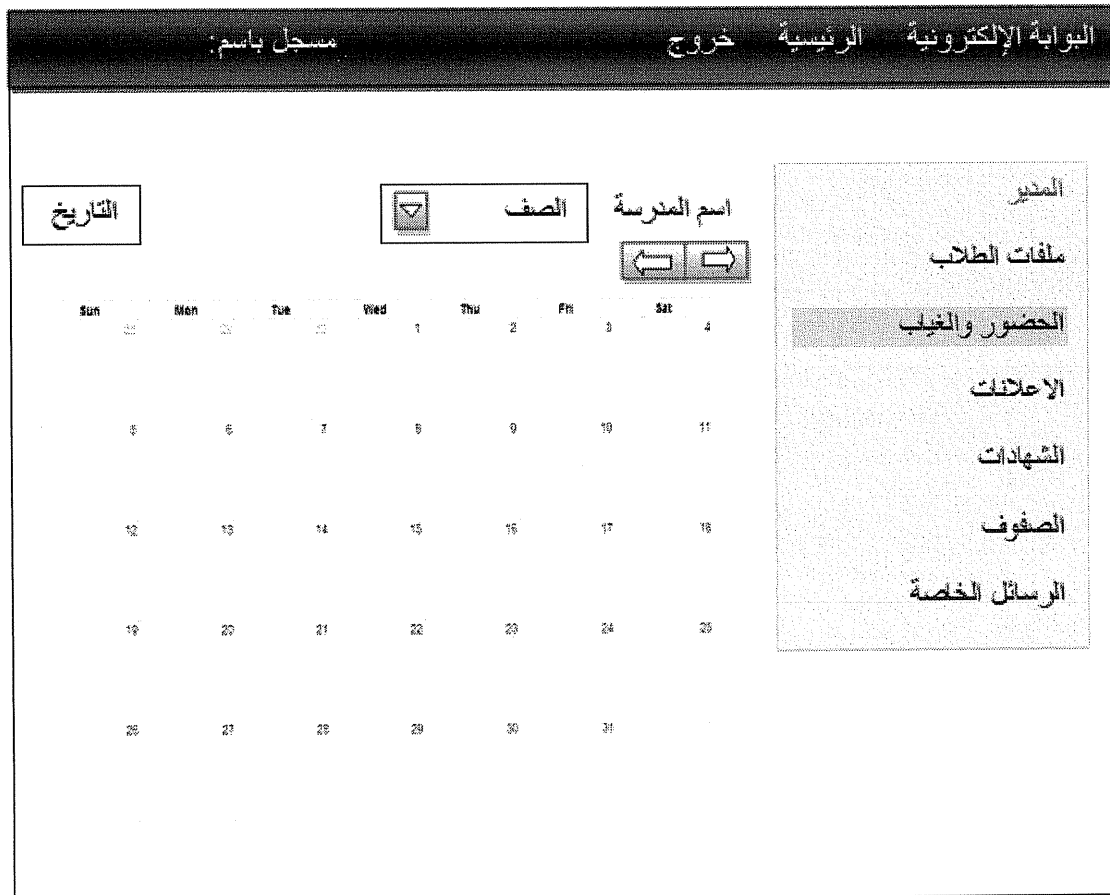


Figure 4.28: Attendance report

- **Manage announcement**

This screen represents the manage announcement page. When the manager clicks on the announcement, this screen will appear. He can add, edit and view the announcement, to create new one the manager must enter the required information, then clicks on the “save” button to save and published announcement. As shown in Figure 4.29. The form will be validated for any invalid input.

البنابة الإلكترونية الرئيسية خروج

مسجل باسم

الإعلانات

العنوان

نص الإعلان

بداية الإعلان

نهاية الإعلان

حفظ

عنوان الإعلان

نص الإعلان

المدير

ملفات الطلاب

الحضور والغياب

الإعلانات

الشهادات

الصفوف

الرسائل الخاصة

Figure 4.29: Manage announcement

- **Approve certificate**

When the manager clicks on the certificate, the screen contain student name and number will appear. He clicks on the “approve” button to be approved and published for student. As shown in Figure 4.30.

مسجل باسم:
البيارة الإلكترونية الرئيسية خروج

بسم الله الرحمن الرحيم

فلسطين

وزارة التربية والتعليم

النتائج المدرسية

الصف العاشر

السنة الدراسية 2014/2013

الإسم: _____

الجنسية: _____

مكان الولادة: _____

مدير المدرسة: _____

المدرسة: _____

تاريخ الولادة: _____

المدينة: _____

مربي الصف: _____

المبحث	التهيئة العظمى	التهيئة الصغرى	العلامة المستحقة

تدريبات

العلامات والنسب:

من 100-90 ممتاز / من 89-80 جيد جدا / من 79-70 جيد / من 69-50 مقبول / 49 فما دون مقصّر

عشرت بتاريخ:

تصديق:

المدير

ملفات الطلاب

الحضور والغيب

الإعلانات

الشهادات

الصفوف

الرسائل الخاصة

Figure 4.30: Approve certificate

- **View class**

When the manager click on the class, this screen will appear, it contains a list class and its information, the manager can view courses and student at each class. Figure 4.31 shows view class page by manager.



Figure 4.31: View class

- **Private message**

This screen represents the private message page. When the manager clicks on the private message, this screen will appear. He will be able to view messages or add new messages. The Figure 4.32 shows the private message page.

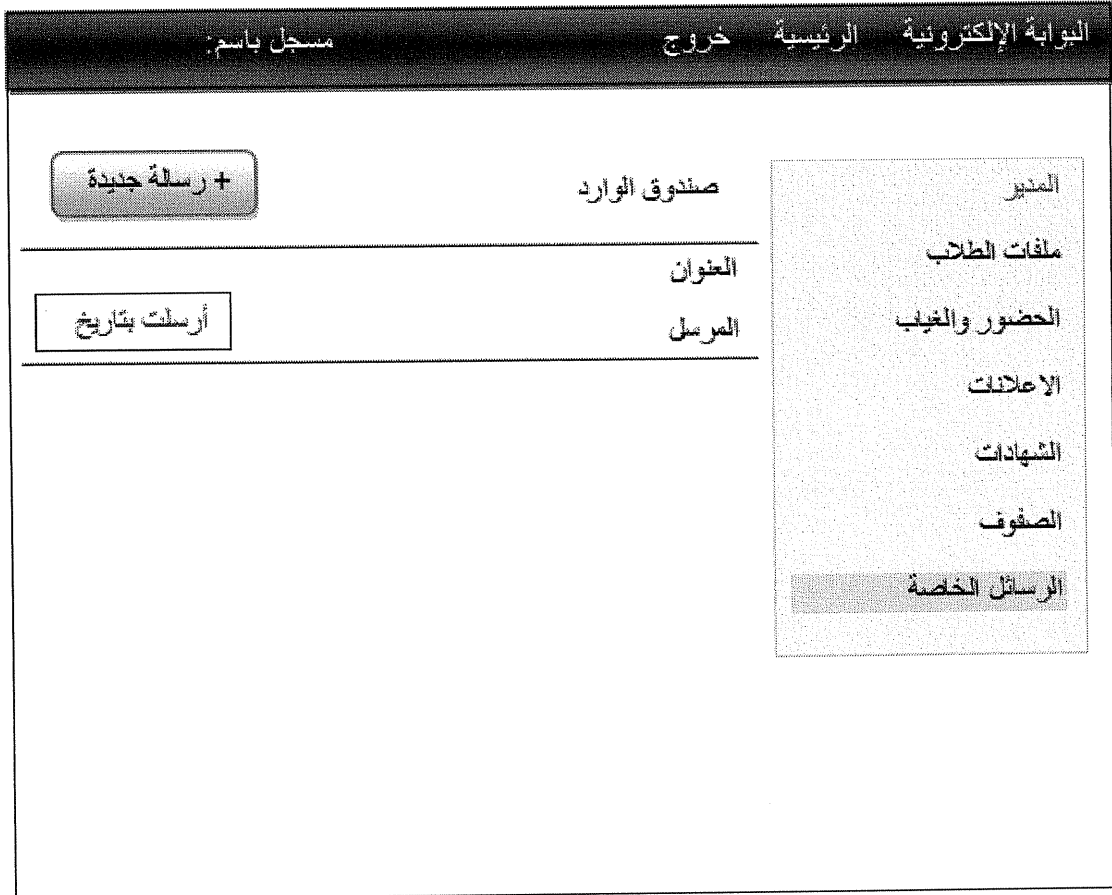


Figure 4.32: Private message

- **View message**

The Figure 4.33 shows the view message in the system.

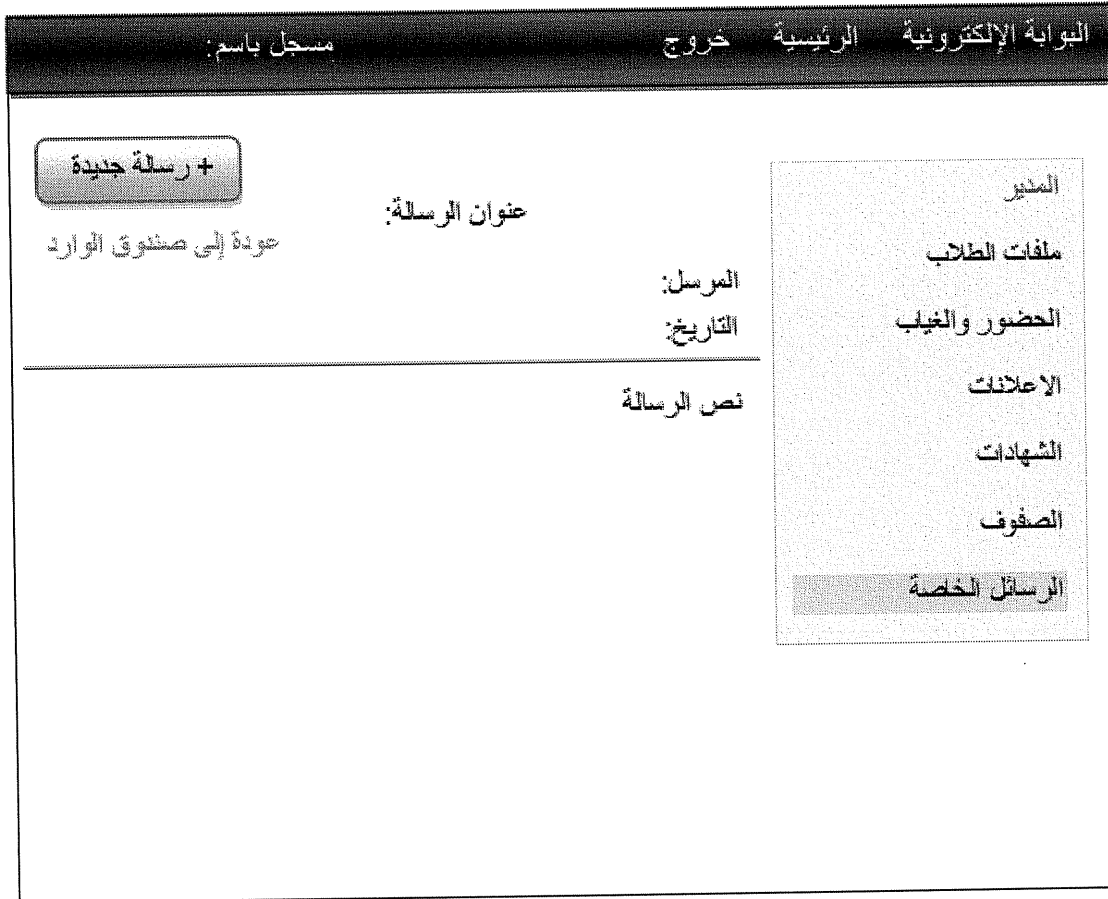


Figure 4.33: View message

- **Create message**

This screen represents the create message page. When the manager clicks on the new message, this screen will appear. He must enter the required information, then clicks on the “send” button to send email. As shown in Figure 4.34. The form will be validated for any invalid input.

البريد الإلكتروني الرئيسية خروج
مسجل باسم:

+ رسالة جديدة

البريد الإلكتروني

العنوان

نص الرسالة

إرسال

المدبر
ملفات الطلاب
الحضور والغياب
الإعلانات
الشهادات
الصفوف
الرسائل الخاصة

Figure 4.34: Create message

- **Teacher home page**

This screen represents the home page for teacher. When the teacher login its account, this screen will appear, the teacher will interact with system and view announcement through this page. The Figure 4.35 shows the teacher home page.

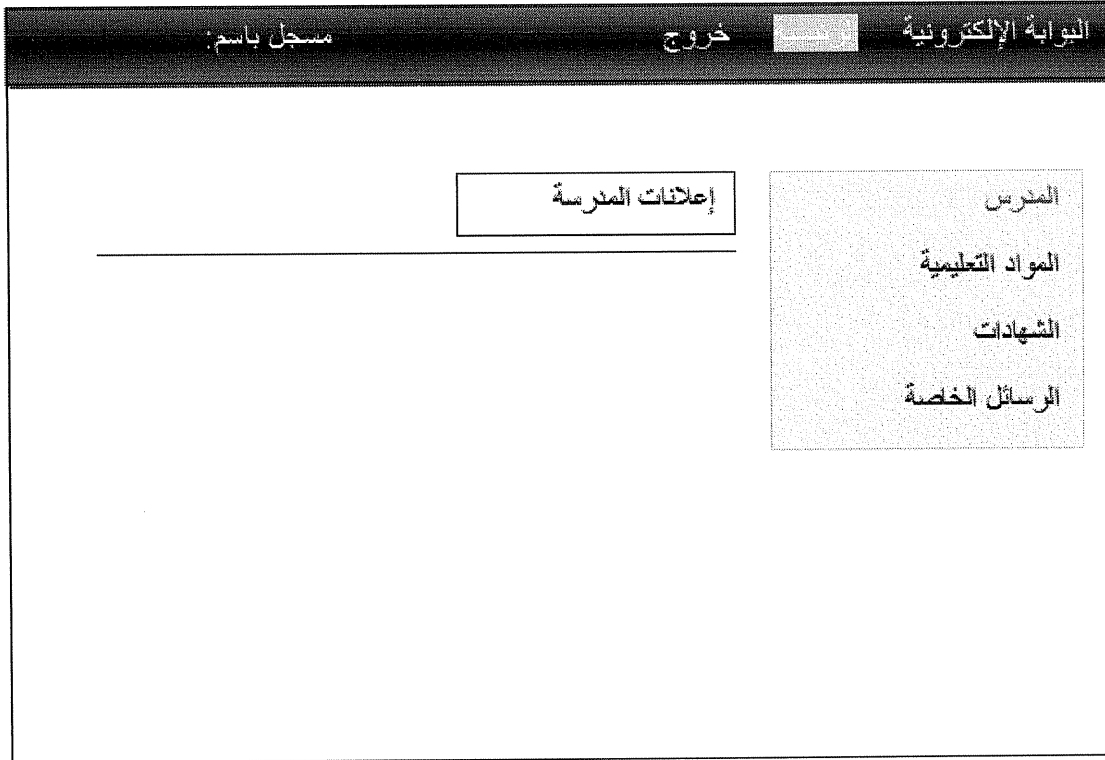


Figure 4.35: Teacher home page

- **Manage course**

This screen will appear when the teacher clicks on courses. The list of specific courses that the teacher learned it will appear, he can view courses and manage files and student marks. Figure 4.36 shows the manage course page.

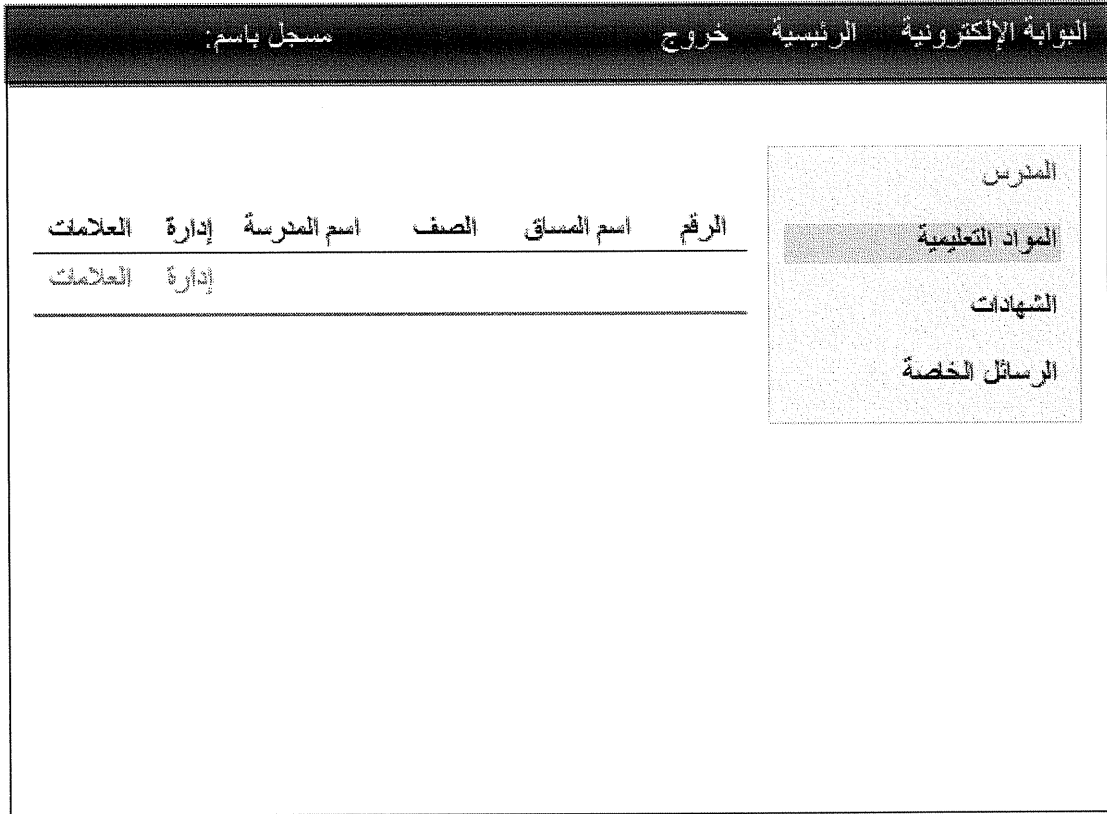


Figure 4.36: Manage course

- **Manage file**

This screen represent the manage file screen, the teacher can add a file by click on “select a file” button then entering the related message, after that click on “save” button. Also he can delete a file. Figure 4.37 shows the manage file page.

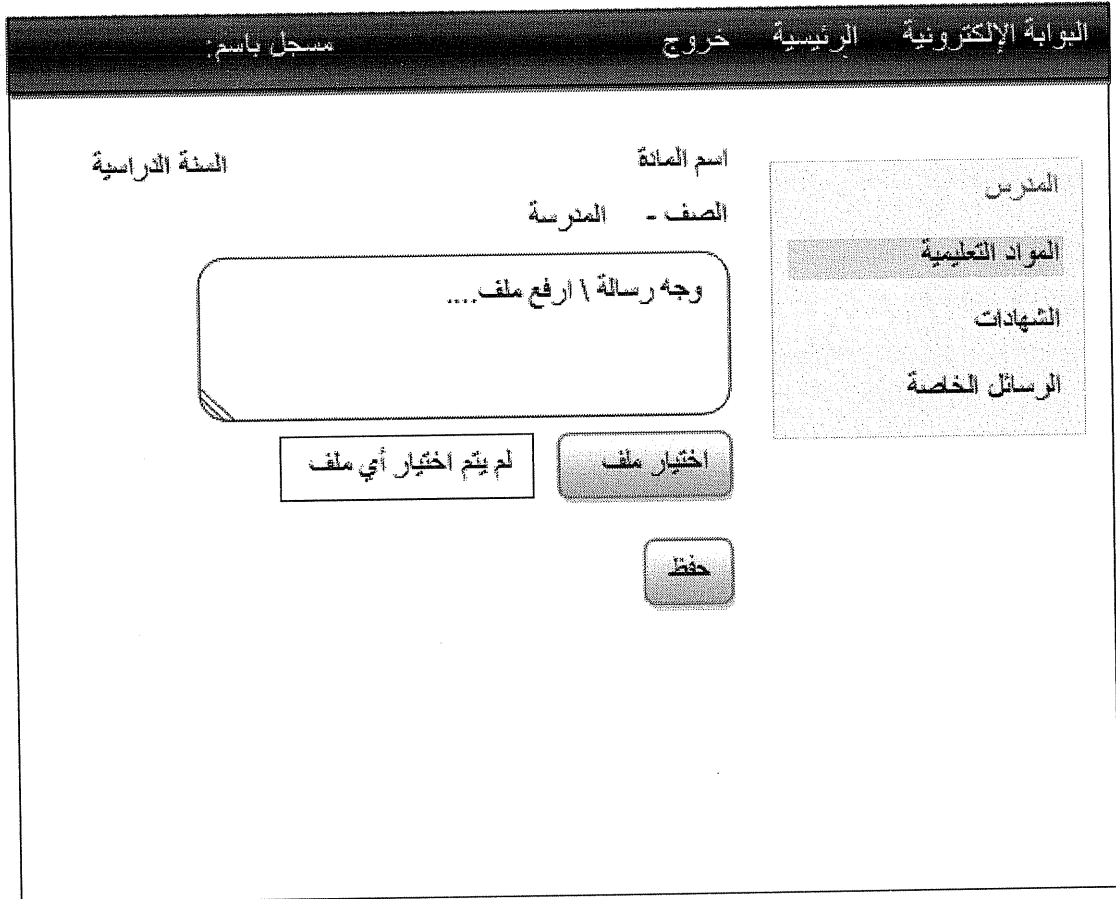


Figure 4.37: Manage file

- **Manage marks**

When the teacher clicks on courses link that shown in Figure 4.36 he can add and edit the student mark, he fill the student mark and click on “save” button, no average can be grater than one hundred. Figure 4.38 shows manage mark page.

Figure 4.38: Manage marks

- **Certificate**

This screen will appear when the teacher clicks on certificate, he must select the student and click on its name to create certificate. As shown in Figure 4.39.

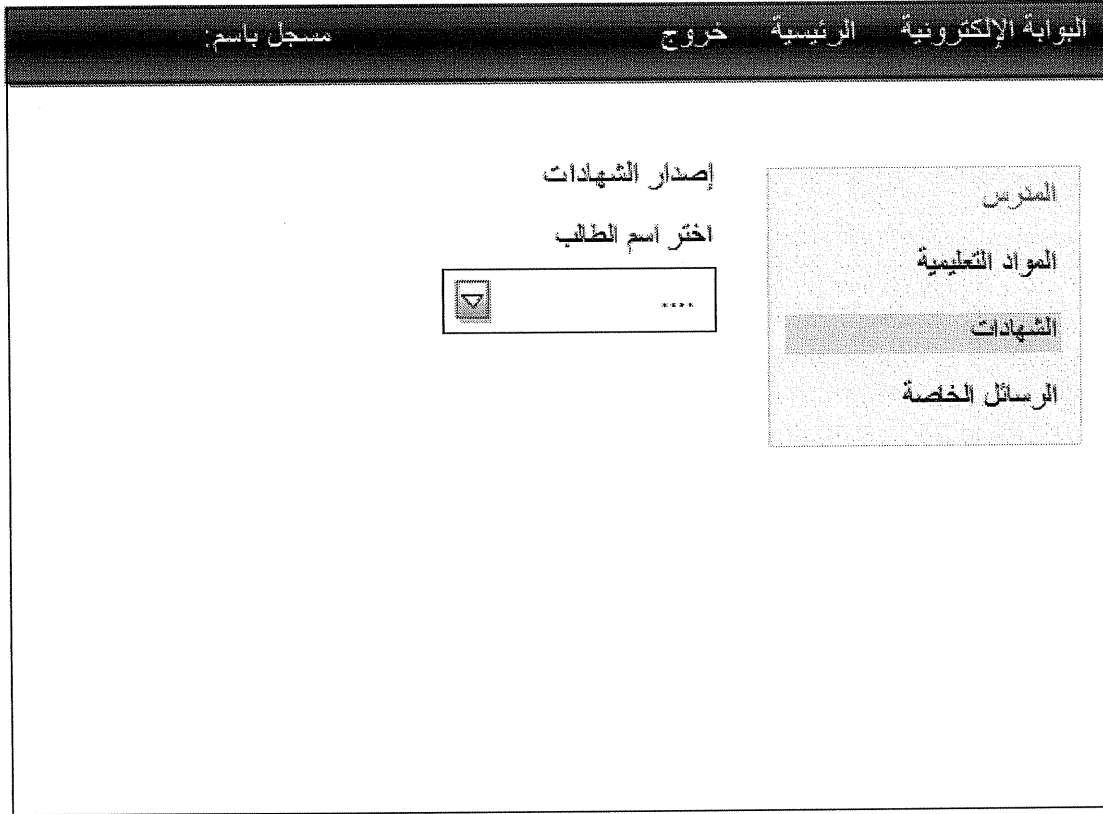


Figure 4.39: Certificate

- Create certificate

In this screen the teacher will create a student certificate when click on “create” button. Figure 4.40 shows create certificate page.

مسجل باسم:
الخروج الرئيسية الرئيسية الإلكترونية

بسم الله الرحمن الرحيم

فلســــــــــــــــــــطين

وزارة التربية والتعليم

النتائج المدرسية

الصف العاشر

السنة الدراسية 2014/2013

المدرس

المواد التعليمية

الشهادات

الرسائل الخاصة

المدرسة:	الإسم:
تاريخ الولادة:	الجنسية:
المدينة:	مكان الولادة:
مربي الصف:	مدير المدرسة:

المبحث	النهاية العظمى	النهاية الصغرى	العلامة المسحقة

تفصيلات العلامات والتقدير : من 100-90 ممتاز / من 89-80 جيد جدا / من 79-70 جيد / من 69-50 مقبول / 49 فما دون مقصر
--

صدرت بتاريخ: اصدار

Figure 4.40: Create certificate

- **Private message**

This screen represents the private message page. When the teacher clicks on the private message, this screen will appear. He will be able to view messages or add new messages. The Figure 4.41 shows the private message page.



Figure 4.41: Private message

- **View message**

The Figure 4.42 shows the view message in the system by teacher.

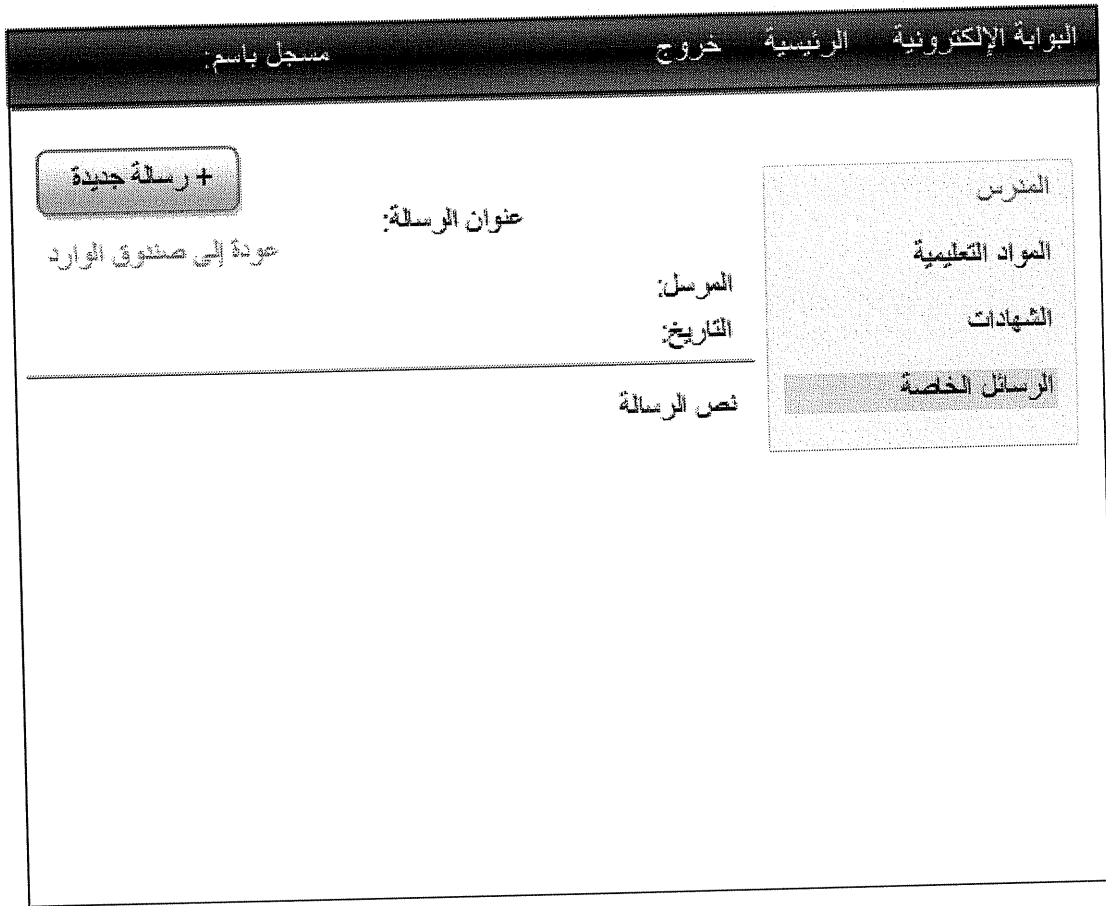


Figure 4.42: View message

- **Create message**

This screen represents the create message page. When the teacher clicks on the new message, this screen will appear. He must enter the title, receiver email and the message body, then clicks on the “send” button to send email. As shown in Figure 4.43. The form will be validated for any invalid input.

The screenshot shows a web interface for creating a message. At the top, there is a dark header with the text 'الواجهة الإلكترونية الرئيسية' (Main Electronic Interface) and 'خروج' (Logout). Below the header, on the left, is a button labeled '+ رسالة جديدة' (New Message). On the right, there is a sidebar menu with the following items: 'المدرس' (Teacher), 'المواد التعليمية' (Educational Materials), 'الشهادات' (Certificates), and 'الرسائل الخاصة' (Private Messages), which is currently selected. The main content area contains three input fields: 'البريد الإلكتروني' (Email), 'العنوان' (Title), and 'نص الرسالة' (Message Body). At the bottom right of the form is a button labeled 'إرسال' (Send).

Figure 4.43: Create message

- **Student home page**

This screen represents the home page for student. When the student login its account, this screen will appear, the student will interact with system and view announcement through this page. The Figure 4.44 shows the student home page.

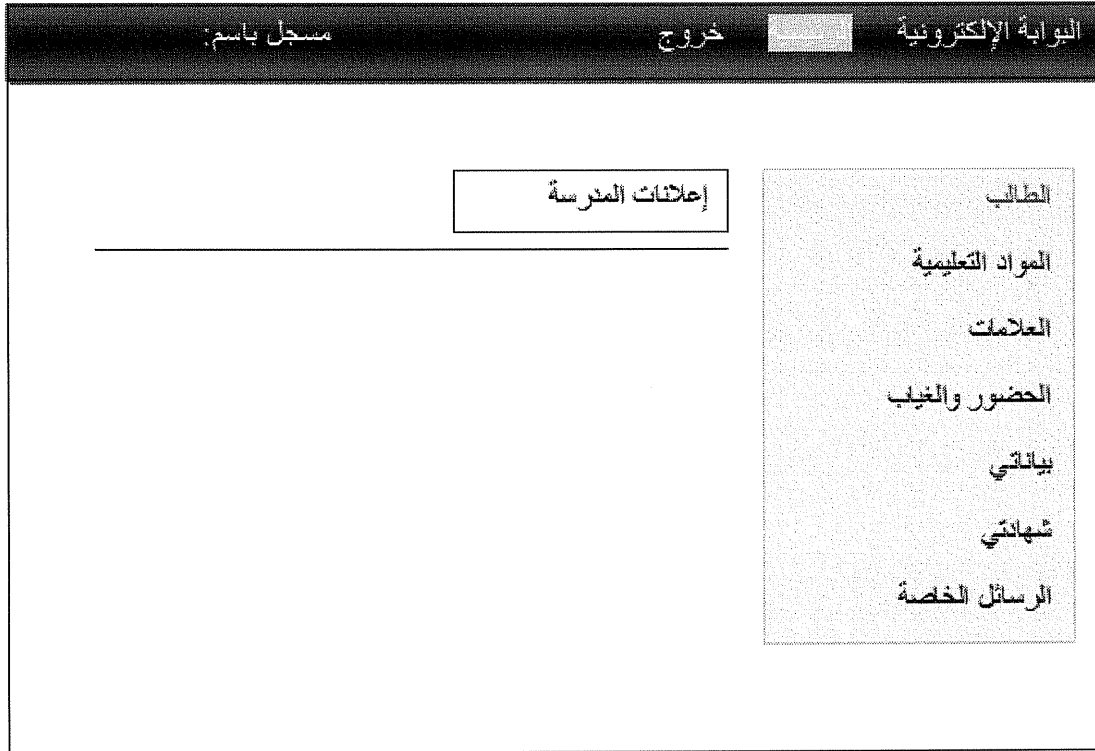


Figure 4.44: Student home page

- **Student courses**

This screen will appear when the student click on courses, he view a list of courses related to his class, to view course content he must click on course name link. The figure 4.45 shows student course page.

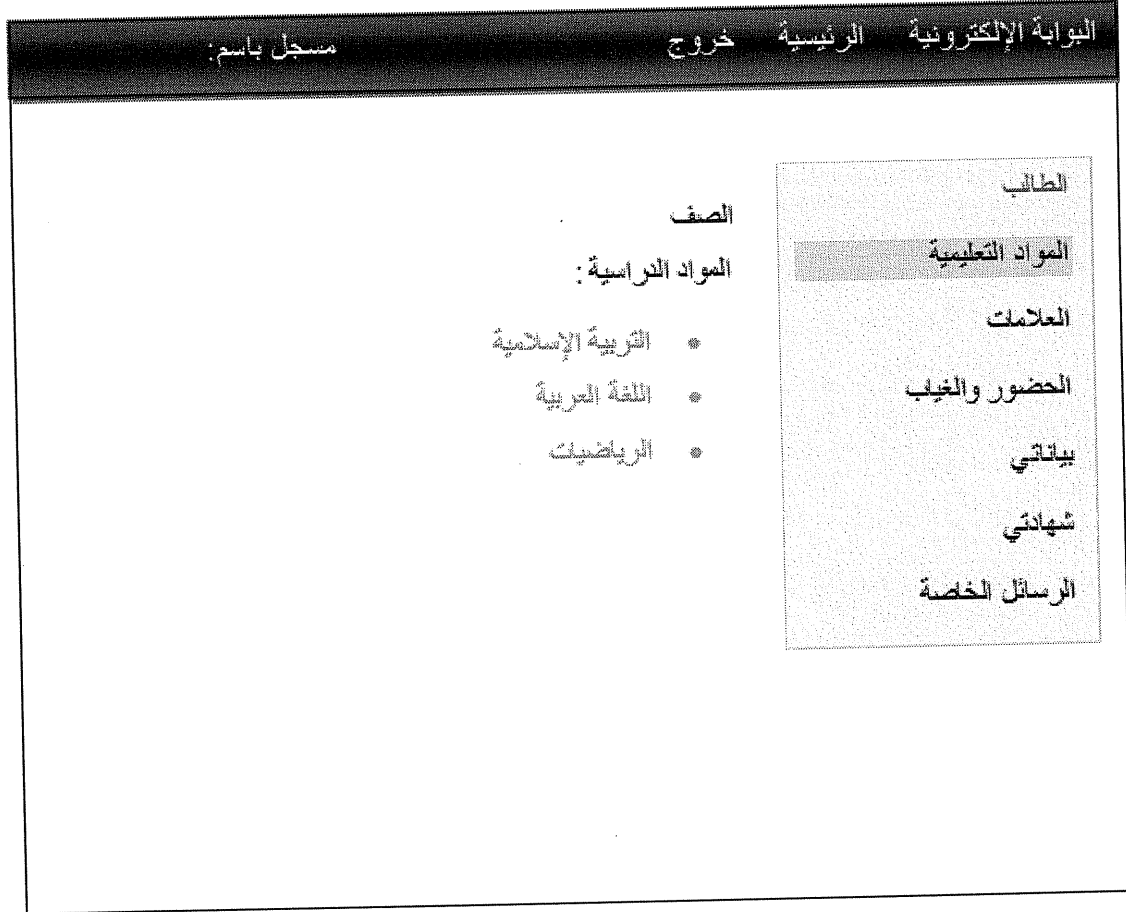


Figure 4.45: Student courses

- **Course content**

From this screen the student can add a file by click on “select a file” button then entering the related message, after that click on “save” button. Also he can delete a file. Figure 4.46 shows the course content page.

البنابة الإلكترونية الرئيسية خروج

مسجل باسم:

اسم المائة

الصف - المدرسة

وجه رسالة ارفع ملف...

لم يتم اختيار أي ملف

اختيار ملف

حفظ

الطالب

المواد التعليمية

العلامات

الحضور والغياب

بياناتي

شهادتي

الرسائل الخاصة

Figure 4.46: Course content

- **View student marks**

When the student click on marks, this screen will appear, and the student can view his mark. As shown in the Figure 4.47.

مسجل باسم:
الخروج الرئيسية الرئيسية الإلكترونية

العلامات					
المادة	الأول	الثاني	الثالث	الرابع	

المعدل	المشاركة	النهائي

الطالب

المواد التعليمية

العلامات

الحضور والغياب

بياناتي

شهادتي

الرسائل الخاصة

Figure 4.47: View student marks

- **Student attendance**

In this screen the student review his attendance report, number of absence time and date. As shown in figure 4.48.

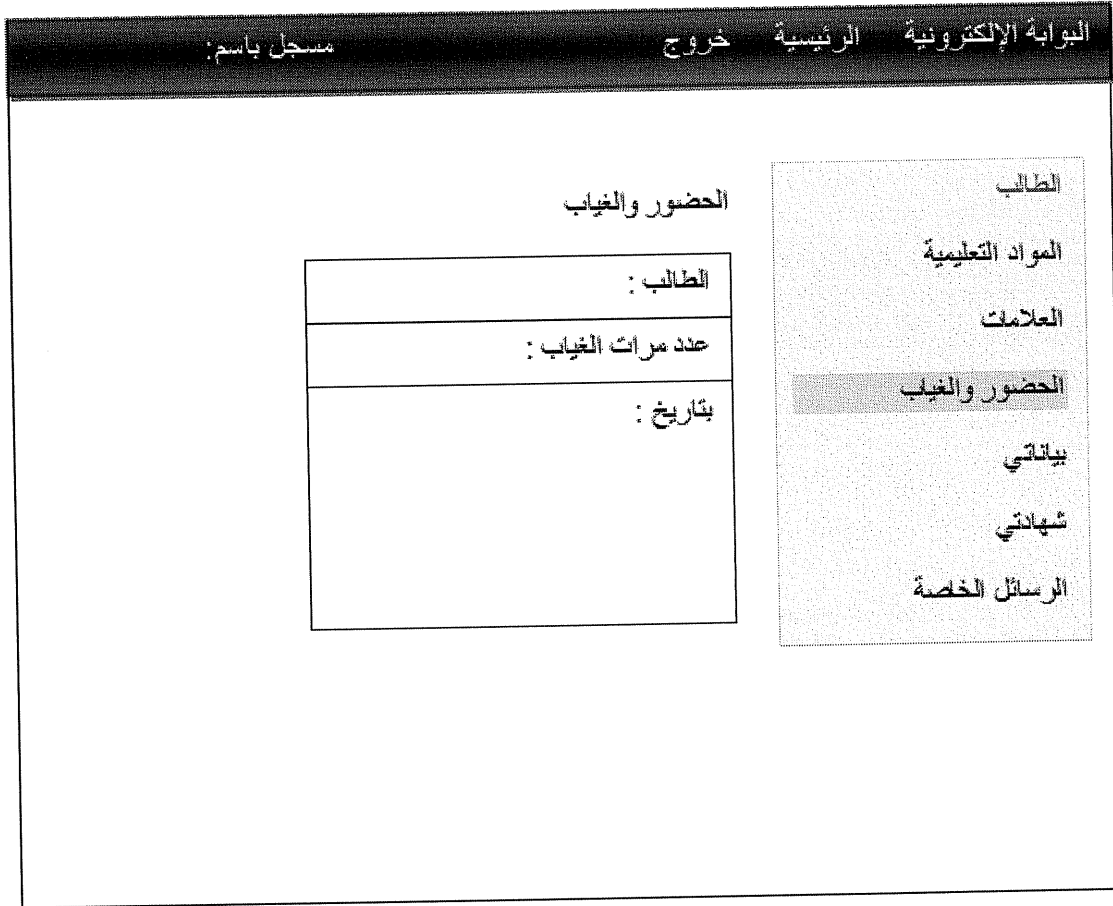


Figure 4.48: Student attendance

- **Student profile**

The student can view its profile through this page, when click on my profile. Figure 4.49 shows the student profile.

البوابة الإلكترونية الرئيسية خروج
مسجل باسم:

البيانات الشخصية

الإسم الأول	الأب	الجنس	الرقم التسلسلي	الرقم العائلي	سنة دخول الأول الأساسي

التاريخ الميلاد	مكان الميلاد	الجنسية	الديانة

الهوية وجواز السفر

الهوية	رقمها
جواز السفر	رقمها

الطالب

المواد التعليمية

العلامات

الحضور والغياب

بياناتي

شهادتي

الرسائل الخاصة

Figure 4.49: Student profile

- **Student certificate**

This screen will appear when a student clicks on my certificate, he can view his certificate. The Figure 4.50 shows student certificate page.

مسجل باسم:
البوابة الإلكترونية الرئيسية خروج

بسم الله الرحمن الرحيم

فلسطين

وزارة التربية والتعليم

النتائج المدرسية

الصف العاشر

السنة الدراسية 2014/2013

الطالب

المواد التطويرية

العلامات

الحضور والغياب

بياناتي

شهادتي

الرسائل الخاصة

المدرسة: _____

تاريخ الولادة: _____

المدينة: _____

مربي الصف: _____

الإسم: _____

الجنسية: _____

مكان الولادة: _____

مدير المدرسة: _____

المبحت	النهاية العظمى	النهاية الصغرى	العلامة المستحقة

تنبهات

العلامات والتقدير :

من 100-90 ممتاز / من 89-80 جيد جدا / من 79-70 جيد / من 69-50 مقبول / 49 فما دون مقصر

صفحت بتاريخ:

Figure 4.50: Student certificate

- **Private message**

This screen represents the private message page. When the student clicks on the private message, this screen will appear. He will be able to view messages or add new messages. The Figure 4.51 shows the private message page.

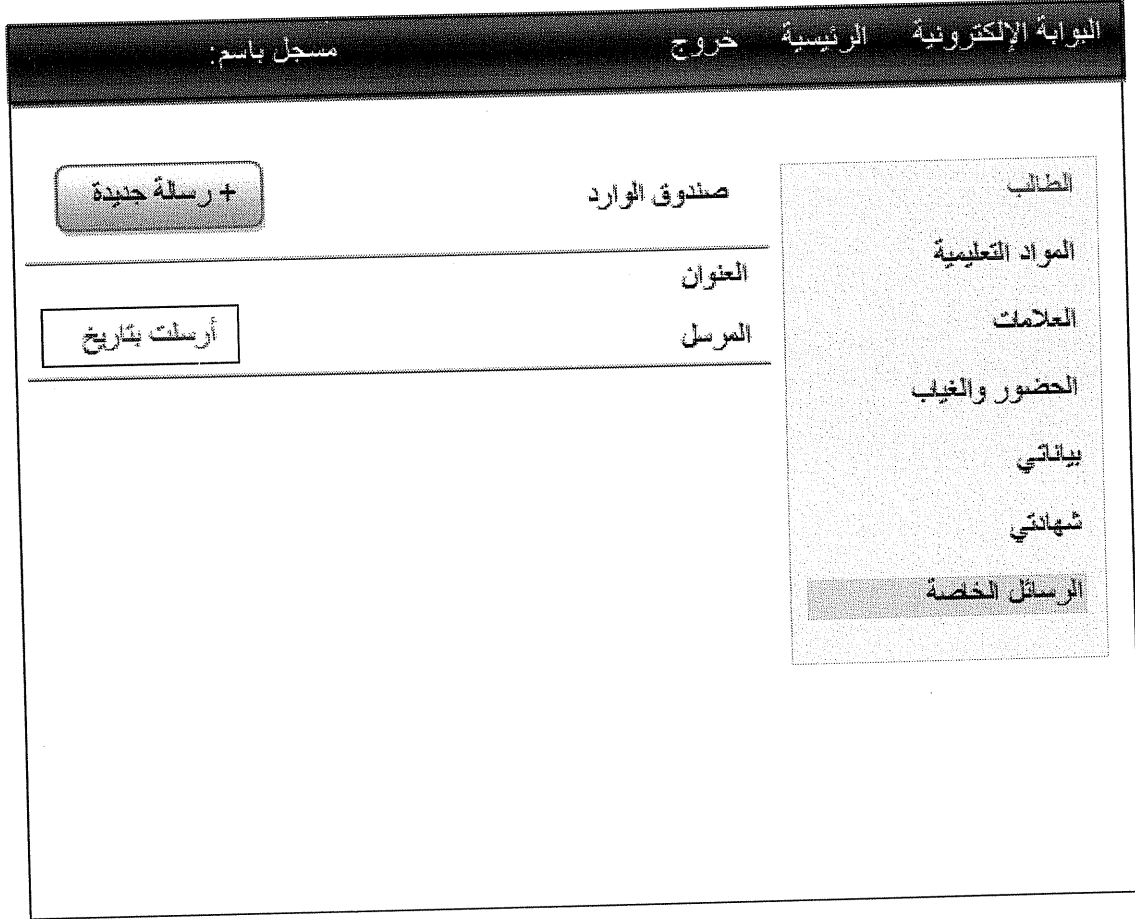


Figure 4.51: Private message

- **View message**

The Figure 4.52 shows the view message in the system by student.

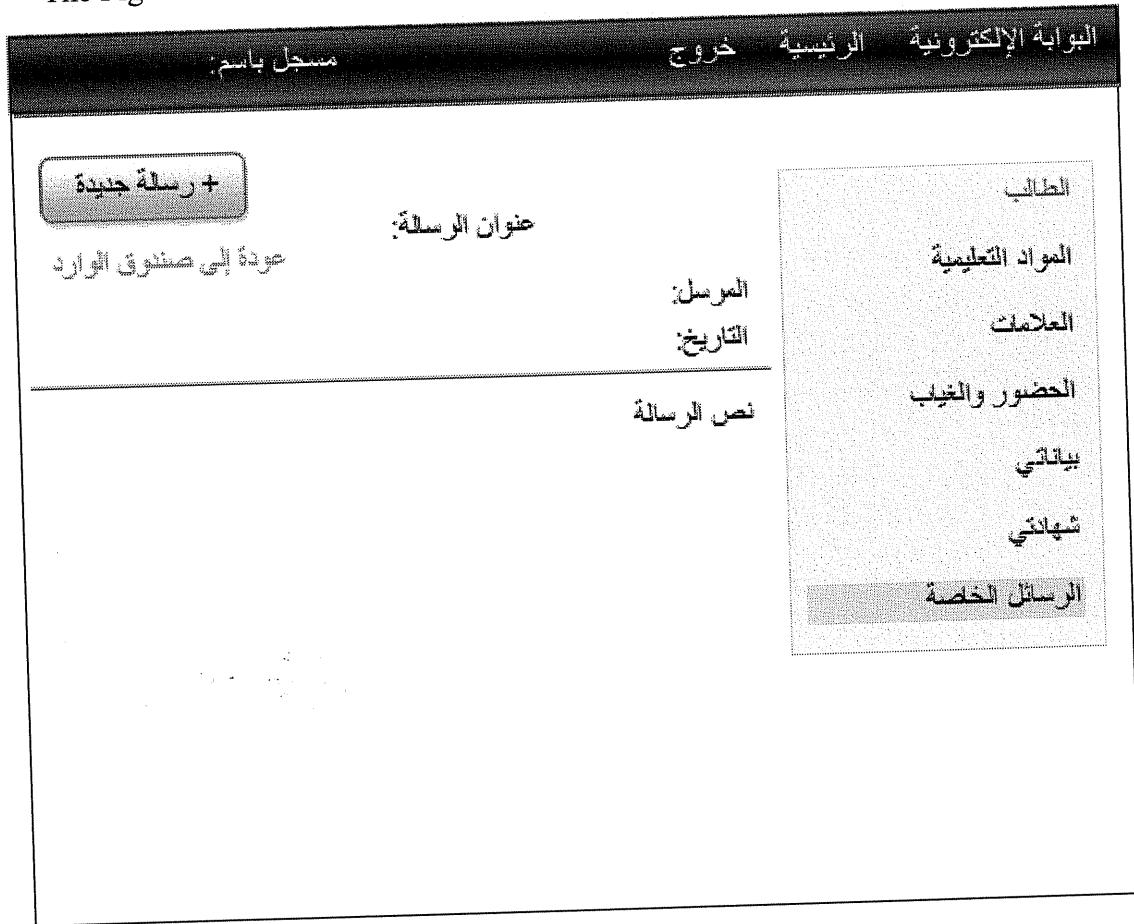


Figure 4.52: View message

- **Create message**

This screen represents the create message page. When the student clicks on the new message, this screen will appear. He must enter the title, receiver email and the message body, then clicks on the “send” button to send email. As shown in Figure 4.53. The form will be validated for any invalid input.

The screenshot shows a web interface for creating a message. At the top, there is a dark header bar with the text 'الجامعة الإلكترونية الرئيسية خروج مسجل باسم:'. Below the header, on the left, is a button labeled '+ رسالة جديدة'. The main form area contains three input fields: the first is labeled 'البريد الإلكتروني', the second is labeled 'العنوان', and the third is labeled 'نص الرسالة'. At the bottom right of the form is a button labeled 'إرسال'. To the right of the form, a dropdown menu is open, displaying a list of categories: 'الطالب', 'المواد التعليمية', 'العلامات', 'الحضور والغياب', 'بياناتي', 'شهادتي', and 'الرسائل الخاصة'. The 'الرسائل الخاصة' option is currently selected and highlighted.

Figure 4.53: Create message

4.3 Database design

4.3.1 Database mapping

The created database contains twenty-one tables names as follows; announcement, attendance, certificate, class, classmanager, courceteacher, course, courseresource, grade, message, school, schoolclass, schoolcourse, studentclass, studentfamily, studentinfo, studenttransfer, studyyear, user, usermeta, and usertype.

- **user** (id, firstName, fatherName, grandFatherName, lastName, username, password, phone, address, city, email, birthDate, identityID).
- **usermeta** (id, meta_key, meta_value, user_id).
- **usertype** (id, name, code).
- **anouncement** (id, title, body, start_date, end_date, school_id, user_id).
- **attendance** (id, attended, date, user_id, study_year).
- **certificate** (id, name, certificateFile, class_id, user_id, status, issueDate).
- **class** (id, code, name, description).
- **classmanager** (id, class_id, manager_id, study_year).
- **courceteacher** (id, school_course_id, teacher_id, study_year).
- **course** (id, name).
- **courseresource** (id, type, name, message, file, uploaded_by, uploaded_in, course_id, study_year).
- **grade** (id, first, second, midterm, third, fourth, final, extra, course_id, user_id, class_id, study_year).
- **message** (id, sender_id, receiver_id, title, body, sentDate).
- **school** (id, name, phone, city, street, info, web, email, manager).
- **schoolclass** (id, school_id, class_id).
- **schoolcourse** (id, course_id, class_id).
- **studentclass** (id, student_id, class_id, study_year).
- **studentfamily** (id, firstName, fatherName, grandFatherName, lastName, nationality, birth, work, phone, 48_city, identity, workaddress, address, status, refuge, gender).
- **studentinfo** (id, placeofbirth, nationality, religion, gender, passport, user_id).

- **studenttransfer** (id, user_id, school_id, schoolclass_id, class_id, note, status, manager_id, date, study_year).
- **studyyear** (id, code, name, start, end, active, study_days).

4.3.2 Database Description

Table 4.1: user table

Field name	Description	Data type	Length	PK	FK	constraint
Id	User id	Int	11	Yes	No	Auto_increment, not null, unique
firstName	User first name	Varchar	45	No	No	Not null
fatherName	User middle name	Varchar	45	No	No	Not null
grandFatherName	User grand father name	Varchar	45	No	No	Not null
lastName	User family	Varchar	45	No	No	Not null
Phone	Phone number	Varchar	45	No	No	Not null
city	User city	Varchar	45	No	No	Not null
email	User email	Varchar	45	No	No	Not null
birthDate	User birth date	Date		No	No	Not null
identityID	Identity number	Varchar	45	No	No	Unique, not null
username	Username	Varchar	45	No	No	Unique, not null

password	User password	Varchar	45	No	No	Not null
type_id	User type id	Int	11	No	Yes	Not null
address	Address	Varchar	45	No	No	Not null

Table 4.2: usermeta table

Field name	Description	Data type	Length	PK	FK	constraint
Id	User type id	Int	11	Yes	No	Auto_increment, unique , not null
meta_key	User type name	Varchar	45	No	No	Not null
meta_value	User type name	Text		No	No	Not null
user_id	User id	Int	11	No	Yes	Unique, not null

Table 4.3: usertype table

Field name	Description	Data type	Length	PK	FK	constraint
Id	User type id	Int	11	Yes	No	Auto_increment, unique , not null
Name	User type name	Varchar	45	No	No	
Code	User type code	Char	5	No	No	Unique

Table 4.4: message table

Field name	Description	Data type	Length	PK	FK	constraint
Id	Message id	Int	11	Yes	No	Unique, not null, auto increment
sender_id	Message sender id	Int	11	No	Yes	Not null
reciver_id	Message Receiver id	Int	11	No	Yes	Not null
Title	Message title	Varchar	45	No	No	Not null
Body	Message body	Text		No	No	Not null
sent_Date	Message send Date	Timestamp		No	No	Not null

Table 4.5: announcement table

Field name	Description	Data type	Length	PK	FK	constraint
Id	Announcement id	Int	11	Yes	No	Unique, not null, auto_increment
Title	Announcement title	Varchar	45	No	No	Not null
Body	Announcement body	Text		No	No	Not null
start_Date	Announcement start Date	Date		No	No	Not null

end_Date	Announceme nt end Date	Date		No	No	Not null
school_id	School id	Int	11	No	Yes	Not null
user_id	User id	Int	11	No	Yes	Not null

Table 4.6: attendance table

Field name	Description	Data type	Length	PK	FK	constraint
Id	Attendance id	Int	11	Yes	No	Unique, not null, auto increment
Date	Date of Attendance	Date		No	No	Not null
Attended	Attended	Int	11	No	No	Not null
user_id	User id	Int	11	No	Yes	Not null
study_year	study year	Char	9	No	Yes	Not null

Table 4.7: certificate table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Certificate id	Int	11	Yes	No	Unique, not null, auto increment
Name	Name	Varchar	45	No	No	Not null
certificateFile	Certificate	Text		No	No	Not null

	file					
class_id	Class id	Int	11	No	Yes	Not null
user_id	User id	Int	11	No	Yes	Not null
Status	Status	Varchar	45	No	No	
issueDate	Issue Date	Date		No	No	

Table 4.8: class table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Class id	Int	11	Yes	No	Unique, not null, auto increment
Code	class Code			No	No	Not null
Name	Class name	Varchar	45	No	No	Not null
description	Class description	Text		No	No	Not null

Table 4.9: classmanager table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Id	Int	11	Yes	No	Unique, not null, auto_increment
class_id	Class id	Int	11	No	Yes	Not null
manager_id	Manager id	Int	11	No	Yes	Not null
study_year	study year	Char	9	No	Yes	Not null

Table 4.10: courceteacher table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Id	Int	11	Yes	No	Unique, not null, auto_increment
school_course_id	Course id	Int	11	No	Yes	Not null
study_year	Study year	Char	9	No	Yes	Not null
teacher_id	Teacher id	Int	11	No	Yes	Not null

Table 4.11: course table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Course id	Int	11	Yes	No	Unique, not null, auto_increment
name	Course name	Varchar	45	No	No	

Table 4.12: courseresource table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Id	Int	11	Yes	No	Unique, not null, auto_increment
type	Type	Varchar	45	No	No	
name	Resource name	Varchar	45	No	No	
message	Message	Text				

file	File name	Text		No	No	
upload by	Upload by	Int	11	No	Yes	
upload in	Upload in	Timestamp		No	No	
course_id	Course id	Int	11	No	Yes	Not null
study_year	Study year	Char	10	No	No	Not null

Table 4.13: grade table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Id	Int	11	Yes	No	Unique, not null, auto_increment
first	First exam mark	Float		No	No	Not null
second	Second exam mark	Float		No	No	Not null
midterm	Midterm exam mark	Float		No	No	Not null
third	Third exam mark	Float		No	No	Not null
fourth	Fourth exam mark	Float		No	No	Not null
study_year	Study_year	Char	9	No	Yes	Not null
final	Final exam	Float		No	No	Not null

	mark					
extra	Extra mark	Float		No	No	Not null
user_id	User id	Int	11	No	Yes	Not null
cours_id	Course id	Int	11	No	Yes	Not null
class_id	Class id	Int	11	No	Yes	Not null

Table 4.14: school table

Field name	Description	Data type	Leng th	PK	FK	Constraint
Id	School id	Int	11	Yes	No	Unique, not null, auto_incremental
name	School name	Varchar	45	No	No	Not null
phone	Phone number	Varchar	45	No	No	
City	School city	Varchar	45	No	No	
street	School street	Varchar	45	No	No	
Info	School info	Text		No	No	
Web	School web	Varchar	45	No	No	
email	School email	Varchar	45	No	No	
manager	School manager	Int	11	No	Yes	Not null

Table 4.15: schoolclass table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Id	Int	11	Yes	No	Unique, not null, auto incremental
school_id	School id	Int	11	No	Yes	Not null
class_id	Class id	Int	11	No	Yes	Not null

Table 4.16: schoolcourse table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Id	Int	11	Yes	No	Unique, not null, auto incremental
course_id	Course id	Int	11	No	Yes	Not null
class_id	Class id	Int	11	No	Yes	Not null

Table 4.17: studentclass table

Field name	Description	Data type	Length	PK	FK	Constraint
Id	Id	Int	11	Yes	No	Unique, not null, auto_increment
student_id	Student id	Int	11	No	Yes	Not null
class_id	class id	Int	11	No	Yes	Not null
Study_year	Current	Char	9	No	Yes	Not null

	study year					
--	------------	--	--	--	--	--

Table 4.18: studentfamily table

Field name	Description	Data type	Length	PK	FK	Constraint
id	Id	Int	11	Yes	No	Auto_increment, not null, unique
firstName	User first name	Varchar	45	No	No	
fatherName	User middle name	Varchar	45	No	No	
grandFatherName	User grand father name	Varchar	45	No	No	
lastName	User family	Varchar	45	No	No	
nationality	Nationality	Varchar	45	No	No	
birth	BirthDate	Date		No	No	
work	Job	Varchar	100	No	No	
phone	Mobile phone	Varchar	45	No	No	
city	User city	Varchar	45	No	No	
identity	Identity number	Varchar	45	No	No	Unique, not null
workaddress	Work address	Varchar	100	No	No	
address	Address	Varchar	100	No	No	Not null
status	Status	Varchar	45	No	No	

refuge	Is refuge or not	Varchar	45	No	No	
gender	Gender(male or female)	Enum('Male','Female')		No	No	
Student_id	Student id	Int	11	No	Yes	Not null

Table 4.19: studentinfo table

Field name	Description	Data type	Length	PK	FK	constraint
id	Id	Int	11	Yes	No	Auto_increment, not null, unique
placeofbirth	Place of birth	Varchar	45	No	No	Not null
nationality	Nationality	Varchar	45	No	No	Not null
religion	Religion	Varchar	45	No	No	Not null
gender	Gender	Enum('Male','Female')		No	No	Not null
passport	Passport	Varchar	45	No	No	
user_id	User id	Int	11	No	Yes	Not null

Table 4.20: studenttransfer table

Field name	Description	Data type	Length	PK	FK	Constraint
id	Id	Int	11	Yes	No	Auto_increment, not null, unique
user_id	User id	Int	11	No	Yes	Not null
school_id	School id	Int	11	No	Yes	Not null
schoolclass_id	School class id	Int	11	No	Yes	Not null
class_id	Class id	Int	11	No	Yes	Not null
note	Note	Text				
status	Status	Enum('pending','accepted','rejected')				Not null
manager_id	Manager id	Int	11	No	Yes	Not null
date	Date	Date				Not null
study_year	Study year	Char	10			Not null

Table 4.21: studyyear table

Field name	Description	Data type	Length	PK	FK	constraint
Id	Id	Int	11	Yes	No	Unique, not null, auto_increment
code	Code	Char	9	No	No	Not null

name	Name	Varchar	45	No	No	Not null
start	Start Date	Date		No	No	Not null
end	End Date	Date		No	No	Not null
active	Active	Int	11	No	No	Not null
Study_days	study days	Int	11	No	No	Not null

4.3.3 Database diagram

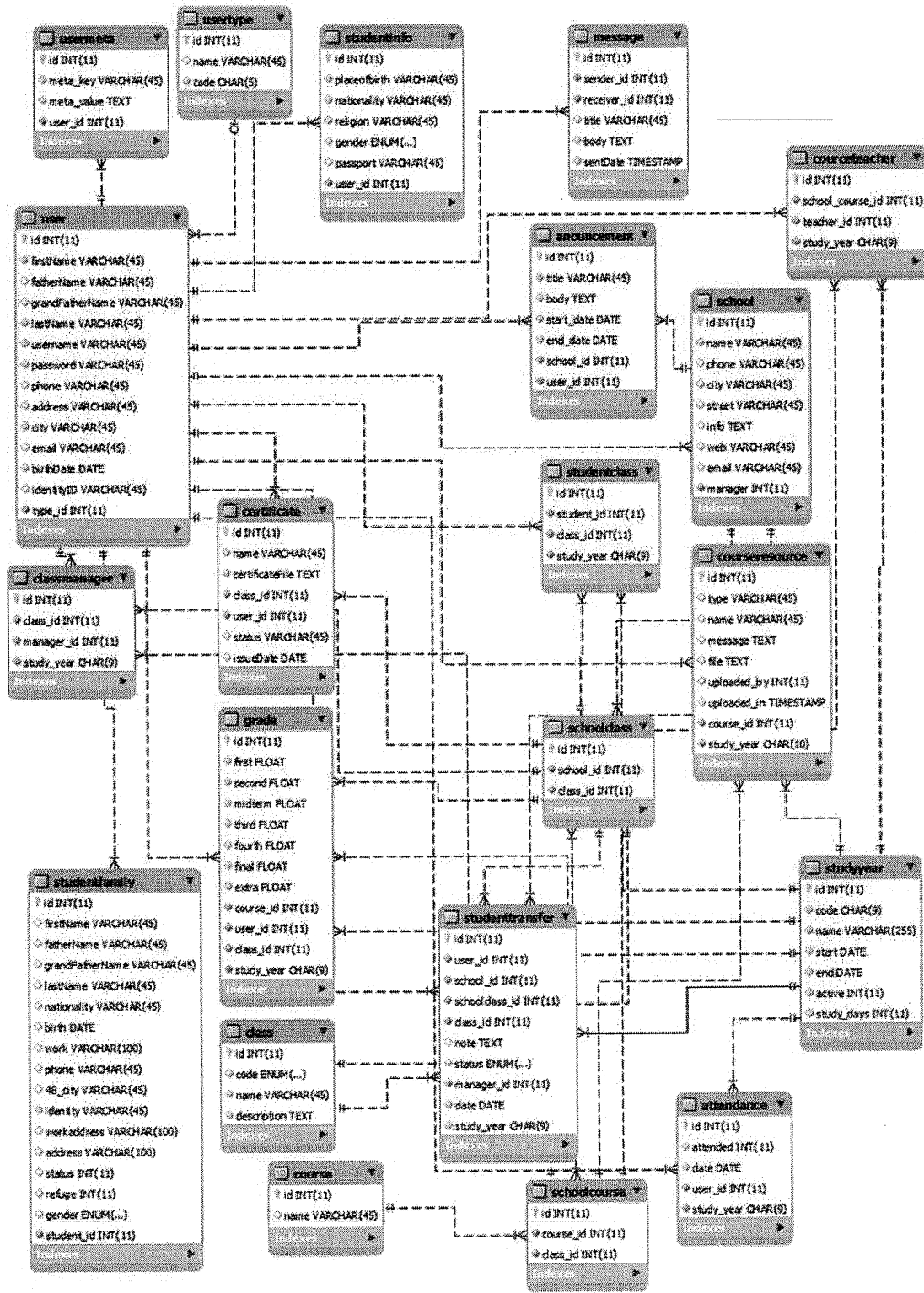


Figure 4.54: Database diagram

4.3.4 Entity relationship diagram

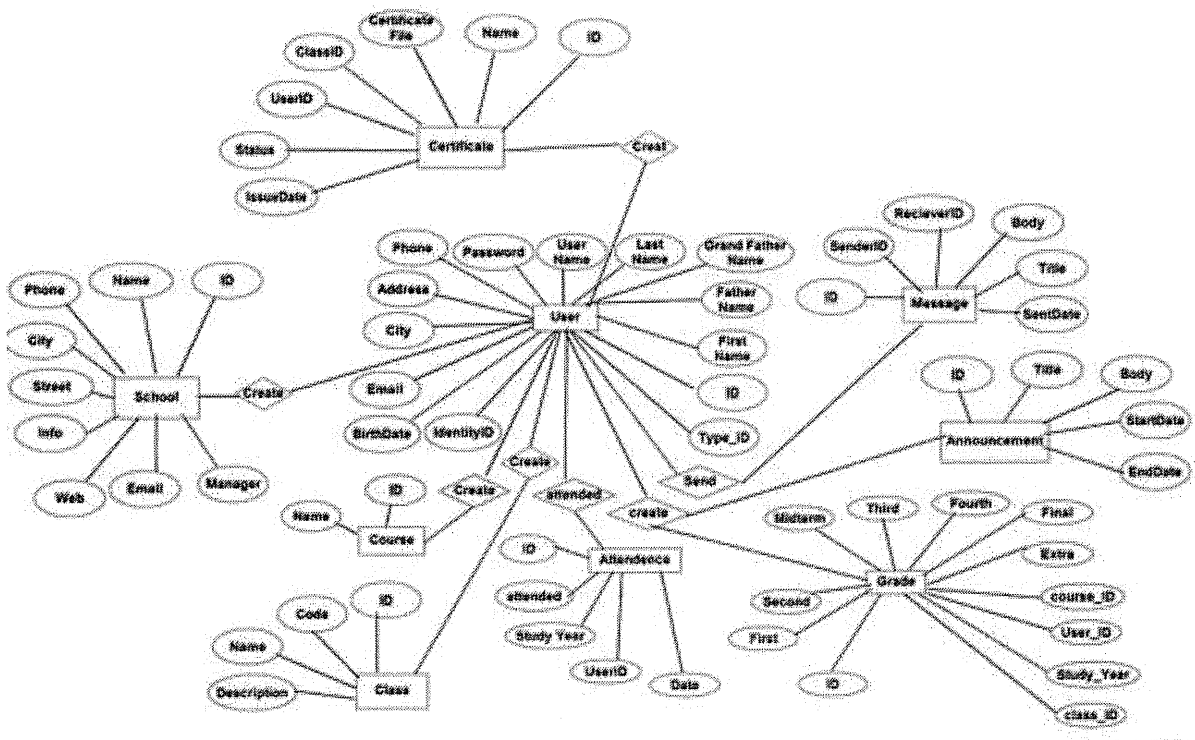


Figure 4.55: Entity relationship diagram

Chapter Five

System Implementation:

5.1 Introduction

5.2 Development tool and environment

5.3 System interface

5.1 Introduction

The purpose of implementation phase is to convert final physical system specifications into working software, passing through set of activities, coding, testing and documentation. This stage is come to transition from theoretical to the practical phase.

In this chapter we'll describe in details the development tool and environment.

5.2 Development tool and environment

The development tool and environment explain the environment used for developing, programming and creating the electronic school system, are the programming language and development environment, and building the database.

5.2.1 Programming Language and Development Environment

The technology around the world expanded, there are a several programming language appeared to be used in the development of electronic systems. We have use the Object Oriented analysis and design technique in the analysis and development of this system. Programming language includes the operating system, Zend Framework and Sublime Text 2 by using Hypertext Preprocessor (PHP).

1. Operating System windows / Linux / Mac

We can use any operating system because php is a platform independent that means it supported by any operating system.

2. Zend Framework

Zend 1.12.x is PHP MVC modular and extendable framework that has a different type of libraries to enhance the web application architecture and to make the development process faster. We use the `Zend_Application`, `Zend_DB` packages to connect the application to the database.

3. Sublime Text 2

The Sublime Text is a sophisticated text editor for code, the projects in Sublime Text 2 are made up of two files:

1. Sublime-project file, which contains the project definition.
2. Sublime-workspace file, which contains user specific data.

- **Open the Sublime Text 2**



Figure 5.1: Open the Sublime Text 2

- **Application environment**

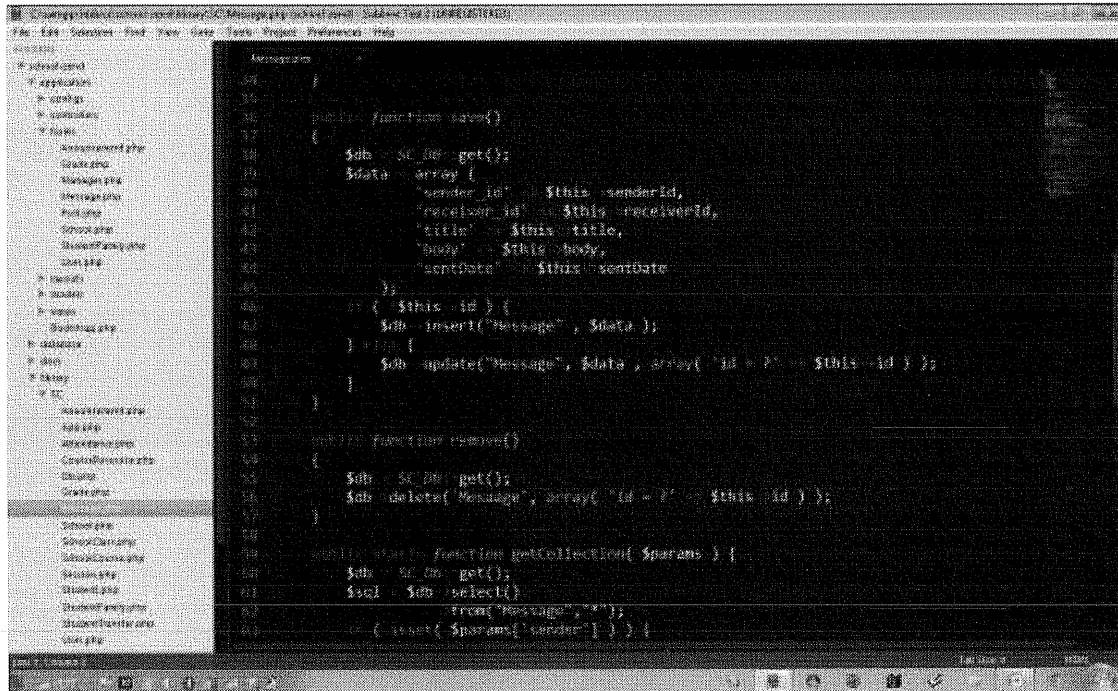


Figure 5.2: Application environment

4. Hypertext Preprocessor (PHP)

PHP is an open source scripting web language that gives the ability to develop web sites and web applications in an easy and robust way. PHP is the most popular language on the earth.

5.2.2 Building the database

1. MySQL Workbench 5.2

MySQL workbench tool for managing MySQL databases, UML diagrams and server administration. We used it to build database EER Diagram.

- **Select MySQL Workbench 5.2 from the list**



Figure 5.3: Select MySQL Workbench 5.2

- **Open MySQL Workbench 5.2**

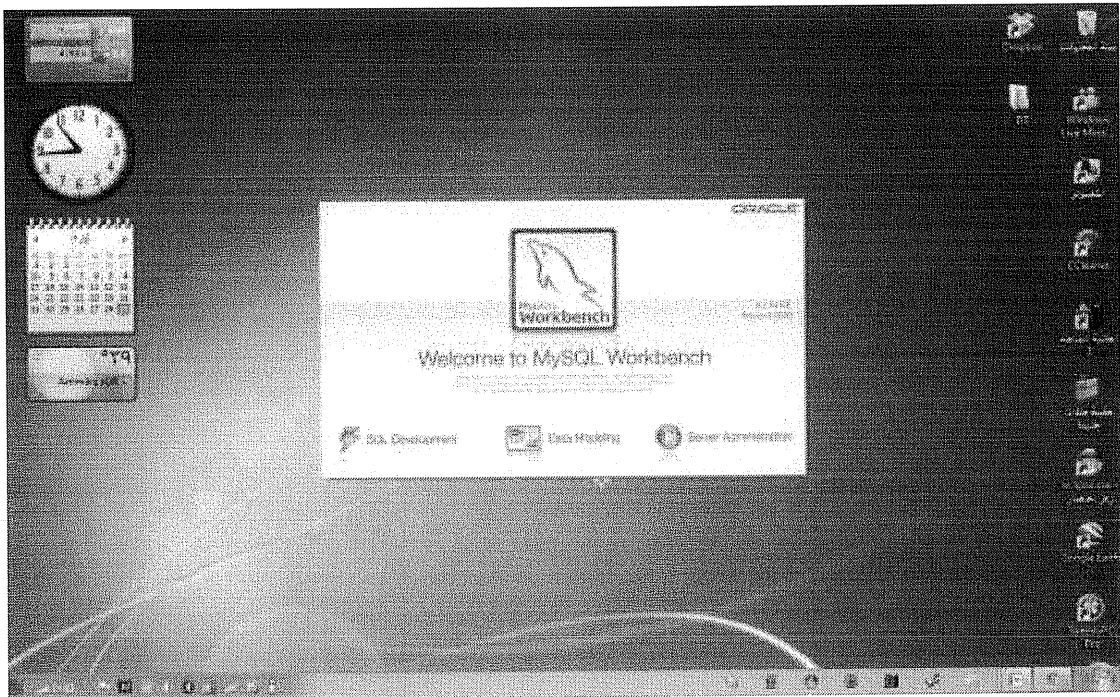


Figure 5.4: Open MySQL Workbench 5.2

- **MySQL Workbench 5.2 environment, create EER Diagram**

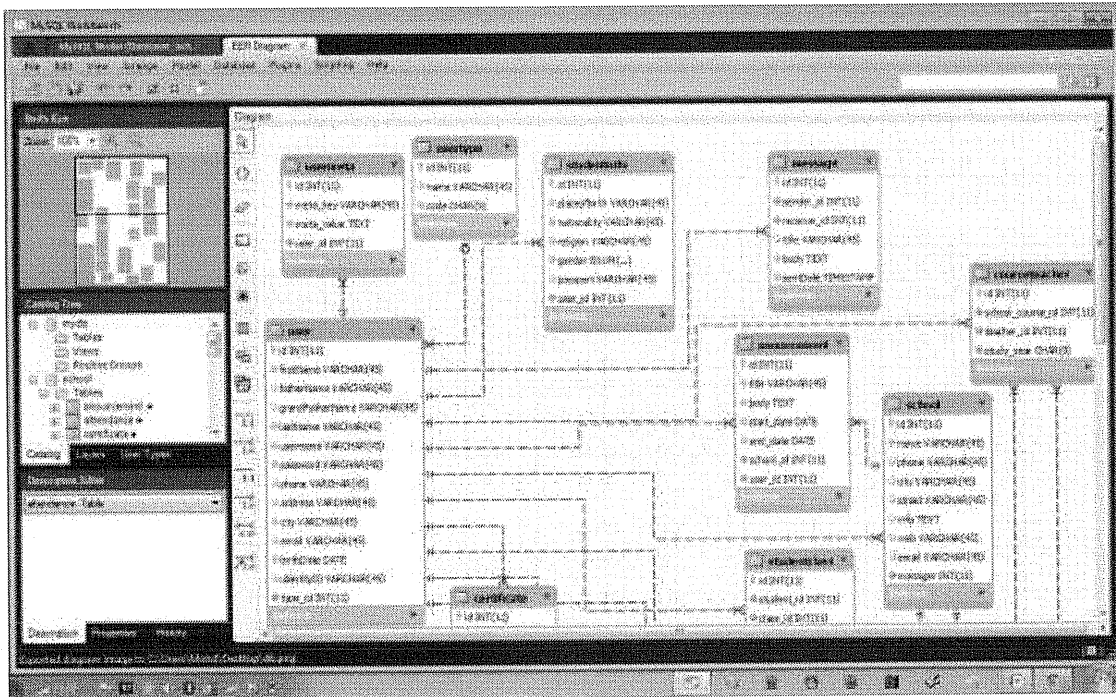


Figure 5.5: MySQL Workbench 5.2 EER Diagram

2. MySQL phpMyAdmin

phpMyAdmin is web application tool that helps managing MySQL databases through an easy web interface.

3. Web server (Apache)

Apache web server is a computer application that helps to deliver web content that can be accessed through the internet.

- **Create database:**

To create database you need to login into phpMyAdmin, then from create new database box, enter the database name in the new database text field and click on the create database button. Figure 4.6 illustrate the database creation.

- **Entry data on table:**

Enter the data in the fields and then click on the go button to store it.

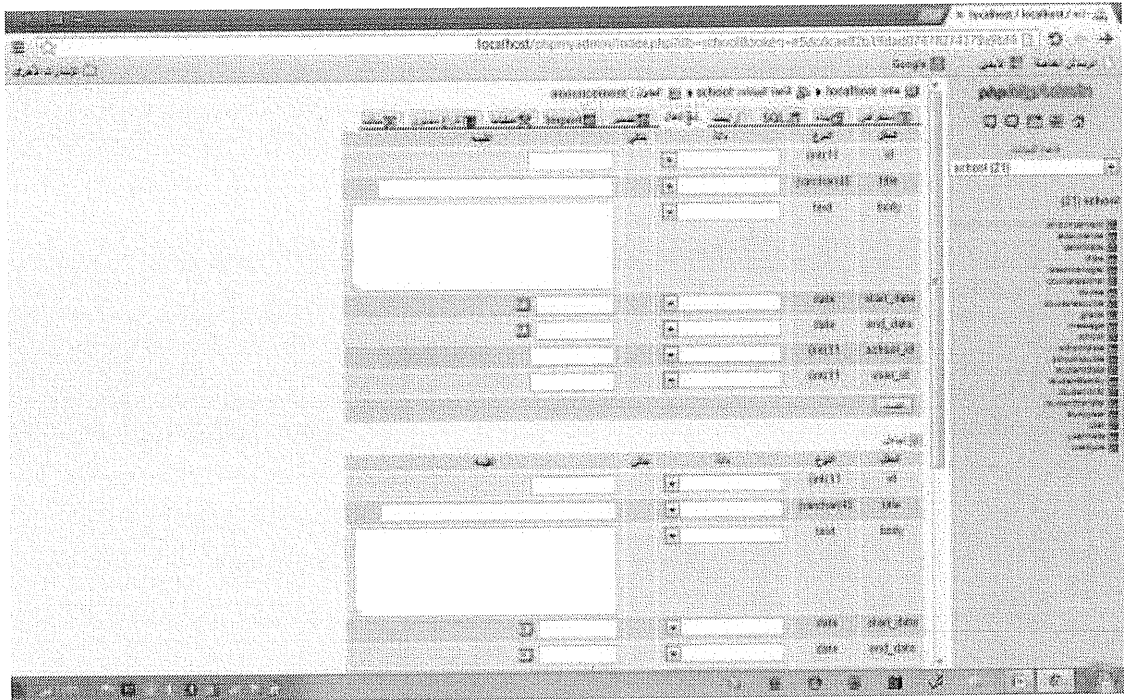


Figure 5.7: Entry data on table

5.3 System interface

- View student profile



Figure 5.8: View student profile

- Attendance report

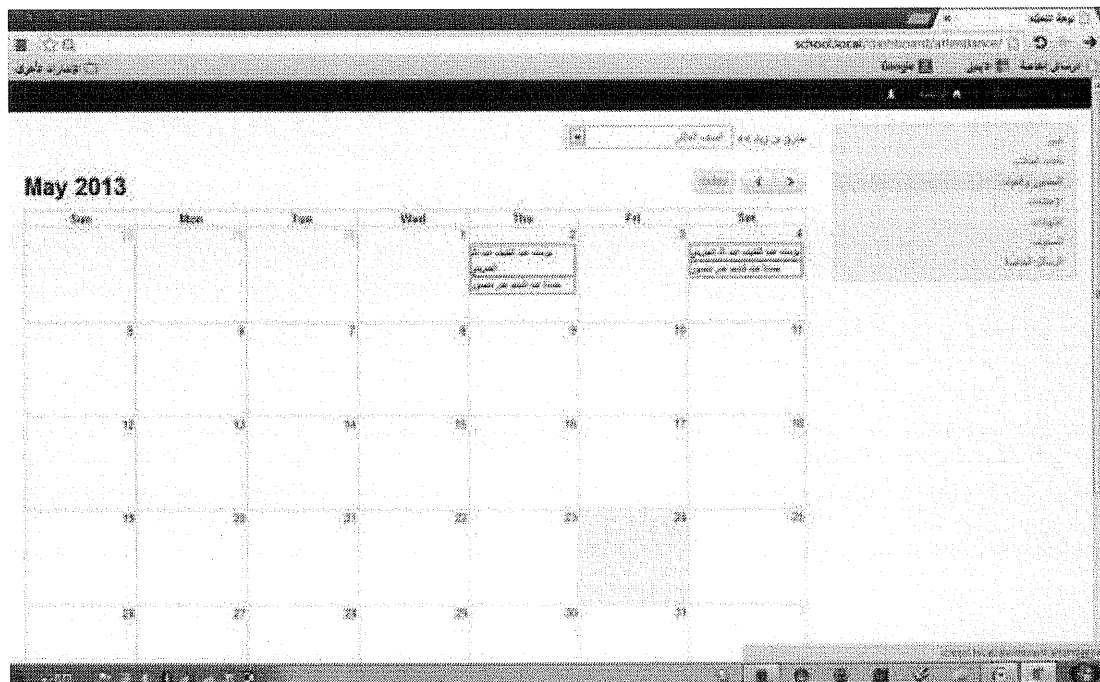


Figure 5.9: Attendance report

- Manage announcement

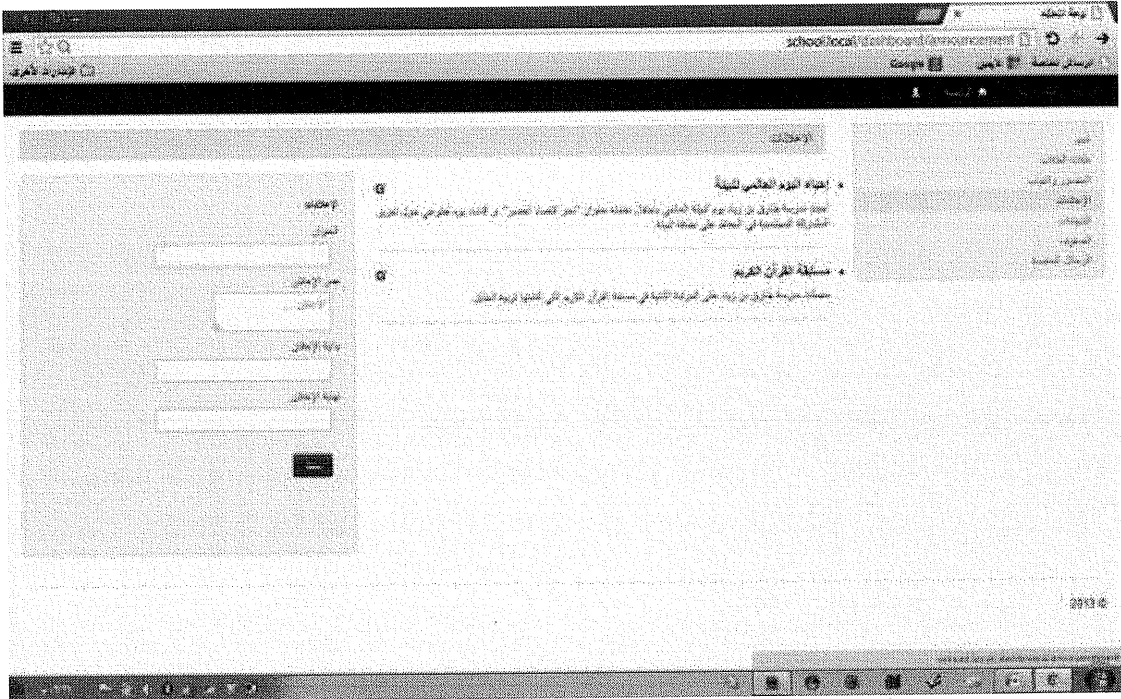


Figure 5.10: Manage announcement

- Course resource

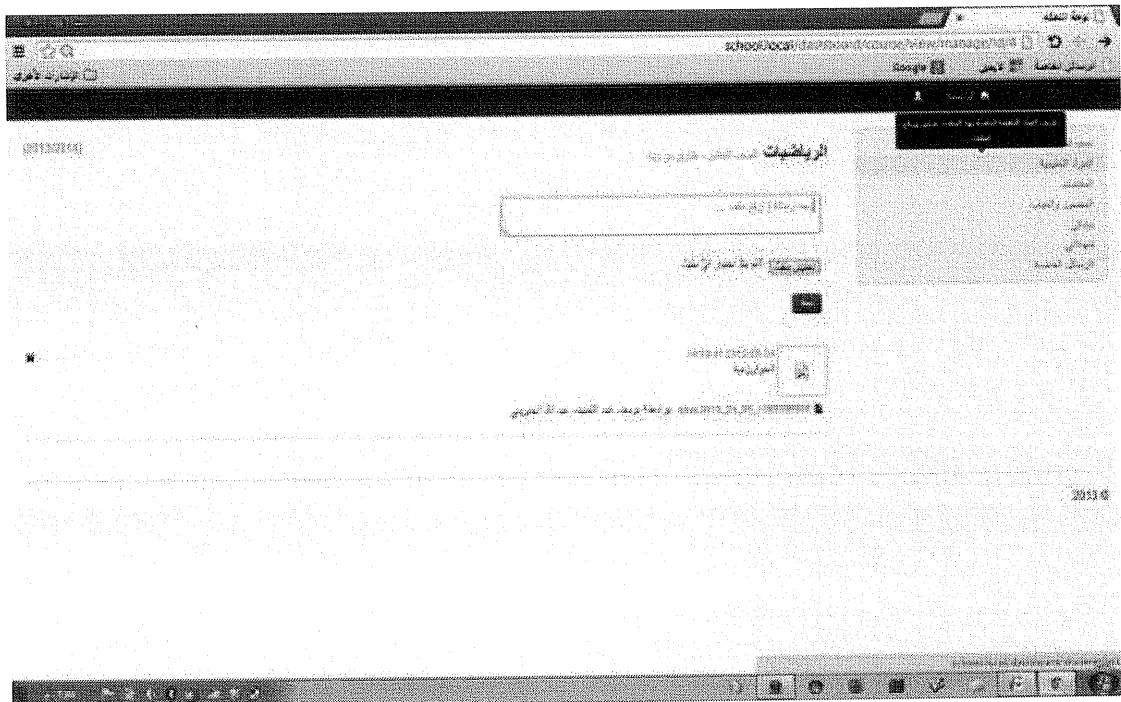


Figure 5.11: Course resource

- View marks

المادة	الدرجة	الترتيب	الوقت	التاريخ	الاسم	الرقم	الصف	الاسم
اللغة العربية	90	1	30	7	12	3	9	الاسم
اللغة الإنجليزية	90	2	20	10	15	8	8	الاسم
الرياضيات	90	3	30	8	8	9	6	الاسم
العلوم	90	4	4	9	9	8	10	الاسم
التربية	90	5	3	30	8	9	8	الاسم
التاريخ	90	6	8	8	9	8	8	الاسم

Figure 5.12: View marks

- View certificate

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
فلسطين
 وزارة التربية والتعليم
 النتائج المدرسية
 الصف العاشر
 السنة الدراسية 2013/2014

الاسم	الرقم	الصف	الاسم	الرقم	الصف
الاسم	90	90	90	90	90
الاسم	90	90	90	90	90
الاسم	90	90	90	90	90
الاسم	90	90	90	90	90
الاسم	90	90	90	90	90

Figure 5.13: View certificate

Chapter six

Testing

6.1 Introduction

6.2 Unit testing

6.3 Sub-system testing

6.4 Integration testing

6.5 System testing

6.6 Interface testing

6.1 Introduction

The testing phase is one of the most important phases that performed in parallel with coding. The importance of system testing is to confirm that the produced software satisfies the requirement.

6.2 Unit testing

Unit testing is one of the testing types that depend on separating the system into components that each one of them will be tested separately to discover any error in its code, and to ensure that each component is meet its requirement.

We start with testing each unit of our system separately, in order to ensure that it meets requirement, this is an examples of unit testing:

First example:

- Case one: in Figure 6.1 we test login by entering valid administrator name and password.
- Case two: Figure 6.2 we test login by entering invalid administrator name and password.

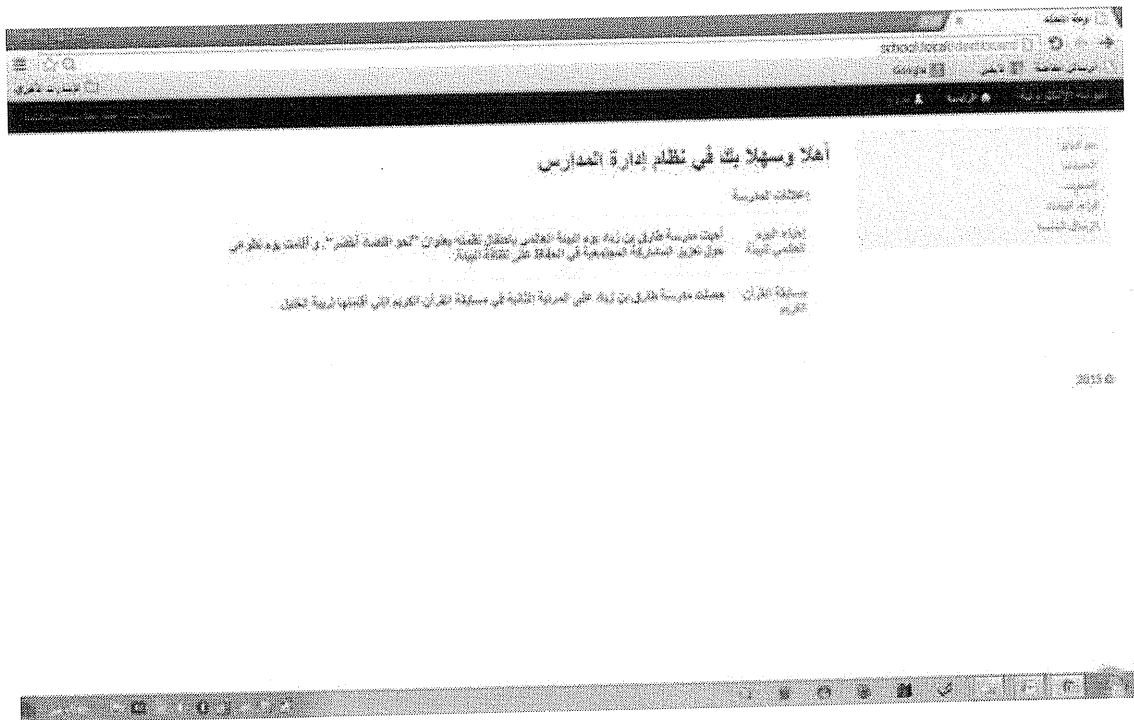


Figure 6.1: Login with valid user name and password



Figure 6.2: Login with invalid user name and password

Second example:

- Case one: in Figure 6.3 we test create account by entering valid information.
- Case two: Figure 6.4 we test create account by entering invalid data or leave the field empty.

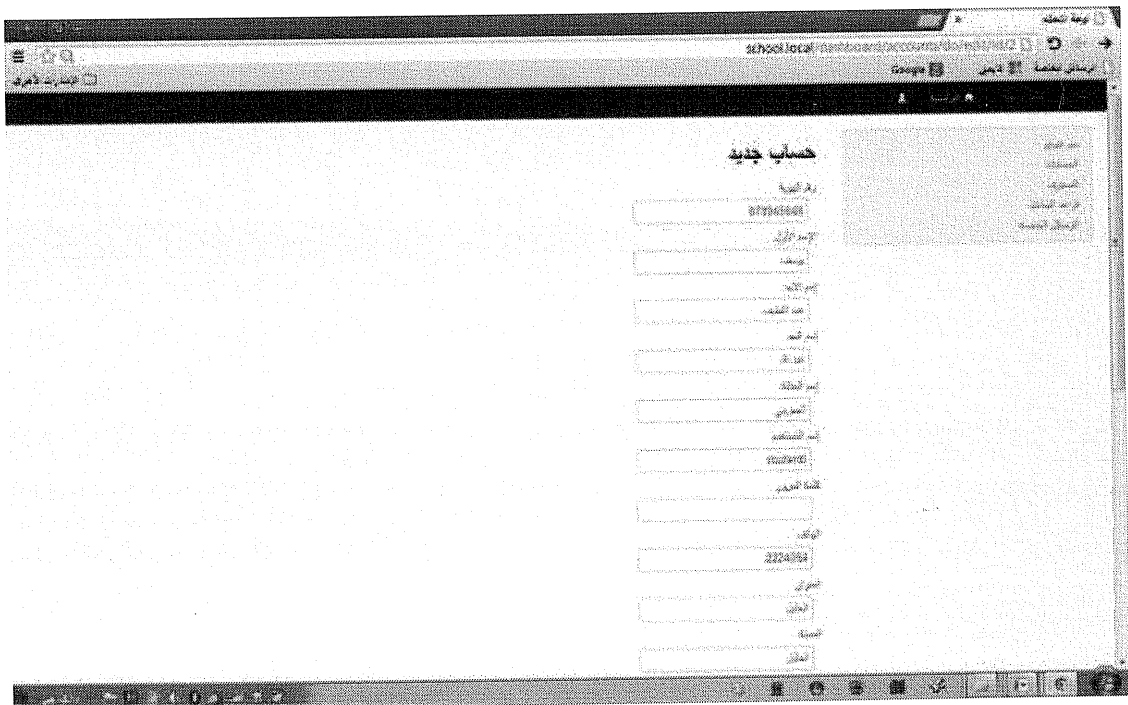


Figure 6.3: Enter valid data to create account

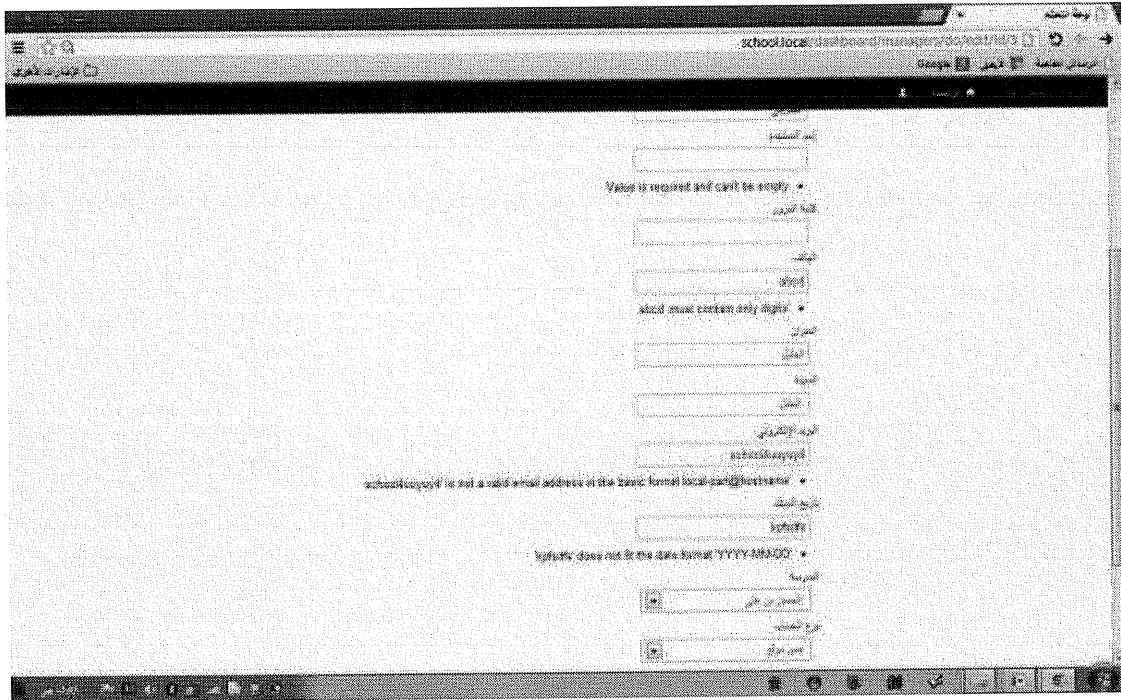


Figure 6.4: Enter invalid data to create account

Table 6.1: User login testing unit

Unit testing process	Input value	Expected Result	Actual result
Valid username and password	Type: Ministry of education Username : misistry Password: P@ssword	Data is correct	Ministry of education page load
Valid username and password	Type: Administrator Username: admin Password: P@ssword	Data is correct	Administrator page load
Valid username and password	Type: Manager Username: manager Password: P@ssword	Data is correct	Manager page load

Valid username and password	Type: Teacher Username: teacher Password: P@ssword	Data is correct	Teacher page load
Valid username and password	Type: StudentAndParents Username: studentt Password: 123456	Data is correct	StudentAndParents page load
Invalid username or password	Type: any user Username: incorrect Password: correct	Error message appear" invalid username or password"	Error message appear" invalid username or password"
Invalid username or password	Type: any user Username: correct Password: incorrect	Error message appear" invalid username or password"	Error message appear" invalid username or password"

Table 6.2: Create account testing unit

State	Input value	Expected result	Actual result
Valid data	User information	Data is correct	The account will be created
Invalid or empty data	User information	Validation messages will appear " value is required"	Validation messages will appear " value is required"

6.3 Sub-system testing

Subsystem test is another testing type that used on testing the related system components, we can test it without other system components.

1. Ministry sub-system

We test the ministry functions that operate through the ministry of education page to make sure that they satisfies their specification, also we make interfaces testing about how it appears.

2. Administrator sub-system

We test the administrator functions that operate through the administrator page to ensure that they satisfy their specification, also we tested the interface how it appears.

3. Manager sub-system

Here we tested the manager functions that operate through the manager page to ensure that they satisfy their specification, we also tested the interface how it appears.

4. Teacher subsystem

Here we tested the teacher functions that operate through the teacher page to ensure they satisfies their specification, we tested the interface how it appears.

5. StudentandParent sub-system

Here we tested the StudentAndParent functions that operate through the StudentAndParent page to ensure they satisfies their specification, and also we tested the interface how it appears.

- Example for administrator subsystem testing:

The following screens represent subsystem testing for administrator page where we test add teacher account. If the admin login to the page with correct username and password the system forward him to main administrator page, then admin can teacher account that meet the conditions.

- Add new StudentAndParent or teacher account



Figure 6.7: Add new StudentAndParent or teacher account

- Update StudentAndParent or teacher account

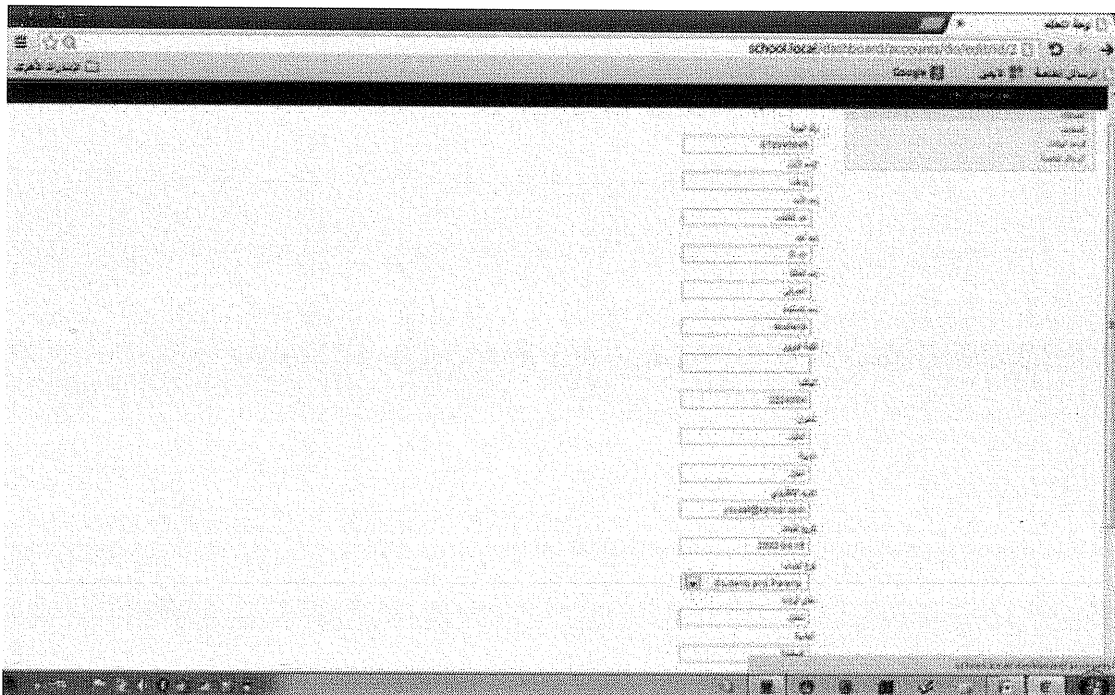


Figure 6.8: Update StudentAndParent or teacher account

- Add, update StudentAndParent or teacher families account

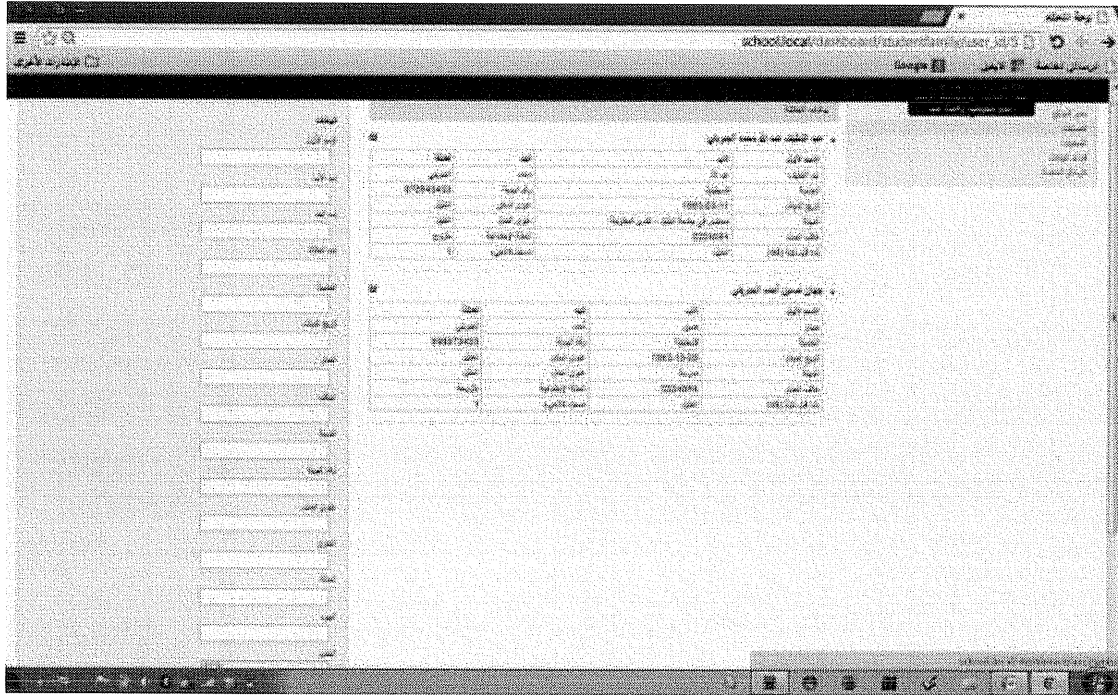


Figure 6.9: Add, update StudentAndParent or teacher families account

- Manage classes



Figure 6.10: Manage classes

- Add classes

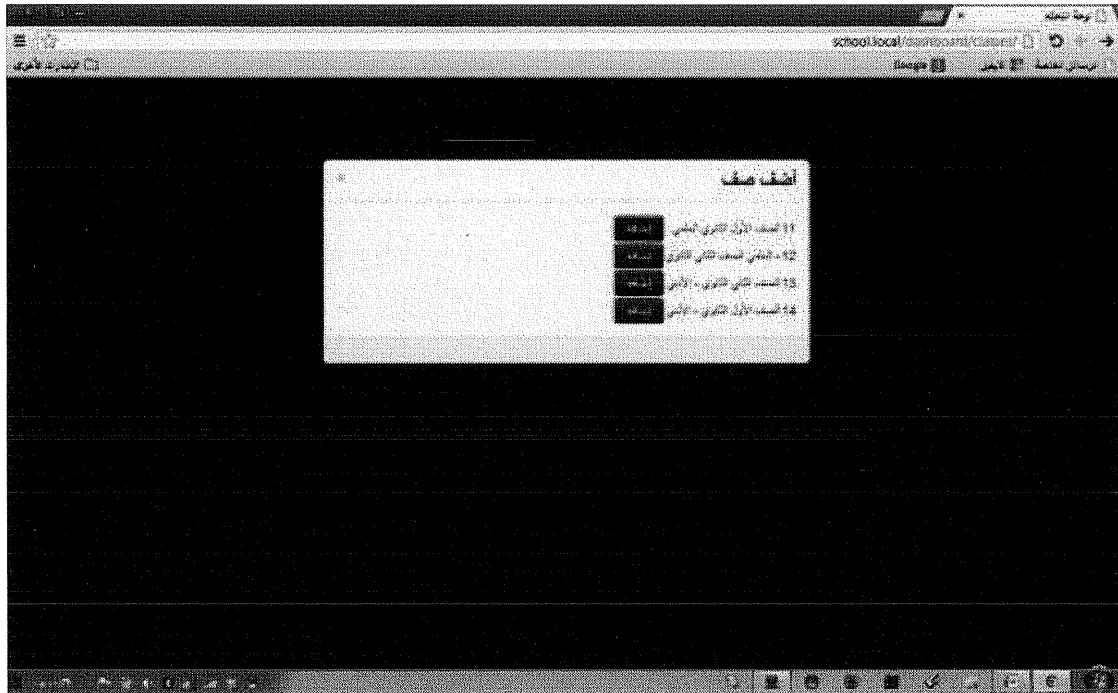


Figure 6.11: Add classes

- Course teacher



Figure 6.12: Course teacher

- Add course

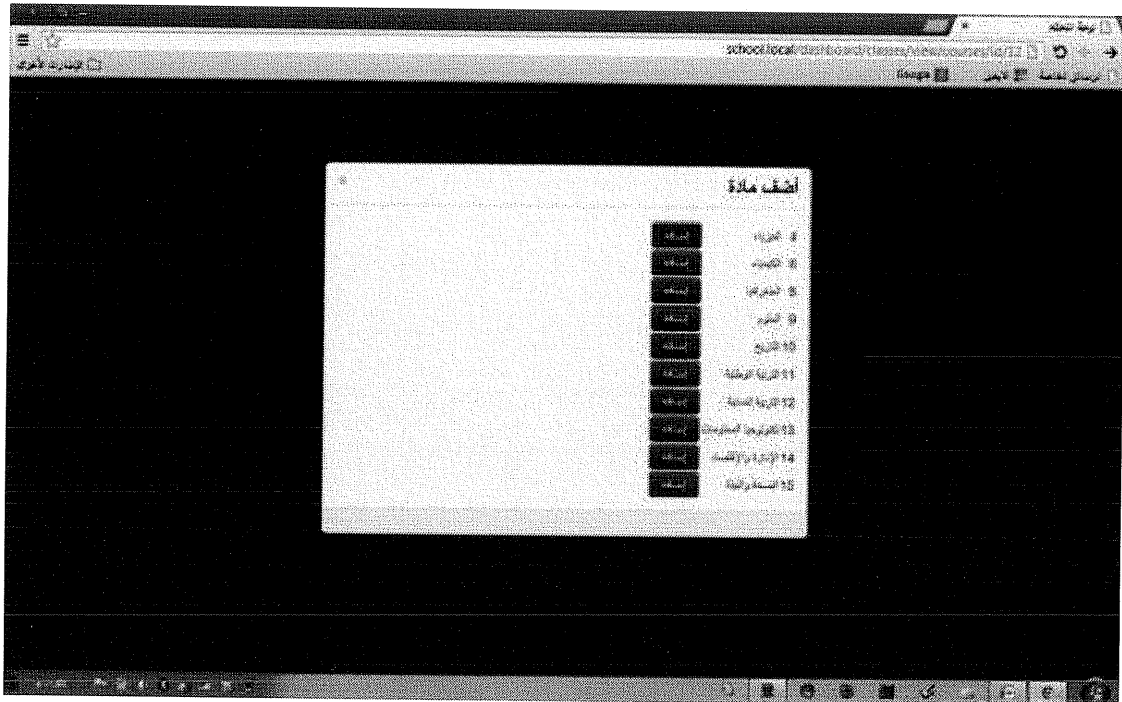


Figure 6.13: Add course

- Class manager

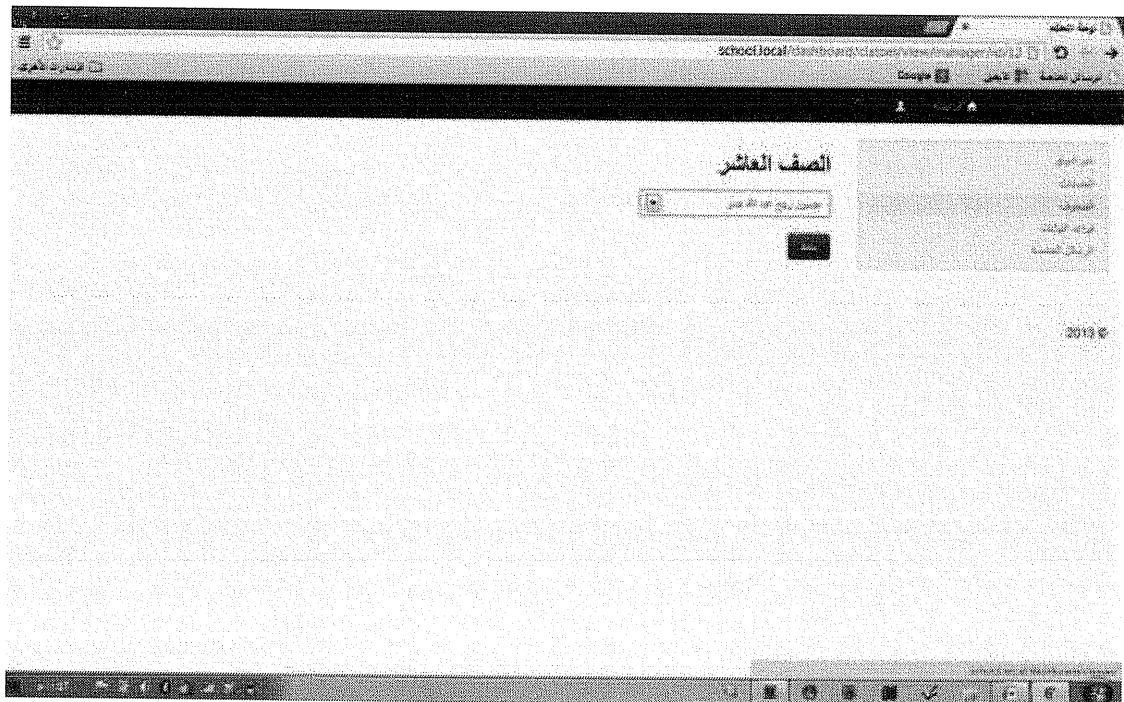


Figure 6.14: Class manager

- Manage student in class

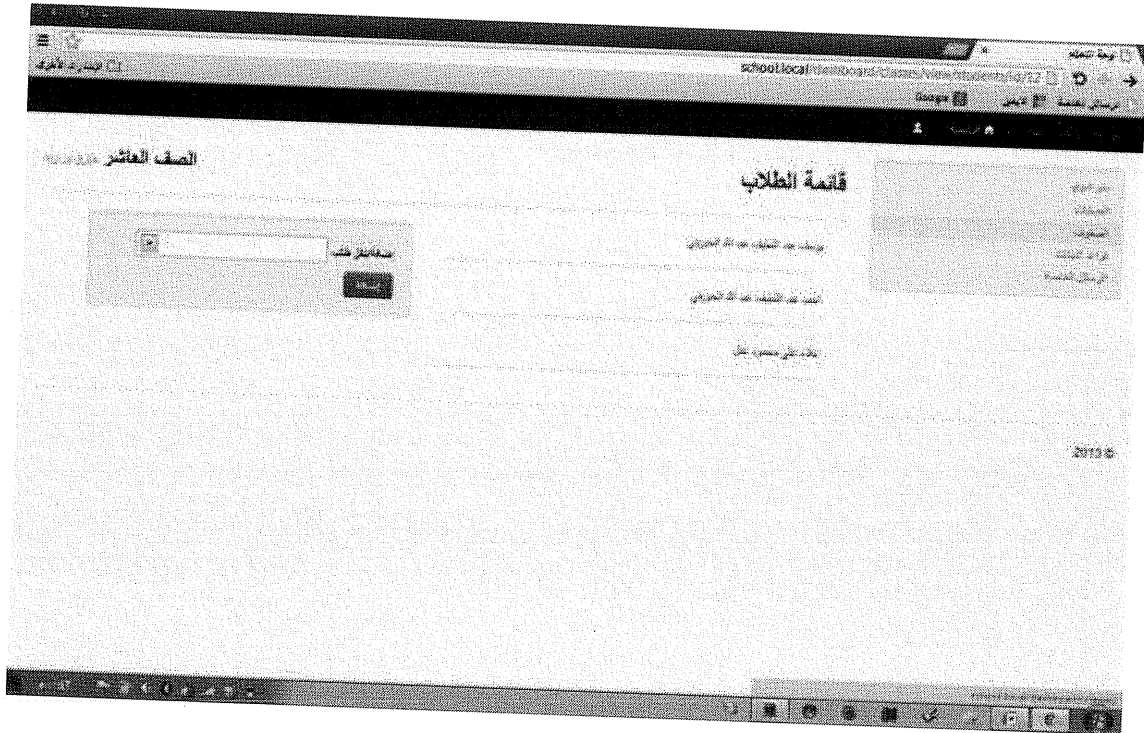


Figure 6.15: Manage student in class

- Backup

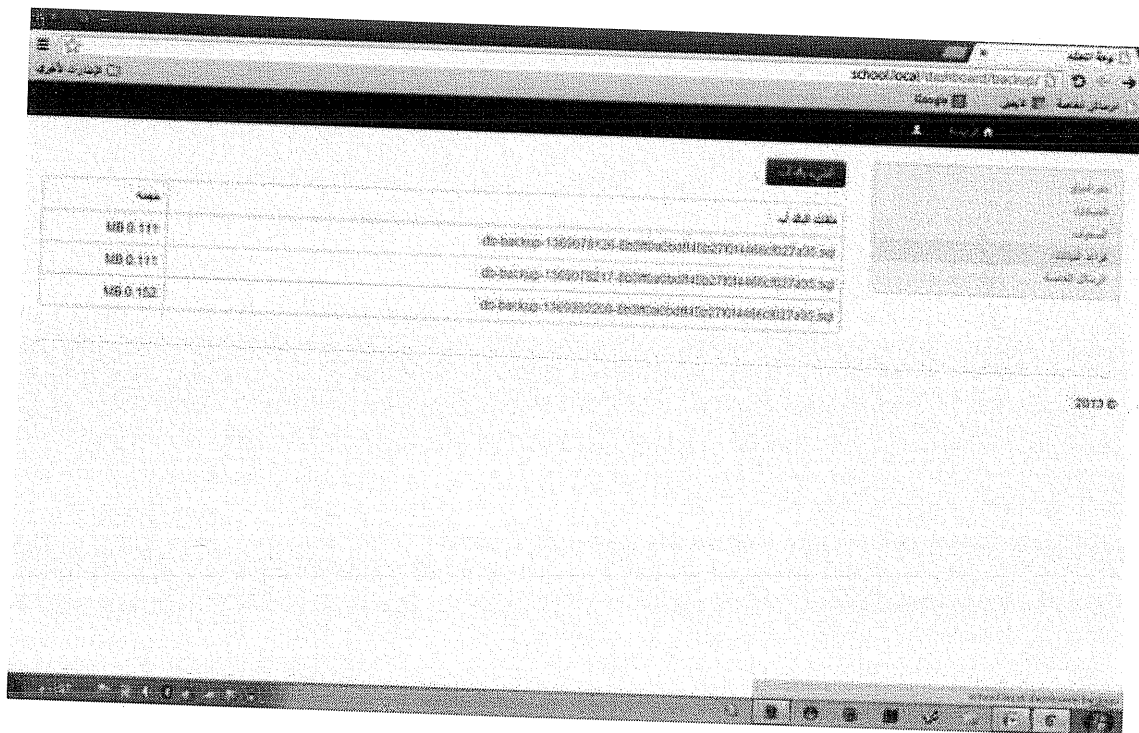


Figure 6.16: Backup

- **Private message**

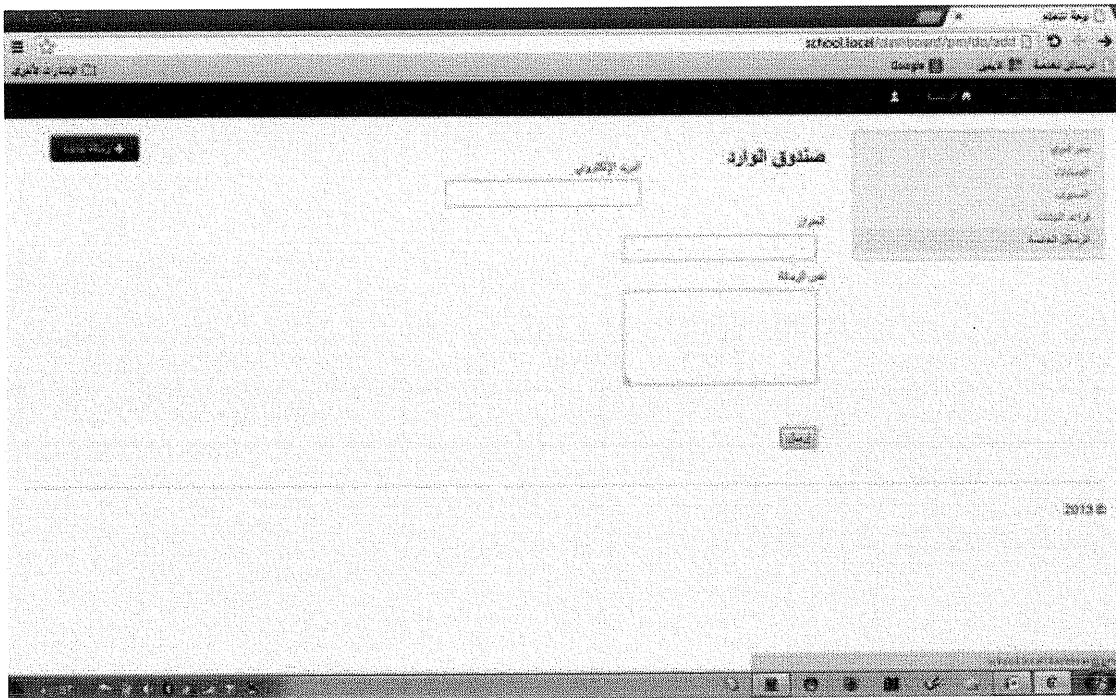


Figure 6.17: Private message

6.4 Integration testing

At this testing type we tested all modules as a whole system to make sure that the system satisfies its requirement and specification.

6.5 System testing

At this testing type we tested the system to make sure that the systems operate as we expected and satisfies its requirement and specification.

6.6 Interface testing (Snapshots)

We will display some of the actual snapshots related to the system.

- Ministry snapshot



Figure 6.18: Create user account successfully

- Manager snapshot

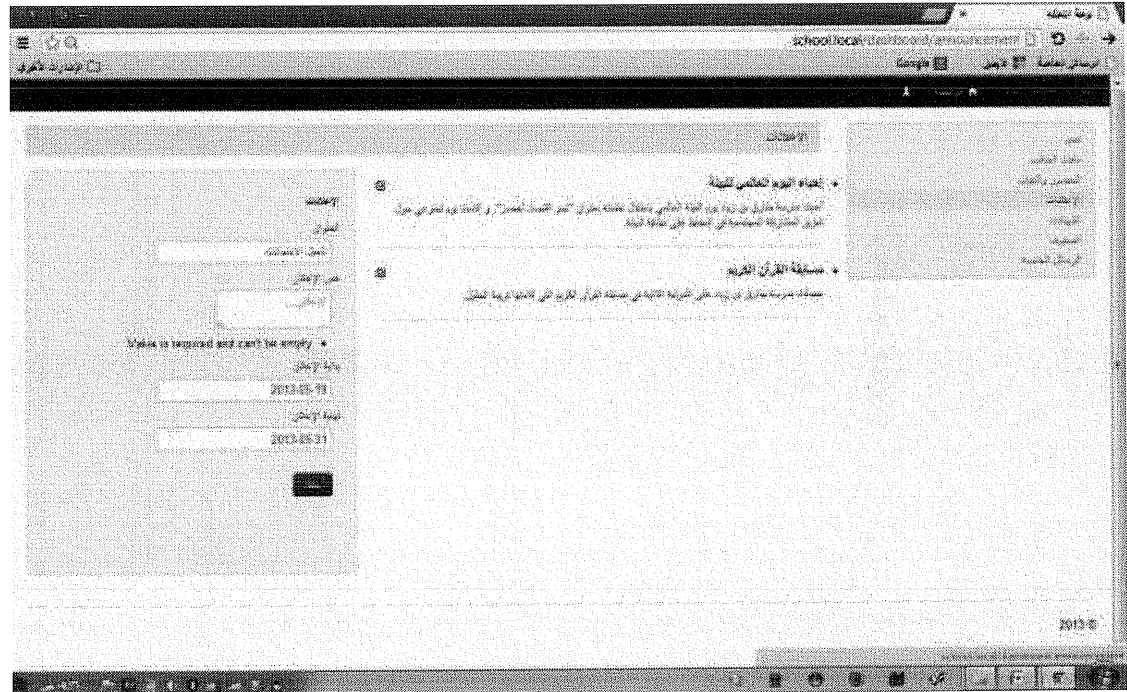


Figure 6.19: Invalid create announcement with empty field

- Administrator snapshot

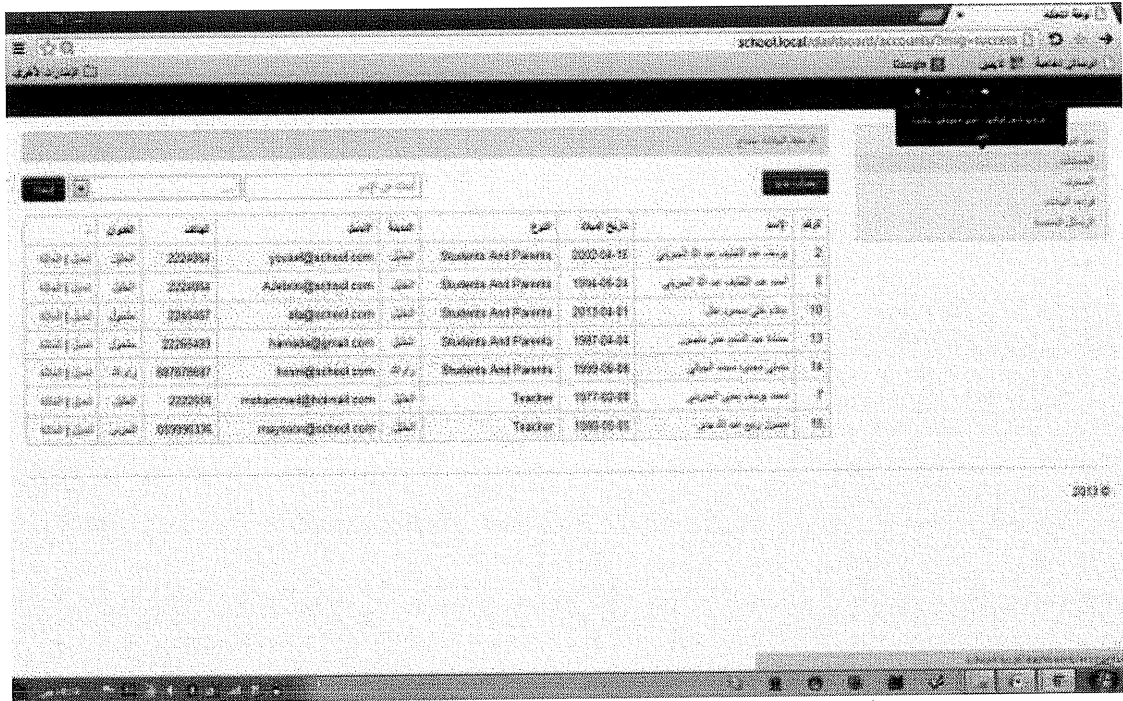


Figure 6.20: update user account successfully

- Teacher snapshot

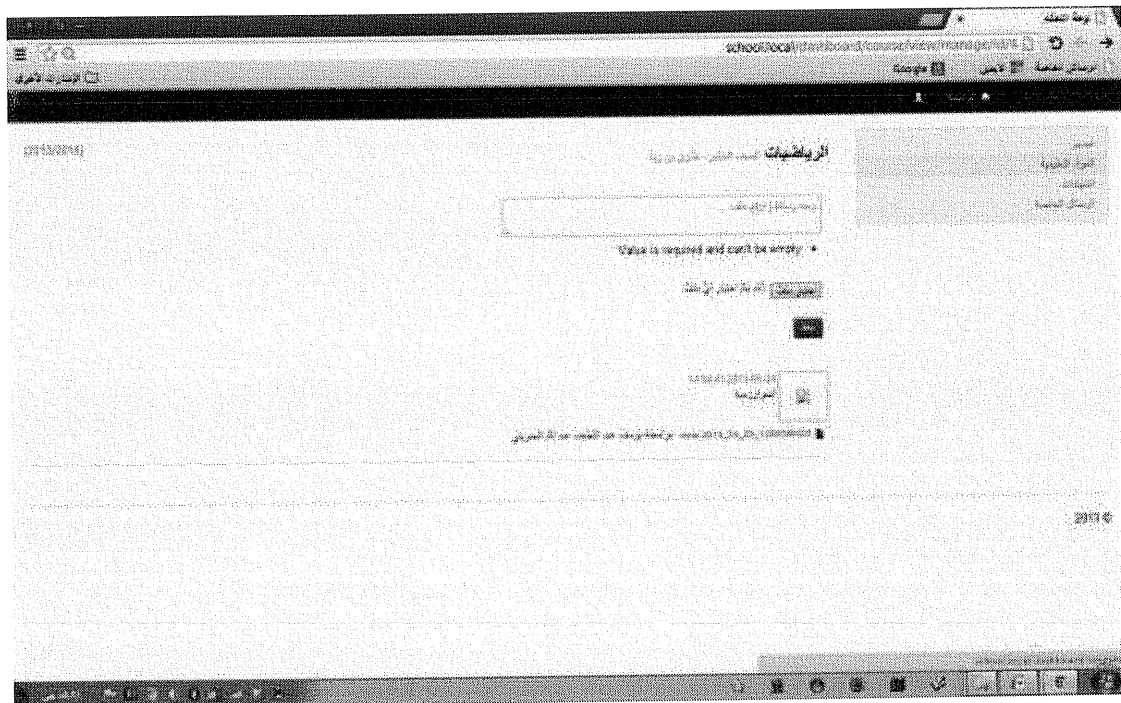


Figure 6.21: Invalid upload file with empty value

Chapter Seven

Maintenance

7.1 Introduction

7.2 Maintenance plan

7.3 Migration

7.1 Introduction

The system maintenance represents a final stage of the project life cycle, where we can move the system to work in the real environment.

In this chapter we will describe the process of:

- Maintenance plan.
- Migration.

7.2 Maintenance plan

When running the system in the work environment there is a probability of occurrence of some errors, problems, and failure that must be avoided, so it was necessary to develop a maintenance plan to maintain the system, which includes:

1. Backup

Any changes made to the system must be stored constantly in fear of the occurrence of any defect causing loss, we should keep the data by take a backup for the system and database periodically. The backup copy stored on offline storage media such as: CDs, Flash memory ...etc.

2. Upgrade system

At this process we can make changes on the system to increase its effectiveness.

7.3 Migration

The system must be preceded by certain steps before deployment it, to be work effectively and efficiently within its environment. We will describe here the steps that the migration should be passing:

1. Establishment of the production environment:

In chapter three we are described the minimal requirements of deploying this system, and the needed configurations for the machine running the system are described in chapter five (System implementation). For example, the system must have a Zend Framework to operate the system.

2. Deciding to deploy the new system:

A decision of the deployment the new system must be taken with the plan of the deployment and the migration to this new system, we say that our system works well as it should be and cover our requirements. The system can operate immediately when the school has the minimal requirement and suitable environment to operate it. The way of migration depends on the schools that wish to deploy this new system.

3. Running the system:

The aim of having the new system is to work on it, after complete the system it can be running.

Chapter Eight

Conclusions and Recommendations

8.1 Introduction

8.2 Conclusions

8.3 Recommendations

8.4 Overall evaluation

8.1 Introduction

After system implementation is completed, we have reached to a set of conclusions and recommendations that may be improved it in the future. In this chapter we will list a number of conclusions and recommendations we have reached.

8.2 Conclusions

- E-School as a system has enhanced some of the processes that are done in traditional paper work.
- Save time and effort for the users of the site: Ministry of education, Administrator, Manager, Teacher, StudentAndParents.
- The system is easy to deal with it, because it is not contain any complexities that confuse the learner.
- The system makes the learning process easier.
- Develop the system in part of connect the Ministry of education with the schools completely.
- System provides administrators the ability to backup their data at any time.

8.3 Recommendations

The team recommends several points for who wanted to the make development on the site:

- Develop the system to support couple terms in each year.
- Generate more advanced reports and data analysis to help the education sector.
- Help schools in adapting this application that facilitate their daily operations.

- Develop an examination module for the schools to perform an online exams for the students.

8.4 Overall evaluation

- E-school system is easy to use for ministry of education, students, teachers, managers, and administrator.
- The system can change the current traditional system into modern technology system.
- The system response to teachers and students needs to improve the learning process and make the communication between them easier.
- The system allows the parent to follow their children and follow the academic situation for their children.
- The system makes the transfer process of the student from school to another easier for the student and the ministry of education by making this process done electronically.

Referances

1. James Rumbaugh, Ivar Jasobson, and Grady Booch, *The Unified Modeling Language Reference Manual*, Addison-Wesley, Reading, MA, USA, 1999.
2. Shekar Ramanathan, Reverse Engineering Relational Schemas to Object-oriented Schemas, Technical Report No. MSU-960701, Mississippi State University, 1996.