DESIGNING A PROTOTYPE FOR ABDULLAH BIN SAUD SCHOOL WEBPAGE

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DESIGNING A PROTOTYPE FOR ABDULLAH BIN SAUD SCHOOL WEBPAGE

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By

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ABSTRACT

Content management systems for the educational environments presents the suitable solution for indicating and managing students, teachers, and staff activities based technology. This study focus on the different issues in managing and determining the school and users performance in Abdullah Bin Saud School. The school lacking to provide the suitable managing services for its contents based on online services. Thus, this study was found to design, develop, and evaluate a website application for Abdullah Bin Saud School (ABSS). SDLC Prototyping Model was used in this study to design, develop, and evaluate the proposed system. As well, PHP and MYSQL were adopted for building the ABSS website. After all, an evaluation was conducted with 30 students to indicate their perceived ease of use and usefulness towards the use of ABSS. The results show that participants were found ABSS to be ease and useful to use.

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CHAPTER ONE

INTRODUCTION

This chapter introduces the main idea of this study towards the design and develops of web-based school management system for Abdullah Bin Saud School. Meanwhile, this chapter also provides an answer of the question why the study was conducted and what is the main element involved in the study. The chapter describes the overall idea in this study through the scenario and the introduction that lead to the implementation of the whole project. This is followed by the problem statement, objectives, scope, and significance of the study. Meanwhile, this chapter also elaborates the way this project is organized.

1.0 Introduction

Nowadays with the rapid progress of technology, especially in the field of computers, a lot of attractive web application-with high resolution of pictures, sounds and pleasant designs-have been introduced to the schools for managing their student details and studying stats, which are widely accepted by school administrators. In recent times, there have been proliferations of web application which are easily available via internet. Generally, web application have their own fans and enthusiasts whereby their number is rapidly increasing and people as shown in Figure 1.1 [1] of all ages do participate in web application for managing contents [2].

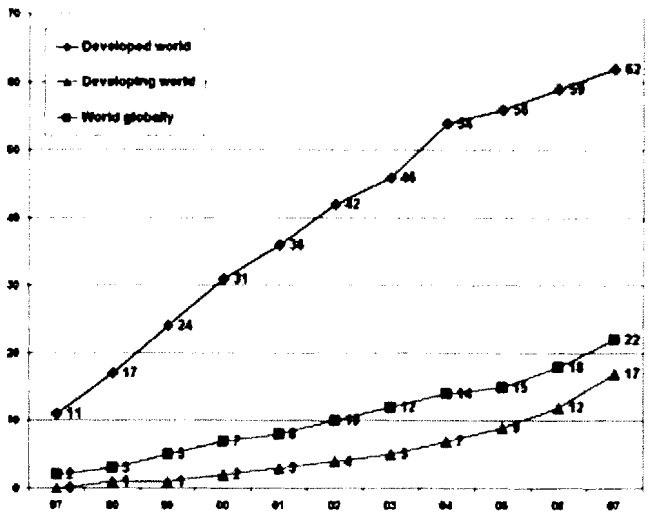

Figure 1.1: Internet Usage Increscent [1]

Student, especially from the school are no exception to this [3]. In spite of being busy with their school work, they are often engrossed in the participation in classes, which some of them unwilling to attend most of these classes [4].

The development of computer technology in the field of learning has played an important role in providing both teachers and students with more capabilities and flexibility in learning and teaching practices. Using computer technology to enhance teaching and learning process is not a new phenomenon. Recently computers have been used extensively in schools to enhance the process of teaching and learning [5].

Hence, the term information technology has been adopted in many countries to describe and encompass the range of applications of computers in motivating the end users to interact with the contents. The motivational effects of educational technology on teaching and tracking student's performance aim to justify the main needs of those students and how to reflect it into a meaningful application. It also embarks on the teacher's attitudes and perceptions towards computer. As explained in [6] the relations of a study relating to observing their knowledge

towards a certain topic, confirmed that their findings show some successes in academic progress and motivation in reading and understanding contents that inspiring encouraging student attitude toward the computer assisted means of instruction and learning [6].

In the present age, with the progress of knowledge and technology, in particular in the area of computer science, web-based school management system has allocated itself to the student's life, and simply can be said that it has been an integral and inseparable portion of some learning environment procedures [7]. This pervasiveness can be clearly observed even in adults' lives or among student. Consistent with improvements of exceptional techniques, the phenomenon of web-based school management system has taken the new figures, and day by day are offered more pleasant, with much more better quality. While web-based school management system dedicated huge occupation in different learning environments, and companies producing are earning large annual revenues through supplying such services in order.

Even though, a number of researchers as stated in [8-10] believe that computer technology have destructive effects and will follow the negative consequences for student, so many studies and researches were conducted, regarding to the beneficial effects of web-based school management approving the positive effects of web-based school management system, and investigating about the development and evolution of such systems, which involved in investigation on advance impacts lying on various aspects of student's activities outside the learning environment [11].

However, in different schools, web-based school management system adopted generally for initialize the possibility of enhance students performance in learning subjects, which emphasis the importance of applying technology into learning [12]. Most of these technologies present web-based school management systems that need to provide suitable theoretical models to occupy a certain subjects in term of its factors [13].

The rapid development of using a web-based school management system in different learning and teaching fields have been developed accordingly to serve a certain learning purposes. Nowadays, web-based school management system based learning has integrated to serve and help students to learn in interactive way. Therefore, it is no longer possible to have a single method to learn a certain topic. In addition, the way of tracking the student learning performance based on other technologies are a hugely popular and successful methods to for getting the students satisfaction [14].

Also, the current capability of the modern web-based school management system involves the development of student capability to learn faster and easier that can be composed k formation of knowledge along with specific learning style [15].

In this section of the study, we refer to the part of design and develop a web-based for Abdullah Bin Saud school management system on the fields mentioned above. As well, our goal, is endorsing these endeavors toward the optimization of web-based school management system to facilitate the process of managing students activities and attendances and communicate with parents to enhancing the student's learning performance.

1.1 Problem Statement

Saudi student are exposed to various kinds of personal activities that effects on their performance in classes. Some school students in Saudi schools are unwilling and not interested to take part in the learning activities that school offer to them. Regardless of other elements such as friends, interpersonal problems, and student behavior, and other social problems, nowadays about the advantages and disadvantages of tracking student activities and attendance, there are

so many discussions and a large amount of research has been done to indicate the importance for monitoring their activities while they are in school [16-17].

Nevertheless, the traditional method of using the manual record system is mostly not efficient and requires time to arrange record and to calculate the average attendance of each individual student in order. Moreover, most of parents are complaining about the performance of their children while they are in school, this can be seen when student facing a difficulties to perform and solve their tasks correctly, the reason back to that students are not attending activities in the classes normally, which effects on their performance.

The motivation for the develop a web-based management system for Abdullah Bin Saud school in managing teachers and students information may help to overtake the main issues of using the traditional methods by focusing on the way of determining the requirements to design and develop the school management system rather than using the traditional method. From other hands, an online management system aims mostly to customize the requirements in what the user capable to perform a certain tasks remotely. Thus, this study aims to design and develop a web-based school management system for managing the school activities and over online. Such that the administration can strive to develop its rules of procedure, to facilitate the process of managing students attendances and communicate with parents and the implementation of student activities The study will be assigned to Abdullah Bin Saud School in Saudi Arabia.

1.2 Research Objective

The prime objectives of this study are:

- To construct user requirement of the web-based school management system.
- To design web-based school management system for Abdullah Bin Saud School.
- To develop and evaluate the proposed system.

This model implies that when a new software package will given to the users, "perceived usefulness" and "perceived ease of use" impact their determination s about how and when they will use the new software. Lately, various studies have been carried out by using the TAM in order to investigate the usage of IT. Davis, Bagozzi, and Warshaw (1989) examined the Theory of Reasoned Action (TRA) with TAM to find out "combination factors of the two models with the purpose of being delivered more complete sight of what will determine the users' acceptance." Taylor and Todd (1995) compared the TAM model with two adaptation s of the Theory of Planned Behavior (TBP) to conclude which model is the most helpful in understanding the technology usage [18-19].

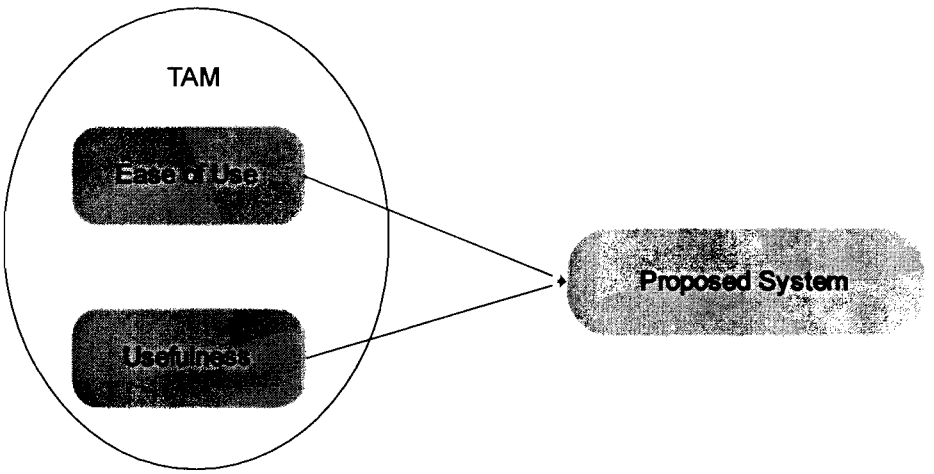

Figure 1.3: Theoretical Framework

The prolific stream of research on information systems use takes a variety of theoretical perspectives. Of all the theories, the Technology Acceptance Model (TAM) is considered the most influential and commonly employed theory for describing an individual's acceptance of information systems. TAM, assumes that an individual's information systems acceptance is determined by two major variables:

- Perceived Usefulness (PU)

- Perceived Ease of Use (PEOU)

During the past years, the information systems community considered TAM a parsimonious and powerful theory [20-21]. TAM has been applied to different technologies (e.g. word processors, e-mail, WWW, GSS, Hospital Information Systems as well as computer and video games) under different situations (e.g., time and culture) with different control factors (e.g., gender, organizational type and size) and different subjects. Currently, researchers consider TAM as one of the most functional methods in analyzing the gained data [22]. Therefore, the present study will analyze by utilizing this method. The questionnaire is which will be collected from a certain number of students at UUM towards the using of Web-based school management system.

1.6 Research Significance

This study will provide the school manager or administrator with the following:

- Helps administrator to observe the students activities and attendances and check their daily performance.
- Provide school administrator with the ability to manage the student details.
- Enable school administrator to generate different reports about the student activities.
- Track and notify parents in case of student absent.

1.7 Research Structure

- Chapter 1: This chapter gives a background, necessary for the understanding of concept used in later chapters and overview of the research.

- Chapter 2: This chapter discusses about literature reviews, previous related work and challenges, and more information to understanding the research.

- Chapter 3: This chapter discusses the methodology that has been used in this project.

- Chapter 4: This chapter discusses analysis and design prototype model.

- Chapter 5: This chapter provides the result discussion by present the result of analysis the questionnaire.

- Chapter 6: This chapter discusses conclusion, recommendations and future works.

1.8 Summary

This chapter explains in detail about the background of the study and the research problem that needs to be solved which gives motivation to this study. The objective of this study is to design, develop, and evaluate an web-based school management system for Abdullah Bin Saud School...The related literature review will be discussed in the next chapter.

CHAPTER TWO

LITERATURE REVIEW

This chapter discusses some literature for this study. The literature contains previous works in the design of requirements system. Section 2.1 presents the web based application components among the web client and server, in section 2.2 presents adopting technologies in education, in section 2.3 Short Message Services (SMS) Management System, in section 2.4 presents GSM Mobile Phone, in section 2.5 presents Gateway.

2.0 Introduction

In the present age, with the progress of knowledge and technology, in particular in the area of computer science, measuring performance has allocated itself to address and report the personal activities, and simply can be said that it has been an integral and inseparable portion in student performance during learning. This pervasiveness can be clearly observed even in adults' lives or among student. Consistent with improvements of graphical techniques, the phenomenon of student absence has taken the new figures, and day by day are offered more pleasant, with much more better quality. While Student absence dedicated huge issue for themselves and parents, which illustrates the needs for a suitable tools for tracking the student activities and attendance in school.

Providing a web-based management system for schools have been utilized as part of the learning and teaching process throughout the ages [23]. Integrating such systems into the school could help to manage the teachers and students information and other students who are hardly be tracked during his or her learning process [24], but even at the college and corporate level instructors recognize the value of these systems to obtain a specific needs [25]. Web services

based techniques are generally excluded from this treatment because of what educators often think of as their negative influence on users who use them, from the negative social effects to developing an addiction on the medium.

On the other hand, developing web-based management system for schools could highlight the essential needs for such services during the period of study, which presents a social activity for those students [26]. Based on a study by [27], student who attended and use other learning technology as part of their classroom activities were more likely to select other recreational activities during their recess period [27].

2.1 Web-Based Application

Definition of the web is a technique for sending and retrieving client request based on certain protocols (TCP/IP). Web application can be developed and build to present a specific needs which can be accessed over online (Internet) such as management systems or other learning environments [28]. Merging these techniques into school systems are mostly intended to specify the new updates of building and maintaining the web contents have generate new presentation of these contents. Figure 2.2 presents the web based application components among the web client and server, which mostly involves the client, applications, and the database components for saving and retrieving data.

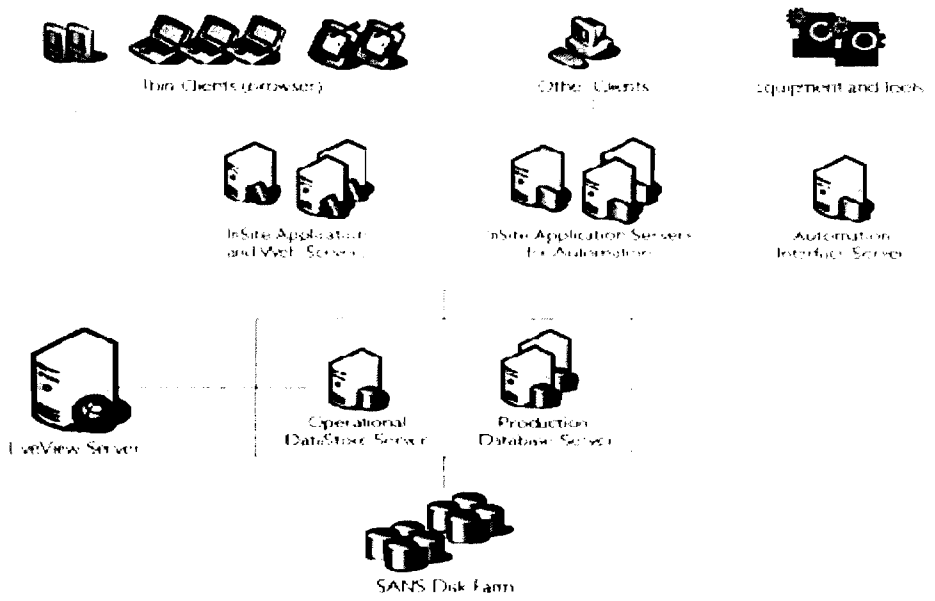

Figure 2.1: Web Base Applications

2.2 Adopting Technologies in Education

The suitable technology and the media tools provide the easy way to realize a Web-based animation, such as a Java-applet, which can be executed platform-independently within Web browsers all over the world [29]. The general architecture of such an animation applet is shown in Figure 2.2. Core of the animation applet is an animation engine, which has the task to compute state transitions of the animated dynamic system. Principally, there exist two realization alternatives for an animation engine [30].

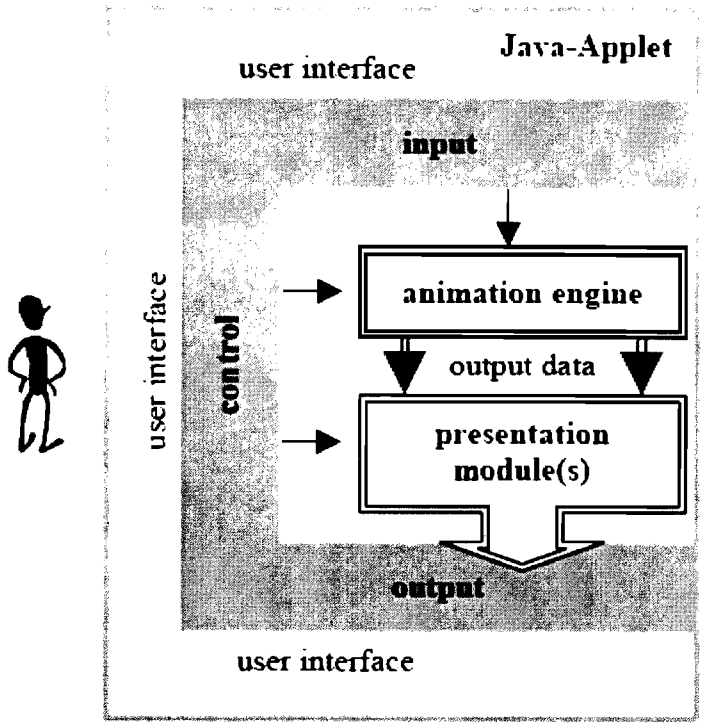

Figure 2.2: General Architecture of an Interactive Web- Based Animation [30]

Animation engine is to transitions of the animated system. Most of the interactive animation requires a full implementation of the state machine (algorithm), which drives the animated system. However, the interactive animations can be able to compute only a (limited) subset of all possible sequences of the transaction in order[31]. The main reason to use these animations in the learning or other fields is the low price to realize as a complete one. As shown in Figure 2.2, the figure provides three main parts:

- The first part of the interactive architecture is the input part, this part assess the animations that need to control in the next part.
- The seconded part is the control part to interactively control (start, stop, switch into a step mode, etc.) which work to process the incoming animations, and to produce the output in the next part.

- Output part to observe the state changes of the animated system but also to examine statistical data about the animation after it has finished.

2.3 Short Message Services (SMS) Management System

The relevant technologies in transferring client and server request such as Open Service Gateway Initiative (OSGi) addressed the importance of these tools to carry out other computing concept, which shifts the paradigm that physical space can communicate with electronic space through computer and network anytime and anywhere, this kind of services Gateway has been integrated in several application and is being spread rapidly to diverse domains [32]. Therefore, some organizations involve SMS services as enable tools for certain network technologies that apply to this trend in different networking area [33].

An example of adopting this service into school is to simplify the first year school students to linking their ideas with each other in more inspiring way and improve their level of thinking towards using technology [34].

SMS Management System presents the conceptual structure for sending and receiving text messages over servers. The integration of mobile technology with information management system has generated the justification of employee such as services in direct sales, network marketing, reservation systems, and so on [35]. Reservation systems and other network marketing sector employ these tools for generating the user or customer satisfaction. Otherwise, implementing these services expand concept in network marketing.

However, the current connection with distributor is an opportunity to introduction SMS as a fast and cost saving tools with toughing able tools. SMS services for reservation and booking services or other communication needs presented by two ways SMS that able to send and receive SMS by distributors and company itself [36]. Data warehouse which associate with

stock management system, purchase system and bonus calculate provide updated information to distributor anytime and anywhere the distributor retrieve it by SMS messaging. A percentage based on the network accessing of signal services would be their compensation, in addition to personal needs [37].

SMS text messaging is the most exciting and cost effective direct marketing and connecting method available to direct these needs based on environment requirements and network qualifications which helps to improve market response, add value to DRM (distributor relationship management) strategy, and increase recognition of marketing product [38]. Figure 2.3 presents the mobile SMS services based gateway technology.

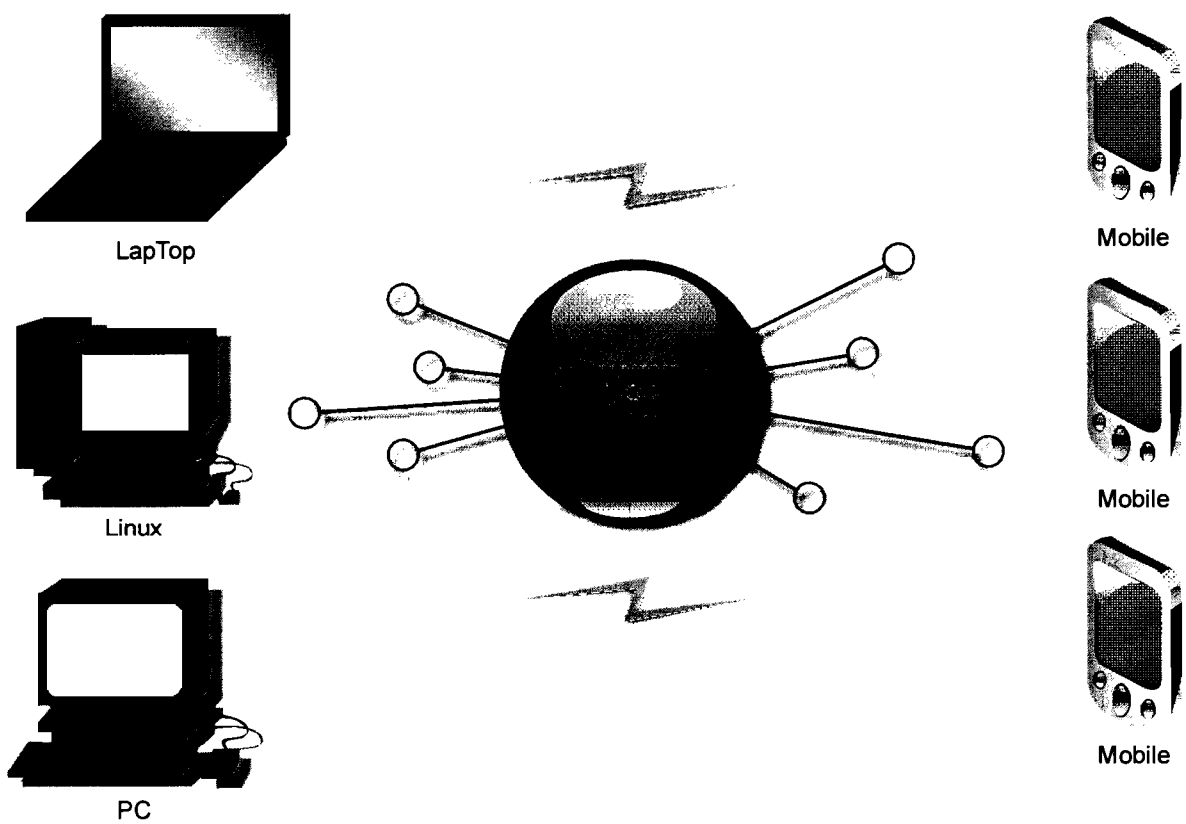

Figure 2.3: Mobile SMS services based Gateway Technology

2.4 GSM Mobile Phone

Global System for Mobile Communication (GSM) is a second generation standard for popular mobile phones. GSM phone normally consists of two components Mobile equipment and Subscriber Identity Module (SIM) card [39].

The mobile equipment includes a display screen, keypad, processor, battery, SD card, speaker and microphone. SIM card is unique features of GSM phone that contains a detachable smart card. It holds the user subscription profile and phone book. User can simply change the SIM card from one phone to another phone [40].

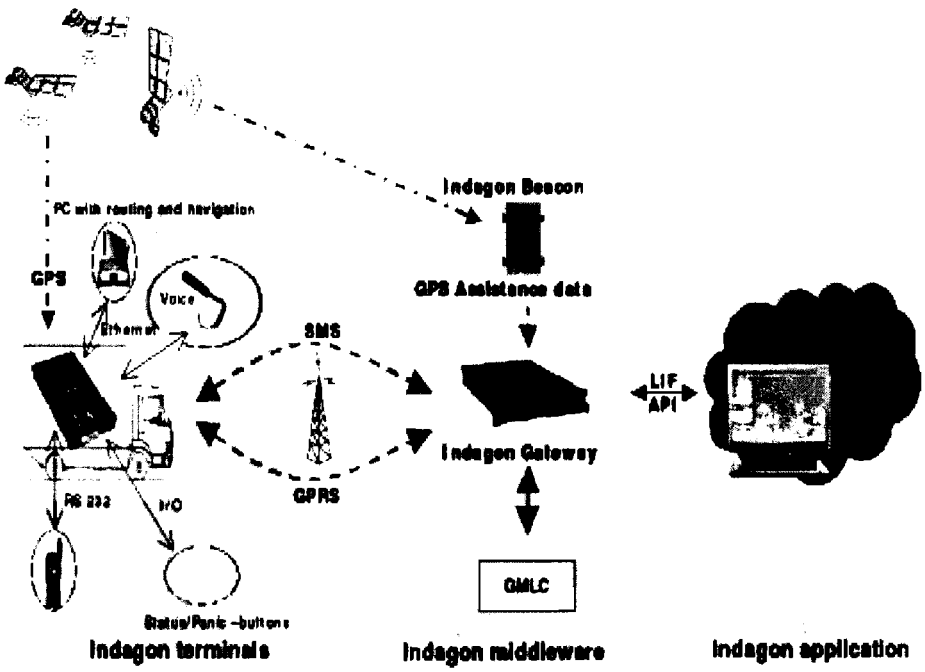

Figure 2.4: GSM/GPS Structure

2.5 Gateway

The main definition of Gateway is a sustainable point for transferring or converting network signal into another network which supports the same point. Furthermore, the Internet, the accessing depends on the Internet node in each point that can be either a gateway node or a host

node. Both the computers of Internet users and the computers that serve pages to users are host nodes [41]. The computers that control traffic within your company's network or at your local Internet service provider (ISP) are gateway nodes.

In other situations, server's supports Gateway services for other enterprise and reservation services, the computer server in this case works as a gateway node is often also acting as a proxy server. A gateway is often associated with both a router, which knows where to direct a given packet of data that arrives at the gateway, and a switch, which furnishes the actual path in and out of the gateway for a given packet [42]. Figure 2.5 below presents the conceptual and physical structure for Gateway point over LAN.

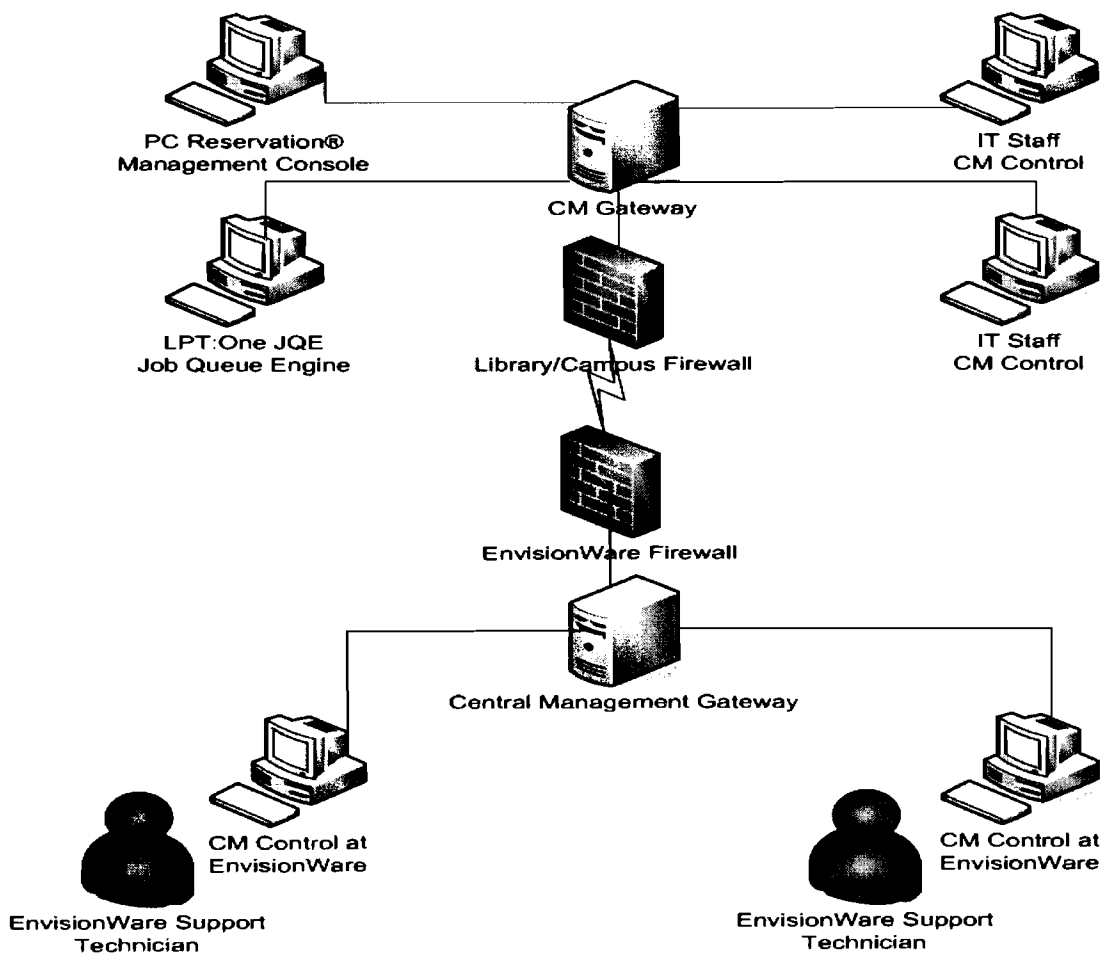

Figure 2.5: Gateway Architecture

2.6 Related Works

The online services reflect the flexible methods for providing the end users with the appropriate facilities, which differ from the traditional mode in the capacity to provide services regardless of temporal and spatial constraints. They are also different from traditional interpersonal services that are delivered face-to-face, or from other types of e-services (e-solution), such as online services, where the service delivery is linked to a specific fixed local area network.

A number of researchers illustrated the needs for a reliable web based application to manage student's performance in classes and assist them to learn with a collaborative indication. Thus, researchers developed the school-book system to enable the administrator to control and modify the content details through a web-based teaching and learning aspects [43].

This web-based application helps to provide a meaningful character towards enhancing the current method in managing and teaching students that lacking to provide learning facilities anytime and from other location [43]. Figure 2.6 presents the school book system.

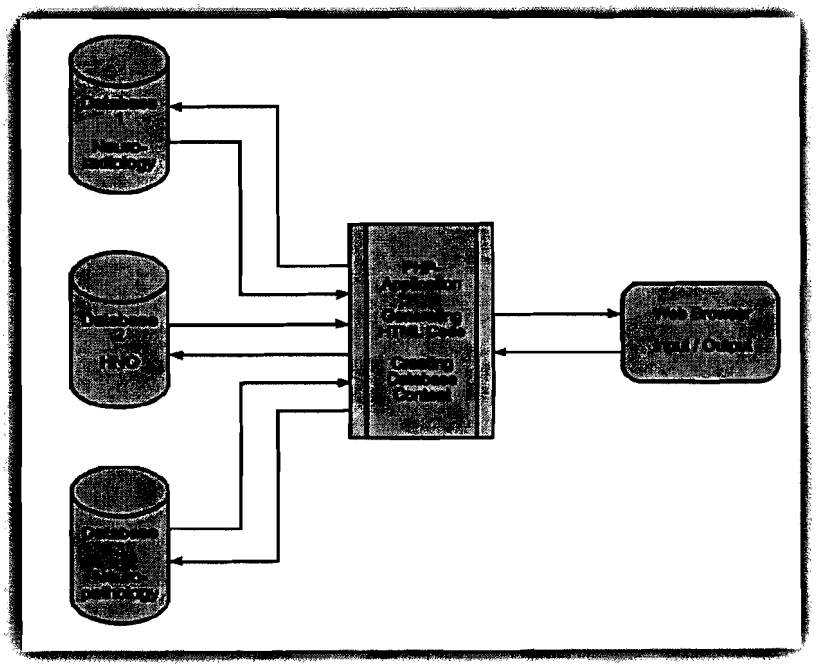

Figure 2.6: School-Book System [43]

However, in [44] highlights the advantages of integrate the IT and ICT tools into measuring and tracking learning performance in today's world, which back to the proliferation of information and its side effects on establishing new patterns that may employ other tools such as multimedia services, the Internet. The study used an independent model call Moodle that available freely to be modified and generalized for certain learning and tracking needs. Reis et al. seek in their implication to determine the effectiveness of using Moodle in managing and tracking the learning process towards students at the Gaia Vocational School (GVS). An online survey was used to demonstrate the students feedback towards the using of Moodle on their learning ability [44]. Figure 2.7 shows the classification of the Moodle components among client and server.

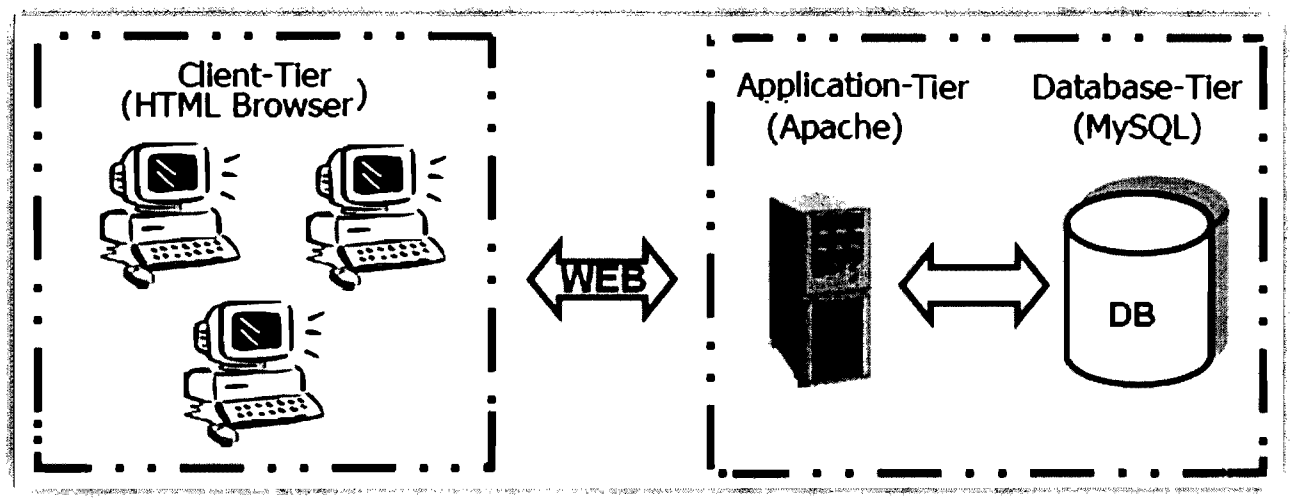

Figure 2.7: Moodle Integration among client and server [44]

Furthermore, [45] designed and developed a School Website Management System (SWMS); the system consists on the 1) content management system for creating and processing web components and requests, and 2) a certification system for directing the user or student queries into the server database to be reviewed later by the administrator. The proposed system helps teachers to build their own page and assign a certain students to his/her page, which helps them

later to track the student performance in classes. This system adopted in different schools and was successfully used to notify parents about their student attendance states [45]. Figure 2.8 reports the system components among viewer and creators.

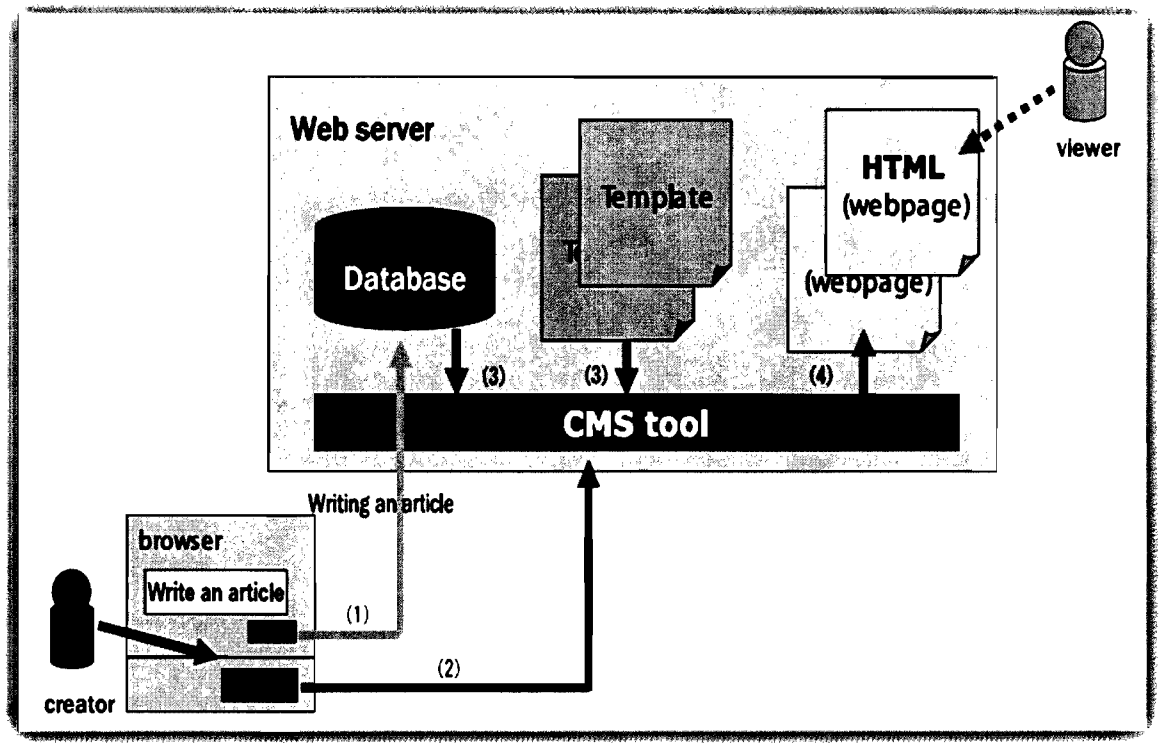

Figure 2.8: SWMS [45]

As described in [46] the working process of automated attendance record system based on the adaptation of Template Matching Technique (TMT). The study aimed to design a system that will automatically arrange the record and calculate the average attendance of each student. [46] Introduced the lacks from using the manual attendance record system that mostly not efficient and requires time to arrange record and to calculate the average attendance of each individual student. Thus, the study applied TMT for designing attendance record system that is seeking to replace the manual model of attendance record keeping [46].

From another side, [47] intended to develop a web-based Attendance Register System or formerly known as ARS for checking the student attendance states during classes. The study was involved a number of techniques to the fact that the students' attendance records are one of the important elements that reflect their academic achievements in the higher academic institutions. The system development was conducted based on the System Development Life Cycle (SDLC) methodology, the ARS has been built using the web-based applications such as PHP, MySQL and Apache to cater the recording and reporting of the students' attendances in Universiti Teknologi MARA. A questionnaire was distributed to 550 students for indicating their opinion about the ARS. The result showed that more systematic and revolutionary system is indeed needed to be reinforced in order to improve the process of recording and reporting the attendances in the higher academic institution [47]. Figure 2.9 presents the ARS functionalities among users.

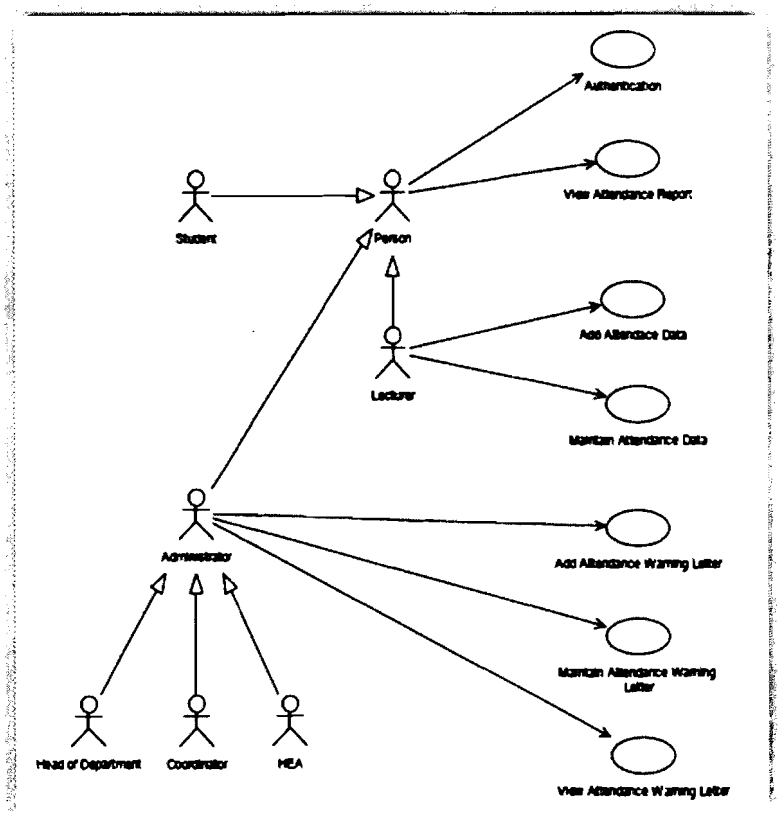

Figure 2.9: The ARS functionalities [47]

As stated in [48] address the designing and implementation process of a student checking system that aimed to indicate the student attendance of crowded seminars or exhibition halls. The software system is based on inserting, deleting, updating and querying of a database management system. Emphasis is mainly on a real time application, namely tracking and counting of students in a crowded seminar rooms within a short time. The system was used by the university students as participants for attending numerous SPIKE seminars at EMU. The result indicated that the system was performed successfully to generate the student attendance [48]. Figure 2.10 shows the system relation between client and server.

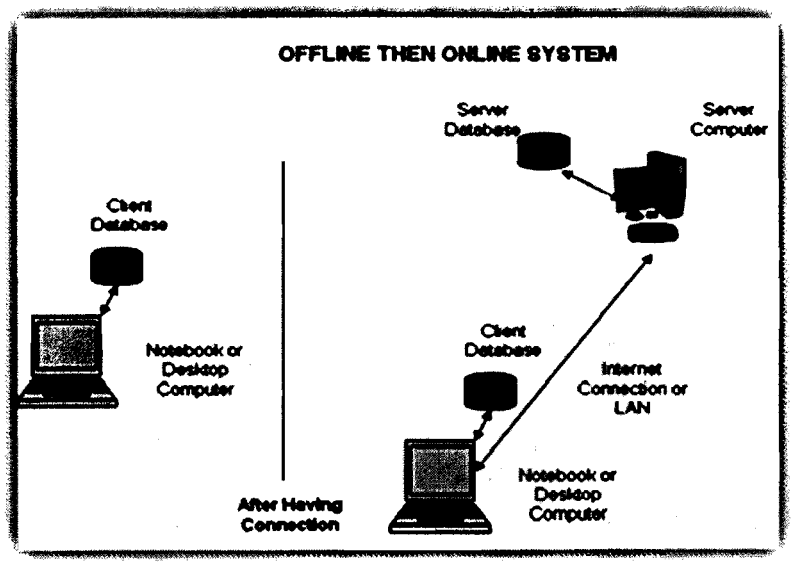

Figure 2.10: System process among client and server [48]

2.7 Summary

This chapter elaborates the main elements of this research by highlighting the development of web-based school management system. However, this chapter reviews a number of relevant studies in utilizing activities and attendance system into the educational field.

CHAPTER THREE

RESEARCH METHODOLOGY

In this chapter the research methodology applied to this study are described. Moreover this chapter explains about topographical region where this research was carried out, the study design and the population and sample of this study. The instrument employed to collect the data, as well as methods executed to assert the validity and reliability of the instrument are described.

3.1 Introduction

Research methodology is more than just collections of method to perform a research; it is a systematic way to solve the research problem. The research methods refer to the methods and techniques used by the researcher in doing the research, for example, data collection technique, data processing techniques and instruments. This study will apply the system development life cycle for prototyping model. The method involves a different number of stages for initialing a working system. This method works on analyzing and observing the current needs and indicates the **design requirements for a prototype in order to start the development of the prototype.** However, once the prototype is created, it is given to the users or students for evaluation. The main phases of this method are:

- Planning;
- Risk Analysis;
- Engineering;
- Construction Release;
- System Evaluation;
- Liaison.

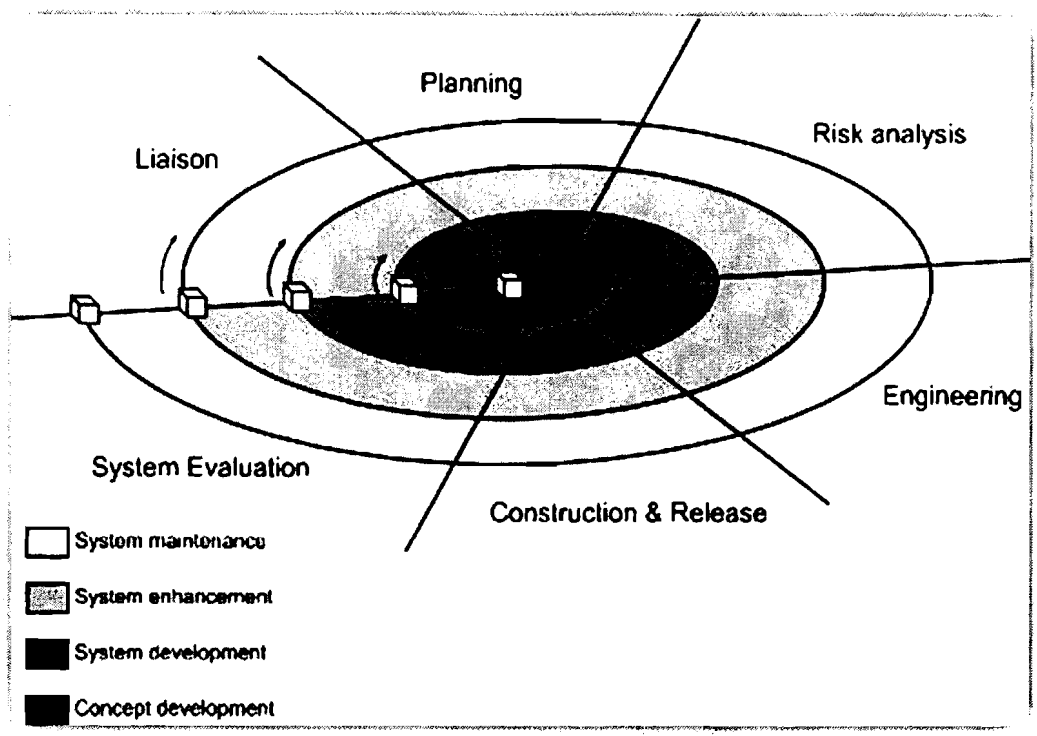

Figure 3.1: SDLC Prototyping Model [49]

3.1.1 Planning

This phase focus on collecting the require details for starting the designing of the proposed web-based application. Moreover, this phase will gather the require details from the literature and other previous studies that focuses on managing contents in schools.

This phase consist on exploring potential research topics in a chosen domain, and the understanding of the problem which needs to be solved. In fact, the selection of domain was decided during this phase through discussion and related reviews of similar for WAP/WEB Application towards the attendances issues.

3.1.2 Risk Analysis

This phase is the main challenges that it may appear after the planning of the Propose web-based application for student school. As well as the characteristic for developing a suitable and competitive application.

Data gathering is also part and partial of this phase; firstly to come up with the objective of this study listed, its require to put in account the research domain. For this research, the research domain is developing a web-based school management system. During the literature review stage, ideas, information, issues and problems related to the student attendances were gathered. The research information towards web-based management system was collected and reviewed from books, proceedings, journals, white paper, reports.

3.1.3 Engineering

As information systems requirements are becoming increasingly complex, the use of object orientation approach is more necessary. Object oriented offers conceptual structures that support the sub-division in the system. It also aims to provide a mechanism to support the reuse of program code, design and analysis design.

This phase seeks to come out with the functional and non-functional requirements for the Propose web-based application that will be performed by the school administrator to manage the student activities, attendances and performance in classes. As well as use case diagram will be illustrated from this phase by using unified modeling language (UML) technique.

Prototyping of web-based school management system is a physical model or sample end product that users can see, modify and use. The purpose is to capture the essentials data of a later system.

This phase also presents the design phase based on the SDLC Prototyping Model. Moreover, prototype might be concerned with determining a particular language, a database management system or a communications infrastructure. In the case of this study, object oriented approach will be implemented in the system's requirement design by the representation of use case diagram, sequence diagram and class diagram. The Rational Rose 2000 will be used as a tool to draw these diagrams.

The propose system expect to simplify the management of Students activities and attendances in class by:

- Providing a suitable web-based school management system.
- Obtaining storing and sharing the student details.

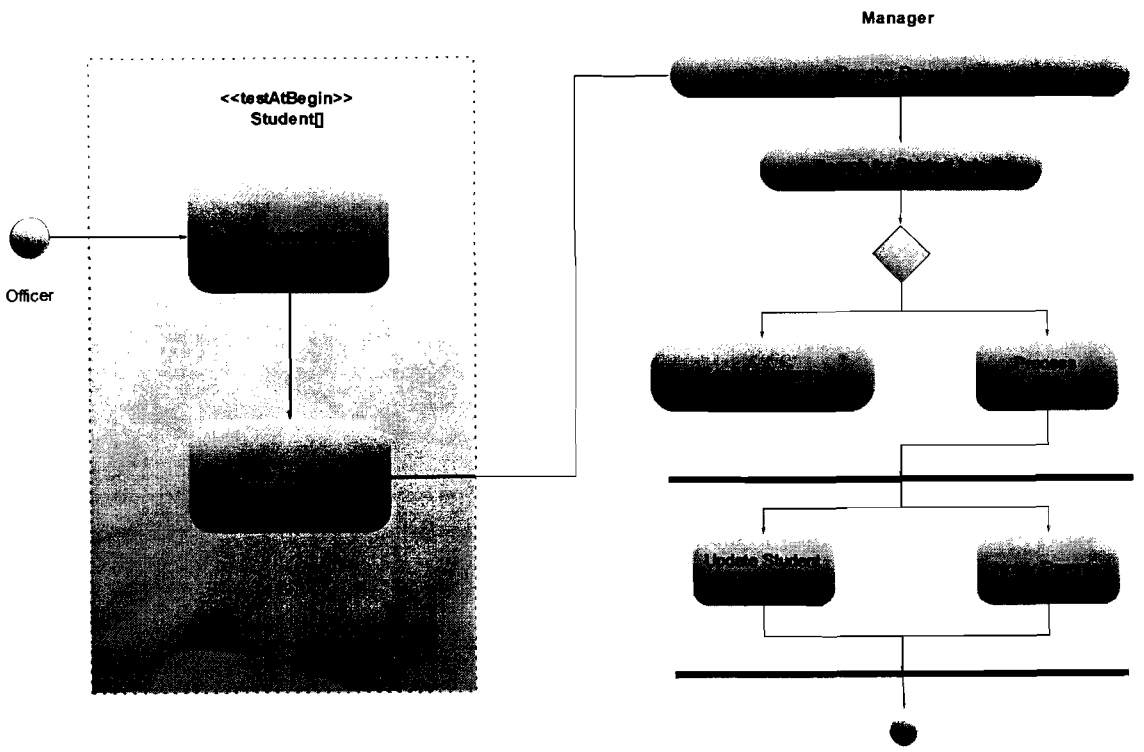

Figure 3.2: Activity diagram for the proposed system

Furthermore, this phase will be translated into the program codes. This study provides the different users (clients) to check the student activities and attendances in classes. The proposed system will be developed using a number of tools such as Photoshop, Flash. Furthermore, PHP will be used to build the propos virtual learning environments, managing the Students activities, attendances, and communicate with parents. Based student's profile. In addition MYSQL will be used for building the database relations among clients.

3.1.4 Construction Release

This phase concludes the system process based on indicating the use case specification for each case from the previous phase, and the sequence diagram that will be designed based on UML.

3.1.5 System Evaluation

This phase will present the evaluation process for the Propose web-based application among a number of students. The evaluation will present the distribution of questionnaire among participants to indicate their opinions towards the prototype.

The evaluation of the effectiveness, perceived usefulness, eases of use, as well as user satisfaction of the proposed system. To measure effectiveness based on content acquisition and survey questionnaires following TAM will be used for the study and administered according to the development stages. A sample of 30 students enrolled from different sectors will be selected for the study from UUM (Post graduate students) to evaluate the proposed system.

3.1.6 Liaison

In this phase, the final phase of the prototype web-based will be developed and launched to the users for managing and monitoring the student's activities and attendances at Abdullah Bin Saud School management system.

3.2 Summary

This chapter illustrated the main elements requires to indicate the usefulness and ease of use of the proposed system. The research design will be structured based on survey method that initialed from 30 students participated from UUM. Besides, research instrument, research procedure, treatment, and data collection will be reported in details.

CHAPTER FOUR

ANALAYSIS AND RESULT

This chapter describes the finding of this research based on presenting the main elements of UML diagrams such as: use case diagram, sequence diagram, and collaboration diagram. Meanwhile, the main functionalities were also addressed in order.

4.1 List of Requirements

The success of a software system depends on how well it fits the needs of its students and its environment. Software requirements comprise these needs, and requirements engineering (RE) is the process by which the requirements are determined [41]. Successful RE involves understanding the needs of students, customers, and other stakeholders; understanding the contexts in which the to-be-developed software will be used; modeling, analyzing, negotiating [42-43] and documenting the stakeholders' requirements; validating that the documented requirements match the negotiated requirements; and managing requirements [44]. Requirements engineering (RE) is concerned with the identification of the goals to be achieved by the envisioned system, the operationalization of such goals into services and constraints, and the assignment of responsibilities for the resulting requirements to agents such as humans, devices, and software. The processes involved in RE include domain analysis, elicitation, specification, assessment, negotiation, documentation, and evolution [45]. Getting high quality requirements is difficult and critical [46-47] .Listed below are the functional requirements and non-functional requirement of the system. In the priority column, the following short hands are used:

- M – mandatory requirements (something the system must do)
- D – desirable requirements (something the system preferably should do)

- O – optional requirements (something the system may do)

4.1.1 Functional Requirements

Table 4.1: Functional Requirements

No.	Requirement ID	Requirement Description	Priority
1.	(ABSS)_01	**Login**	
	(ABSS)_01_01	Teacher, user, and admin can login to the system	M
2.	(ABSS)_02	**Register**	
	(ABSS)_02_01	This function appears for those who are not members into the system.	M
	(ABSS)_02_02	User may retrieve his or her password in case of forgetting.	M
3.	(ABSS)_03	**Search**	
	(ABSS)_03_01	User, teacher, and admin are able to search the website contents.	M
4.	(ABSS)_04	**Post Forum**	
	(ABSS)_04_01	Teacher, user and admin are able to provide a feedback about the available posts page.	M
5.	(ABSS)_05	**Display Resources**	

	(ABSS)_05_01	Teacher and User are able to display and review the available news and events through the ABSS pages.	M
6.	(ABSS)_06	**Manage User**	
	(ABSS)_06_01	The system administrator is the only one who can add, update, and delete different number of users without proceeding through the registration.	M
7.	(ABSS)_07	**Manage Classes**	
	(ABSS)_07_01	The system administrator is the only one who can add, update, and delete different number of classes and assigning the available teacher for a definite class.	M
8.	(ABSS)_08	**Manage Resources**	
	(ABSS)_08_01	The system administrator is the only one who can add, update, and delete different number of recourses based on indicating the recourse elements.	M
9.	(ABSS)_09	**Email User**	
	(ABSS)_09_01	The ABSS administrator is capable to email and notify the parents and teachers based on their emails provided in the registration.	

4.1.2 Non-Functional Requirements

Table 4.2: Non-Functional Requirements

No.	Requirement ID	Requirement Description	Priority
11.	(ABSS)_11	**Reliability Issues**	
	(ABSS)_11_01	For a single user, the system shouldn't crash more than once per 10 hours.	M
	(ABSS)_11_02	After the system crash, the Behave should be perfectly normal when reload it again.	M
12.	(ABSS)_12	**Usability issues**	
	(ABSS)_12_01	The admin should be able to add any materials information with less than 7 seconds.	M
	(ABSS)_12_02	The user or admin should be able to send their feedback to the teachers within 3 seconds.	M
	(ABSS)_12_03	The user should be able to display and post their comments into the forum.	M

4.2 UML

4.2.1 Introduction

UML is a widely applied standard for object-oriented modeling, using the meta-level notation of UML or extending the UML notation has been the dominant approach to aspect-oriented modeling. Aspect-Oriented Modeling (AOM) for modeling access connection-tools in Web applications. Requires constructs for specifying base modules, crosscutting modules, and crosscutting relationships. Most of the existing work, however, lacks the ability to rigorously analyze the resultant artifacts.

4.2.2 Use Case Diagram

In moving from requirements analysis to design, use cases are often recommended as the starting point for the derivation of classes. However, exactly how classes are to be found within the use case is not entirely obvious. Use cases are increasingly employed to elicit and communicate functional requirements. A use case diagram depicts actors, use cases, and relationships between them. The primary relationships between use cases are include, extend, and generalization. Each use case implies a unit of useful functionality that the system provides to its actors as show in Figure 4.1.

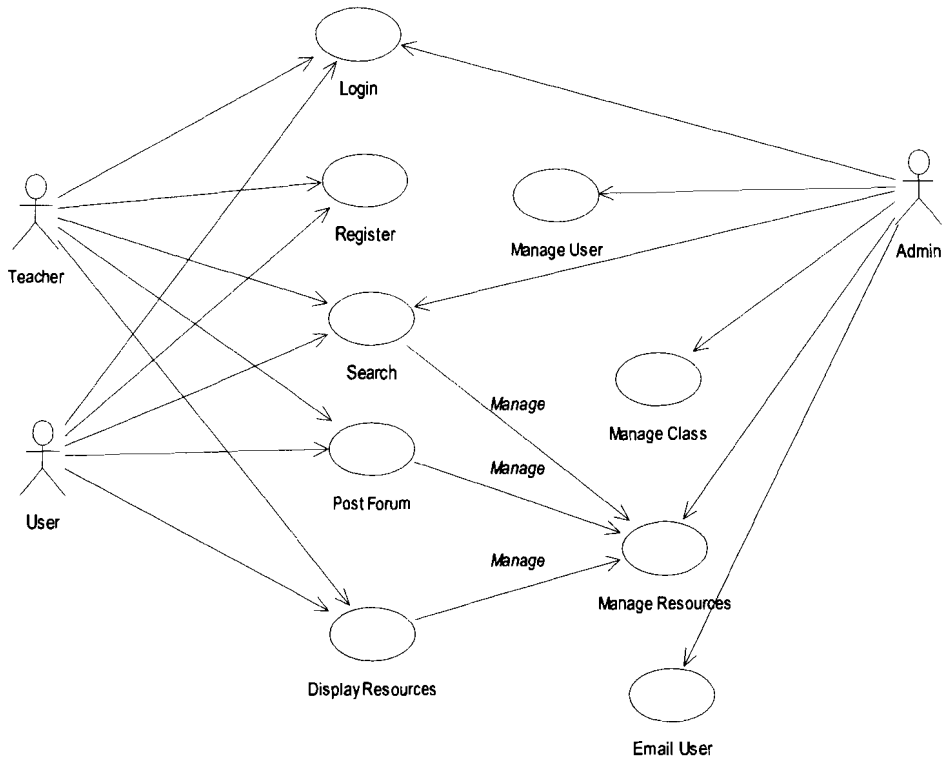

Figure 4.1: Use Case Diagram for ABSS

Figure 4.1 presents the use case diagram for the proposed ABSS website functionalities, which involved all of users, teachers, and admin. The website covers the assigned activities towards the actors in terms of login, register, search, post forum, display news and events, manage user, manage classes, and manage resources. The website administrator is unable to proceed through these functionalities without login through his username and password.

4.2.3 The Use Case Identification

Use Case Identification for all the system students (Lecturer, Student)

1) Teacher and Users

- Login
- Register
- Search
- Post forum
- Display news and events

2) Admin

- Login
- Search
- Manage user
- Manage classes
- Manage resources

4.2.4 Sequence & Collaboration Diagram

4.2.4.1 Sequence & Collaboration for Login

The user in this sequence diagram presents the parents of students who are registered in Abdullah Bin Saud School. This user is able to register and login through the ABSS website login page. Users will be asked to provide a correct username and password in case of wrong detail as shown in Figure 4.2 and Figure 4.3.

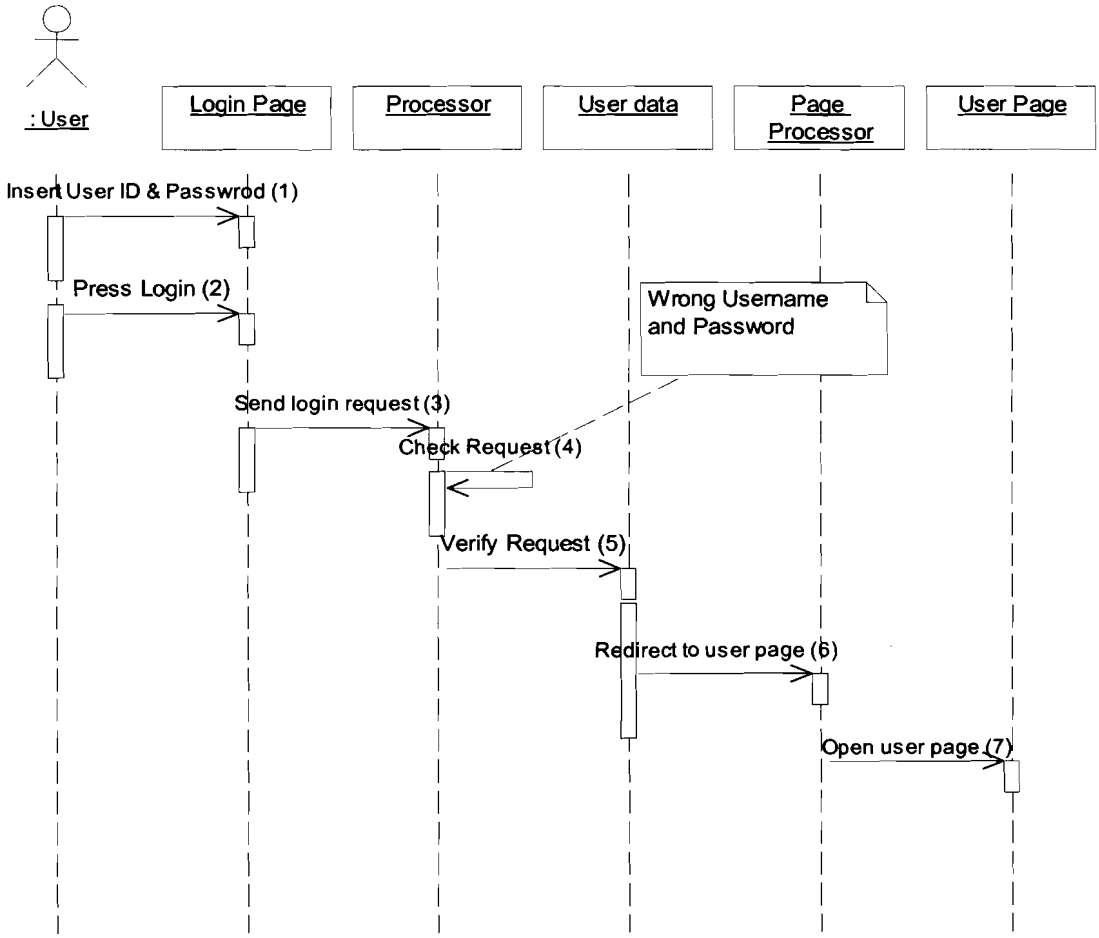

Figure 4.2: Login Sequence Diagram

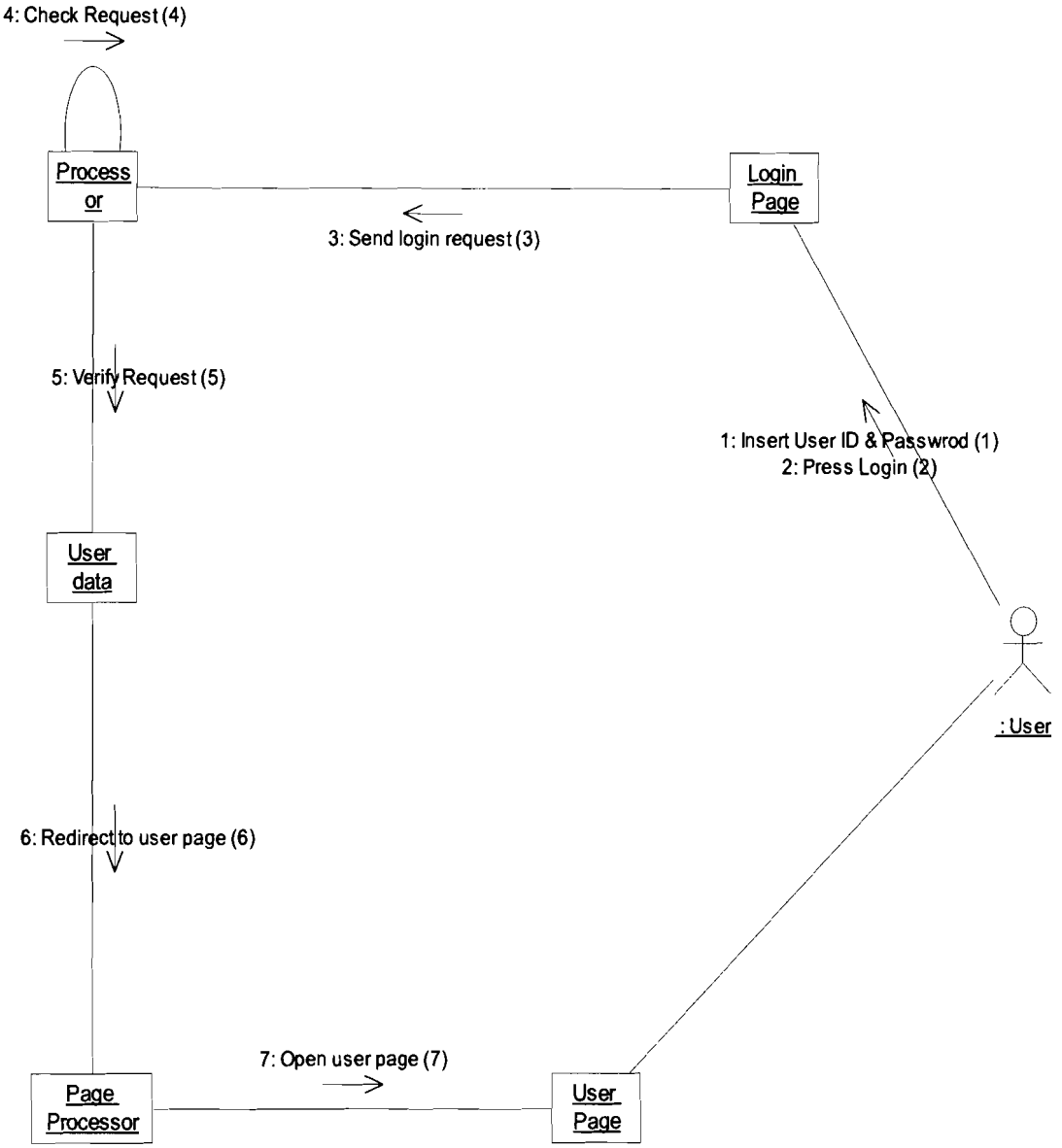

Figure 4.3: Login Collaboration Diagram

4.2.4.2 Sequence & Collaboration Diagram for Registration

The user in this sequence diagram presents the parents of students who are unregistered in Abdullah Bin Saud School. This user is able to register and login through the ABSS website login page. Users will be asked to provide correct details in case of wrong entries as shown in Figure 4.4 and Figure 4.5.

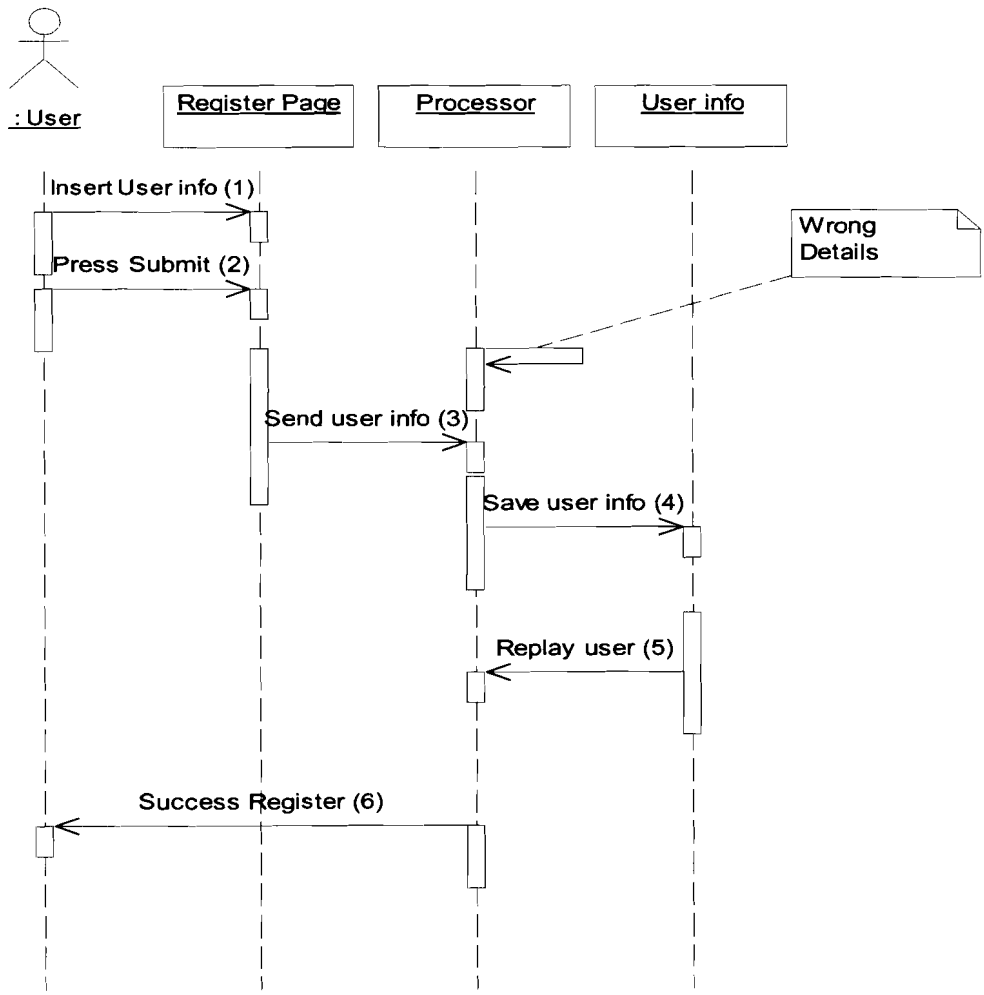

Figure 4.4: Register Sequence Diagram

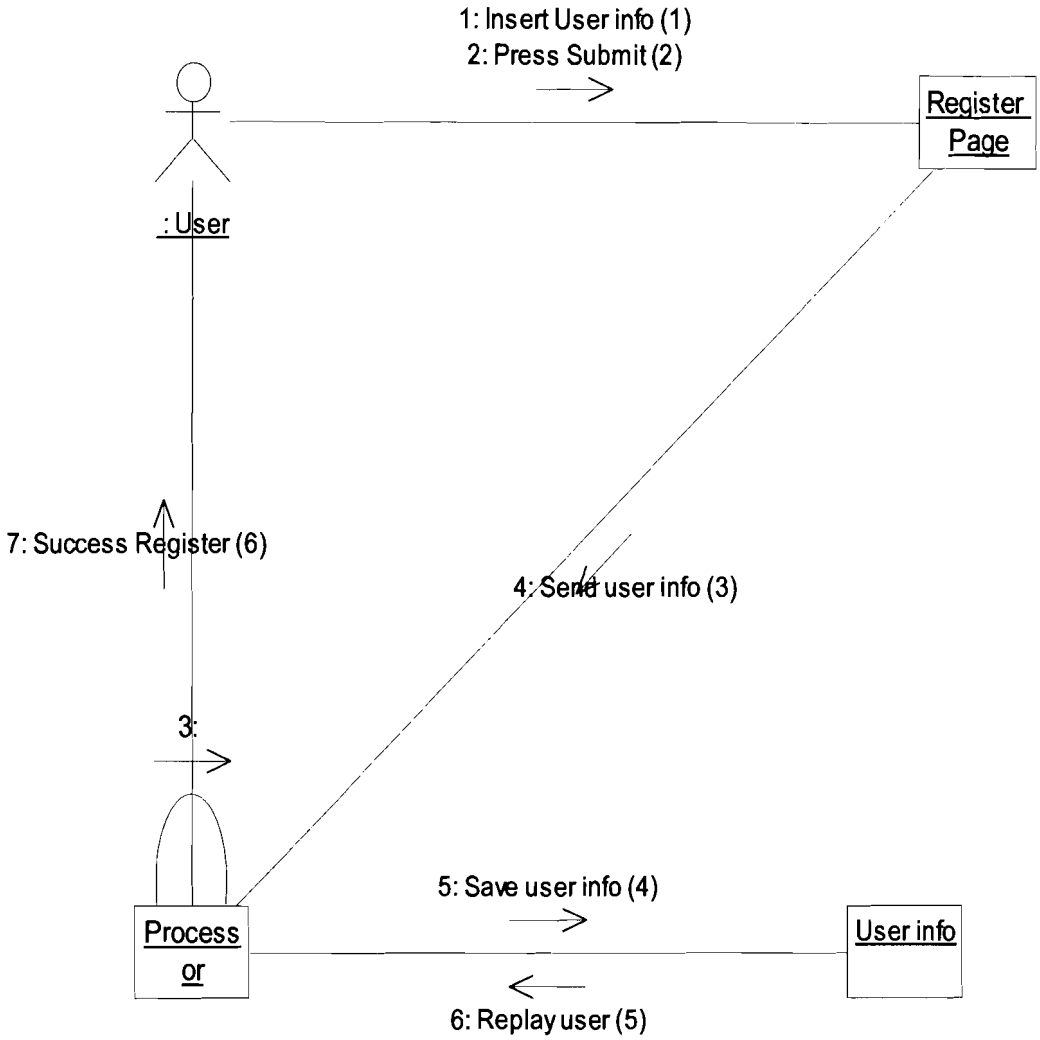

Figure 4.5: Register Collaboration Diagram

4.2.4.3 Sequence & Collaboration Diagram for Search

The user in this sequence diagram presents the teacher, admin, and parents of who are members in Abdullah Bin Saud School. The user is able to search a different details based on a definite keywords that system recognize. Users will be asked to provide correct keywords in case of wrong entries as shown in Figure 4.6 and Figure 4.7.

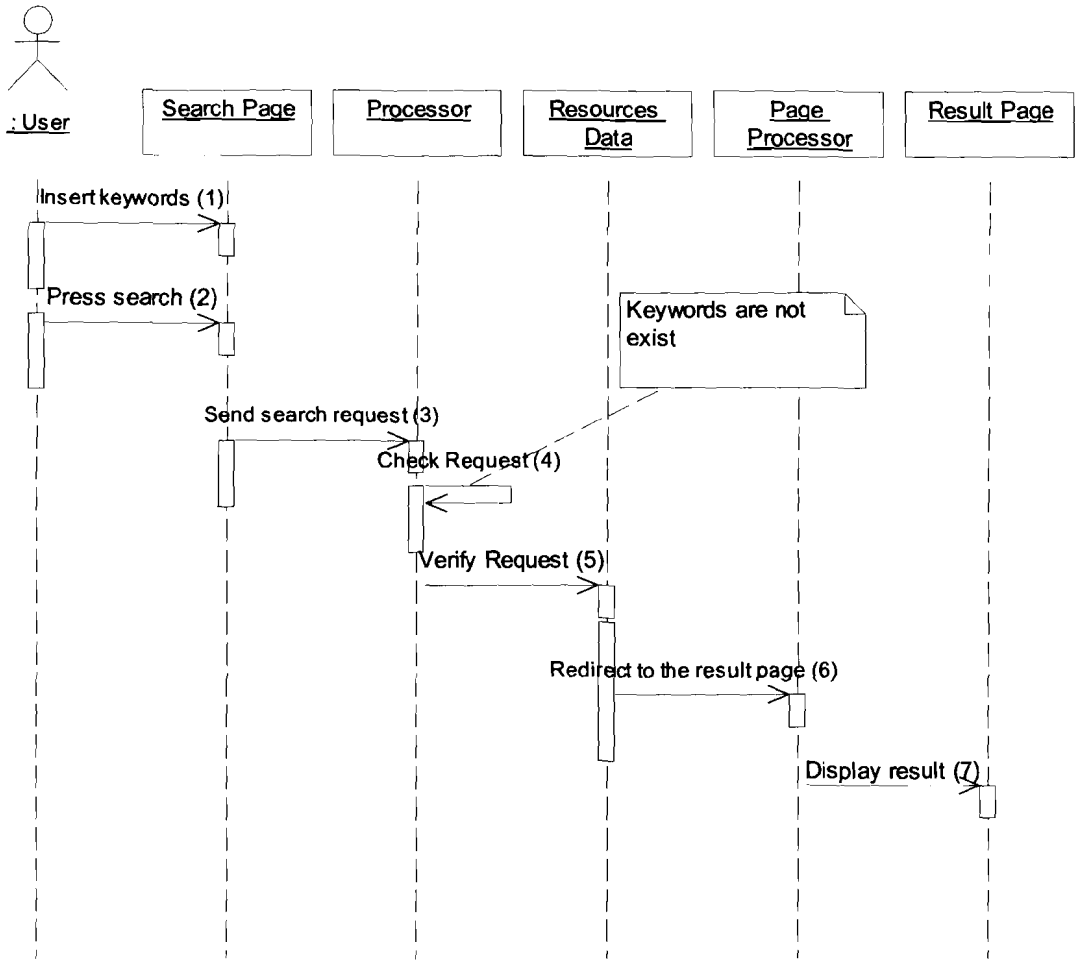

Figure 4.6: Search Sequence Diagram

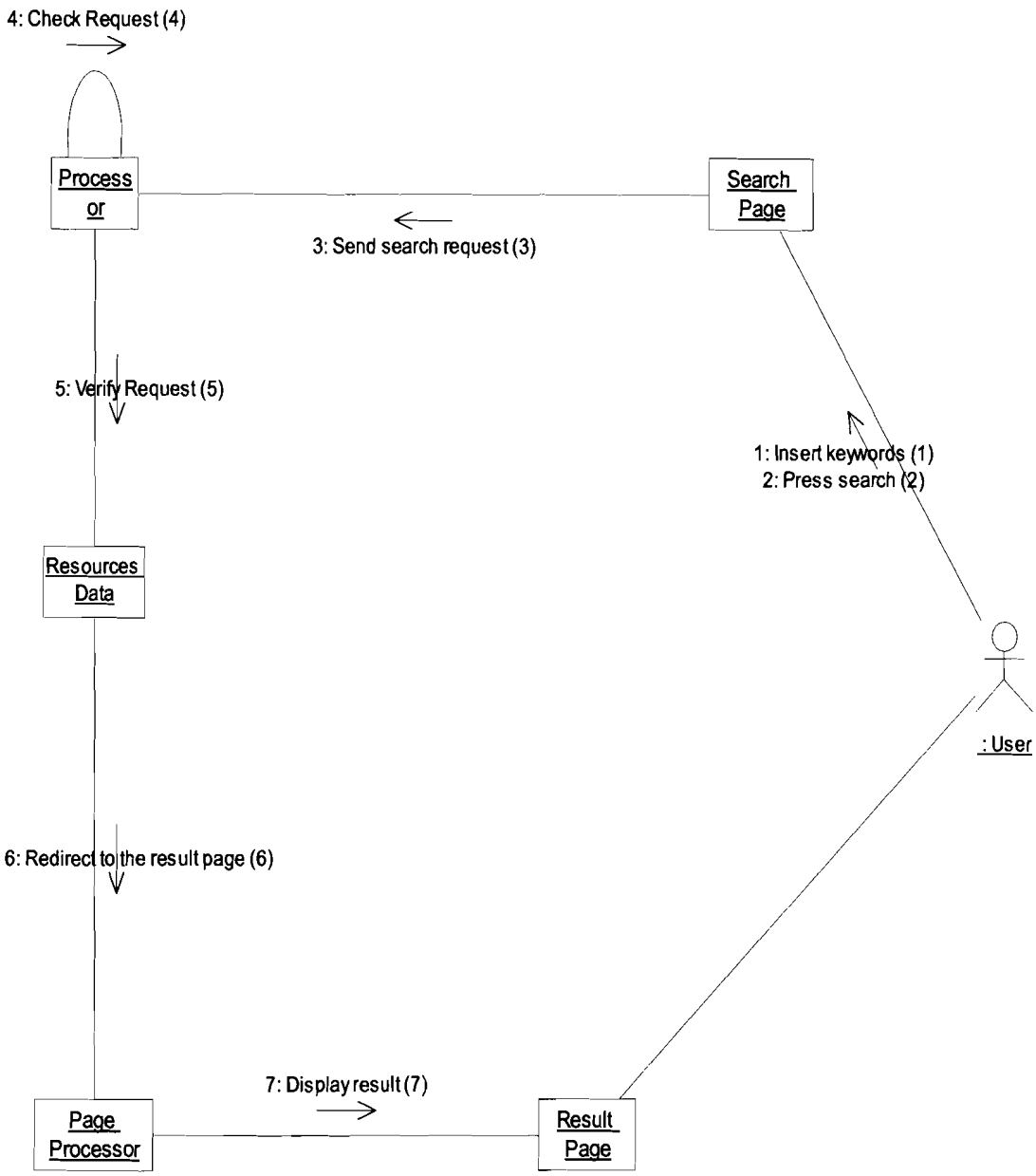

Figure 4.7: Search Collaboration Diagram

4.2.4.4 Sequence & Collaboration Diagram for Post Forum

The user in this sequence diagram presents the teacher, admin, and parents of who are members in Abdullah Bin Saud School. The user is able to post their feedback and comments into the school forums. Users will be asked to insert the require details for conducting the post process as shown in Figure 4.8 and Figure 4.9.

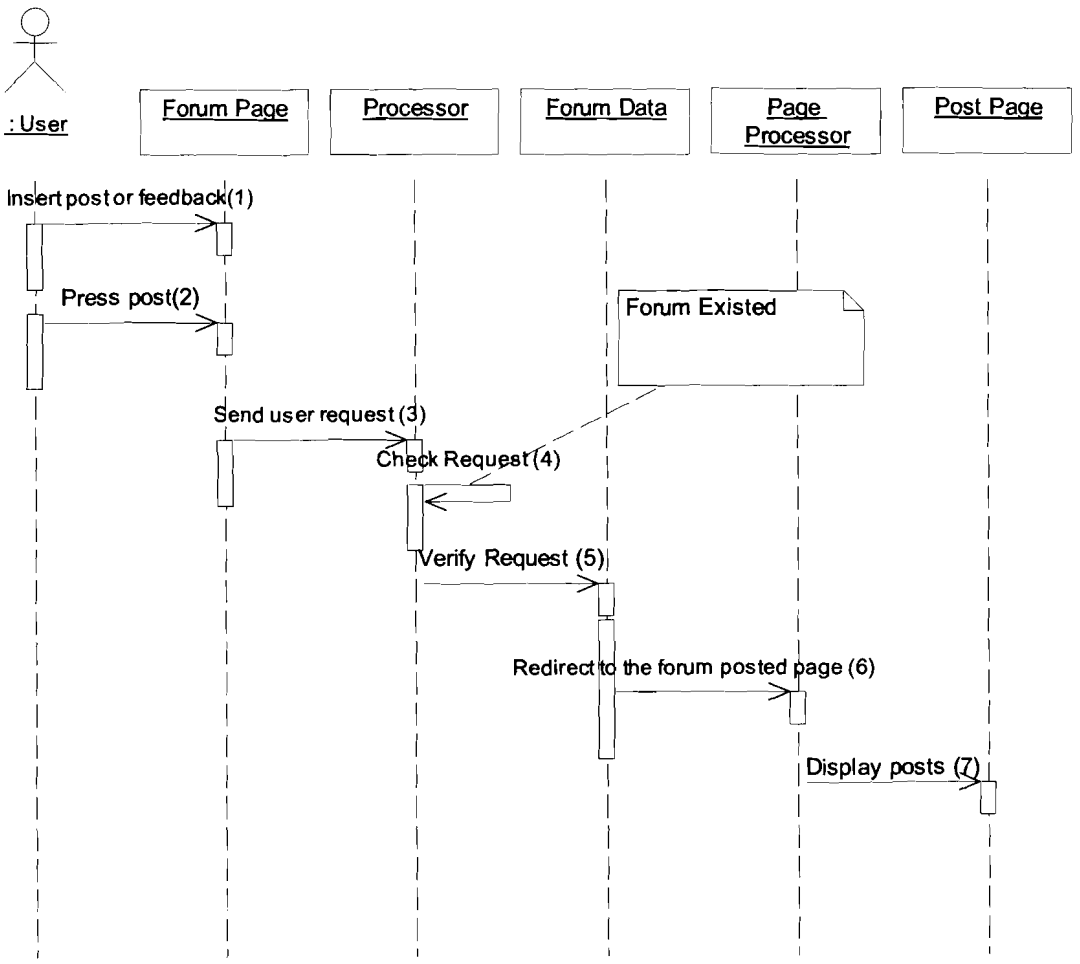

Figure 4.8: Post Forum Sequence Diagram

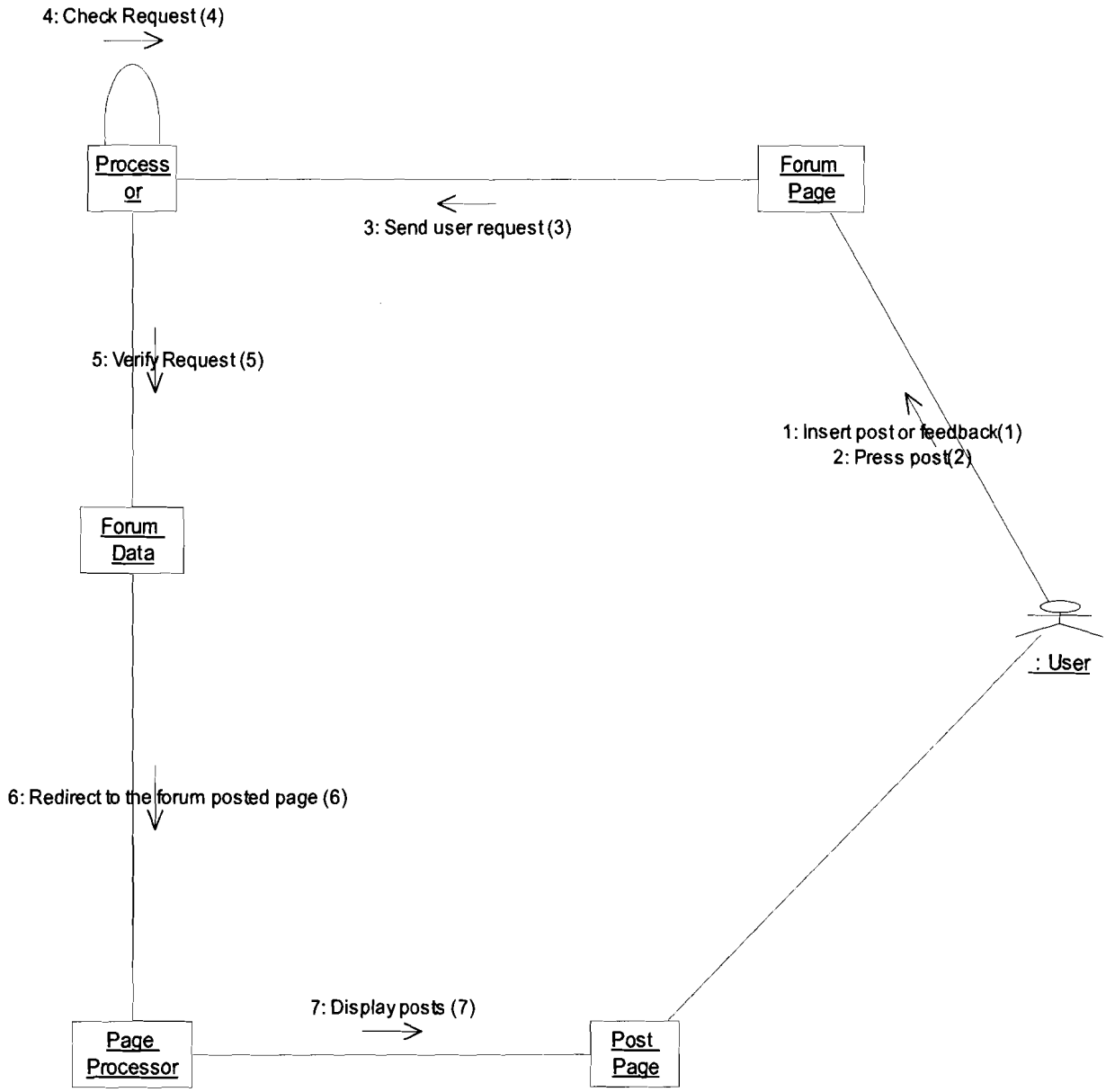

Figure 4.9: Post Forum Collaboration Diagram

4.2.4.5 Sequence & Collaboration Diagram for Display Resources

The user in this sequence diagram presents the teacher, admin, and parents of who are members in Abdullah Bin Saud School. The user is able to retrieve and display the available resources such as, calendar, news, members, and posts. Users will be asked to select other resources in case of unavailability as shown in Figure 4.10 and Figure 4.11.

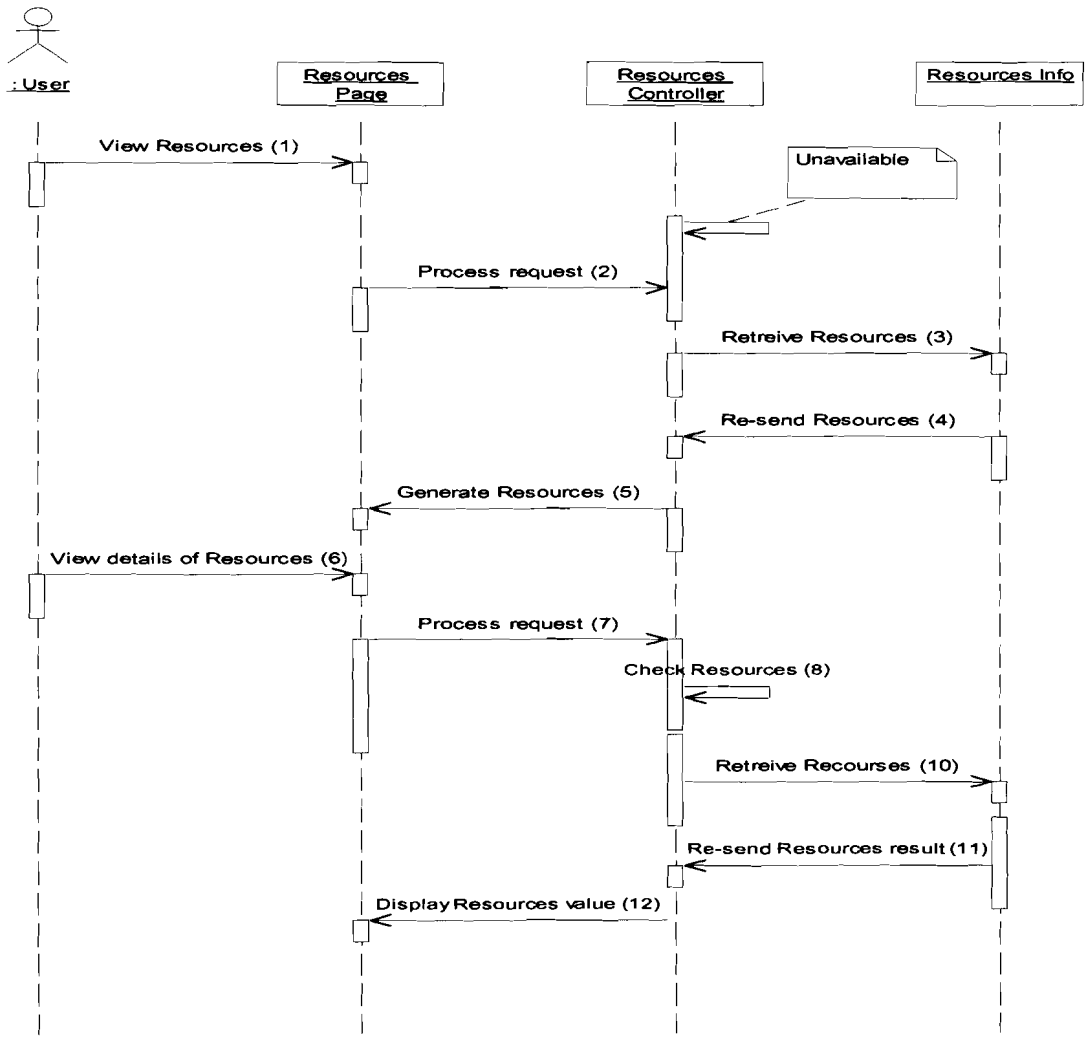

Figure 4.10: Display Resources Sequence Diagram

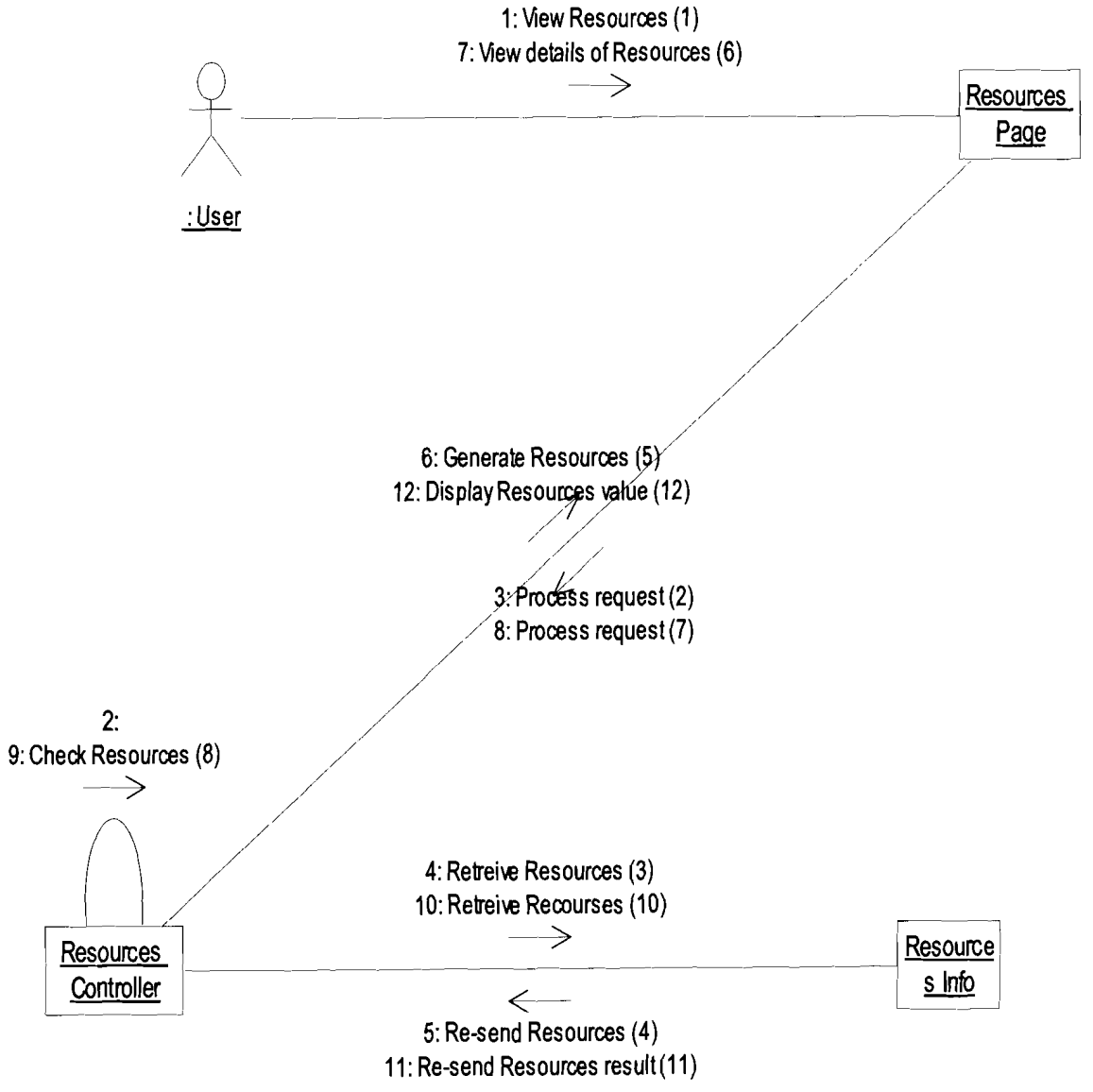

Figure 4.11: Display Resources Collaboration Diagram

4.2.4.6 Sequence & Collaboration Diagram for Manage User

The actor in this sequence diagram presents the ABSS administrator who is response to manage the ABSS contents. Admin requires to login through his username and password to proceed into the admin control panel page. The admin is able to add, delete, and update the existing facilities. Administrator will be asked to reinsert the provided info in case of duplicate as shown in Figure 4.12 and Figure 4.13. The adding process starts when the administrator select add new user into the system, admin will be required to insert the user info in order to be added into the system datABSSe. As well, administrator may delete a different number of users by selecting which one to delete. In addition, the administrator may update or modify the user information.

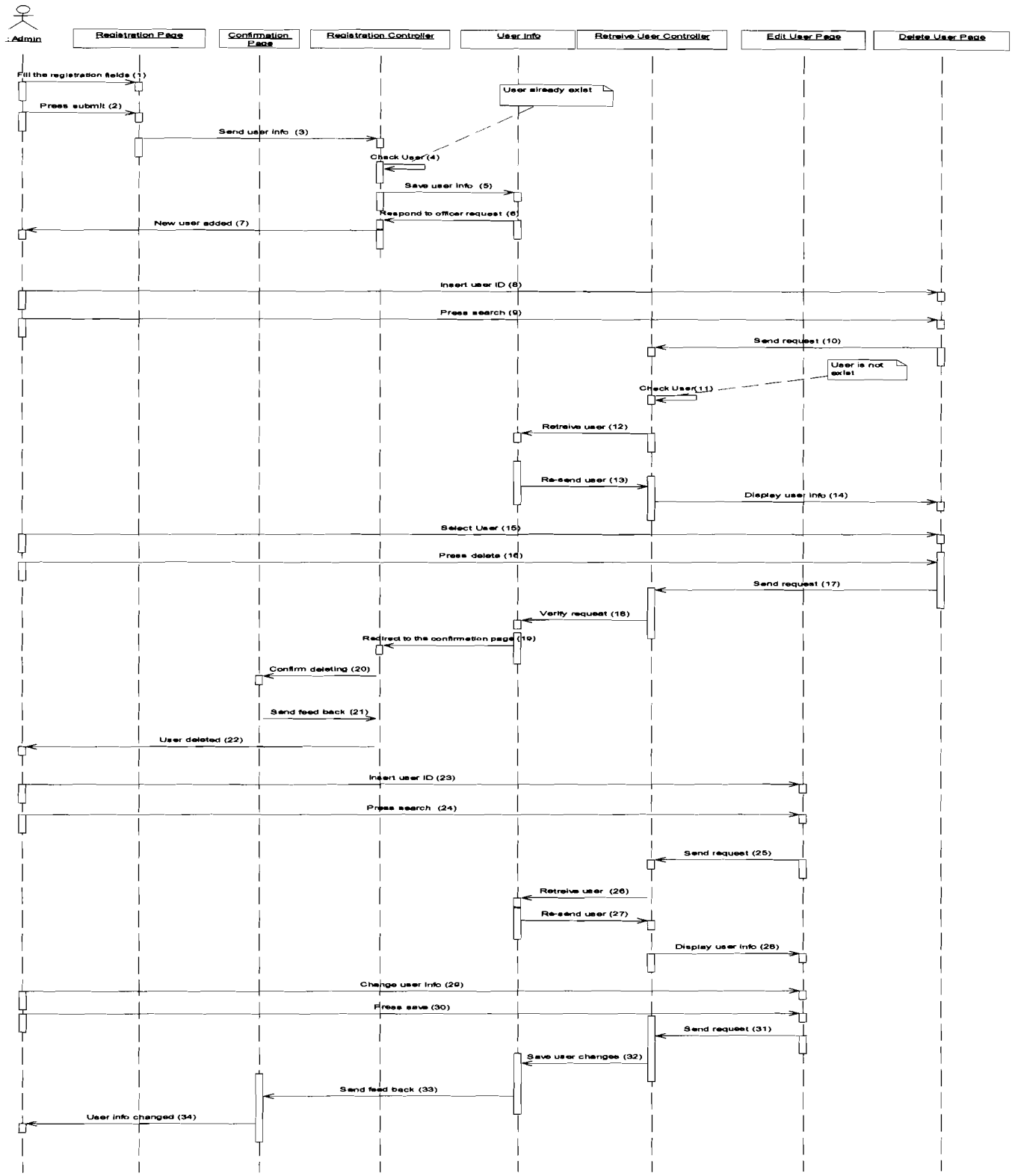

Figure 4.12: Manage User Sequence Diagram

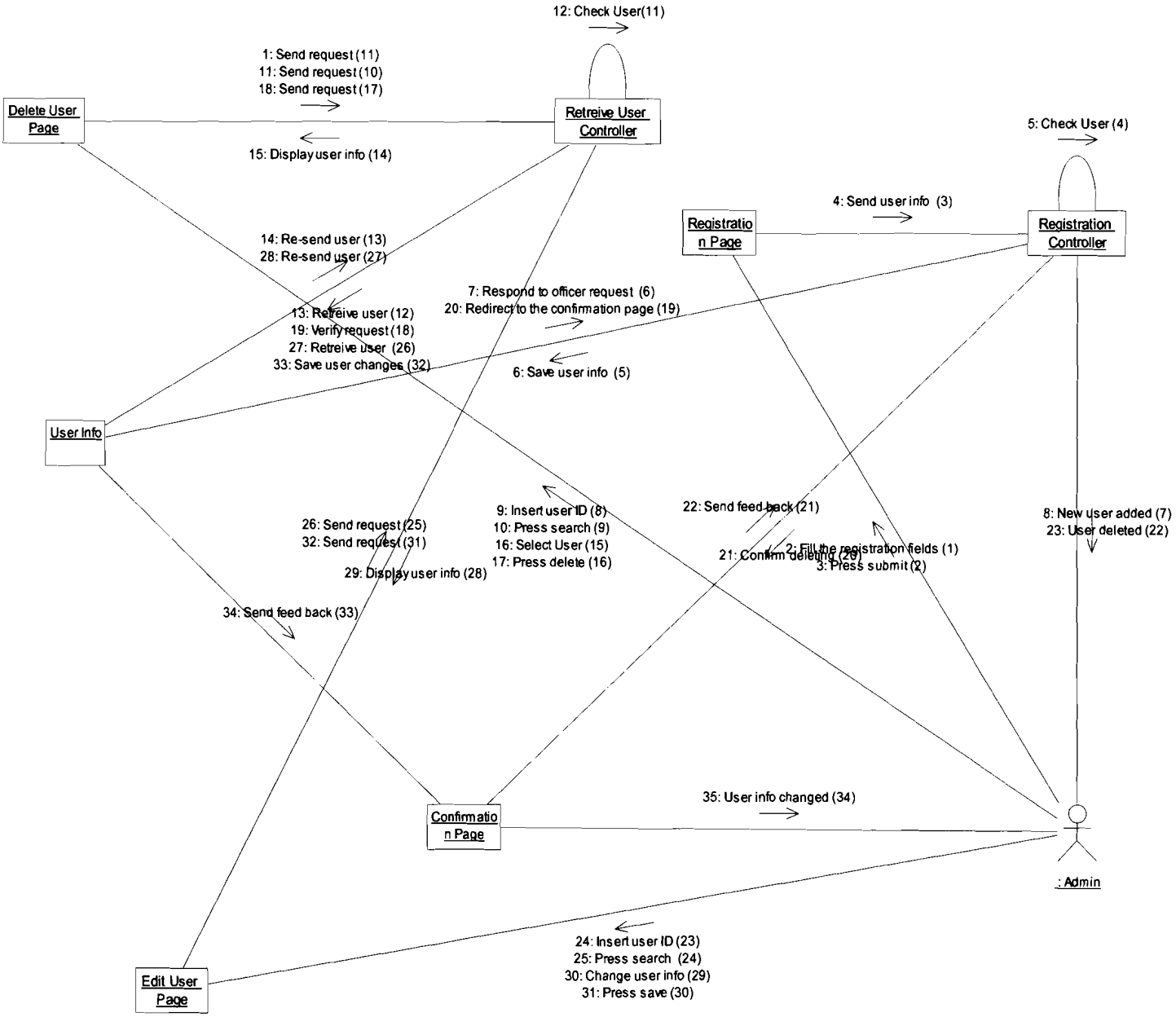

Figure 4.13: Manage User Collaboration Diagram

4.2.4.7 Sequence & Collaboration Diagram for Manage Classes

The actor in this sequence diagram presents the ABSS administrator who is response to manage the ABSS classes' contents. Admin requires to login through his username and password to proceed into the admin control panel page. The admin is able to add, delete, and update the existing class details. Administrator will be asked to reinsert the class info in case of duplicating as shown in Figure 4.14 and Figure 4.15. The adding process starts when the administrator select add class into the system, admin will be required to insert the class info in order to be added into the system datABSSe. As well, administrator may delete a different number of classes that assigned to a number of users by selecting which one to delete. In addition, the administrator may update or modify the class and user information.

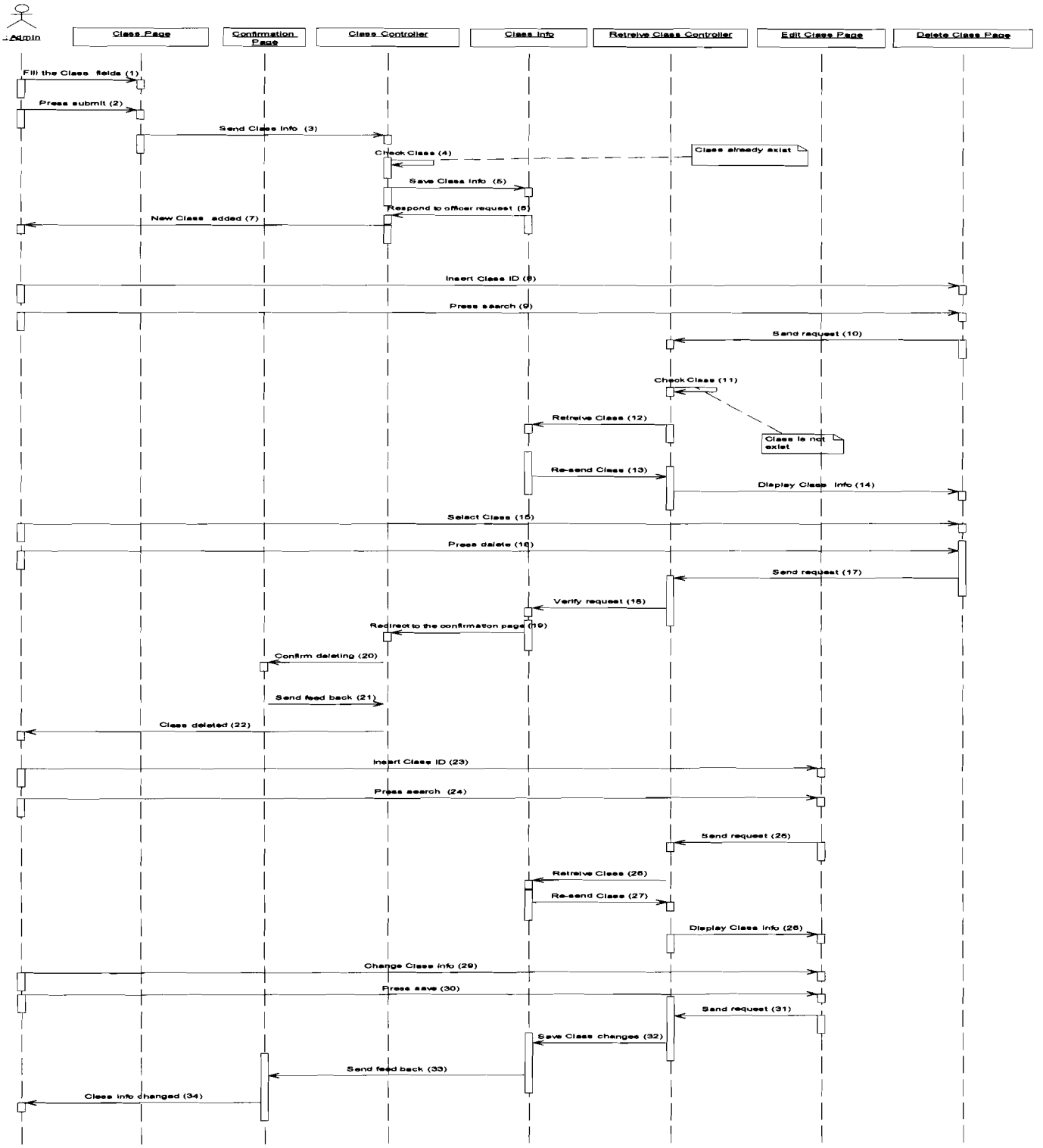

Figure 4.14: Manage Classes Sequence Diagram

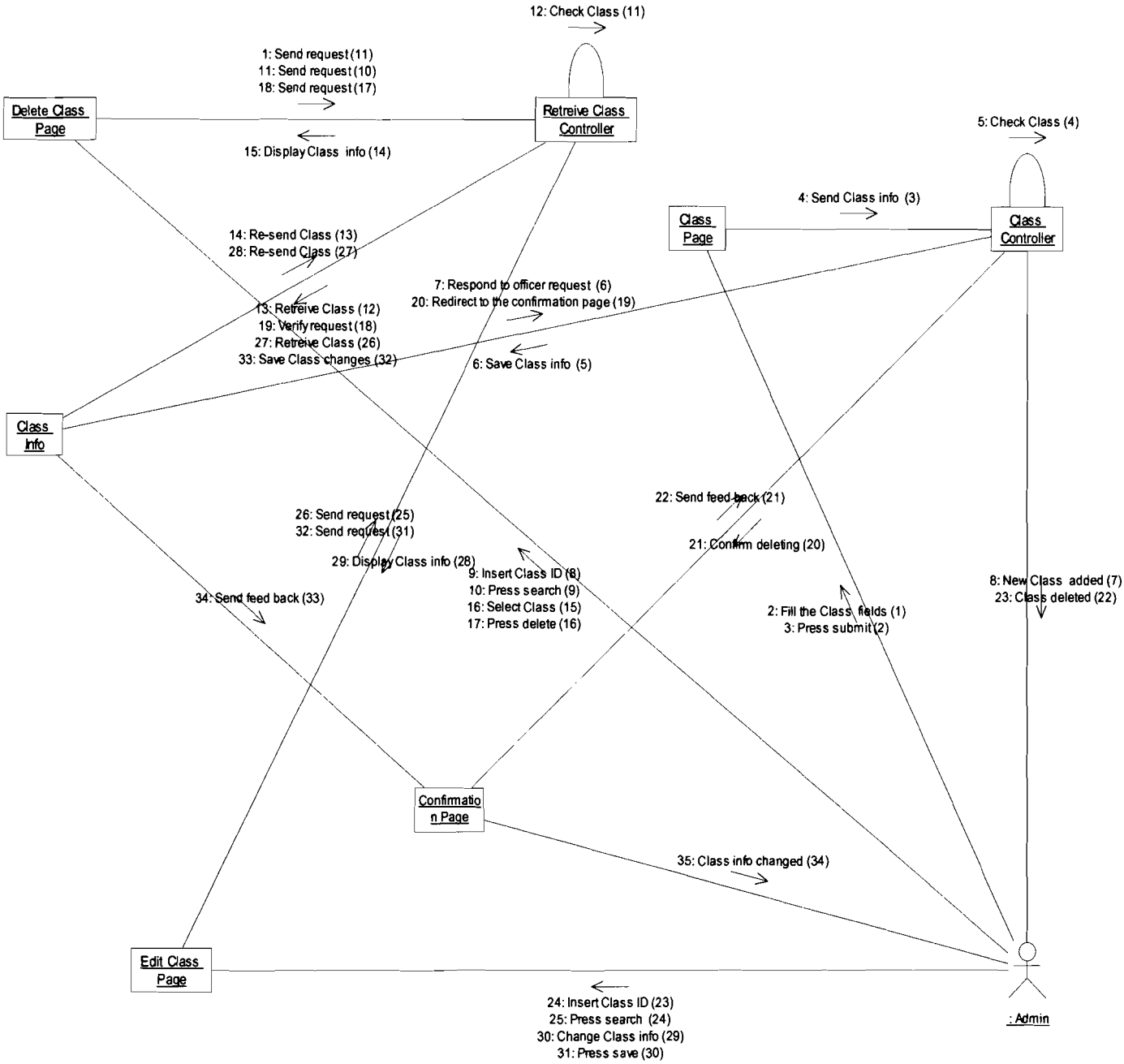

Figure 4.15: Manage Classes Collaboration Diagram

4.2.4.8 Sequence & Collaboration Diagram for Manage Resources

The actor in this sequence diagram presents the ABSS administrator who is response to manage the ABSS resource contents. Admin requires to login through his username and password to proceed into the admin control panel page. The admin is able to add, delete, and update the existing resource information. Administrator will be asked to reinsert the resource info in case of duplicating such as, calendar, posts, news, events, and members as shown in Figure 4.16 and Figure 4.17. The adding process starts when the administrator select add resources into the system, admin will be required to insert the resources info in order to be added into the system datABSSe. As well, administrator may delete a different number of resources that assigned to a number of pages by selecting which one to delete. In addition, the administrator may update or modify the class and resources details.

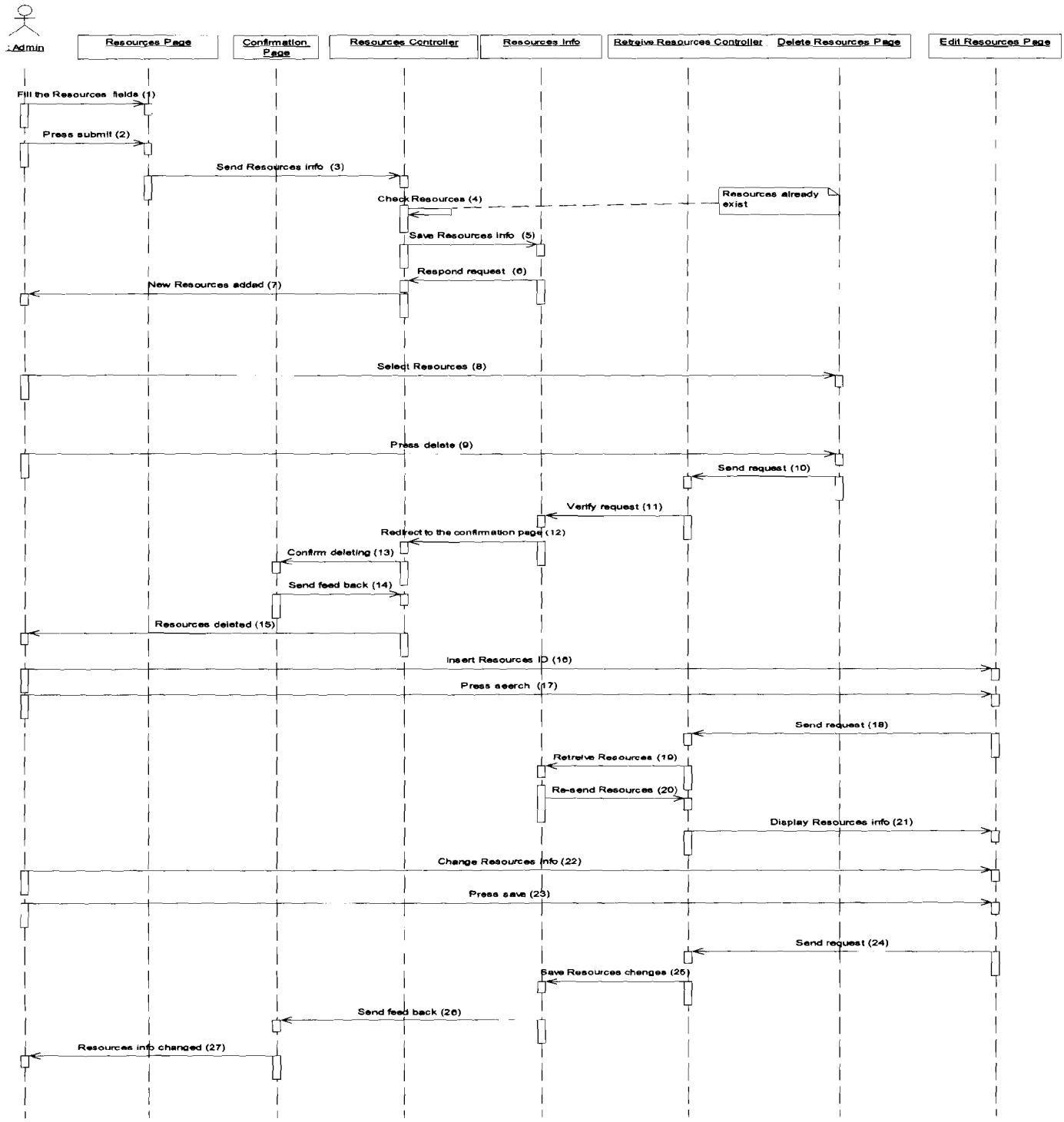

Figure 4.16: Manage Resources Sequence Diagram

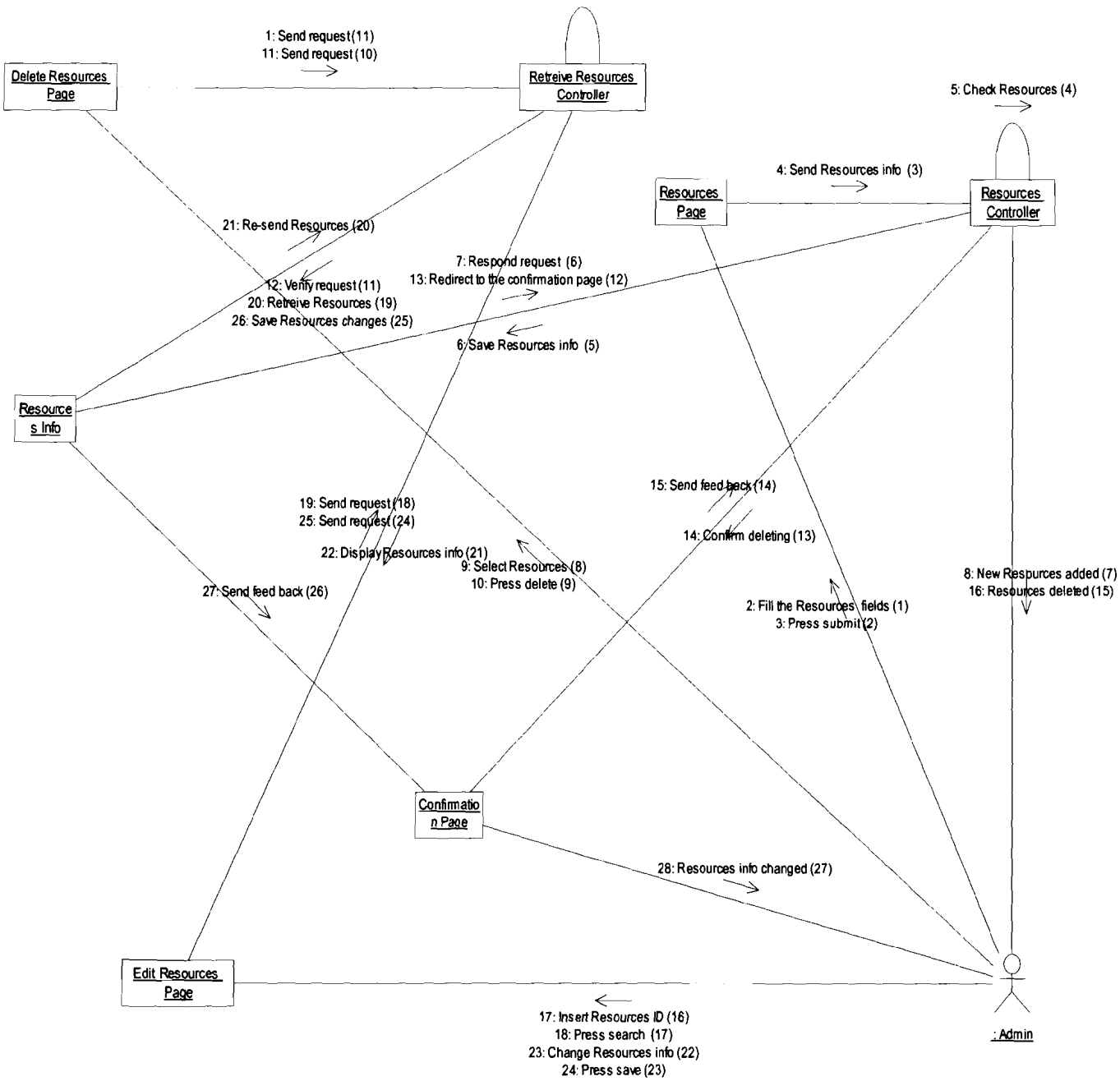

Figure 4.17: Manage Resources Collaboration Diagram

4.2.4.9 Sequence & Collaboration Diagram for Email User

The admin in this sequence diagram is able to email and notify the existing users in the ABSS database. Admin will be asked to insert the correct details in case of wrong entries as shown in Figure 4.18 and Figure 4.19.

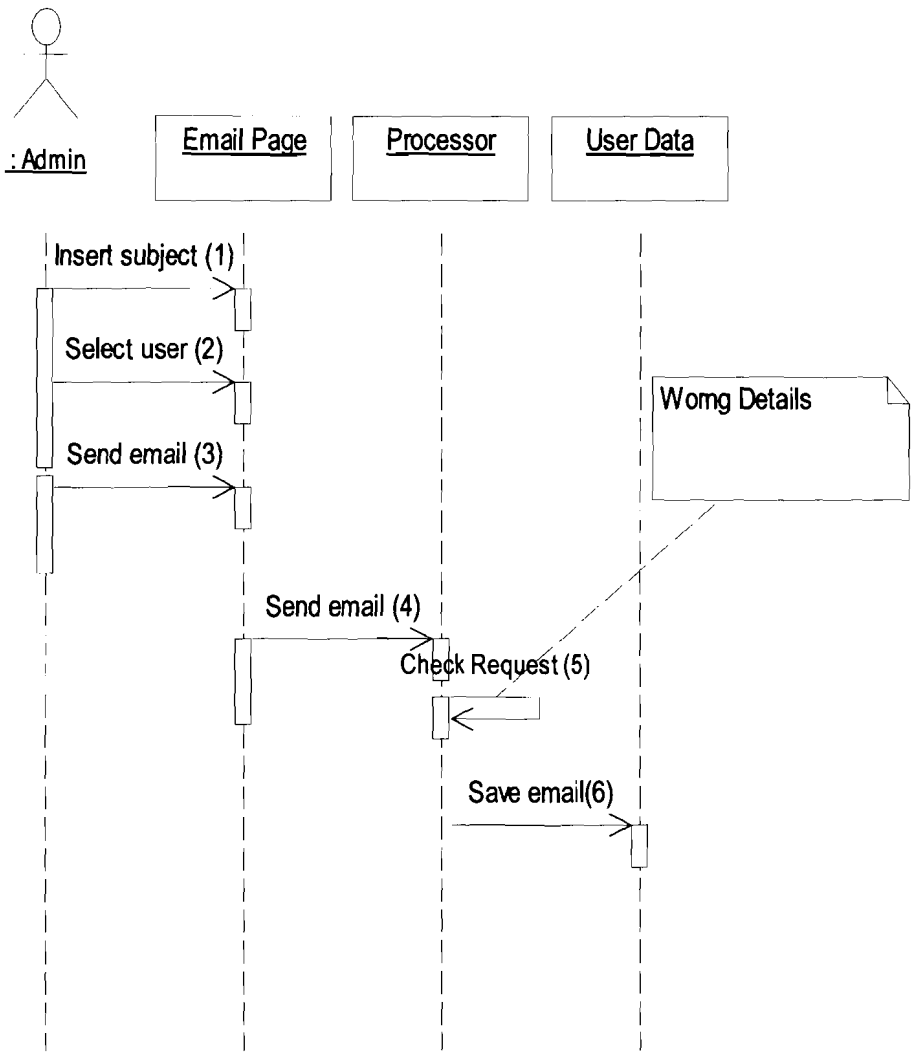

Figure 4.18: Email User Sequence Diagram

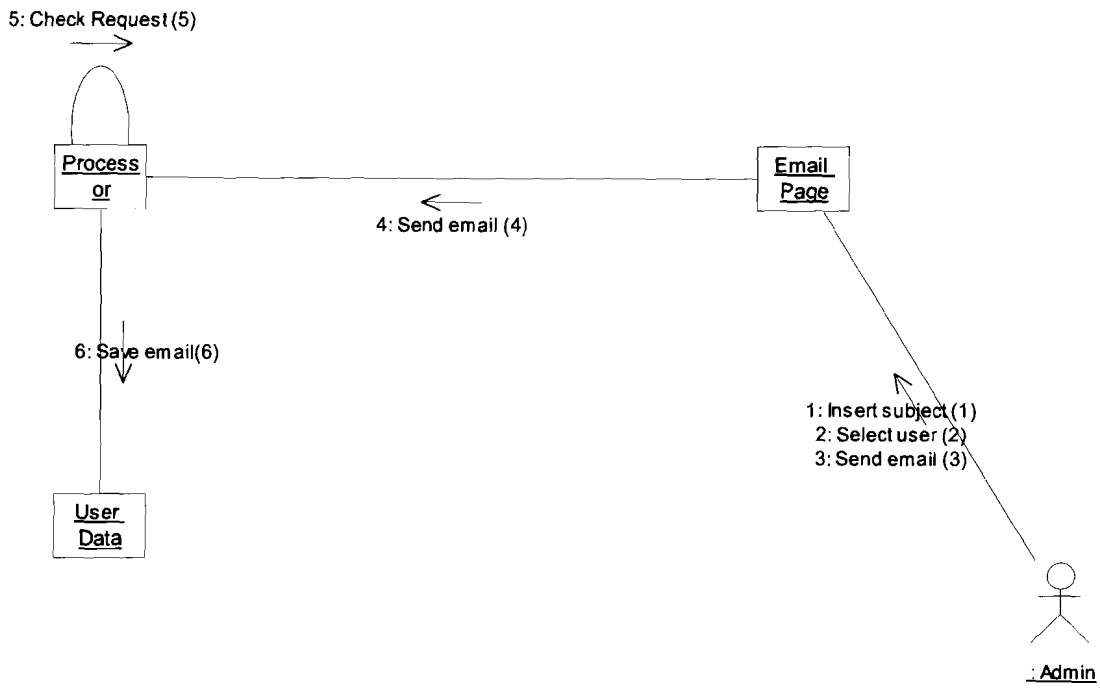

Figure 4.19: Email User Collaboration Diagram

4.3 System Development

4.3.1 PHP

During the initialization process of the ABSS website, a number of tools were deployed in order to design and develop the proposed website. Preprocess Hypertext language was used in this study to develop the proposed ABSS website along with adaptation of content management frameworks that comes in the same package. The process started by customizing the user pages requirements, which extracted from the functional and non functional requirements. Furthermore, administrator facilities were developed to manage and customize the available resources. The Apache server XAMPP 5th addition was used as a communicator between PHP and MYSQL.

4.3.2 MySQL

MySQL database is a tool for designing and structuring the data into tables that assigned under a certain ID. MySQL used widely in various applications that deploys locally or through server [48-50]. The effectiveness of utilizing MySQL database in this research has addressed to be a simple and flexible tasks, the reason back to the fast performance, and high reliability during the execution [51]. This research structured the database tables by putting in account the number of users and actions for each execution. Meanwhile, the research identified the main rows for each table for saving and retrieving data among clients [52]. Figure 4.20 presents the architecture of MYSQL among parties.

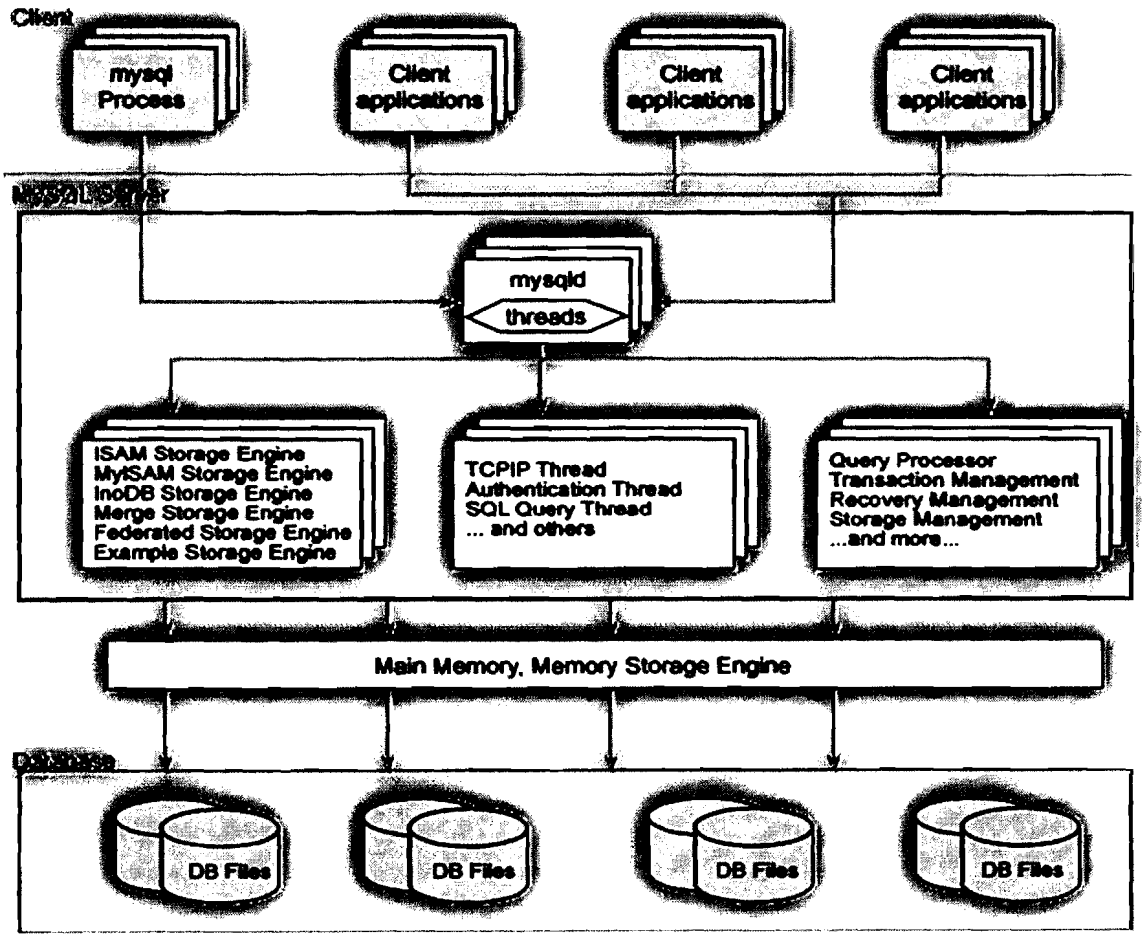

Figure 4.20: MYSQL Architecture [53]

4.4 System Testing

4.4.1 ABSS Home Page

The ABSS home pages is presents in Figure 4.21, which involves the login, register, forget password, resources, contact us, calendar, and forum. User can be able to register and login through this page.

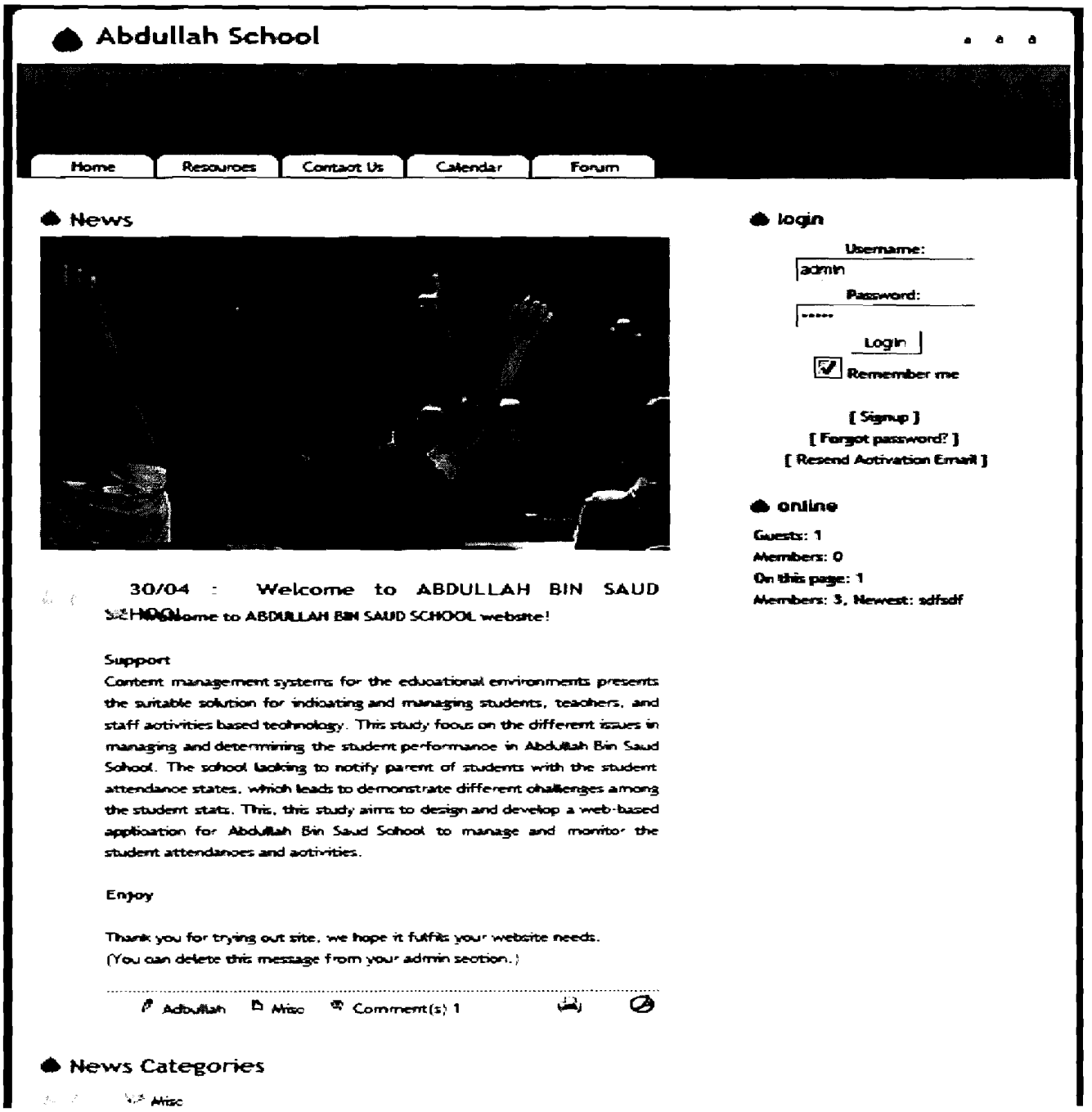

Figure 4.21: ABSS Home Page

4.4.2 ABSS Login Page

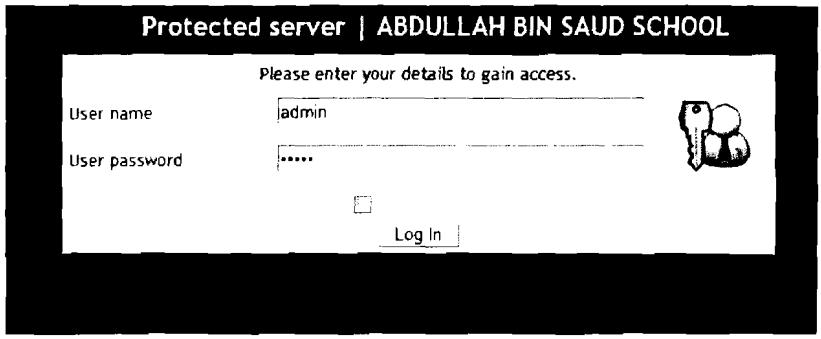

Figure 4.22: ABSS Login Page

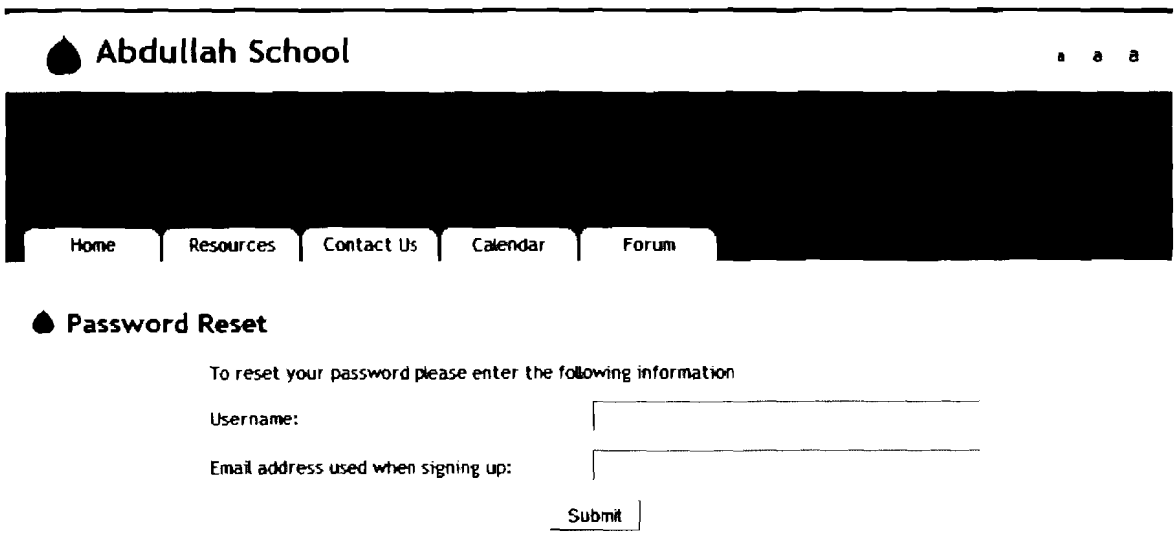

Figure 4.23: Forgot Password Page

4.4.3 ABSS Register Page

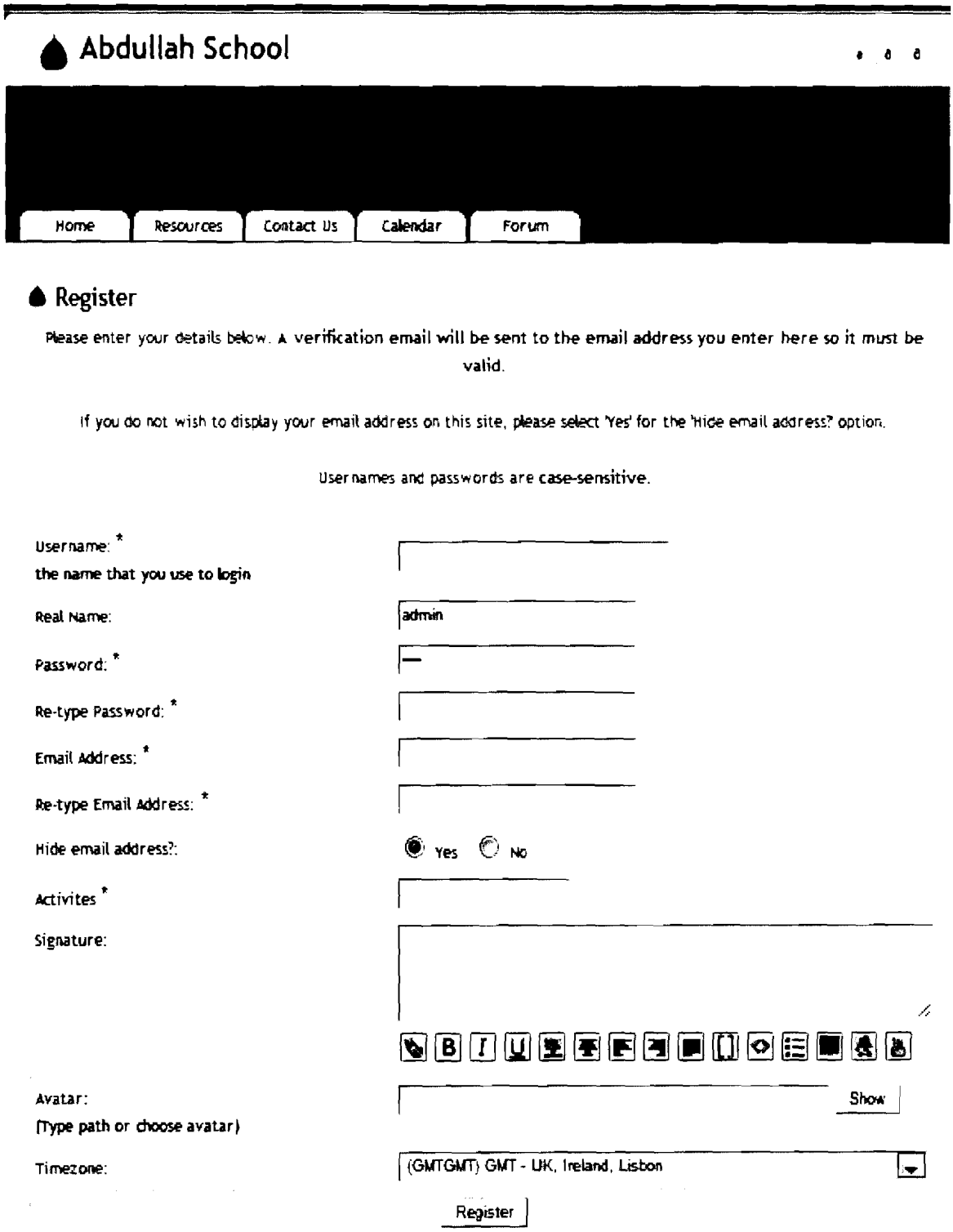

Figure 4.24: Register Page

4.4.4 ABSS Search Page

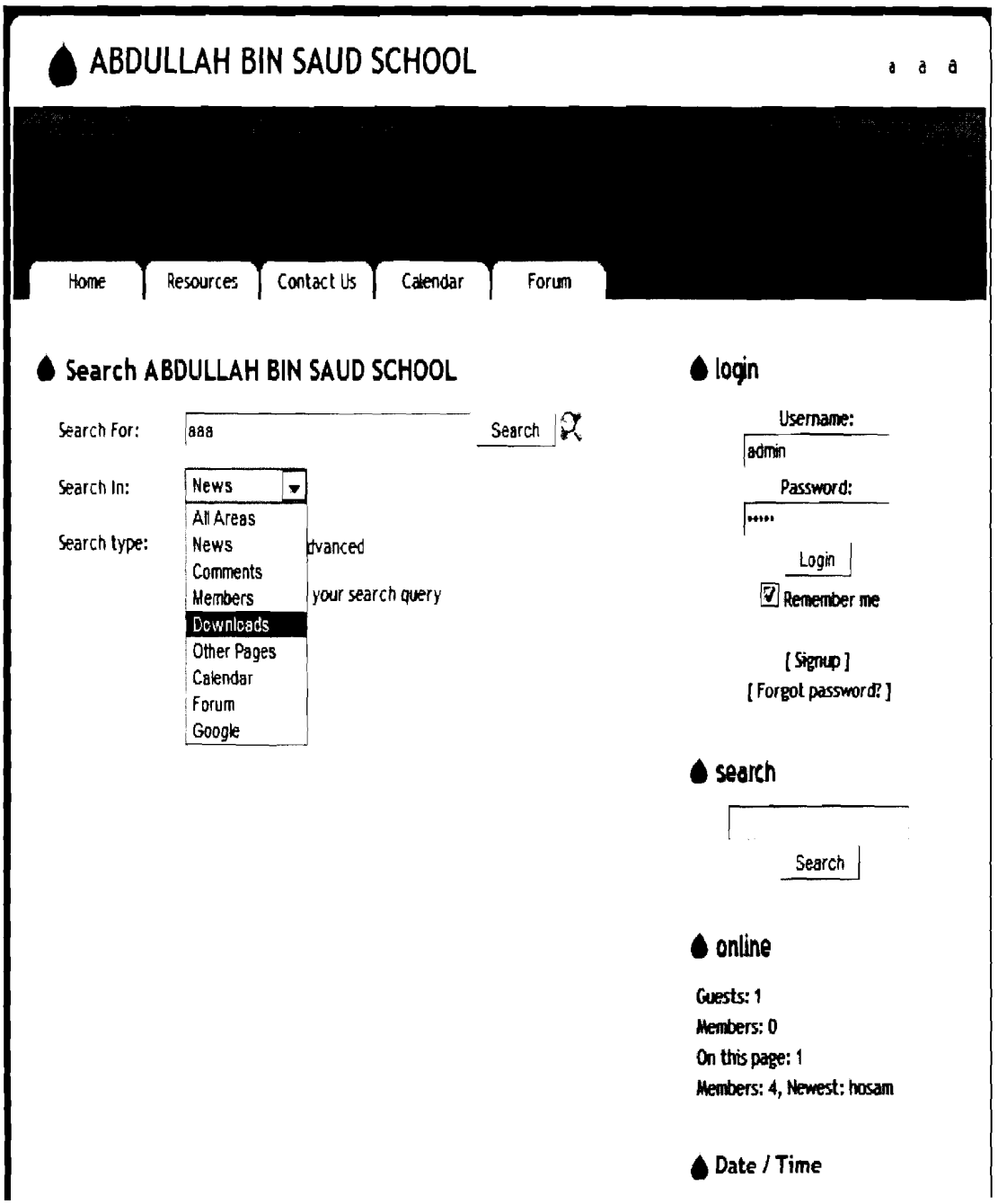

Figure 4.25: Search Page

4.4.5 ABSS Recourses Page

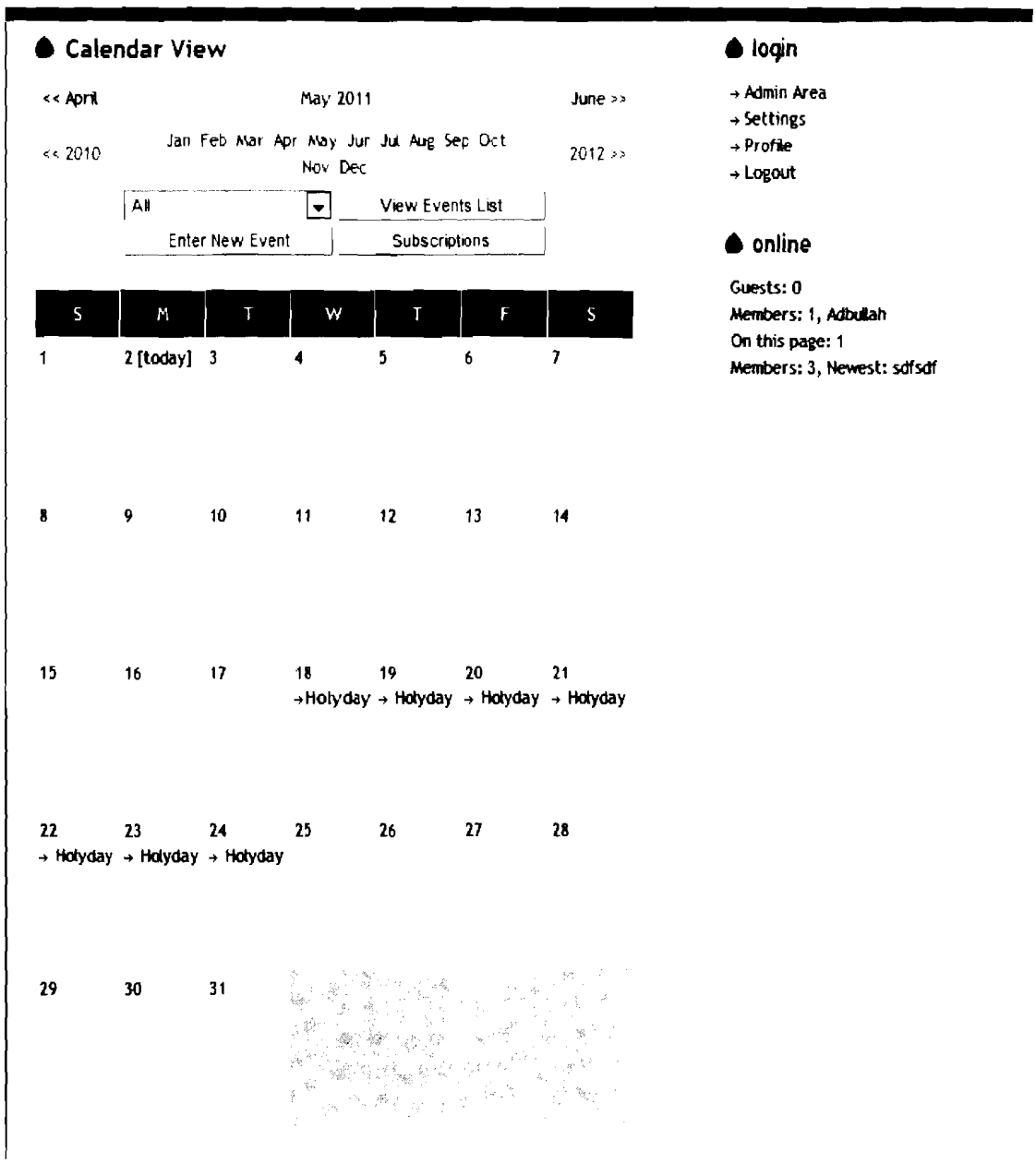

Figure 4.26: Recourses Page

4.4.6 ABSS Post Forum Page

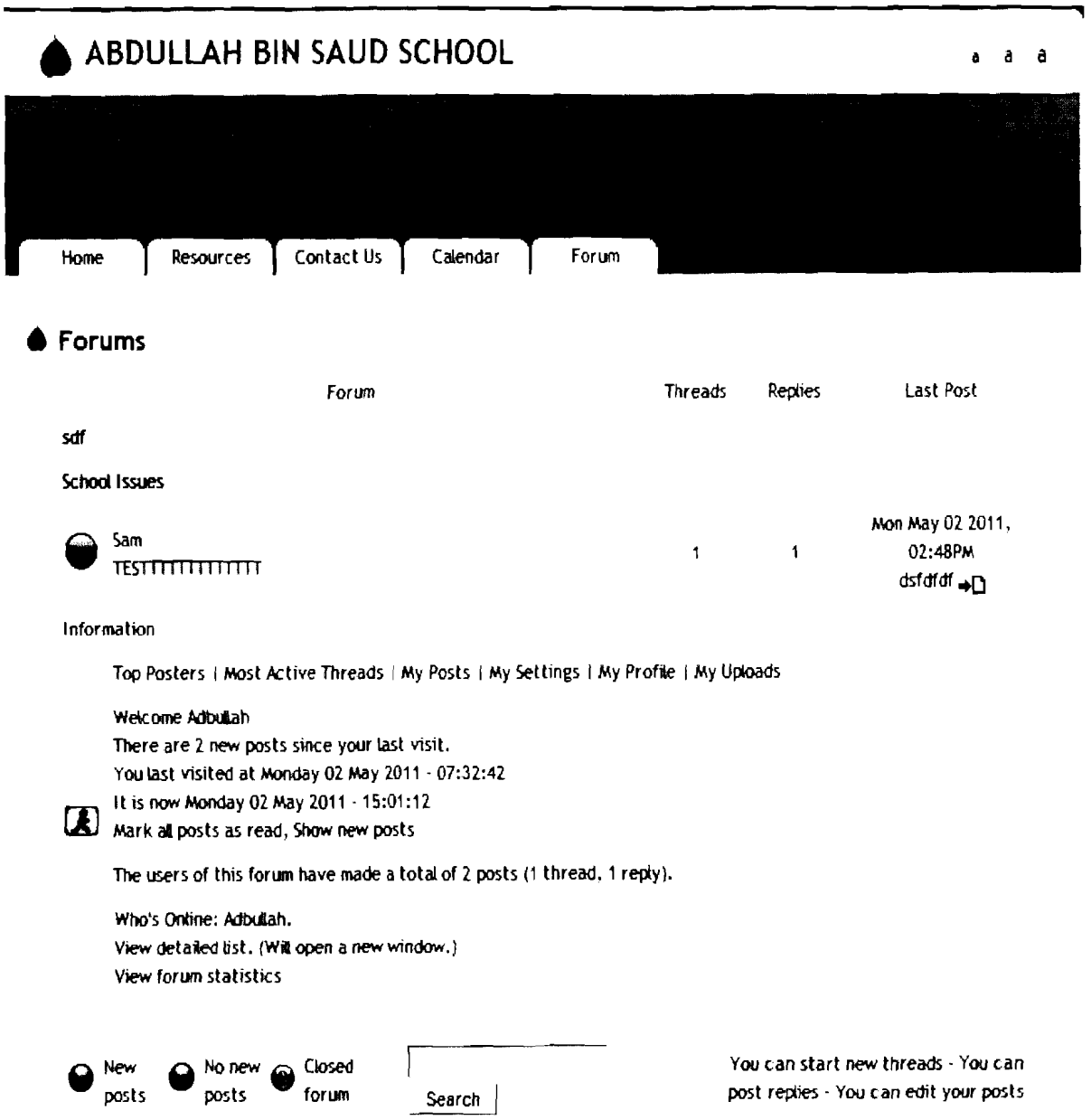

Figure 4.27: Post Forum Page

4.4.7 ABSS Admin Control Panel Page

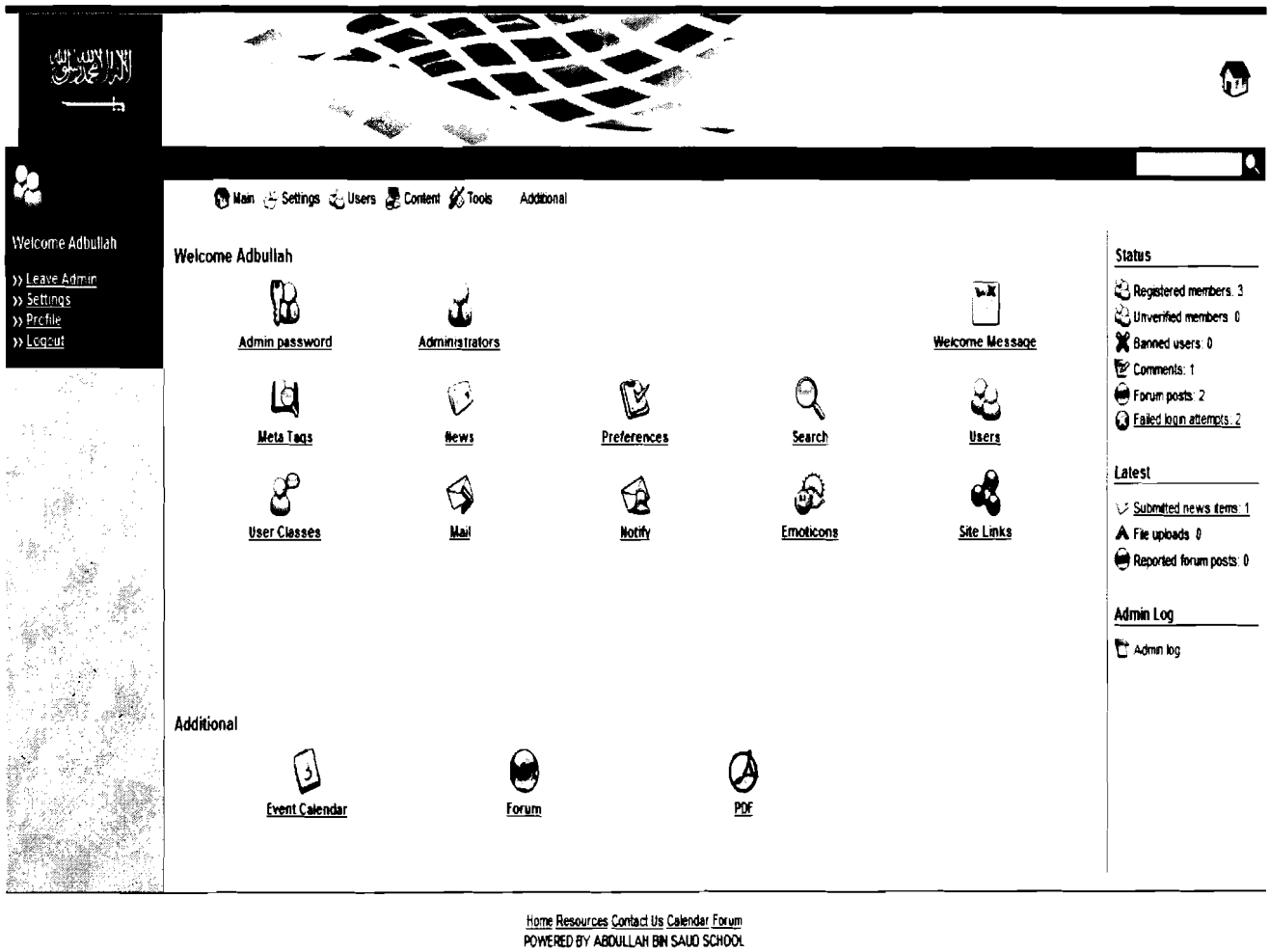

Figure 4.28: Admin Control Panel Page

4.4.8 ABSS Manage User Page

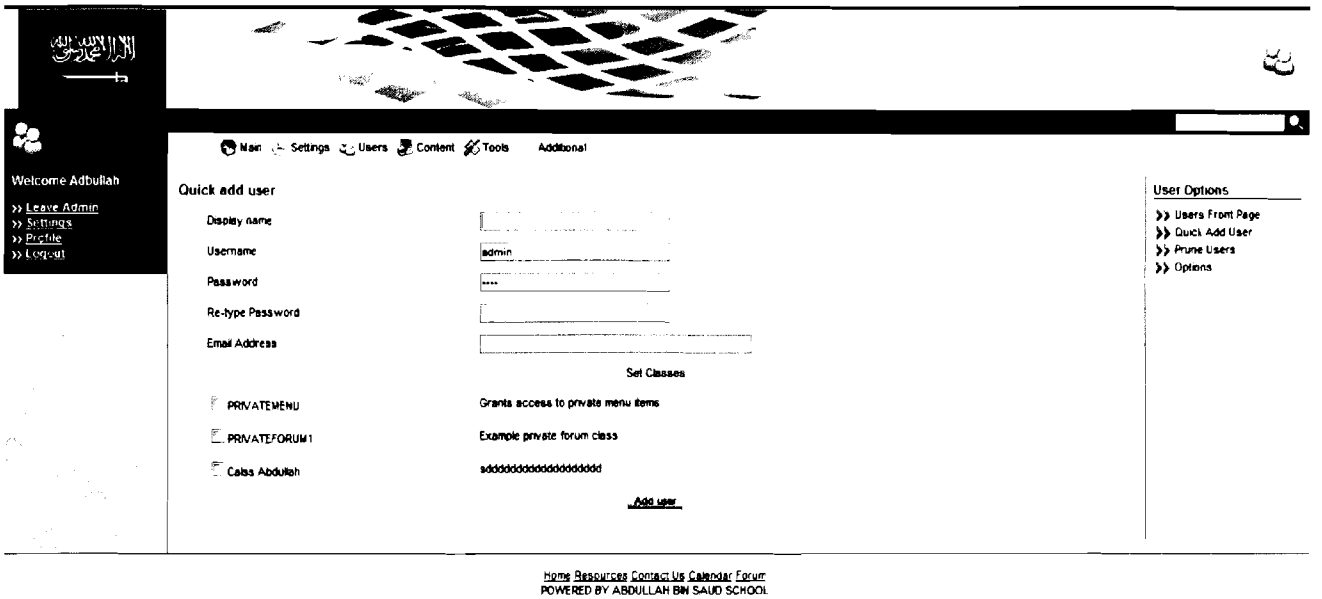

Figure 4.29: Manage User Page

4.4.9 ABSS Manage Classes Page

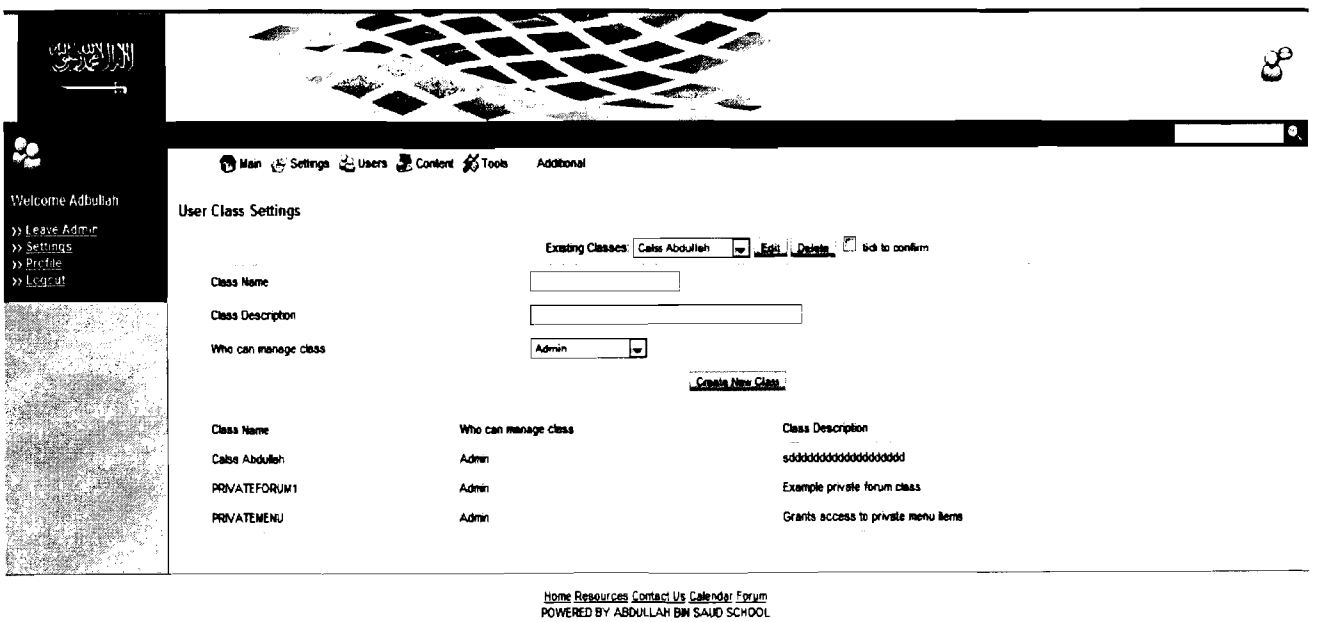

Figure 4.30: Manage Class Page

4.4.10 ABSS Manage Resources Page

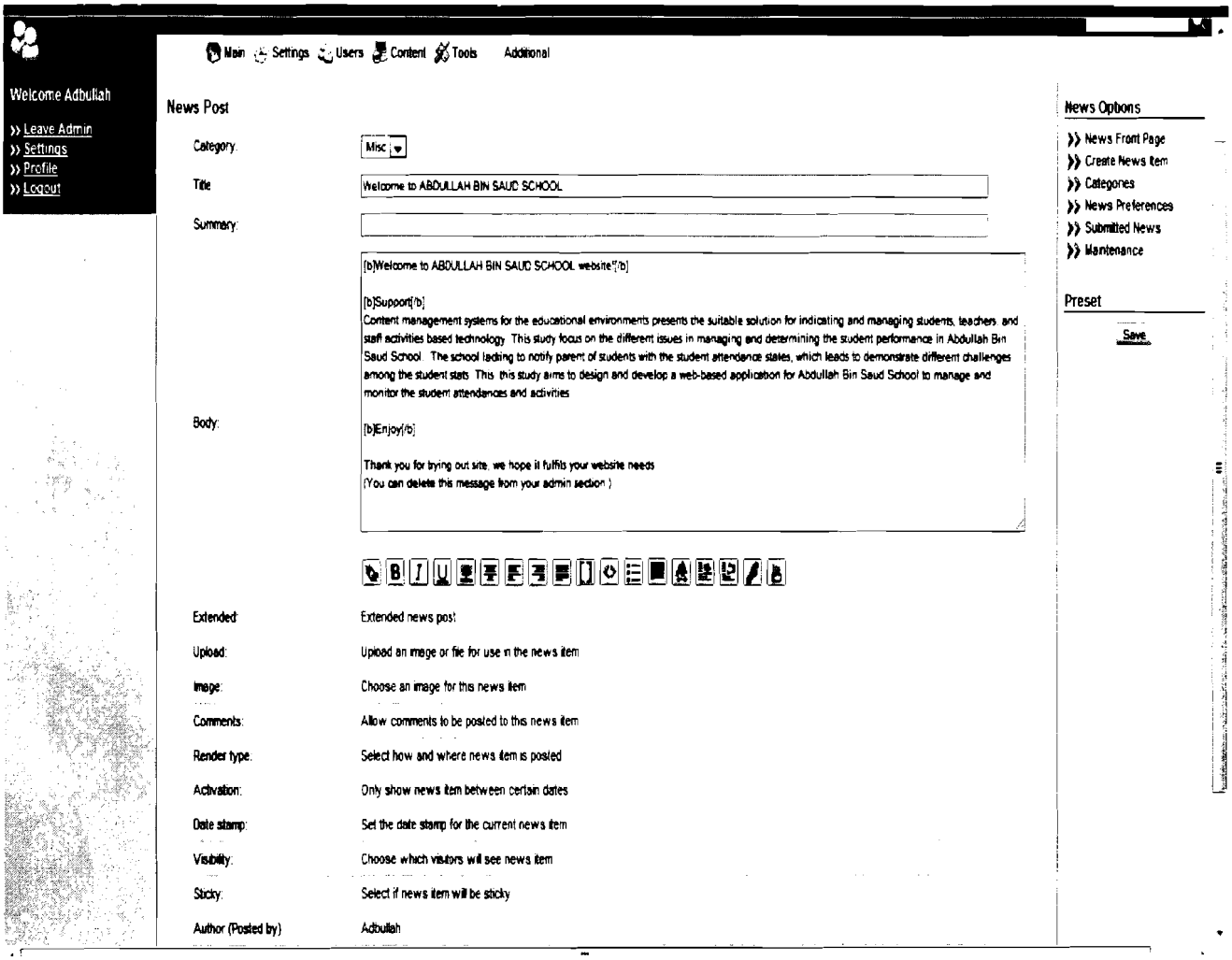

Figure 4.31: Manage Resources Page

4.4.11 ABSS Email User Page

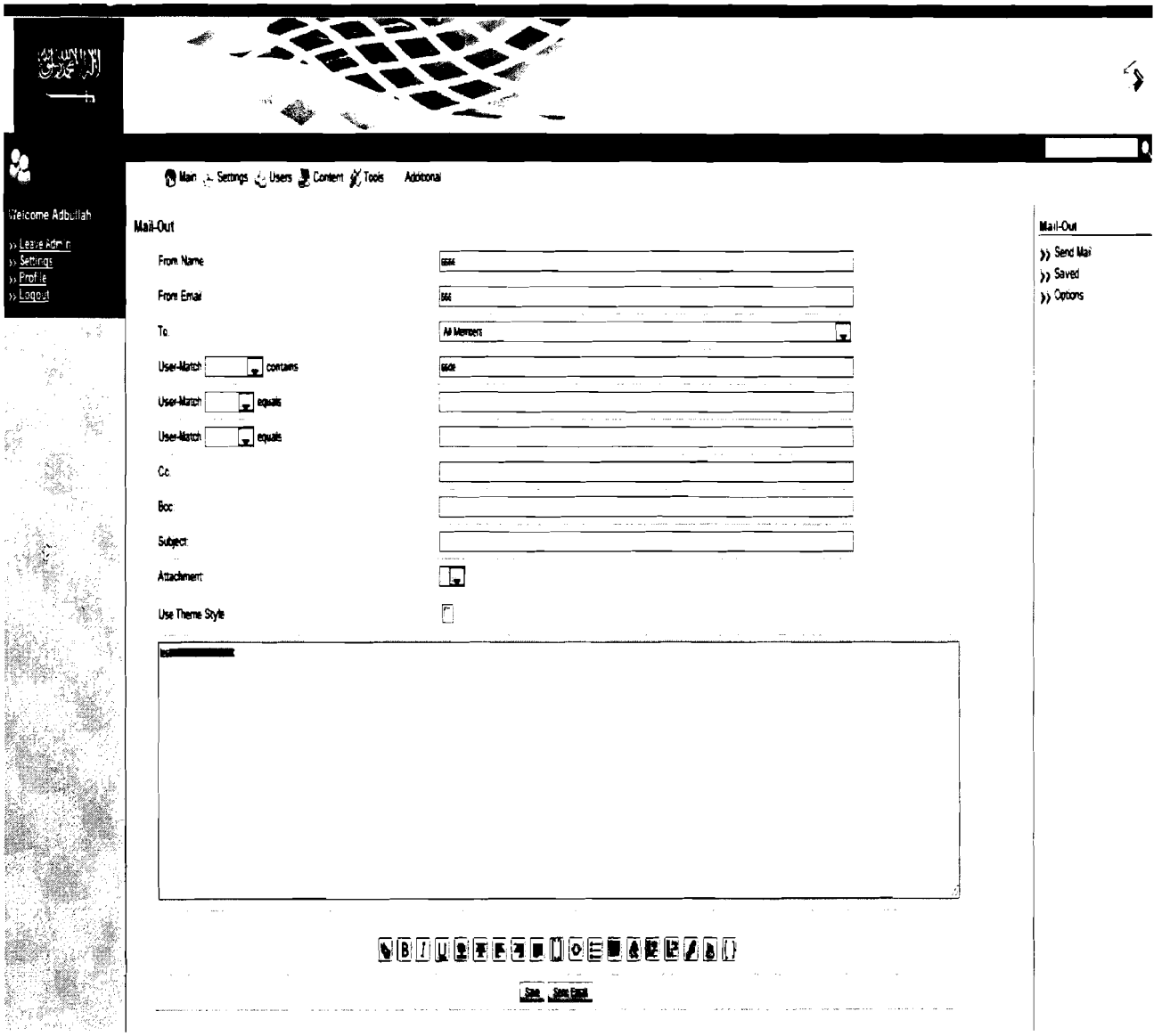

Figure 4.32: Email User Page

CHAPTER FIVE

EVALUATION

This chapter presents the evaluation process for this study towards the ease of use and usefulness of ABSS School. A questionnaire technique was administrated in this study to measure the ease of use and usefulness among 30 students from UUM. The obtained result was analyzed by SPSS by measuring the reliability of each components and the descriptive statistic as an overall. As well, a summary of the finding provided at the end of this chapter.

5.1 Introduction

After the system has been developed, it was tested by running the system on local host server. The student evaluation of the prototype was conducted on 30 respondents; each of them was given brief explanation regarding the usage and the student interface of the prototype. Every question in the dimension has a rate from 1 to 5 (1 -> Strongly Disagree, 2-> Disagree, 3-> Neutral, 4-> Agree, and 5-> Strongly Agree).

5.2 Respondents Background

The respondent's characteristics are presented in terms of demographic information, including age, gender, school, and period of using Internet. As shown in Table 5.1, 11 of the respondents were 26-33 (36.7%) age groups. As well, 9 of the respondents were 34-41 age groups (30%). Also, 8 of the respondents were 18-25 (26.7%). And only 2 of the respondents were <41 age groups (6.7%).

Table 5.1: Profile of Respondents by Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	8	26.7	26.7	26.7
	26-33	11	36.7	36.7	63.3
	34-41	9	30.0	30.0	93.3
	<41	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

However, the gender of each respondent was mostly for males with 25 respondents (83.3%) were males and only 5 respondents were females (16.7%) as shown in Table 5.2.

Table 5.2: Profile of Respondents by Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	25	83.3	83.3	83.3
	Female	5	16.7	16.7	100.0
	Total	30	100.0	100.0	

The distribution of the questionnaire among schools was found commonly in the school of arts that involves 19 respondents (63.3%). As well, 8 respondents were from school of CS (26.7%). And only 3 respondents (10%) were from school of education as shown in Table 5.3.

Table 5.3: Profile of Respondents by School

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	School of Education	3	10.0	10.0	10.0
	School of Arts	19	63.3	63.3	73.3
	School of IT & ICT	8	26.7	26.7	100.0
	Total	30	100.0	100.0	

Finally, Table 5.4 shows the usage of web devices among participants. The analysis found that 16 of the participants were using web daily (53.3%), while 9 of them were using it weekly (30.0%). And 5 of the respondents were using it weekly (16.7%).

Table 5.4: Profile of Respondents by Usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	16	53.3	53.3	53.3
	Weekly	5	16.7	16.7	70.0
	Rarely	9	30.0	30.0	100.0
	Total	30	100.0	100.0	

5.3 Reliability for Ease of Use and Usefulness

Table 5.5 presents the reliability aspects for the ease of use and usefulness in using ABSS GUI for learning. The measurement was conducted for 13 items and the obtained result was .657. Table 5.6 presents the total statistic of the ease of use and usefulness items.

Table 5.5: Reliability for ease of use and usefulness

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.657	.633	13

Table 5.6: Item-Total Statistics for ease of use and usefulness

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1	30.2667	30.271	.369	.325	.622
Q2	28.9333	30.547	.433	.502	.608
Q3	29.7000	27.321	.628	.740	.557
Q4	29.6667	32.092	.350	.753	.626
Q5	29.8000	25.407	.587	.704	.558
Q6	30.9333	31.271	.379	.321	.636
Q7	29.2300	28.4250	.362	.331	.532
Q8	28.5333	35.982	.203	.473	.652
Q9	28.6667	36.092	.208	.643	.651
Q10	29.2000	34.303	.177	.362	.661
Q11	29.4667	37.292	-.002	.260	.689
Q12	29.4667	35.154	.186	.458	.655
Q13	27.6667	34.982	.231	.352	.562

5.4 Descriptive Statistic Result

The descriptive statistic test was conducted for the 13 items among the respond of 30 participants who anticipated in this study.

Table 5.7: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	30	1.00	5.00		1.49674
Q2	30	1.00	5.00	3.7000	1.31700
Q3	30	1.00	5.00	2.9333	1.41259
Q4	30	1.00	5.00	2.9667	1.24522
Q5	30	1.00	5.00	2.8333	1.72374
Q6	30	1.00	5.00	3.9333	1.31259
Q7	30	1.00	5.00	3.2353	1.13312
Q8	30	1.00	5.00		.80301
Q9	30	2.00	5.00		.96489
Q10	30	1.00	5.00	3.4333	1.27802
Q11	30	1.00	5.00	3.1667	1.14721
Q12	30	1.00	5.00	3.1667	1.05318
Q13	30	1.00	5.00	3.2422	1.02341

As illustrated in Table 5.7, students responded to 13 items (Appendix A) related to the ease of use and usefulness of using ABSS in learning. However, the highest percentage of the ease of use and usefulness scores among the research participants was (combination of 'not sure or 'agree'). Most of the students felt self-conscious using the ABSS in managing school, which reported that they "agree or strongly agree" with that statement with Mean score (M=4.9667) and Standard

Deviation (SD=.96489). While some students felt uncomfortable using the ABSS (M=4.1000) and Standard Deviation (SD=.80301).

Furthermore, the lowest percentage of the ease of use and usefulness scores among the research participants was (combination of 'strongly disagree or 'disagree'). Most of the students thought that the ABSS has assisted the overall acceptance process for those students, with Mean score (M=2.3667) and Standard Deviation (SD=1.49674).

5.5 Summary

This chapter indicated the evaluation process for ABSS website among 30 participants from UUM who asked to test the proposed ABSS functionalities, the result showed the high agreement for ease of use and usefulness of use ABSS, the result was mean =4. 9667. The next chapter introduces the conclusion and future works towards this study.

CHAPTER SIX

CONCLUSION AND FUTURE WORK

The main aims of this chapter focus on the conclusion and recommendation of this study. The conclusion indicates how the research objectives were achieved in terms of the research design, development, result, and evaluation. As well, a brief recommendation is given as contributions to future enhancement.

6.1 Introduction

This study was conducted for designing, developing, and evaluating of content management web application for Abdullah Bin Saud School. The utilization of different tools was described in details earlier. This chapter emphasizes the lacking, limitations, and recommendations of applying ABSS in local host. At the end of this chapter a different direction were initialed for:

- Construct user requirement of the web-based school management system.
- Design web-based school management system for Abdullah Bin Saud School.
- Develop and evaluate the proposed system.

6.2 Problems and Limitations

The problem of this study on using the traditional method in managing and processing Abdullah Bin Saud School, which done manually that reflects inefficient procedure for arranging record in order.

The proposed ABSS web site was tested using local host server, namely Internet Information Services (IIS). However, with limited financial resources no actual web server can be employed in testing the prototype.

6.3 Recommendations

A prototype of the system was successfully developed using PHP and other additional features that used to build the prototype in order such as; MYSQL and Dreamweaver editor, and XAMPP. The proposed ABSS web site was deployed on local host, which limit the opportunity to identify the expected performance of the web site. A number of recommendations could be required to put in count, such as:

- Provides user with the ability to track their student learning level anytime and anywhere.
- Test and deploy the proposed ABSS on a real server to identify the other aspects in terms of security, reliability, and applicability.
- Extend the deployment of ABSS on others web browsers types that require different additional, such as Netscape Navigator 4.0 and Opera 6.0 and the Firefox that need to identify the system components requirement.

6.4 Conclusion

According to the problem statements and research objective, the research has heavily getting involved in developing requirements to complete the research methodology for this research successfully through managing the requirements. In order to make requirements more understandable the requirements have been modeled by involving a different conceptual and modeling diagrams for carrying the ABSS functionalities among users, teachers, and administrator based on use case diagram, sequence diagram, and collaboration diagram to model the system requirement in order to illustrate the research objectives.

Furthermore, the data modeling has been created to organize the database and make it easy to modify and retrieve through create the database table for all users, teachers, and administrators based on MYSQL server, that emphases the structure of database that classify the tables by them. Finally, the system has been implemented using PHP language along with XAMPP tools for connecting the PHP and MYSQL with each other. Meanwhile, the evaluation was carried out by involving the participant background, ABSS reliability, and descriptive statistic, which indicated that the proposed ABSS was highly applicable to deliver the user needs.

Bibliography

[1] C. Chou, "Interactivity and interactive functions in web-based learning systems: a technical framework for designers," *British Journal of Educational Technology,* vol. 34, pp. 265-279, 2003.

[2] A. Chua, "Knowledge management system architecture: a bridge between KM consultants and technologists," *International Journal of Information Management,* vol. 24, pp. 87-98, 2004.

[3] C. H. Tienken *et al.*, "The Influence of Computer-Assisted Instruction on Eighth Grade Mathematics Achievement," *RMLE Online,* vol. 32,pp.57-63, 2008.

[4] F. Xiao *et al.*, "Arabidopsis CYP86A2 represses Pseudomonas syringae type III genes and is required for cuticle development," *The EMBO Journal,* vol. 23, pp. 2903-2913, 2004.

[5] D. Myers, "Computer game semiotics," *Play and Culture,* vol. 4,pp.2-7, 1991.

[6] M. Dworak *et al.*, "Impact of singular excessive computer game and television exposure on sleep patterns and memory performance of school-aged children," *Pediatrics,* vol. 120, pp. 978, 2007.

[7] J. Robertson and C. Howells, "Computer game design: Opportunities for successful learning," *Computers & Education,* vol. 50, pp. 559-578, 2008.

[8] R. Thalemann *et al.*, "Specific cue reactivity on computer game-related cues in excessive gamers," *Behavioral neuroscience,* vol. 121, pp. 614, 2007.

[9] F. D. Davis *et al.*, "Extrinsic and Intrinsic Motivation to Use Computers in the Workplace1," *Journal of Applied Social Psychology,* vol. 22, pp. 1111-1132, 1992.

[10] S. Taylor and P. A. Todd, "Understanding information technology usage: A test of competing models," *Information systems research,* vol. 6, pp. 144-176, 1995.

[11] H. C. Lucas Jr and V. Spitler, "Technology Use and Performance: A Field Study of Broker Workstations," *Decision Sciences,* vol. 30, pp. 291-311, 1999.

[12] V. Venkatesh *et al.*, "User acceptance of information technology: Toward a unified view," *MIS quarterly,* pp. 425-478, 2003.

[13] V. Venkatesh, "Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model," *Information Systems Research,* vol. 11, pp. 342-365, 2000.

[14] K. A. Ericsson, "The influence of experience and deliberate practice on the development of superior expert performance," *The Cambridge handbook of expertise and expert performance,* pp. 683–703, 2006.

[15] I. Verenikina *et al.*, "Child's play: computer games, theories of play and children's development," in *Proceedings of the international federation for information,* Darlinghurst, Australia, 2003, pp. 99-106.

[16] D. Cameron, "Playing serious games in journalism classes," *Asia Pacific Media Educator,* vol. 1, pp. 11, 2001.

[17] J. Lee *et al.*, "More than just fun and games: Assessing the value of educational video games in the classroom," Conference on Human Factors in Computing Systems, Vancouver BC, 2004, pp. 1375-1378.

[18] R. Rosas *et al.*, "Beyond Nintendo: design and assessment of educational video games for first and second grade students," *Computers & Education,* vol. 40, pp. 71-94, 2003.

[19] S. Murugesan *et al.*, "Web engineering: A new discipline for development of web-based systems," *Web Engineering,* pp. 3-13, 2001.

[20] M. Syrjakow *et al.*, "Interactive Web-based animations for teaching and learning," in *Simulation Conference,* US, 2000, pp. 1651-1659 vol. 2.

[21] S. C. Lee and A. I. Shirani, "A Component Based Methodology for Web Application Development," *Journal of Systems and Software,* vol. 71, pp. 177-187, 2004.

[22] D. Oberle *et al.*, "Supporting application development in the semantic web," *ACM Transactions on Internet Technology (TOIT),* vol. 5, pp. 328-358, 2005.

[23] H. S. Kwon *et al.*, "Development of web-based diabetic patient management system using short message service (SMS)," *Diabetes research and clinical practice,* vol. 66, pp. S133-S137, 2004.

[24] V. N. Mee and A. Selamat, "SMS management system for direct sales and network marketing," *Proceedings of CITA,* 2007,pp.2-5.

[25] J. J. H. Liou *et al.*, "Building an effective safety management system for airlines," *Journal of Air Transport Management,* vol. 14, pp. 20-26, 2008.

[26] O. Ferrer-Roca *et al.*, "Mobile phone text messaging in the management of diabetes," *Journal of telemedicine and telecare,* vol. 10, p. 282, 2004.

[27] A. Selamat and S. Bujang, "The design of model checking agent for SMS management system," *Agent and Multi-Agent Systems: Technologies and Applications,* pp. 813-821, 2008.

[28] C. L. Tseng *et al.*, "Feasibility study on application of GSM-SMS technology to field data acquisition," *Computers and electronics in agriculture,* vol. 53, pp. 45-59, 2006.

[29] J. W. Finnie, "Expression of the immediate early gene, c-fos, in mouse brain after acute global system for mobile communication microwave exposure," *Pathology,* vol. 37, pp. 231-233, 2005.

[30] C. Peersman *et al.*, "The global system for mobile communications short message service," *Personal Communications, IEEE,* vol. 7, pp. 15-23, 2000.

[31] K. Siau and Z. Shen, "Mobile communications and mobile services," *International Journal of Mobile Communications,* vol. 1, pp. 3-14, 2003.

[32] C. E. Lin *et al.*, "A real-time remote control architecture using mobile communication," *Instrumentation and Measurement, IEEE Transactions on,* vol. 52, pp. 997-1003, 2003.

[33] T. Kupka *et al.*, "Schoolbook-An Authoring Tool and Content Management System," in *International Conference on Web Education,* Innsburck, Austria 2004, pp. 169-171.

[34] R. Reis *et al.*, "Learning Management Systems in Vocational Schools," *WSEAS TRANSACTIONS on Advances in Engineering Education,* vol. 5, pp. 580-584, 2008.

[35] K. Umeda *et al.*, "The Development of School Websites Management System and Its Trials during School Field Work in a Distant Place," *IJCSNS,* vol. 6, p. 152, 2006.

[36] N. Tabassam *et al.*, "Fully Automated Attendance Record System using Template Matching Technique," *International Journal of Engineering & Technology,* vol. 10, pp. 57-63, 2008.

[37] O. Mahfudzah *et al.*, "The development of the web-based Attendance Register System (ARS) for higher academic institution: From feasibility study to the design phase," *International Journal of Computer Science and Network Security,* vol. 9, pp. 203-207, 2009.

[38] M. Kizildag *et al.*, "An Automated Attendance Monitoring and Registration System for EMU's SPIKE Seminar Series," *Journal of Communication,* vol. 2, pp. 12-19, 2009.

[39] A. Zuccato, "Holistic security requirement engineering for electronic commerce," *Computers & Security,* vol. 23, pp. 63-76, 2004.

[40] N. Ahituv *et al.*, "A system development methodology for ERP systems," *Changes,* vol. 4, p. 1, 2002.

[41] K. Siau and X. Tan, "An Investigation into the Continued Use of Unified Modeling Language (UML) in Information Systems Development," *AMCIS 2005 Proceedings,* 2005, p. 317.

[42] C. Larman, *Applying UML and patterns: an introduction to object-oriented analysis and design and the unified process*: Prentice Hall PTR, 2001.

[43] M. Fowler and K. Scott, *UML distilled*: Addison-Wesley Boston, 1998.

[44] M. Fowler, *UML distilled: a brief guide to the standard object modeling language*: Addison-Wesley Professional, 2004.

[45] J. A. Hoffer *et al.*, *Modern systems analysis and design*: Addison-Wesley, 1999.

[46] M. G. Morris *et al.*, "An Examination of Procedural and Object oriented Systems Analysis Methods: Does Prior Experience Help or Hinder Performance?," *Decision Sciences,* vol. 30, pp. 107-136, 1999.

[47] P. Giorgini *et al.*, "Requirement Engineering Meets Security: A Case Study on Modelling Secure electronic transactions by VISA and Mastercard," *Conceptual Modeling-ER 2003,* pp. 263-276, 2003.

[48] L. Welling and L. Thomson, *PHP and MySQL Web development*: Sams Publishing, 2003.

[49] A. MySQL and S. B. Online, *MySQL administrator's guide and language reference*: MySQL, 2006.

[50] D. Lane, *Web Database Applications with PHP and MySQL*: O'Reilly & Associates, Inc. Sebastopol, CA, USA, 2002.

[51] J. D. Zawodny and D. J. Balling, *High Performance MySQL: Optimization, Backups, Replication, Load-balancing, and More*: O'Reilly & Associates, Inc. Sebastopol, CA, USA, 2004.

[52] M. Widenius *et al.*, *MySQL reference manual*: O'Reilly & Associates, Inc. Sebastopol, CA, USA, 2002.

[53] P. DuBois, *MySQL cookbook*: O'Reilly Media, Inc., 2006.

Appendix A

Questionnaire

DESIGNING A PROTOTYPE FOR ABDULLAH BIN SAUD SCHOOL WEBPAGE

Web services through Internet provide users with the ultimate services that include high quality features and stunning design concept. The ABSS is a web based application, highly functioned with activities controls for the School activities and events.

This study will carry out the following objectives:

- To construct user requirement of the web-based school management system.
- To design web-based school management system for Abdullah Bin Saud School.
- To develop and evaluate the proposed system.

Thanks,

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Section A: Respondent profile (please v where appropriate)

Please answer the following questions:

(1) GENDER

a- Male ( )

b- Female ( )

(2) AGE

a- 18-25 ( )

b- 26-33 ( )

c- 34-41 ( )

d- Above 41 years ( )

(3) SCHOOLS

a- School of Education ( )

b- School of Arts (COA) ( )

c- School of IT & ICT ( )

(4) FREQUENCY OF INTERNET USAGE

a- Daily ( )

b-Weekly ( )

c- Monthly ( )

d- Rarely ( )

Section B:

This section contains ten questions about ABSS GUI ease of use and usefulness.

Please circle the appropriate number which indicates the extent to which you agree or disagree with the statements using the following semantics differential scale:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

	Statements					
	Ease of use					
(1)	I think the ABSS has assisted my overall satisfaction towards managing takes.	1	2	3	4	5
(2)	It was easy to use ABSS in managing contents than if I had not had it.	1	2	3	4	5
(3)	Having to use the ABSS hindered my ability.	1	2	3	4	5
(4)	I would have used the ABSS more had there been fewer technical problems.	1	2	3	4	5
(5)	I found myself capable to handle many tasks in one time easily.	1	2	3	4	5
(6)	I found ABSS is easy to use than the manual system.	1	2	3	4	5
(7)	I prefer working on the ABSS than the old system to complete my works.	1	2	3	4	5
	USEFULNESS					
(8)	I felt using ABSS was useful to use.	1	2	3	4	5
(9)	I felt self-conscious using the ABSS.	1	2	3	4	5
(10)	The advantages of having an ABSS outweighed the drawbacks of taking part in the trial (managing user, activities, etc.).	1	2	3	4	5
(11)	I have changed the way I plan for managing contents as a result of using the ABSS.	1	2	3	4	5
(12)	I have changed the way I take notes as a result of using the ABSS.	1	2	3	4	5
(13)	I found that ABSS useful to use than the manual system	1	2	3	4	5