WEB BASED ENGLISH LANGUAGE PLACEMENT TEST SYSTEM

(ELPTS)

AHMAD MTAIR KHADAIR ALHAWAMLEH

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WEB BASED ENGLISH LANGUAGE PLACEMENT TEST SYSTEM

(ELPTS)

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By

AHMAD MTAIR KHADAIR ALHAWAMLEH

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ABSTRACT

The English language proficiency of international students admitted to study different academic programs in University of Utara Malaysia is of paramount importance. Students are expected to communicate satisfactorily (verbal and written) during the course of their studies. The presently conducted English placement test is paper-based, which is time consuming and effort spending. This study aims to develop a web-based English Language Placement Test; in order to reduce the time and efforts which are required in paper based tests. Therefore, Vaishnavi method is used to design and develop the prototype model. According to the requirements are collected through interview with both students and department staff. Moreover, the prototype model is proposed, and the system is developed. Furthermore, the user acceptance test is conducted.

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CHAPTER ONE

INTRODUCTION

1.0   INTRODUCTION

The present study is divided into six chapters beginning with the opening chapter that deals with a general outline of the study, followed by a background assessment of the project. This assessment discusses both aspiration and inspiration behind the project coupled with the basis of the project. Moreover, the first chapter provides an overview of the problem statement, the goals of the research and its scope and implications. The final portion of the chapter explains the organization of the rest of the chapters.

The present millennium experienced a wave of interest concerning computer technology. Computers have been used for many years to simplify our way of life. As a consequence, the Internet completely transformed today's way of life. Millions of people worldwide purchase computers just to connect to the World Wide Web (WWW). The development of the Internet is a major event in this millennium. Even back in 1992, 30% of the United States' population owned at least a single computer at home. By 1998, 30% had Internet access and over 70% owned a computer(Morris, 2011). Internet has been used by people in order to develop their awareness of what's going on in the world. It is more than likely that Internet will take over our lives' activities. It has been used to carry out activities such as: purchase groceries, pay phone and electricity bills and check bank accounts. All these activities and many more can be carried out through the Net (Morris, 2011).

Moreover, Internet is also made use of in schools; e.g. online registrations for new students, online checking of examination results, online research and distance learning. Virtual learning is becoming widespread whereby students are taught through the Internet (Powell, 2011).

The Web-based system is hailed as the appropriate environment within which social, organization, and educational network are encapsulated. Any internet user can participate in a web based system in a secure and regulated manner. Also, collaborative work done through online can be accessed simultaneously by all the participants concerned. Moreover, web-based system encourages participation from relevant parties and finally, the system is constructed upon strict standards (Pressman and Lows, 2009).

In addition, electronic examination, also known as computer-based examination, is a widely used computer based application that assists in developing the examination system through the use of technological tools to create, submit, and correct examination papers. It is considered as an invaluable system for students and teachers as it decreases time, effort, and cost. It is also sometimes known as e-testing and it can either be a stand-alone or it can be used to assist in developing a hypothetical learning surrounding.

In this day and age of educational curricula, English has become the most accepted medium of learning and teaching in academia. International students in all the higher institutes of learning have to fulfill an accepted level of English proficiency language before they can be admitted. Among the widely used English Language Tests that students are required to take are, TOEFL, IELTS, and MUET. The degree of comprehending the basics of English language will impact the non-native English language speakers' rule of language. In order to assess students' language

proficiency, e-assessment (computer aided assessment) is sometimes used. The questions within the e-assessment are organized in various ways: there is the mechanized random multiple choice questions (MCQ) and there is the more complex question structure.

The use of these technological advances in the evaluation of student's performance is becoming widespread both in public and private sectors. They work by providing feedback through a number of assessment systems to achieve effective correction of students' mistakes. Accordingly, the students' comprehension of particular areas of study during a learning course can be accessed through computer analysis (Green, Nacheva-Skopalik et al. 2008).

1.1   PROBLEM STATEMENT

Every year, new students hailing from non-native English speaking countries having no internationally accepted English test like TOEFL or IELTS etc., have to get through the UUM English Language Placement Test. The proficiency test conducted by UUM's English Language Department is paper-based which requires considerable time and funds for test preparations, test analysis and presentation of results.

This type of traditional examination requires questions to be written on paper and after which the exam is distributed to the students concerned. In addition, it requires appropriate timing for examination and assessment with full exposure to human careless mistakes. In other words, processes like this needs time, effort and considerable cost.

Accordingly, the director of UUM Language Center, Dr. Siti Jameela (2011) stressed the importance of e-testing during a conference. She stated that, "presently the English placement test that is conducted for our students are all paper-based and we do not have any online system to conduct the English placement test. I think such as system would be beneficial to us in minimizing resources, and saving administrative cost and time ".

Based on Jamwal and Lyer's (2003) study, most of the computer based evaluations are web-based and require user server prototype. The replacement of the paper based examination system by a web-based testing system has also been acknowledged in a study by Aye and Thwin (2008). UUM is currently finding ways to resolve the examination issue. Therefore, this study attempts to develop a web-based prototype model of the English Language Placement Test System (ELPTS).

1.2   RESEARCH QUESTIONS

The goal of developing research questions is to assist the researcher in collecting extra information needed for the study and to improve the contribution of the study to the research arena. The research questions of the present study are as follows:

- ❖ What are the users' requirements in designing the proposed web-based English Language Placement Test System (ELPTS)?
- ❖ How will the system model be transformed into an application?
- ❖ How will the usability of the prototype be evaluated?

1.3   RESEARCH OBJECTIVES

The study primarily aims to develop a prototype for web-based English Language Placement Test System (ELPTS) for UUM through the achievement of the following objectives:

- ❖ To identify user's requirements in the development and design of the proposed web-based English Language Placement Test System (ELPTS).
- ❖ To develop a web-based prototype model of the proposed system.
- ❖ To evaluate the system through the usability testing method.

1.4   SIGNIFICANT OF RESEARCH

The importance of this study is the development of the web-based English Language Placement Test System (ELPTS) for UUM. The Evaluation System Shall assists the institute in dropping unnecessary waste in funds. The UUM student who has taken the English placement test will be capable of knowing their performance in the test without waiting for a long time. Furthermore The ELPTS system shall help out lecturers and other evaluators, at the English language Centre, in saving time spent on marking question papers. Supporting the current UUM e-learning platform will as well take place in the new system. Moreover, a number of functions are added to the system like; provides 24 hours accessibility to the system via internet to view announcement, manage profile and also so on, provide current and up-to-date admission information, registration schedule and events, student can view their exam result and announcement, staff can add, edit and delete student account, and staff can update student exam result, administrator can manage staff account also upload exam question into the system.

1.5   RESEARCH SCOPE

The scope of the study encompasses the development of a web-based system for English Language Placement Test. This will be done through the involvement of UUM in a case study. The system development will be carried out through the use of Java and Microsoft SQL. The students and the lecturers at UUM Language Center will then examine the system and this will be reinforced through a usability testing technique.

1.6   REPORT STRUCTURE

- **Chapter two**

Chapter two provides the literature review concerning Computer-based Examination, the creation and application of the system, its benefits, issues surrounding computer based creation and correcting of examination, the technique as well as the technological tools utilized to build the system and various applications for examinations based on computers.

- **Chapter three**

Chapter three explains the research methodology of the study with goal of achieving the researcher objectives.

- **Chapter four**

Chapter four deals with system analysis and design and for the purpose of the research, it also deals with the utilization of the UML Rational Rose 2000. The chapter also provides a description of the system's functional requirements, the drawing of the case diagram and the

class diagram, and the uses of case specification, sequence diagram, activity diagram, collaboration diagram, and class diagram.

- **Chapter five**

In this chapter the testing and evaluation of the system is discussed. In addition, the implementation of the system, users (lecturers and students) testing of the system, use of the system, evaluation of the system using IBM questionnaire is utilized for both students and teachers.

- **Chapter six**

This chapter explains the future recommendations and gives brief overview of the findings of the research.

1.7   SUMMARY

The chapter explained and described the difficulties of students when facing examinations, the problems faced with the old system, different ways of taking examinations and the impact of these ways upon student's success.

Assessment of student's knowledge is referred to as the most crucial part in the educational process. It determines the knowledge gained by the student and informs the lecturer about it. Unfortunately, most educational institutions still depend on the traditional way of examination in assessing students. Students on the other hand, face innumerable challenges with this outdated

type of taking exam. These challenges include excess time and effort, inconsideration of the mental differences between students, inaccuracy and time consuming.

Furthermore, IT technology will bring about the solutions that will take care of problems in educational institutions and create an effective tool that will assess student's knowledge. The present chapter carried out an identification of the objectives behind system development which includes time and effort saving and the enabling of both students and lecturers utility of the system in an efficient and effective way.

CHAPTER TWO

LITERATURE REVIEW

2.0   INTRODUCTION

The present chapter goes through the literature review of the previous studies related to the research and highlights prior and existing studies of the same caliber. It also explains the various concepts pertaining to web, web architecture, tools and designs and the web-based English Language Placement Test System (ELPTS). The study delves into the utilization of technological tools in the educational arena for the purpose of creating examinations. It stresses on the challenges that are commonly faced by users and suggests the use of an examination based on technology particularly the computer. Additionally, the computer based examination application is also reviewed in the chapter. It highlights work relevant to the topic and the pros and cons of using the computerized system.

2.1   E-LEARNING

Owing to the multiplying number of examination takers, a dire need arises to change education methods as student's challenges with these outdated methods should be considered. For instance, some students are unable to go to universities although they have the inclination to do so and on top of that, they are not very efficient in communicating with other students (Delaney and Whittington, 2009).

Furthermore, educational institutions are trying to make use of IT in the educational arena in the hopes of attracting students into obtaining education and to facilitate an appropriate educational environment for them by increasing the flexibility of knowledge acquisition through presentation of tools and effective communication between students. These entire elements are encompassed by the topic of distance learning which has its basis on technological tools in educational settings according to BC Consulting (2006).

Technologies can be used to support educational institutions to enhance the educational level and quality. In addition, IT can also be used to improve the effectiveness of interaction among students and teachers (ESOL Examination, 2005). As a result, discussions become wide spread and effective. It has been evidenced that students' educational success through E-learning is more productive than their successes in traditional learning (Bradshaw & Hinton, 2004).

Furthermore, information technology in the field of education has effectively reduced time consumed by students providing them an incentive to continue with their educational aspirations and reducing their anxiety resulting from tests. Moreover, it increases their flexibility and convenience through system use (Bradshaw & Hinton, 2004).

2.2   ONLINE EXAMINATION SYSTEM (OES)

The online examination system (OES) via mobile agents developed by Aye et al. (2008) facilitates the infrastructure to carry out computer-based examination. The candidates to the educational institution are enabled to use the system from different geographical places. Moreover, OES was developed realistically and facilitates the complete examination stages starting from question creation to answers analysis.

It also displays a complete distributed system features such as scalability, extensibility and flexibility, push- pull modes of information spreading, subjective question evaluation, transparency to the unreliable channels of communication, application layer multicasting , network latencies and dynamic content delivery. It is nothing other failed computer based evaluation tools. The developed system succeeds in performing through internet and reinforces system characteristics like subjective system analysis, dynamic content deliver and off-line examinations (Jensen, 2011).

Moreover, Alexakos et al. (2006) applied a multi-agent platform in system building and planning. A Questioner Assessment Agent is made use of to administer answers to questions provided in the questioner while Bayesian Networks is used to establish the chain of queries based on the student's potential. The benefit lies in the time saving aspect that enables the students to avoid questions that they already know about or that are below their knowledge level.

On the other hand, the system is not flawless; the flaw lies in the fact that it fails to provide comprehensive answers. A similar research carried out by Dinsoreanu et al. (2006) regarding (SAS) or Student Assessment System comprised of a confined, dynamic, distributed agent based system having benevolent agents that are both still and moving that work together to provide a well-organized and dependable assessment in the form of Web-based Distance Education Environment. An electronic examination system is akin to the traditional system but it just makes use of technological elements as opposed to the outdated pen and paper (Delaney and Whittington, 2009).

Making use of the electronic examination in lieu of traditional examination is effective considering its affect upon student's evaluation. The system also works there is a question storage that enables the teachers to treat it as a storage area for questions. Creation of exams can have its basis on different models and the system will choose indiscriminately from any model and thus reducing the probability of cheating (California Department of Real Estate, 2009).

The use of electronic examination leads to the simple creation, taking and correcting of exams in the educational arena in schools or universities, helping teachers to distribute, administer and control exams in an effective way from the traditional one (ACCA, 2008).

Moreover, a system of this caliber does not require other software or technology that is more than what exists in the educational institutions, i.e. computers and networks. One of the systems' pros is the reduction of the cost of exams while the quality is increased (Away, Anastasi, 2001).

Besides improving quality and confidence, an e-examination, decreases cost, improves practices, and increases security. In other words, it helps the examinations system's security to improve before, during and after examinations in terms of decreasing the probability of cheating. It reduces the cost by abolishing the printing process particularly with the multiplied number of students yearly (S. Larry, 2007).

The electronic examination also plays a significant part in the correction of exams as the results are instantaneous (Berglund, 2010).

Owing to the multiplying numbers of electronic exams, schools, colleges and universities have taken advantage of the new system. The most important feature in the system is the database that enables the storage of a huge number of questions. Through the random selection tool, security is increased as mentioned earlier (Bailey, 1982).

The main reason to opt for e-examination is the increasing number of students which in turn translates into an increasing number of candidates taking the exam. This increases the cost of the educational system to facilitate the exam involving countless of paperwork and other requirements for the traditional exam. Hence, e-examination that relies on computers that are readily available in educational institutions creates examinations enough for the huge number of students at little or no cost. The system is also known to improve the quality and speed of the correction process (Bailey, 1982).

Electronic examinations are distinctive from the traditional examinations in various ways: the teacher is in control of the exam, using technology does not cancel the primary part of the instructor. Additionally, the questions can be stored in a storage area in the system and teachers can also lay down special criteria for examinations like: examination timings, date and the level of difficulty of exams. As for the students, they will be privy to their results a few minutes after taking the exams. Therefore, taking up the electronic exam will translate into efficiency in many ways, e.g. reducing time of taking and creation of examinations (Jones, 1998).

The electronic examination has innumerable applications that are user-friendly. Moreover, several studies reveal that electronic examination is invaluable and suitable in the educational institutions and its applications offer educators the chance to go beyond traditional examination limits. Furthermore, e-exam will equip teachers with various tools in assessing the student's knowledge and to improve their lecturing methodologies. Consequently, the student's performance using e-exam is better compared to those using traditional exams (Scheuermann & Pereira, 2008).

Student evaluation includes many elements including, tools for evaluation, tools for prevention of cheating, and other evaluation methods. Examination is considered as one of the evaluation methods while cheating is considered an issue whether in electronic or traditional exam. Some studies have misgivings from e-exams concerning this issue (Gibbs & Simpson, 2004).But according to (Younies, 2099).The probability of cheating is lesser in electronic examination compared to traditional examination, as it has been proven that cheating in e-examination has decreased around 5% compared to cheating in traditional examination.

E-examinations facilitate lecturer's management of the elements of examination and provide them a platform to manipulate the exams easily so that students can be privy to their results right after finishing their exams. E-exam is invaluable to distance learning as its capabilities are evident (Joancomart, 2004).

Various studies that compared between the two examination types, found e-exam to be better than the traditional exam. According to (Lynch, 1997), students who take e-exams perform better than students who take the traditional one. Based on (Raven, 1997) study, students who are well performing prefer to take e-exam as opposed to traditional exams as they believe they can obtain

better mark with the former. According to (Witkin, 2002), e-examinations are preferable to most students than traditional testing.

E-exam is considered as one of the key basis of e-learning, as the use of electronic systems in the educational arena has become very critical in this day and age.

Moreover, examination security is of great issue as students in taking the traditional exam can very easily cheat from their peers and the lecturer needs to be active in order to control the examination process. On the other hand, upholding security during electronic exam is easier, due to the electronic control of e-exams; security will increase while lecturer's effort will decrease (Huszti, 2008). Also e-exams are easier to get through as they provide a realistic picture of the student's knowledge when it comes to electronic system use (Jelemenska, 2008).

Electronic examination has no relation to the user's computer skills. However, there are quite a number of studies addressing the use of e-exams by users who are not computer savvy. Based on (Clariana, 2002)'s study, no significant relation exists between the performance of a student and elements like, competitiveness, gender, or computer familiarity. He also proved that e-exam takers are better performers.

Some of the pros of English Language Placement Test System (ELPTS) are: enabling lecturers to utilize multimedia, easy creation of examinations, student's ease in taking the exams, student's confidence upon the e-exams, student's reliability and dependability on the e-exams, various types of questions, user-friendly aspect, maximized security and equal exams (Away, Anastasi et al. 2001).

Majority of schools and colleges still utilize the traditional examination. Based on (Away, Anastasi et al. 2001) study, some of the challenges in using the e-examination include the high cost of the system, high cost of its maintenance, the student's apprehensiveness in using the new system, student's fear of failure.

2.3   SUPPORT ISSUES

The educational institutions are facing challenges in how to evaluate students as their numbers are multiplying from year to year. The issue of securing and making the ambiance of the examination room conducive for examinations are also a part of that challenge. Educational institutions have tried to solve the problem by increasing the number of invigilators which means added expense and effort (Doukas, 2007).

E-examination is also used in the Hellenic Air Force Academy (Parshall, 2002).The fact that the examination questions were randomly chosen from the questions stored in the questions bank decreases the probability of cheating and the system proved to be of a significant success in the Air Force Academy (Brown, 2004).

However, electronic exam has been criticized for its sole use of multiple choice questions. It is however, imperative to keep in mind that this type of questioning is superior to other types as it covers the entire material, expedites the speed the correction process, and is easily convertible to e-examination (Jones, 1998).

The Exam Management System (EMS) is considered to be an excellent alternative in assessing mass education. According to Rashad et al. (2009), a web-based examination system provides tests and grades students' exam automatically is proven to be effective. It also conducts

examinations, collects answers, marks the exams and produces the results for the test and reinforces various types of questions and hence, it is appropriate for local and distance examinations.

The system could be invaluable to lecturers, instructors, teachers and relevant individuals. The module is generalized to enable different exams and question types. Such an exam was introduced to Mansoura University and proved its validity.

Lister and Jerram (2001) proposed a web based exam, which supports only multiple choice evaluation technique. Another system has been proposed by Protice, Bojie and Tartalja (2001) enables teachers to create and correct tests with multiple choice answers. In addition, it is also effective for students' evaluation in mass examinations.

Moreover, Josep and Jordi (2004) proposed an e-examination protocol that is secure. Through the use of a wireless technology, the authors suggested a balanced solution for security and flexibility.

Computers and its accompanying technology, in this day and age have been considered time and time again in the development, administration, scoring, and evaluation of language tests. The significant part that computers have in our lives coupled with technological advancements, makes it possible to size up the possibilities. Based on this viewpoint, it is evident that CBTs or Computer-based Tests for language assessment as well as other knowledge assessments will be the basis of examinations in the near future (Stone and Davey, 2011).

Nevertheless, the level to which language educators want to make use of CBTs in developing language skills, increasing knowledge and proficiencies of SLL's and users is not confirmed.

CBT's ability to satisfy purposes and to achieve the uses of language tests are also unconfirmed (Norris, 2001).

In a related study, Mikyung et al. (2008) carried out an assessment of the English Language Learner (ELL) student's English Language Proficiency (ELP) in order to measure their improvement in English proficiency. Due to the legislation's requirement to measure the entire modalities of language, all the states have a requirement to come up with a suitable ELP test.

This section went over the literature concerning ELL student's proficiency assessment and provided an overview of the issues guaranteeing the sound assessment's development and explanation. Accordingly, five areas will be looked into and they are: the limitations of the measures, the language ability's nature, the entire theory and research and the integration of academic English into ELP tests, the validity of the ELP questions and the current utilization of ELP.

The English language is now invaluable to every person regardless of their mother tongue. Consequently, a huge marketplace for English language learning has been developed. For instance, the TOEIC which is the Test of English for International Communication which also covers the TOEIC test assesses the test taker's proficiency in the four skills of English-language. Consequently, the marketplace can carry out their decision making process based on the test takers' requirements (Patokorpi, 2004).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0   METHODOLOGY

Research methodology is also considered as the philosophy of the research used to discover solutions to the research problems. It comprises assumptions and beliefs that are viewed as the reasons behind the research and is used by the researcher to clarify data and achieve the solution to the problems. Thus, research process is considered as the heart of the research. It relies on social and behavioral sciences for definition and clarification and as problem determination and suppositions regarding the research, development of the research model, gathering and studying data, and confirming the results for assumptions-testing (Bailey, 1982).

For the present research, the methodology of study is a systematic way of solving the problem and not just a simple overview of the method utilized (Kothari, 1985).

Two of the most suitable methodologies are selected for the purpose of the present research.

3.1 GENERAL METHODOLOGY OF DESIGN RESEARCH.

This method is made up of five levels which are: problem awareness, suggestions, development, analysis and conclusion. In addition, it is suitable for information research (Vaishnavi, 2007).

The five phases of the general methodology in research design, and it explain the related between the phases.
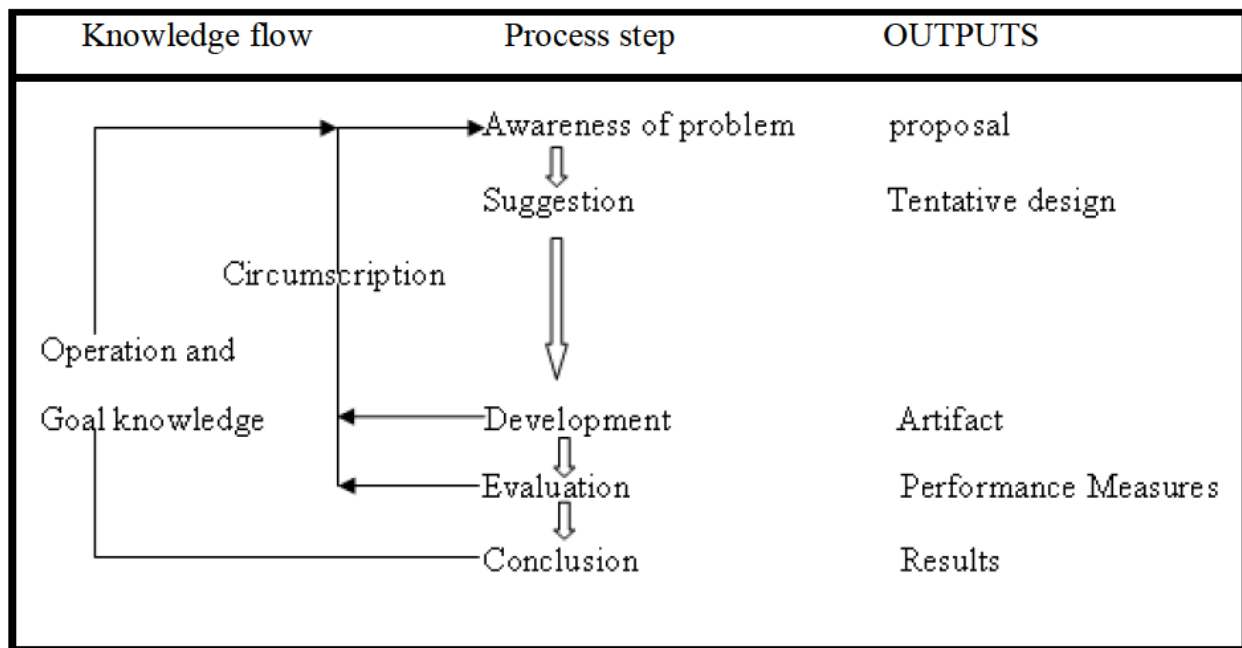
Figure 3.1: general methodology in information system research design

3.1.1 AWARENESS OF THE PROBLEM

Awareness of the problem is the first phase of the general methodology, it is responsible for determine the domain of the study, and understand and describe the problem, objectives and scope of the study, then come up with the proposal of the study.

This study describe that the English Language Placement Test at the Language Centre still using the paper based system in order to do the procedures of English Placement Test. The objectives of this study are to design web based English Language Placement Test System. And it is responsible for the following processes: The lecturers will fill all the exam

requirements by the system interface (add and delete exam, insert and delete and update the exam questions, add and delete students, view the exam report, ect).

Furthermore, data collection is very important in this phase because it is allow the researcher to understand and come up with the problem statement, objectives, scope and significant of the research.

A. DATA COLLECTION

In this step all the information which have related with the problem domain will collected in order to understand the problem of paper based system of English language placement test at the UUM Language centre and explain how to minimizing resources, and saving administrative cost and time.

The information which has related with the paper based system will collected through many methods like interview, analysis and read the literature review which have related with the problem of the research.

B. INTERVIEW

The interview methods allow the researchers to get more information and data about the research domain and the problem of this research; furthermore, it is allow the researchers to understand the problem of the research in order to come up with the best solves and solutions to the problem (Hollway and Jefferson 2000).

The interview with the director of language centre (Dr. Siti Jamela) has been organized. This interview is about the procedures of English language placement test (paper based system).

C. THE CURRENT PROCESSES OF THE ENGLISH PLACEMENT TEST.

The management of language centre still using the paper based system in order to do the processes of English language placement test. This type of traditional examination requires questions to be written on paper and after which the exam is distributed to the students concerned. In addition, it requires appropriate timing for examination and assessment with full exposure to human careless mistakes. In other words, processes like this needs time, effort and considerable cost.

3.1.2 SUGGESTIONS

According to the information and the results of the data collection part, and based on the interview, this study suggests using web based system in order to do the following processes:

❖ The student can submit the English language placement test by computerized system.

❖ The students can get the exam result direct once finish the exam by web based system.

❖ The system will help the lectures to insert a huge data in the data based by the web based system.

❖ The system will help the lecturers to make update every time, once he want by the web based system.

❖ The system will help the lecturers in test preparations, analysis and presentation of results.

3.2   SPECIFIC METHODOLOGY OF DEVELOPMENT RESEARCH METHOD.

The method has five parts and it is the methodology that is suitable for the current research as it solves the research problems. This particular method allows the researcher to carry out a system analysis and create a prototype and enables system evaluation upon implementation.   Therefore, this method is the most suitable methodology for our purpose (Nunamaker, 1991).

The present study will take up the System Development Research Method presented by Nunamaker et al. (1991) as its guide (Nunamaker, 1991).

The five stages are as follows:

1) Framework construction

2) System Architecture Development

3) Design System Analysis

4) Prototype Building

 5) System Observance and Testing
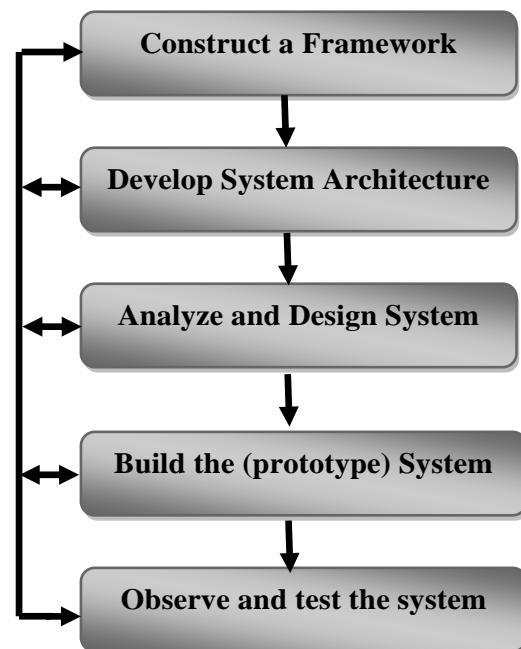
Figure 3.2. System Development Research Method.

3.3 METHODOLOGY STEPS

In the present section, each stage of the research methodology is described and the relation between each step is explained. Each step will contribute to a portion of the EES (electronic examination system). Additionally, the activities in the preceding steps are dependent on the research requirements.

3.3.1 CONSTRUCT FRAMEWORK

Nunamaker (1991) opine that the domain of research is the subject of the research that is being studied and therefore, the researcher must be knowledgeable of the area of research. It is necessary for the researcher to collect information, ideas and problems relating to giving examinations in every form (Nunamaker, 1991).

Pertinent information can be gathered from publishes articles, books, proceedings, written papers, and even in news reports that will be revised and collected for the research (Steenkamp and McCord, 2007).

The framework construction stage enables the development of a clear comprehension of the system. The researcher should gather all pertinent information and data that are needed for the researcher to get a clearer picture of the system.

Additionally, the stage confirms the questions and highlights the research advantages and necessary information for system development. The data taken from the sources will enable the researcher to develop a reasonable view of the system, particularly its impact after implementation (Bailey, 1982).

In addition, in this stage, the problem is accurately defined in all system levels. This pertinent detail will enable the researcher to suggest novel answers to the research query. This stage will also enable the identification of pertinent system components. It will propose a new way of system development (Steenkamp and McCord, 2007).

In order to answer the research queries, a new examination system has to be developed, the system has to be created, implemented and tested to know its effect on the users. Pertinent information like type of student assessments, exam's impact on the student and security will be gathered in order to reinforce the research problem and explain the significance behind the research queries. The research aims to create a novel examination system that is user friendly, is low cost and does not need much effort to use.

According to the information gathered, technological tools utilization is the best option for system development. The stage's advantages are:

- ✓ The formulation of a justifiable research question.
- ✓ The determination of the system requirements and functionalities.
- ✓ The comprehension of procedures for system building.
- ✓ Studying the related area of research (Nunamaker, 1991).

3.3.2 DEVELOP SYSTEM ARCHITECTURE

In this stage, the researcher will carry out the system components identification and define the links that exist between them. The system development process is depicted in Figure (3.2). It will be utilized as a guide to achieving the research's objectives (Nunamaker, 1991).

In sum, the present stage carries out the provision, definition, and determination of the system functionalities, the links between them and the system components interaction. Additionally, it provides a clear picture on how to use the system components and the appropriate place for them (Bailey, 1982). A full understanding of the system components will reveal a comprehensive picture of the system. It will provide the researcher a guideline on how to go about building the system (Bailey, 1982).

Moreover, system architecture development will enable the definition of the system functionalities, the achievement of objectives, and how to formulate assumptions for the research; thus, the step is crucial for the study (Steenkamp and McCord, 2007).

There is no need to come up with clear suppositions as they are already present in the area of research. These suppositions will assist in determining what is required for the system, the system design and how the system is supposed to be implemented. The significant factors in this stage are:

✓ Designing a one of a kind architecture system which will help in the achievement of the research goals.

✓ Determination and definition of system functionalities' components and the inter-linkage among them (Nunamaker, 1991).

3.3.3 ANALYSIS AND SYSTEM DESIGN

The next step is the analysis and system design in which the specifications are planned. In the current study, the researcher will utilize UML (unified modeling language) which possesses several representations like DFD, class diagram, and use case diagram. It is also utilized in system design and analysis. Moreover, the rational rose software will be used in the system components' drawing and identification (Nunamaker, 1991).

This stage describes system design and analysis and is a crucial stage in system development. It involves the comprehension of the system design which includes writing cores, alternative solutions' creation, solution evaluation and data structure design and also, database design (Bailey, 1982).

These activities enable the researcher to study the system bases and after which the researcher specifies the program parts and their functions. The most relevant of which are:

✓ System database design. Design the system database.

✓ System base and processes identification and determination.

✓ Alternative solutions development

✓ Solution choice (Nunamaker, 1991).

For the present study, the information collected is studied to determine the requirements for the system. UML (unified modeling language) is used for requirements' analysis and the rational rose software is used for system components' drawing and identification with the help of other tools such as case diagram and class diagram.

3.3.4   BUILD THE PROTOTYPE SYSTEM

The next stage is the prototype implementation stage which demonstrates the prototype functionality of the "ELPTS". This process is concerned with the analysis transformation and model design into a functional form. The software is utilized for prototype application development. It is evident that the project is in need of an appropriate program language and the researcher chose JAVA for this purpose (Nunamaker, 1991).

This phase includes manipulating the analysis transformation and model design into a functional form which is considered as the system implementation justifying the design process and the function usability.

This stage stresses on both the pros and cons of the system components that will enable the researcher to carry out a system re-designing if required. A suitable programming language should be chosen for the system which depends on the outcome of the prior steps (Steenkamp and McCord, 2007). The relevant elements of this stage are:

✓ Knowledge of system concepts.

✓ Awareness of probable system problems.

✓ Building Process Design (Nunamaker, 1991).

JAVA Programming Language is utilized in the system building as the researcher is convinced of its appropriateness in supporting the system.

3.3.5   OBSERVATION AND SYSTEM TESTING

In this step, the system testing and evaluation is carried out after observing the end phase of the system development. Three techniques will be utilized for ELPTS evaluation and testing.

The first one pinpoint the bugs and errors in the system as it is considered necessary to be performed upon the interaction of the whole dialog components after they are integrated (Nunamaker, 1991).

The second one involves the user testing by using questionnaires. The students' satisfaction of the system will be evaluated through them. The third one involves the user testing done through interviews. Lecturers who have the responsibility of preparing the exam questions and controlling the examination process will be interviewed to gauge their level of satisfaction regarding the ELPTS.

The final stage involves testing the system through the measurement of system performance and usability because after the system is built, the researcher should be knowledgeable of the its efficiency in order to ensure whether or not it can be applied to the definition phase and in order to be sure of its affects upon its users (Bailey, 1982).

The system testing outcome should be evaluated while relying upon the conceptual frame and the requirements of the system which have been tackled in the previous phases.

The knowledge gained by the researcher from system development will assist him in creating other systems or in discovering a novel theory that describes other observations. The important elements of this stage are:

- ✓ System use must be covered by the domain of the research.
- ✓ Evaluation of the system through the utilization of simulation tools.
- ✓ System evaluation through system usage observation (Nunamaker, 1991).

In the current study, system evaluation and implementation is carried out. The gathering of system evaluation and feedback from the users is necessary.

3.4 EVALUATION OF THE PROCESS

Some steps will be followed to evaluate the new system. These steps are depicted in the following Figure 3.3.

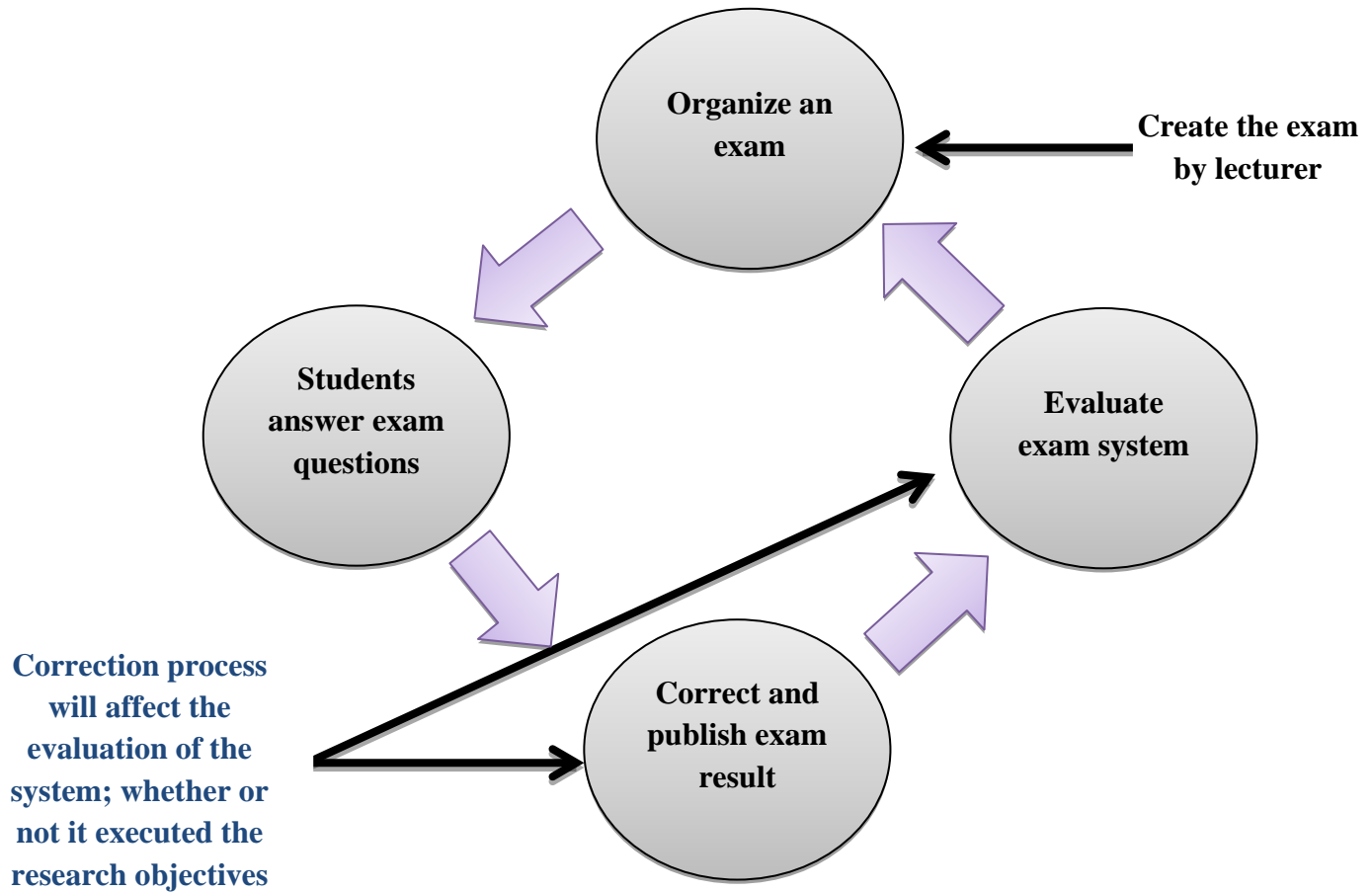Figure 3.3. Evaluation Process.

❖ Create Exam: The first step is when the lecturer creates the exam through the system and specifies examination elements like, date and time, place, duration of the exam, determination of exam results, and determining the students who need to take the exam.

❖ Organize Exam: After system creation, the system is analyzed by allowing the students to use the system.

❖ Answer and Submit Exam Questions: The students will answer questions and submit the exam when they are done. They can submit their exams by saving it in the system and having the system carry out the checking process.

❖ Correction of exams and publishing of results: the system checks the exam for individual students, after which the results will be displayed on the computer screen.

❖ Evaluate Exam System: The questionnaires are distributed to the students to gather feedback regarding the system use.

3.5 QUESTIONNAIRE

Questionnaires are used for data collection from a huge number of users. It is an appropriate way to gather the results by enabling the researcher to reach quite a number of respondents' feedback.

A survey questionnaire is utilized to collect information regarding the system's performance and components through a list of questions. These questions encompass every part of the system namely the performance, components, satisfaction part and others (Poate & Daplyn, 1993).

A questionnaire comprises of various parts starting with the definition and the determination of the system aspects and finally culminating in the results. It is crucial to design each step to get correct unbiased results. It can be distributed through both paper and web-based distribution. In both cases, a questionnaire involves the listing of questions addressed to the target respondents; in this case, these respondents are comprised of students and teachers. The researcher must be convinced of the question's validity (Poate & Daplyn, 1993)

In the evaluation phase, the evaluation of the different aspects of the prototype is carried out. The IBM questionnaire is used as the questionnaire gauging user satisfaction. In addition, the researcher made use of usability satisfaction questionnaire in measuring the system efficiency: its functionality, usability, and interface. Based on (Lewis, 1995) study, the questionnaire should cover questions concerning the characteristics of the system.

In this study we have 30 participants in our sample; just 3 of them are lecturers, and others are students.

3.6   SUMMARY:

Chapter three discussed the methodology of research which has been carried out in the present research and delved into the explanation of its different stages.

CHAPTER FOUR

ANALYSIS AND DESIGN SYSTEM

4.1 INTRODUCTION

The system analysis and design chapter contains Logical Design and Physical Design. Logical design describes the structure and characteristics or features. The physical design shows the actual software and a working system. In this research, UML (Rational Rose 2000) used as a software to do system analysis for the system, this chapter divide into many sections begin from the requirements of the system and end at the class diagram for the system, which allow the researcher to understand the requirements of design phase clearly.

4.1 LIST OF REQUIREMENTS

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 List of Functional Requirements

	ELPTS-01	**Login**	
1.	ELPTS-01-01	Lecturer and Students can login the system and change the password.	M
2.	ELPTS-01-02	Admin can login the system and change the password.	M
	ELPTS-02	**Registration**	
3.	ELPTS-02-01	Admin must register both students and lecturer in the system.	M
4.	ELPTS-02-02	Admin must give students and lecturer username and password to enter the system	M
	ELPTS-03	**Examination Process**	
5.	ELPTS-03-01	Lecturer must insert exam element such as questions, date, and time.	M
6.	ELPTS-03-02	Lecturer can select a number of students for an exam.	M
7.	ELPTS-03-03	Lecturer can determine the level for each question.	D
8.	ELPTS-03-04	Student can enter the exam and answer exam questions during the exam time.	M
9.	ELPTS-03-05	System will display exam questions one by one, and student can move among the questions.	M
	ELPTS-04	**Result**	
10.	ELPTS-04-01	Students are allowed to check their exam result.	M
11.	ELPTS-04-02	Lecturer can determine the results time, whether after the exam direct or not.	M
12.	ELPTS-04-03	Lecturer can check student's results, by display their questions and answers.	D
	ELPTS-05	**Manage System**	
13.	ELPTS-05-01	Administrator manages all the system components	M
14.	ELPTS-05-02	Administrator must insert students and lecturer name in the system to give them username and password.	D
	ELPTS-06	**Logout**	
15.	ELPTS-06-01	Student and Lecture can logout the system.	M
16.	ELPTS-06-02	Admin can logout the system.	M

This table shown the main functionalities of the computer-based examination system, these functionalities considered as a primary requirements of the system. In addition these requirements explain the function of each part in the system, determine the system users, and describe the system work. So these requirements must be in the system.

4.1.2 NON-FUNCTIONAL REQUIREMENTS

Table 4.2 List of non Functional Requirements

	ELPTS-07	**Security**	
17.	ELPTS-07-01	Only the Admin can see student's records.	M
	ELPTS-08	**Performance**	
18.	ELPTS-08-01	Administrator should be able to update information about the students and lecturers record in the system.	D
19.	ELPTS-08-02	The system should be available all the time.	O
	ELPTS-09	**Operation**	
20.	ELPTS-09-01	The system will operate in Windows environment.	D
	ELPTS-010	**Reliability Issues**	
21.	ELPTS-010-01	If the systems crash, it should behave perfectly.	M
22.	ELPTS-010-02	Normal when reloaded again.	

This table shows the secondary functionalities of the computer-based examination system, these functionalities considered as a non functional requirements of the system, because it is not necessary to be in the system, but it will help the system to be more efficiency. It also explains some ambiguous issues for the developer.

4.2.0 USE CASE DIAGRAM
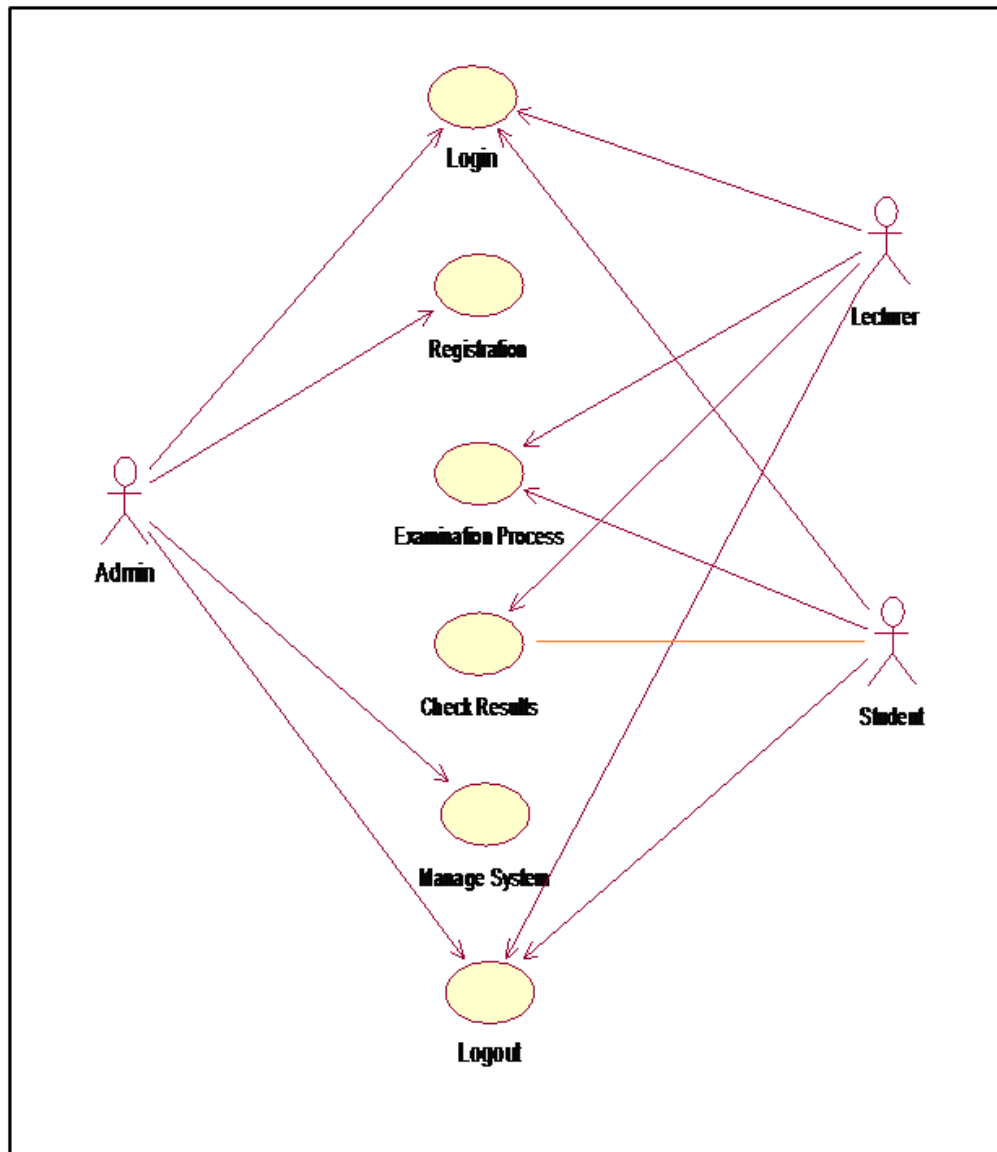
Figure 4.1.Use Case Diagram

Figure 4.1 shows the use case diagram presenting a graphical overview of the Functionality provided by the Computer-Based Examination system. It also shows the users of the system with the function of each one.

4.3.0 USE CASE SPECIFICATIONS

4.3.1 USE CASE: LOGIN:

Figure 4.2.Login User

1. **Description:**

   ▪ This use case allows Users to enter the System.

2. **Actor:**

   ▪ Admin, Lecturers, Students.

3. **Requirements:**

   ▪ ELPTS-01.

4. Pre-Conditions:

- The Admin\Lecturers\Students should have Username and Password to affect the Login use case.

- Lecturers\ Students will pose the username and password provided by the System administration.

5. Post-Conditions:

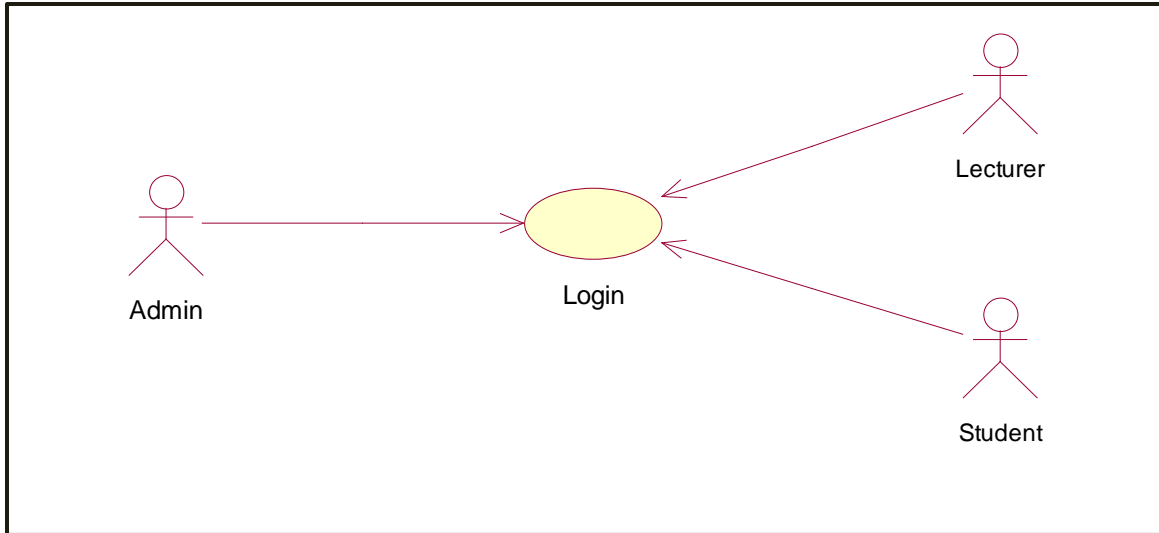- If the introduction of Password and the user name of the Lecturers, Students and Admin correctly allowed for him /her entering the System.

6. Flow of events:

  6.1. Basic flow:

- The Use case will begin work. When the Users (Admin\Lecturers\Students) entering password and user name.

- Users Press login button [A-1: Exit].

- System must verify the validity of the input password and the user name.

[E-1: Invalid username and password]

- The Login Use case will end its process when the user (Admin/Panel) has a Homepage.

6.2. Alternate flow:

- [A-1: Exit]

The user (Admin/Lecturers/Students) will press on the cancel button before or after enter his/her user name and password.

6.3. Exception flow:-

- [E-1: Invalid Username or Password] :- Wrong user name or password provided System will show a message to inform the end user that the entered user name and Password is false.

7. Rules:

- Users (Admin/Lecturers/Students) must have register before go to System.
- Users (Admin/Lecturers/Students) must have username and passwords to be able enter the System.

4.3.2 USE CASE: REGISTRATION:

Figure 4.3.Registration

1. Brief Description

- This use case is initiated by the administrator. This use case will enable the administrator to register both student and lecturer, and give them username and password to enter the (ELPTS) system.

2. Actors

- Admin.

3. Requirement

- ELPTS-02.

4. PRE-Condition

- User (Admin) has to be login first. Username and password must be successfully validated and logged into the system. Administrator select student and lecturer then fill-up the form to complete registration process.

5. Characteristics of Activation

- This use case is activated when the admin selects the "Students and Lecturers" menu.

6. Flow of Events

6.1 Basic Flow (ELPTS-02-01)

- This use case begins when the admin presses the "Students and Lecturers" menu.
- The system shall display registration form on the screen.

- The admin has to fill-up registration form by all information required. The admin shall enter type of user (student/ lecturer). (E-1: Iteration in User No).

- The Admin shall select "Insert" button to save the entered data. (A-1: Exit)

- The system will display the message that the process has be done successfully.

6.2 Alternative Flow

A-1: Exit

- The Admin will select the "Exit" button.

- The system does not save the data.

6.3 Exceptional Flow

E- 1: Not Accept Information

- The system will compare the student/lecturer ID with it database, to allow admin know if this user new or already in the database.

7. POST-Conditions

- The registration process is complete. The system will display the message that the process has be done successfully.

8. Rules

- Admin should enter all information about user, which the system requires.

9. Constraint(S)

- This use case can be entered by administrator, who will add students and lecturers to use the system.

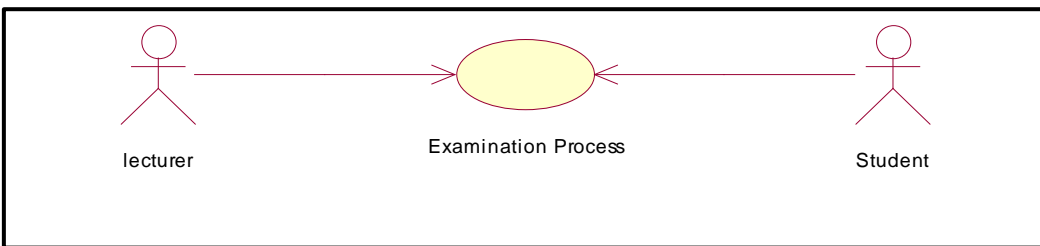## 4.3.3 USE CASE: EXAMINATION PROCESS

Figure 4.4.Examination Process

1. Brief Description

- This use case is initiated by the Lecturers/Students. This use case will enable lecturer to insert the exam element such as (time, date, number of questions), and allow student to answer exam questions.

2. Actors

- Lecturer, Student.

3. Requirements

- ELPTS-03.

4. PRE-Conditions

- User has to be login first. Username and password must be successfully validated and logged into the system.

5. Characteristics of Activation

- This use case is activated when user selects the "Exam/Questions" menu.

6. Flow of Events

6.1   Basic Flow (CBE-02-01)

- This use case begins when the lecturer presses the "Questions/Exam" menu, and when student presses "Exam".

- The system shall display Exam form on the screen, whether for lecturer or student.

- The lecturer has to fill all information required for create an exam. The lecturer shall enter level of Question, the student will enter the exam and begin answer questions exam. (E-1: You have to fill All Information), (E-2: This Question Already Exist).

- The Lecturer shall select "Insert" button to save the entered data. (A-1: Exit).

- The system will display the message that the process has be done successfully.

- The student will enter the exam and begin answer the questions one by one, and he/she can move among questions until finish the exam, when finish exam will presses exit.

- The system will save student answers and return to student menu page.

6.2   Alternative Flow

A-1: Exit

- The Lecturer will select the "Exit" button.

- The system does not save the data.

6.3 Exceptional Flow

E-1: You have to fill All Information

- The system will ask lecturer to fill all require information, in case if lecturer miss fill one record.

E-2: This Question Already Exist

- The system will compare each new question with the questions in the database, and ask lecturer to change it, in case if question already exist in the database.

7. POST-Conditions

- The creation process is complete. The system will display the message that the process has be done successfully.

8. Rules(s)

- Lecturer should insert all information about exam, which the system requires.

9. Constraint(s)

- This use case can be entered by Lecturer/Student, who will create an exam by lecturer, or enter the exam to answer questions by student.
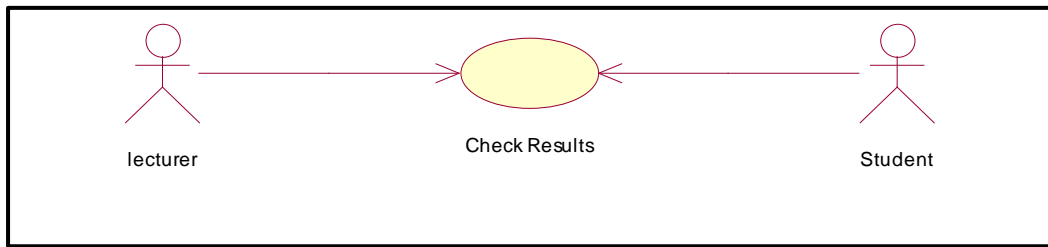
4.3.4 USE CASE: RESULT

Figure 4.5.Check Results

1. Brief Description

- This use case is initiated by the Lecturers/Students. This use case will enable lecturer to check student answers, results, and print their results. In addition allow student to know their mark in the exam.

2. Actors

- Lecturer, Student

3. Requirement

- ELPTS-04

4. PRE-Conditions

- User has to be login first. Username and password must be successfully validated and logged into the system.

5. Characteristic of Activation

- This use case is activated when user selects the "Student mark" menu.

6. Flow of Events

6.1 Basic Flow (ELPTS-02-01)

- This use case begins when the lecturer presses the "Student mark" menu, and when student finish his/her exam.

- The system shall display Result form on the screen, whether for lecturer or student.

- The Lecturer shall select "Subject name" to know student result in an exam.

- The system will display the student's results in a subject.

6.2 Alternative Flow

- Not Applicable.

6.3 Exceptional Flow

- Not Applicable.

6.4 POST-Condition

- Not Applicable.

7. Rules(s)

- Not Applicable.

8. Constraint(s)

- This use case can be entered by Lecturer/Student, for check Students mark.
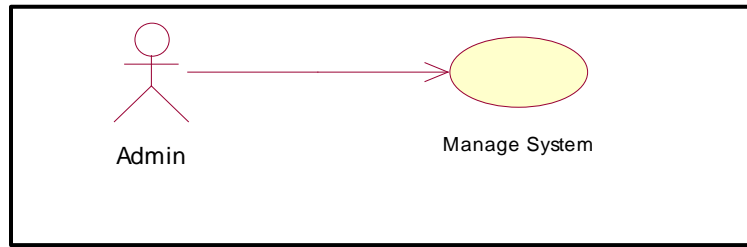
4.3.5 USE CASE: MANAGE SYSTEM:

Figure 4.6.Manage System

1. **Brief Description**

   ▪ This use case is initiated by the Administrator. This use case will enable Admin to manage and control the system work; in this use case also admin will connect both student and lecturer with subjects, to allow them for use the system.

2. **Actors**

   ▪ Admin

3. **Requirement**

   ▪ ELPTS-05

4. **PRE-Condition**

   ▪ Admin has to be login first. Username and password must be successfully validated and logged into the system.

5. Characteristic of Activation

- This use case is activated when admin selects the "Subject/ Connect Lecturer/Connect student" menu.

6. Flow of Events

6.1 Basic Flow (ELPTS-02-01)

- This use case begins when the Admin enter his main page, then he will choose one of the options to manage the system such as: "Subject, Lecturer and student, Connect Student and Lecturer".
- The system shall display the request page, which admin chose.
- Admin have many choice in each page, he/ she can select any one such as: "Insert, Search, Update, Delete".
- Admin will fill the required information in all records; depend on the type of process he chose.
- Admin will press one button to modify the system database such as:" Insert, Connect".
- The system will save the change and display message "Process Completed successfully" at any process.

5.6.2Alternative Flow

- Not Applicable.

5.6.3Exceptional Flow

- Not Applicable.

7. POST-Conditions

- Not Applicable.

8. Rules(S)

- Not Applicable.

9. Constraint(S)

- Admin/lecturer/student must to log into the ELPTS system.
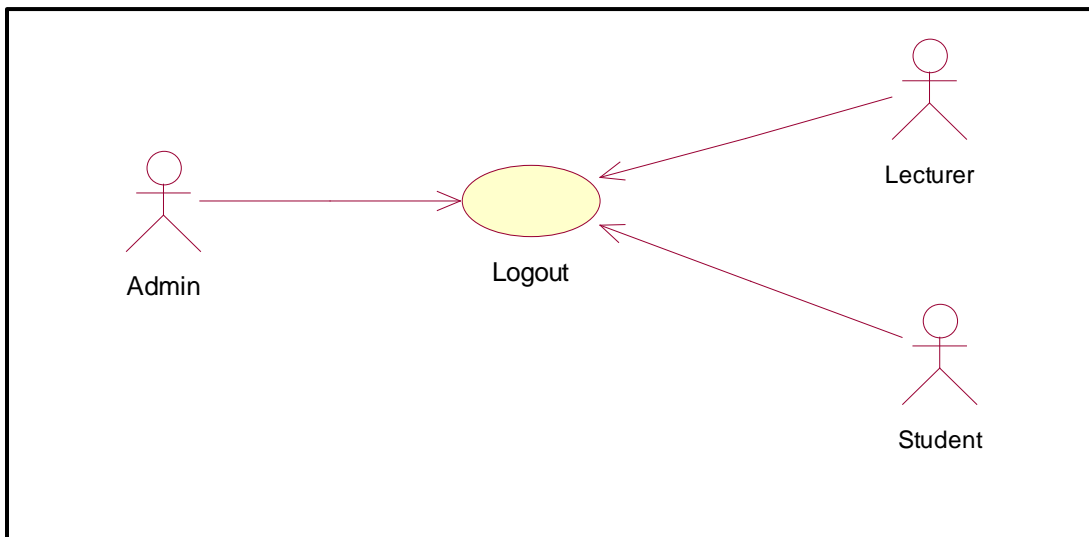
4.3.6 USE CASE: LOG OUT:

Figure 4.7.Logout

1. Brief Description

- This use case is initiated by the admin/lecturer/student. This use case will enable the users to sign out from the system.

50

2. Actor

- Admin, lecturer, student.

3. Requirement

- ELPTS-06

4. PRE-Condition

- The admin/lecturer/student logged into the system.

5. Characteristic of Activation

- Execution depends on admin/lecturer/student demand to sign out the system.

6. Flow of Events

6.1 Basic Flow (ELPTS-08-01)

- This use case begins when the admin/lecturer/student sign out the system.

- Admin/lecturer/student will press "Exit" button to sign out.

- The use case end when admin/lecturer/student out the system.

6.2 Alternative Flow

- Not Applicable.

6.3 Exceptional Flow

- Not Applicable.

7. POST-Condition

- Not Applicable.

8. Rules(s)

- Not Applicable

9. Constraint(s)

- The admin/lecturer/student must to logout from the ELPTS system.

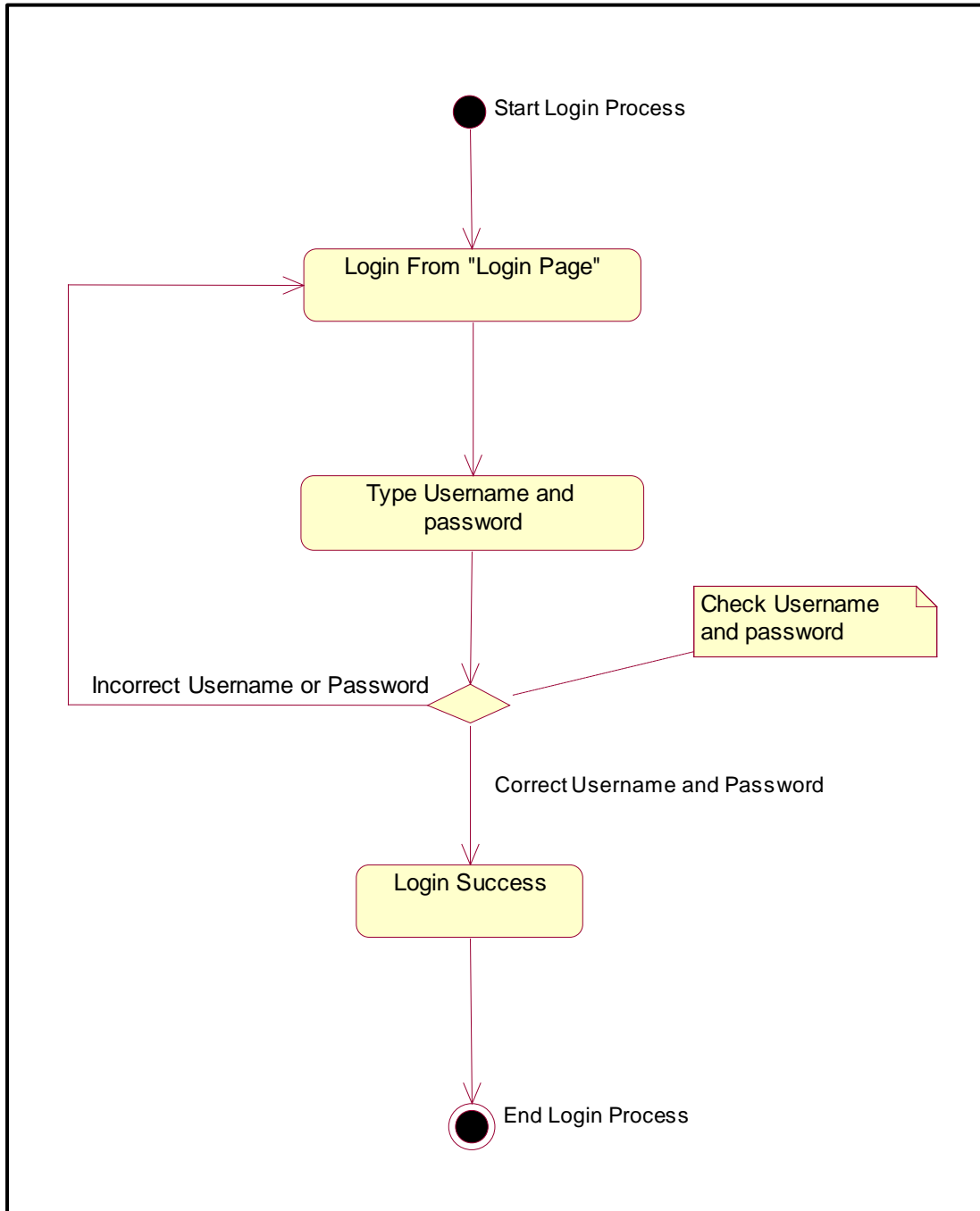## 4.4.0 ACTIVITY DIAGRAM

4.4.1 LOGIN:

Figure 4.8.Login

Figure 4.8 shows activity diagrams describing the behavioral overall flow of control of the system when the user login into the system. The activity diagram explains all the cases, which may accrue during the login process.
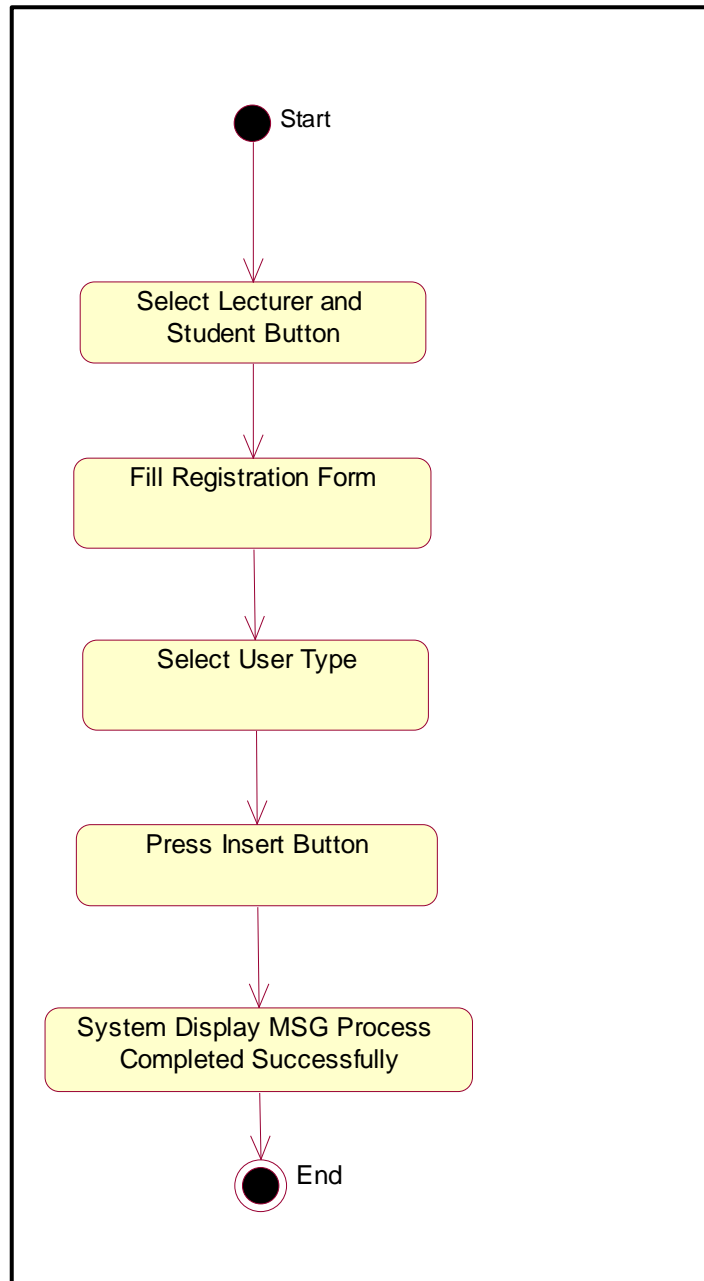
4.4.2 REGISTRATION:

Figure 4.9.Registration

Figure 4.9 shows activity diagrams describing the behavioral overall flow of control of the system when the Admin insert a new user in the system whether students and lecturers. The activity diagram explains all the cases, which may accrue during the registration process.

4.4.3 EXAMINATION PROCESS:

This use case divide in two parts, depend on the user one for lecturer, and other for student as follow:

A. LECTURER ACTIVITY:

Figure 4.10.Examination Process (A)

Figure 4.10 shows activity diagrams describing the behavioral overall flow of control of the system when the lecturer wants to create exam. The activity diagram explains all the cases, which may accrue during the creation process.

B. STUDENT ACTIVITY:

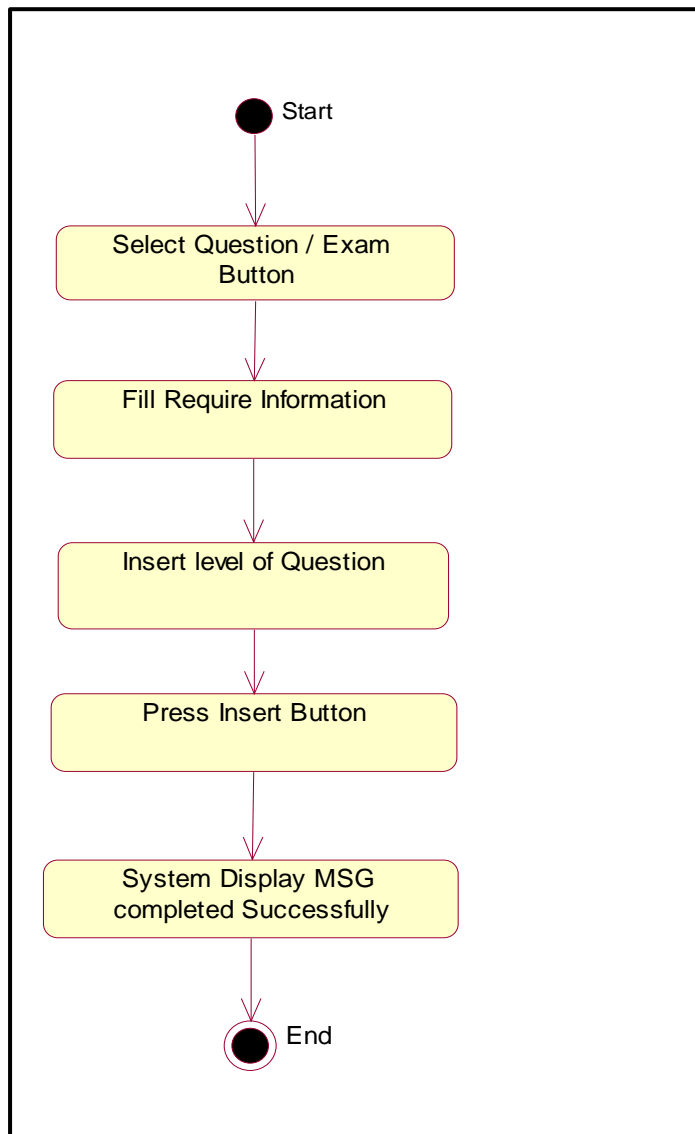

Figure 4.11.Examination Process (B)

Figure 4.11 shows activity diagrams describing the behavioral overall flow of control of the system when the student takes the exam. The activity diagram explains all the cases, which may happen during this process.

4.4.4 CHECK RESULTS:

Figure 4.12.Check Results

Figure 4.12 shows activity diagrams describing the behavioral overall flow of control of the system when the lecturer checks the student's results. The activity diagram explains all the cases, which may happen during this process.

4.4.5 MANAGE SYSTEM:
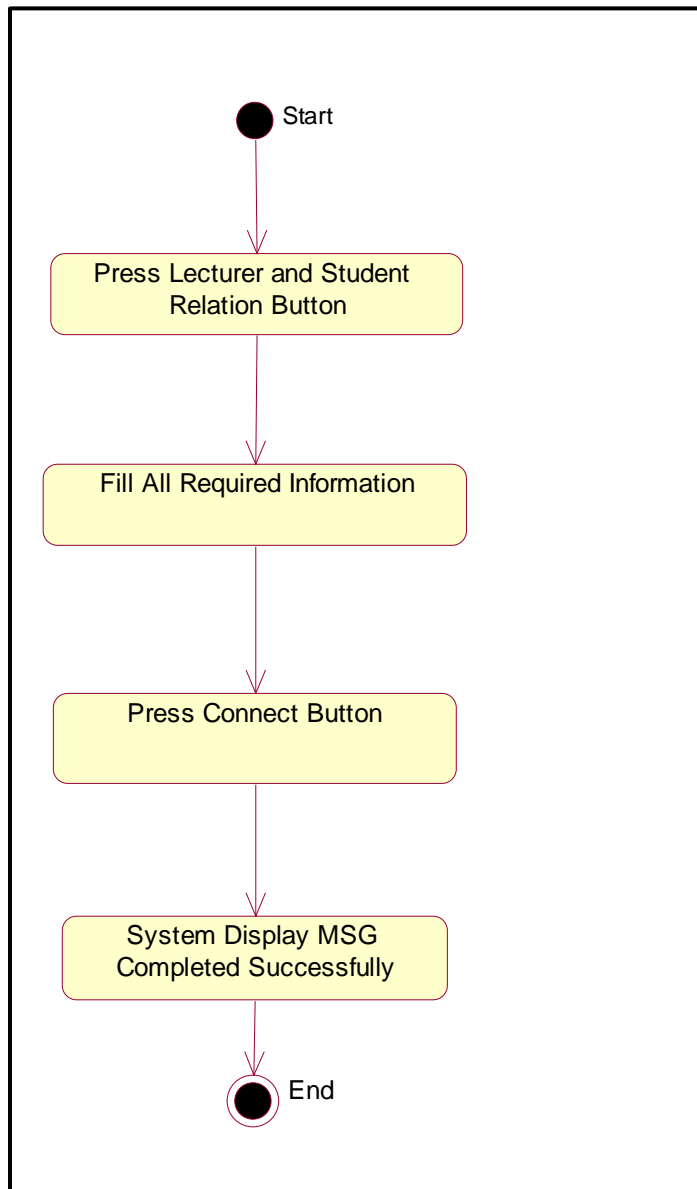
Figure 4.13.Manage System

Figure 4.13 shows activity diagrams describing the behavioural overall flow of control of the system for manage and control the system by the admin. The activity diagram explains all the cases, which may happen during this process.
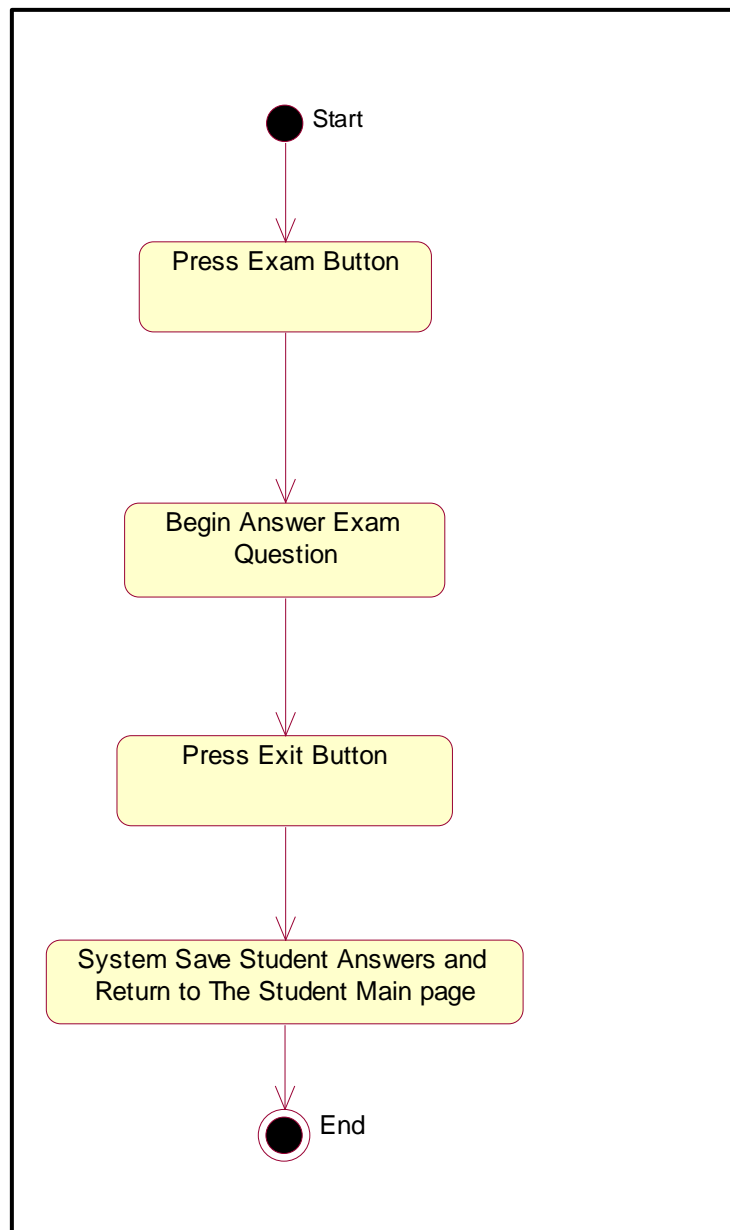
4.4.6 LOG OUT:

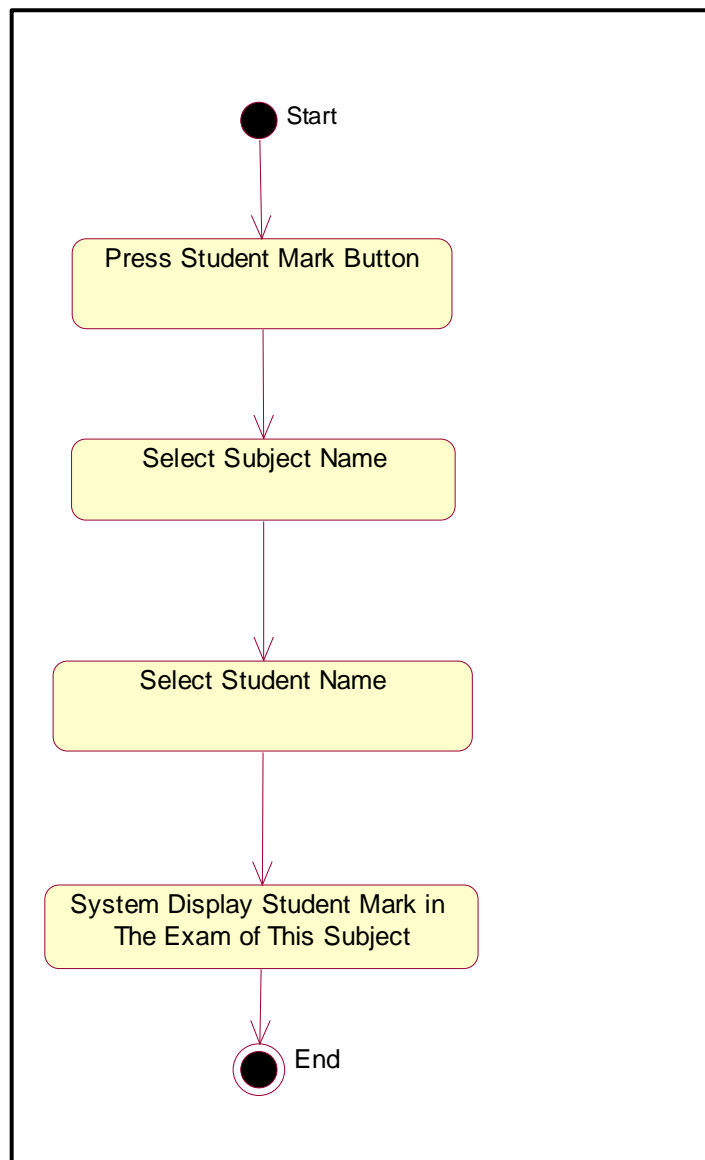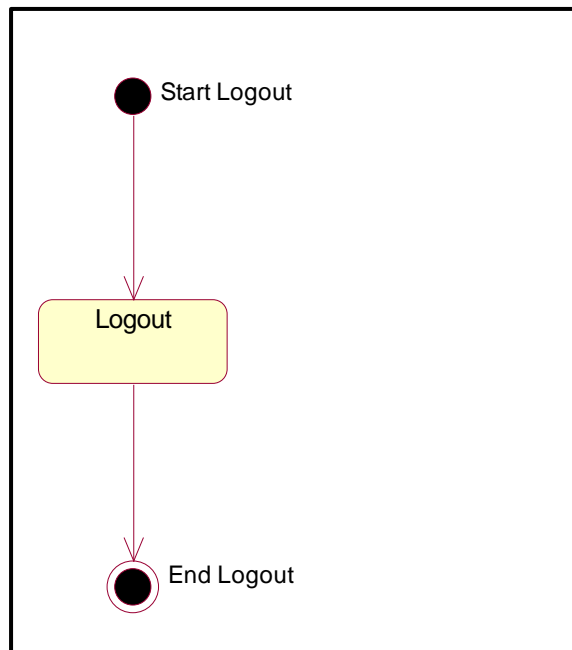
Figure 4.14.Logout

Figure 4.14 shows activity diagrams describing the behavioral overall flow of control of the system when the users exit from the system.

4.5.0 SEQUENCE DIAGRAM

4.5.1 LOGIN:

Figure 4.15.Login

Figure 4.15 show the sequence diagram that illustrates the specification of runtime Interaction in a graphical manner of the login procedure. In addition this figure explain the sorting of processes for this procedure.

4.5.2 REGISTRATION:

Figure 4.16.Registration

Figure 4.16 show the sequence diagram that illustrates the specification of runtime interaction in a graphical manner of the registration procedure. In addition this figure explain the sorting of processes for this procedure.

4.5.3 EXAMINATION PROCESS:

A.   EXAMINATION PROCESS FOR LECTURER:

Figure 4.17.Examination Process (A)

Figure 4.17 show the sequence diagram that illustrates the specification of runtime Interaction in a graphical manner of the examination procedure for the lecturer to create the exam and determine the date and time of the exam. In addition this figure explain the sorting of processes for this procedure.

B. EXAMINATION PROCESS FOR STUDENT:
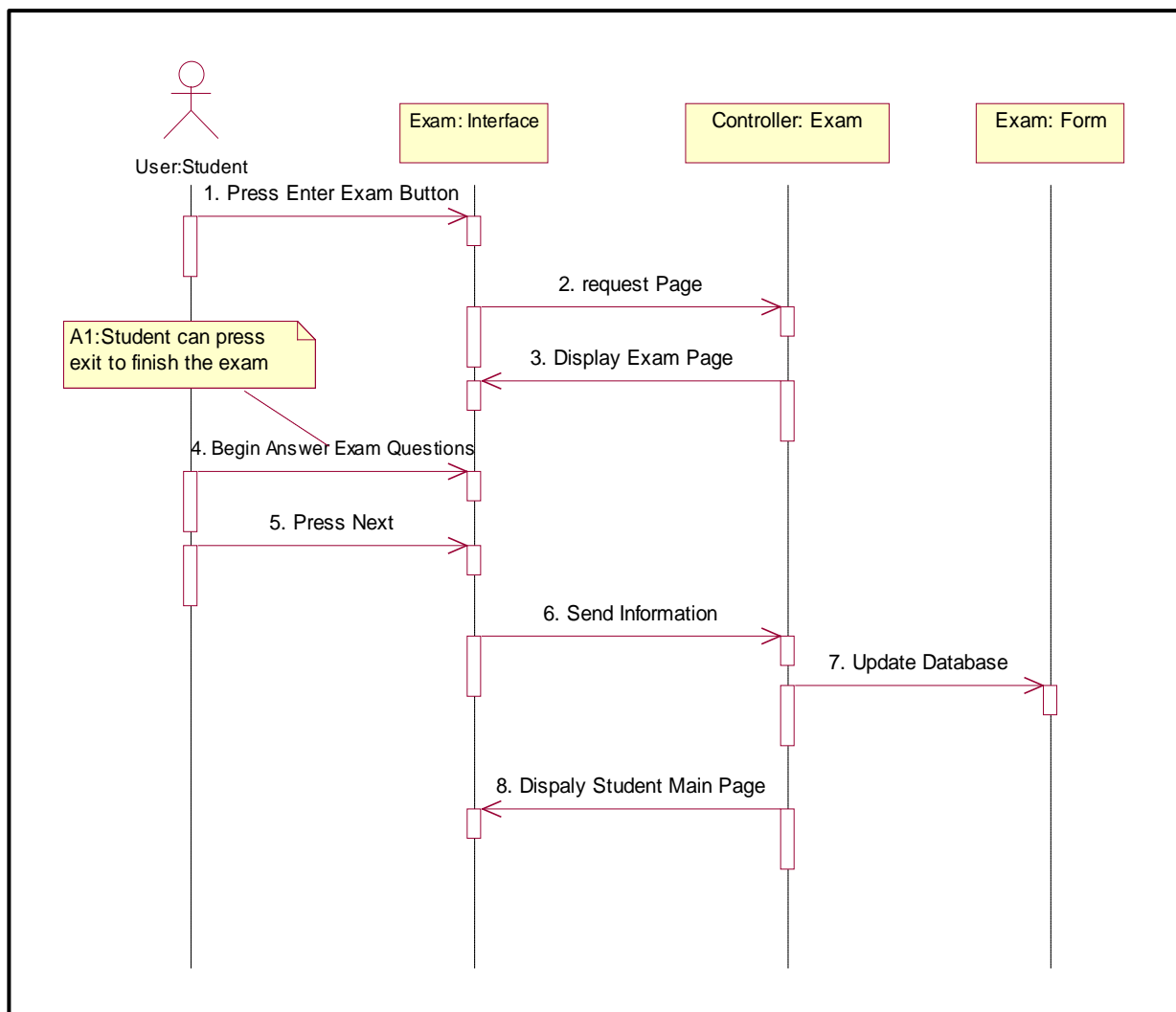
Figure 4.18.Examination Process (B)

Figure 4.18 show the sequence diagram that illustrates the specification of runtime interaction in a graphical manner of the examination procedure for the students. In addition this figure explain the sorting of processes for this procedure.
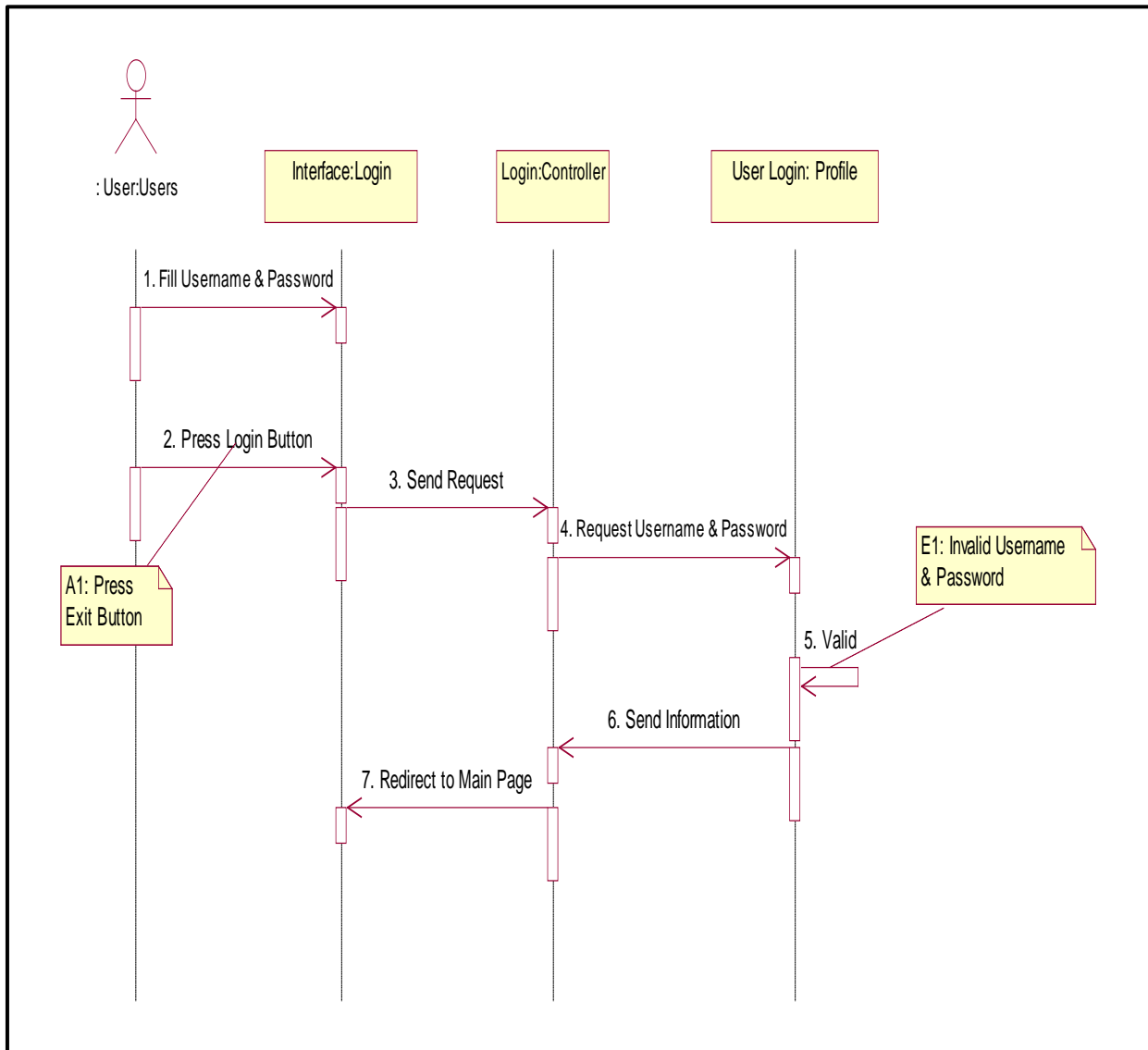
4.5.4 CHECK RESULTS:
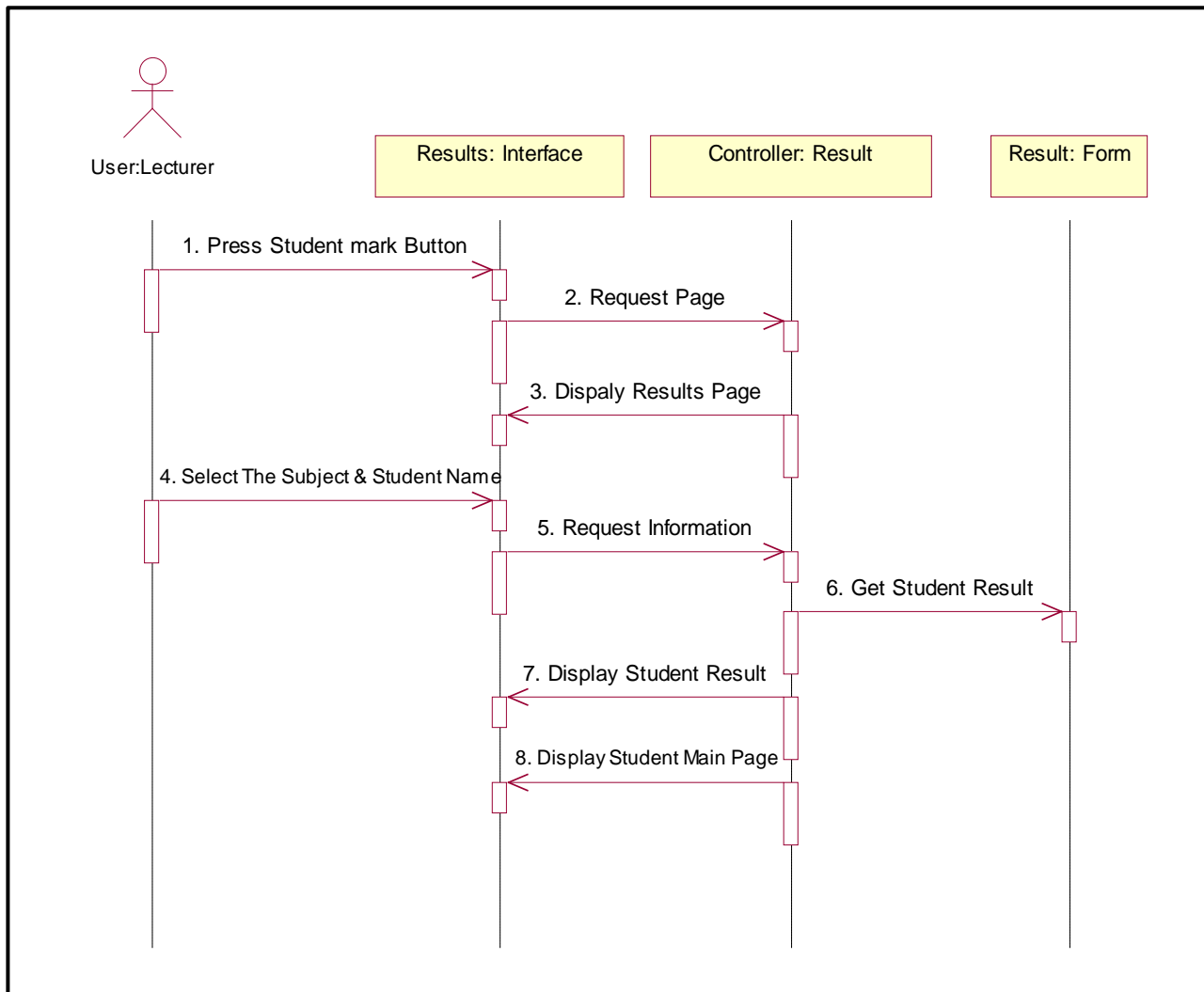
Figure 4.19.Check Results

Figure 4.19 show the sequence diagram that illustrates the specification of runtimeinteraction in a graphical manner of the check result procedure. In addition this figure explain the sorting of processes for this procedure.
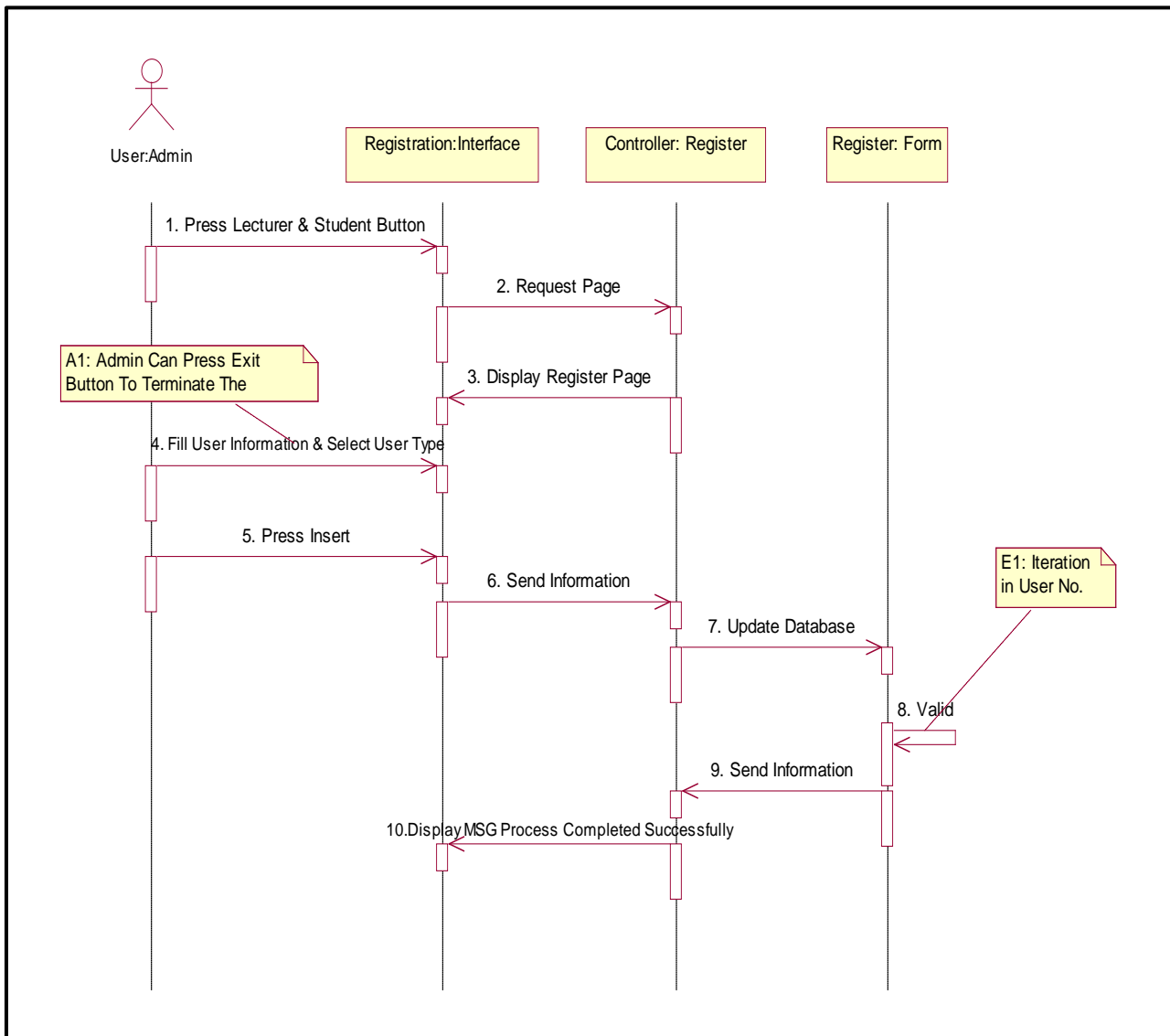
4.5.5MANAGE SYSTEM:
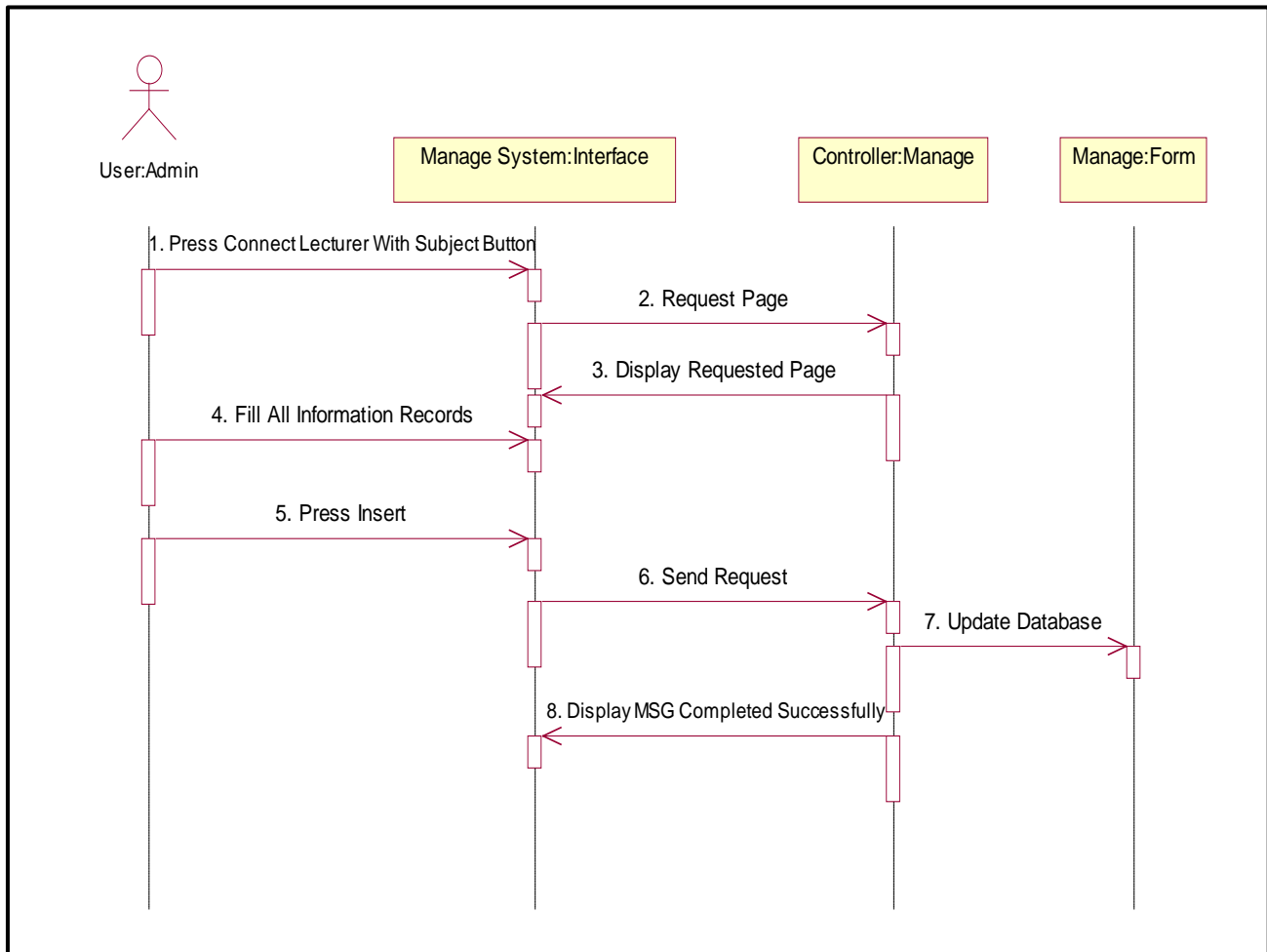
Figure 4.20.Manage System

Figure 4.20 show the sequence diagram that illustrates the specification of runtime interaction in a graphical manner of the manage system procedure. In addition this figure explain the sorting of processes for this procedure.
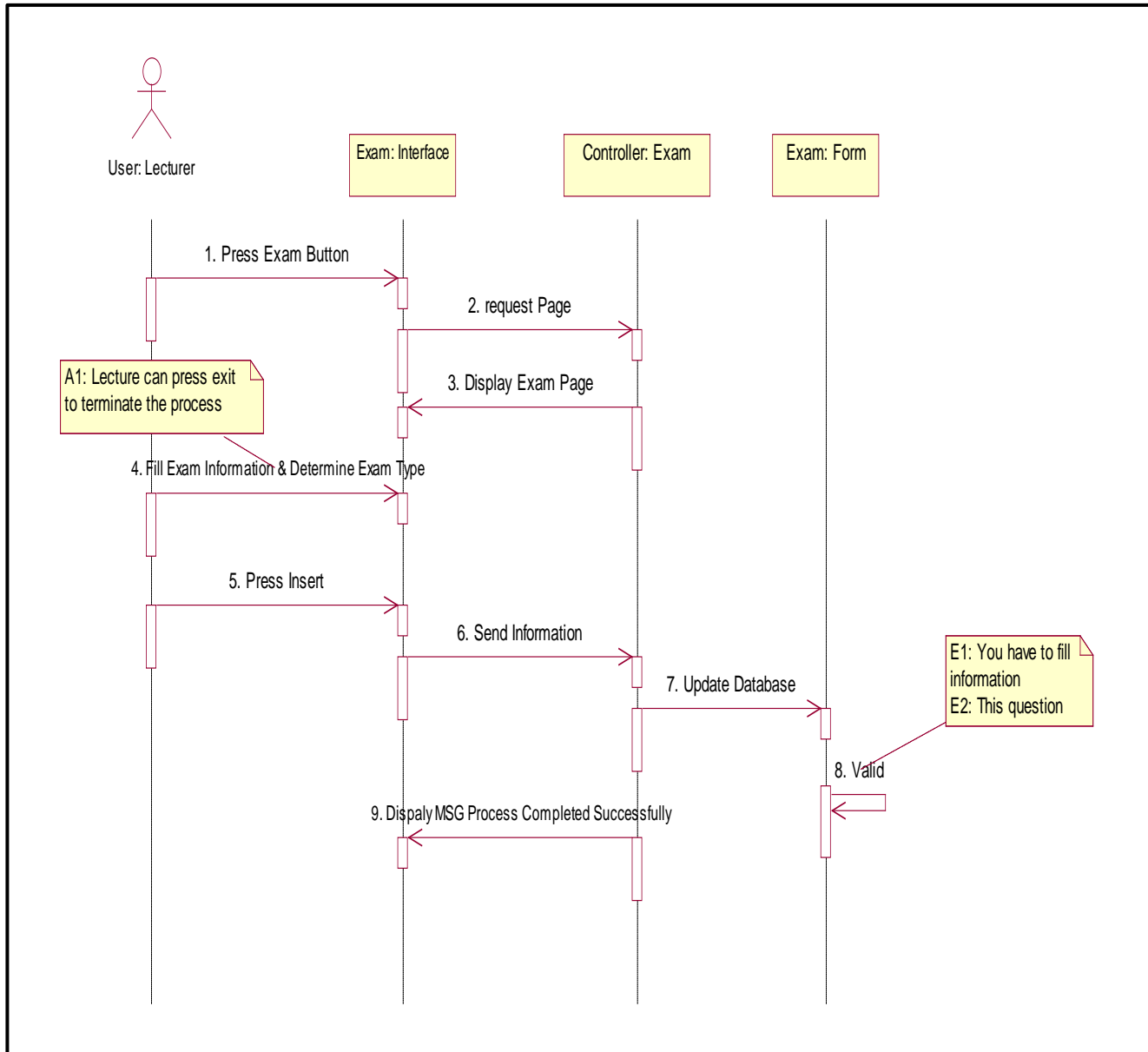
4.5.6 LOGOUT:
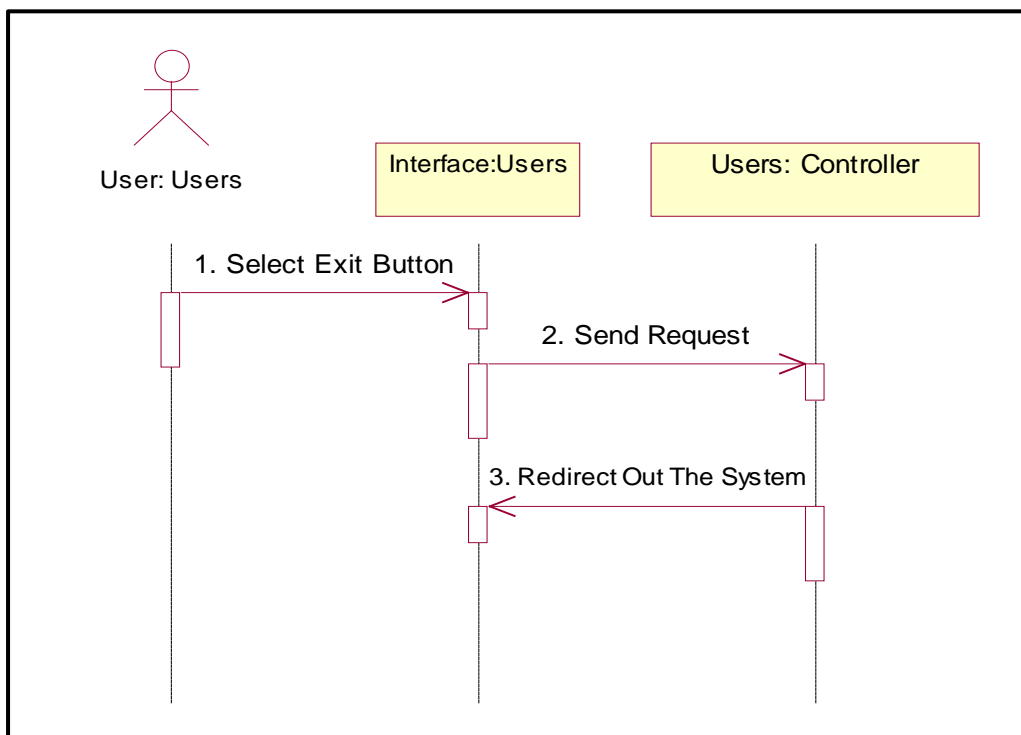
Figure 4.21.Logout

Figure 4.21 show the sequence diagram that illustrates the specification of runtime interaction in a graphical manner of the logout procedure. In addition this figure explain the sorting of processes for this procedure.

4.6.0 COLLABORATION DIAGRAM

4.6.1 LOGIN:

Figure 4.22.Login

Figure 4.22 illustrates the relationship and interaction between the systems objects when performing a login procedure.

4.6.2 REGISTRATION:

Figure 4.23.Registration

Figure 4.23 illustrates the relationship and interaction between the systems objects when performing a registration procedure.

4.6.3 EXAMINATION PROCESS:

A. EXAMINATION PROCESS FOR LECTURER:

Figure 4.24.Examination Process (A)

Figure 4.24 illustrates the relationship and interaction between the systems objects when performing an examination procedure for the lecturer.

B. EXAMINATION PROCESS FOR STUDENT:

1: 1. Press Enter Exam Button
4: 4. Begin Answer Exam Questions
5: 5. Press Next

Exam:
Interface

User:Student

3: 3. Display Exam Page
8: 8. Dispaly Student Main Page

2: 2. request Page
6: 6. Send Information

7: 7. Update Database

Controller:
Exam

Exam:
Form

Figure 4.25.Examination Process (B)

Figure 4.25 illustrates the relationship and interaction between the systems objects when performing an examination procedure for the students.

4.6.4 CHECK RESULTS:

1: 1. Press Student mark Button
4: 4. Select The Subject & Student Name

Results:
Interface

User:Lecturer

3: 3. Dispaly Results Page
7: 7. Display Student Result
8: 8. Display Student Main Page

2: 2. Request Page
5: 5. Request Information

6: 6. Get Student Result

Controller:
Result

Result:
Form

Figure 4.26.Check Result

Figure 4.26 illustrates the relationship and interaction between the systems objects when performing a check result procedure.

4.6.5 MANAGE SYSTEM:

1: 1. Press Connect Lecturer With Subject Button
4: 4. Fill All Information Records
5: 5. Press Insert

Manage
System:Interface

User:Admin

3: 3. Display Requested Page
8: 8. Display MSG Completed Successfully

2: 2. Request Page
6: 6. Send Request

7: 7. Update Database

Controller:
Manage

Manage:
Form

Figure 4.27.Manage System

Figure 4.27 illustrates the relationship and interaction between the systems objects when performing a manage system procedure.
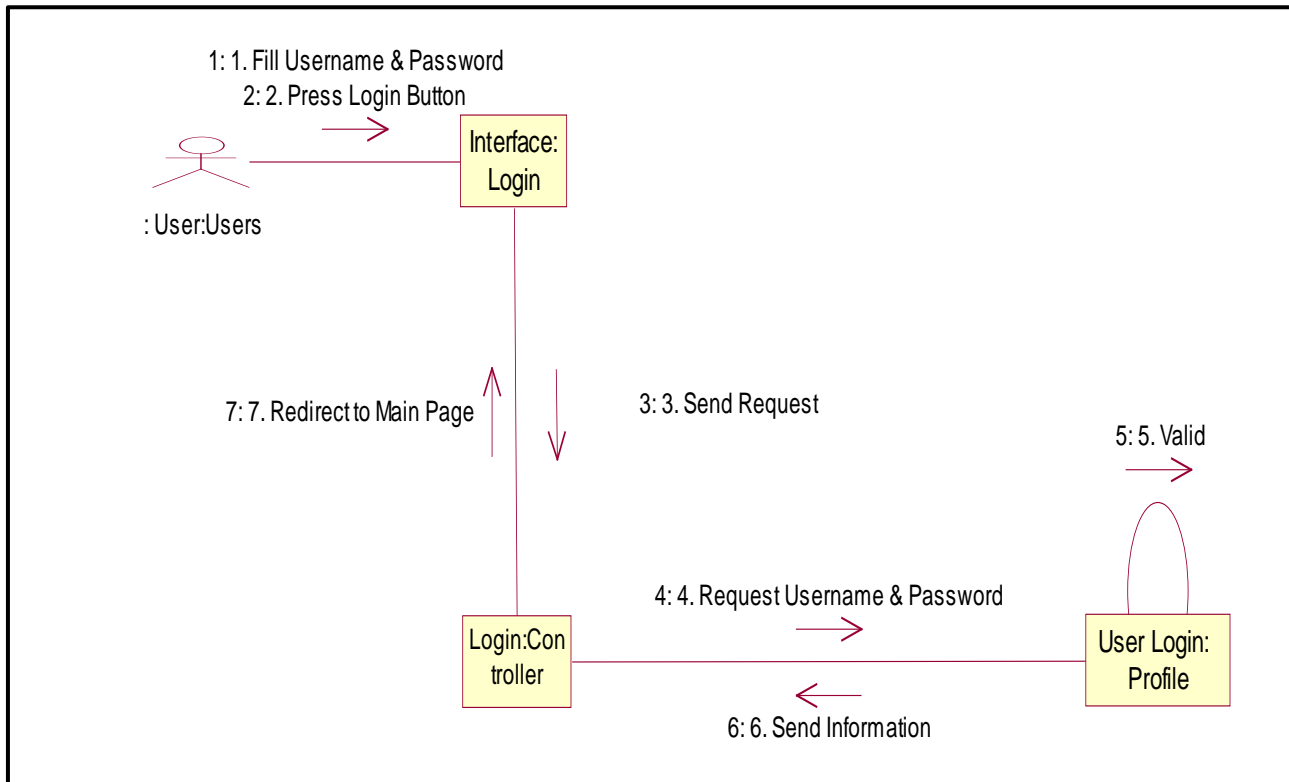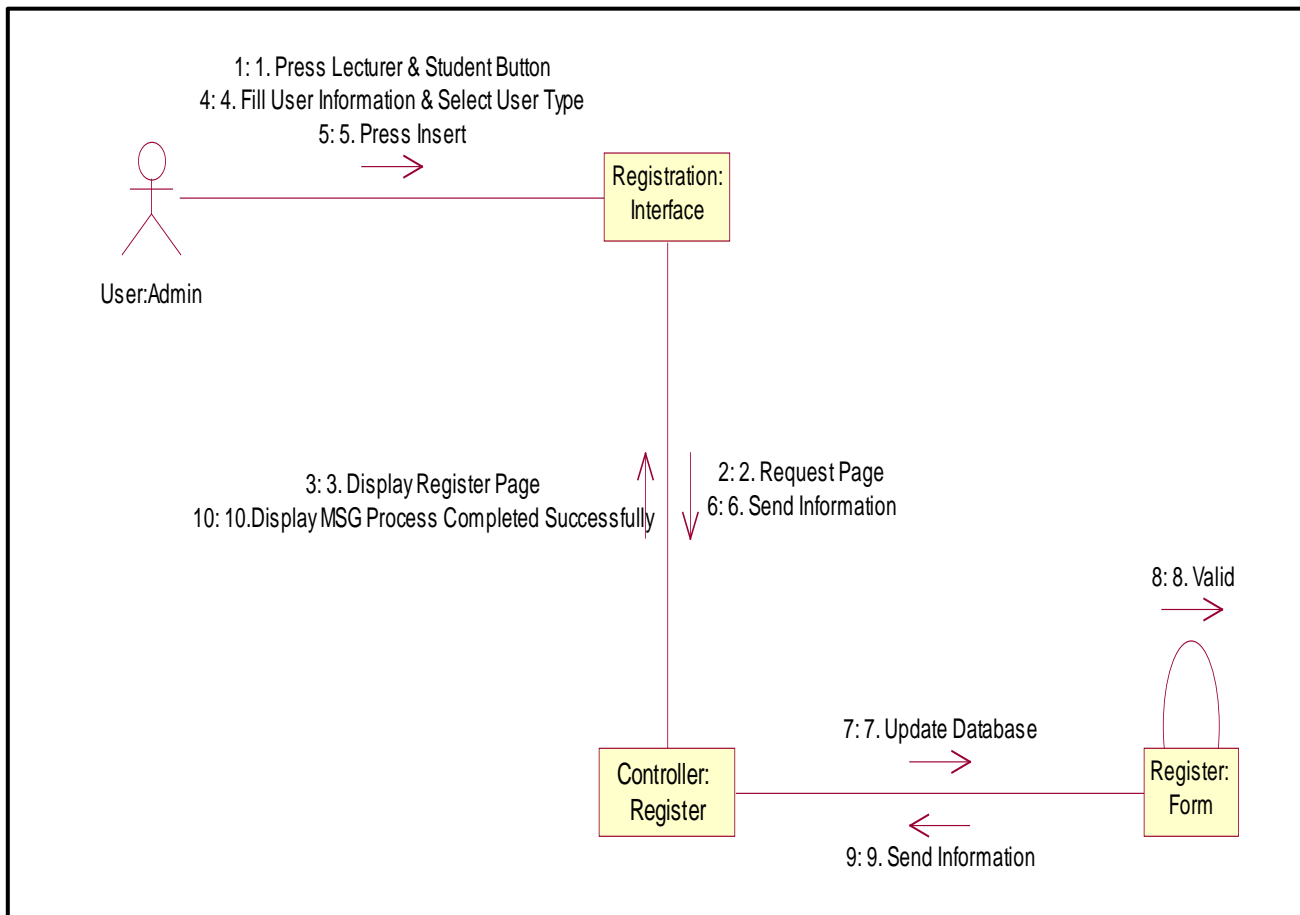
4.6.6 LOGOUT:
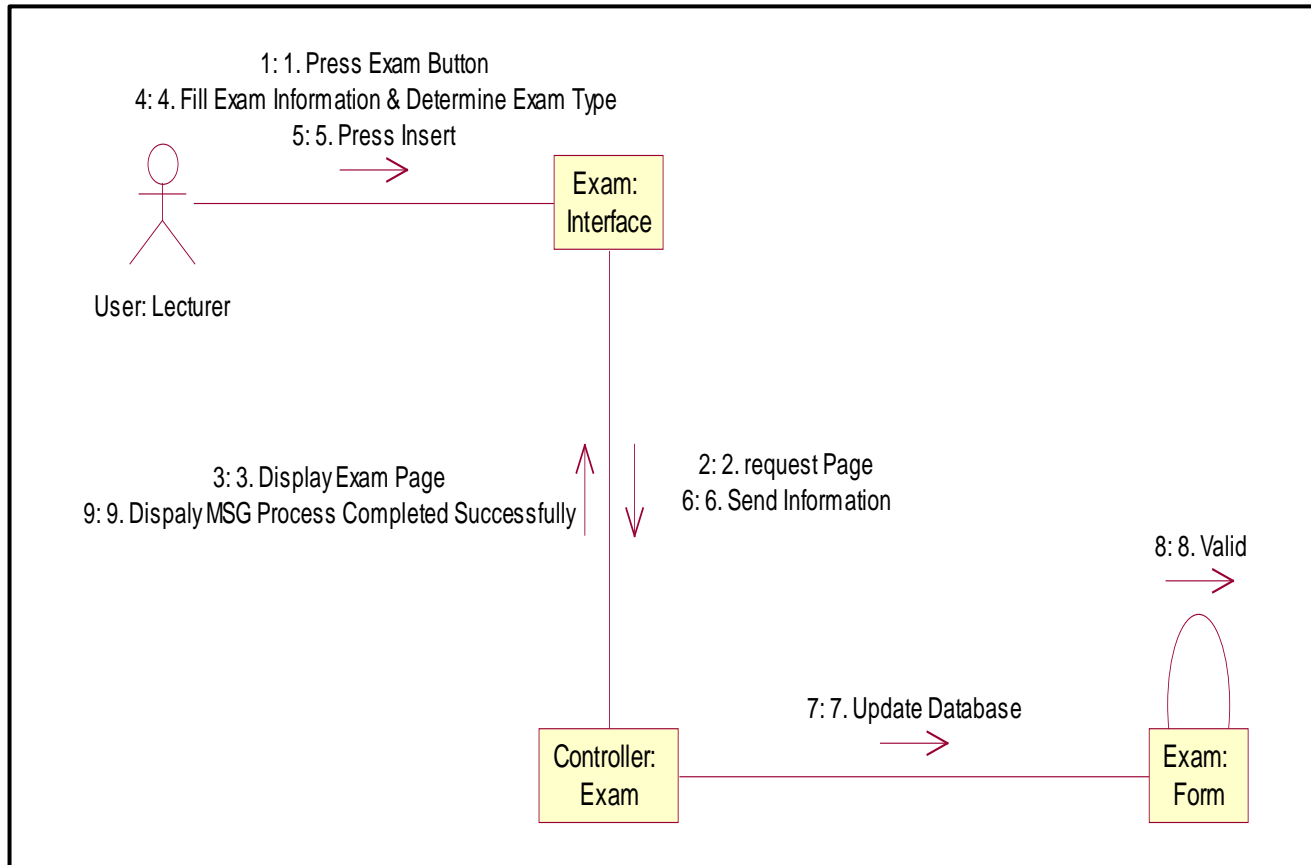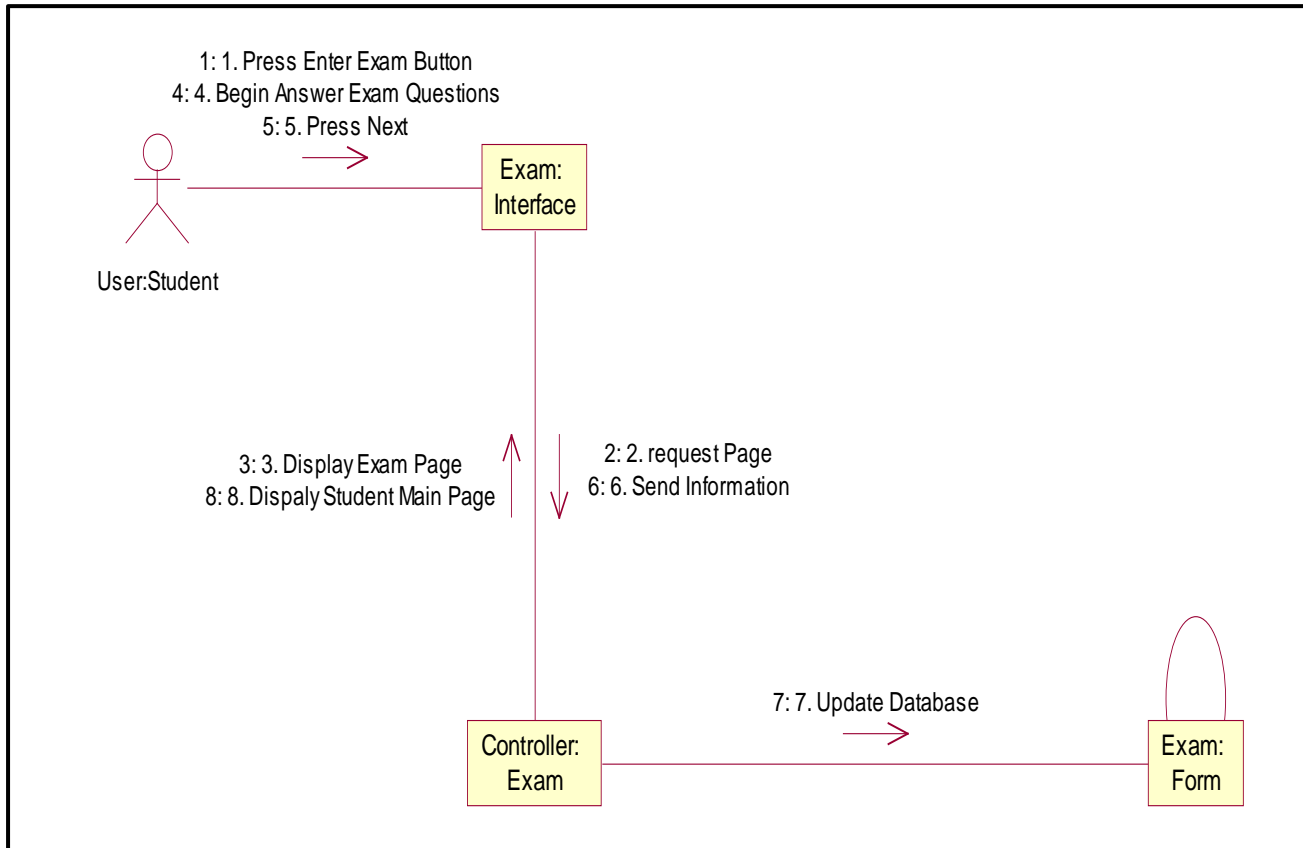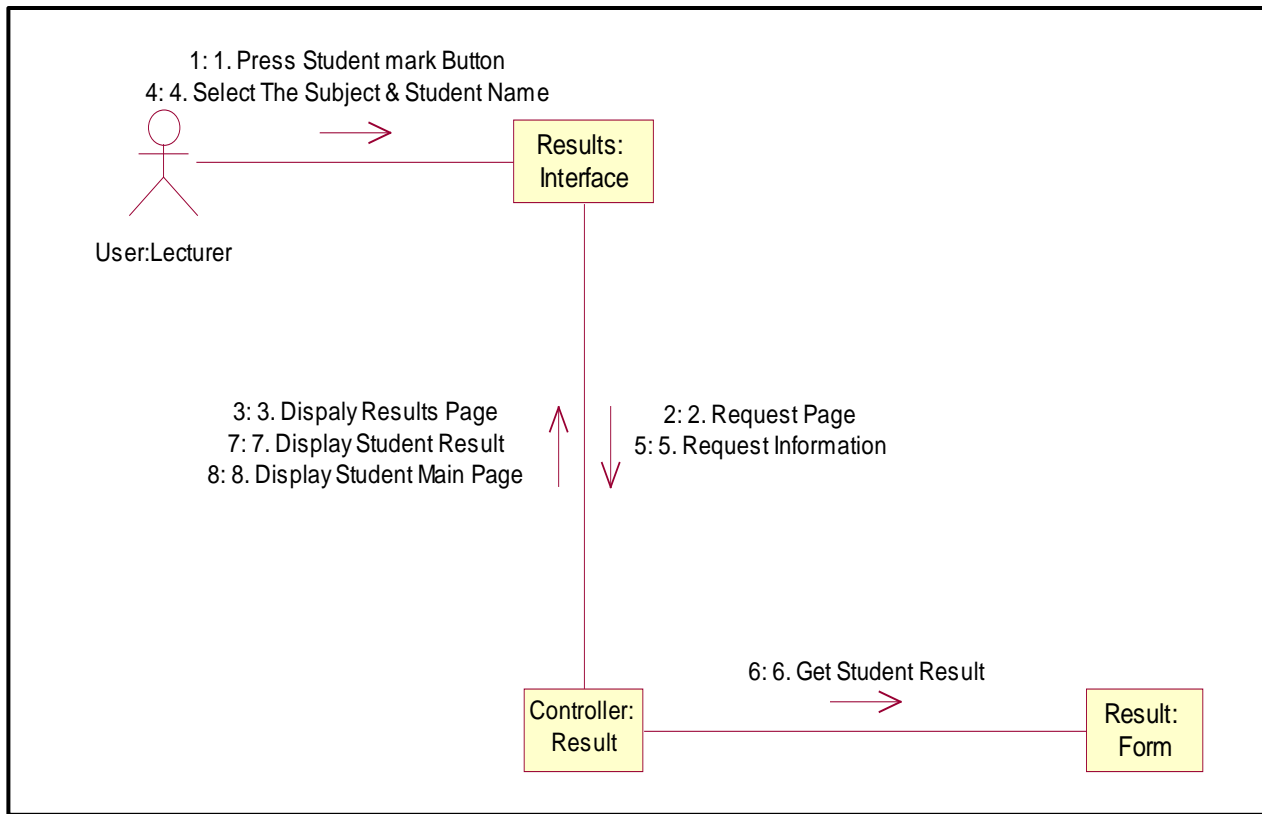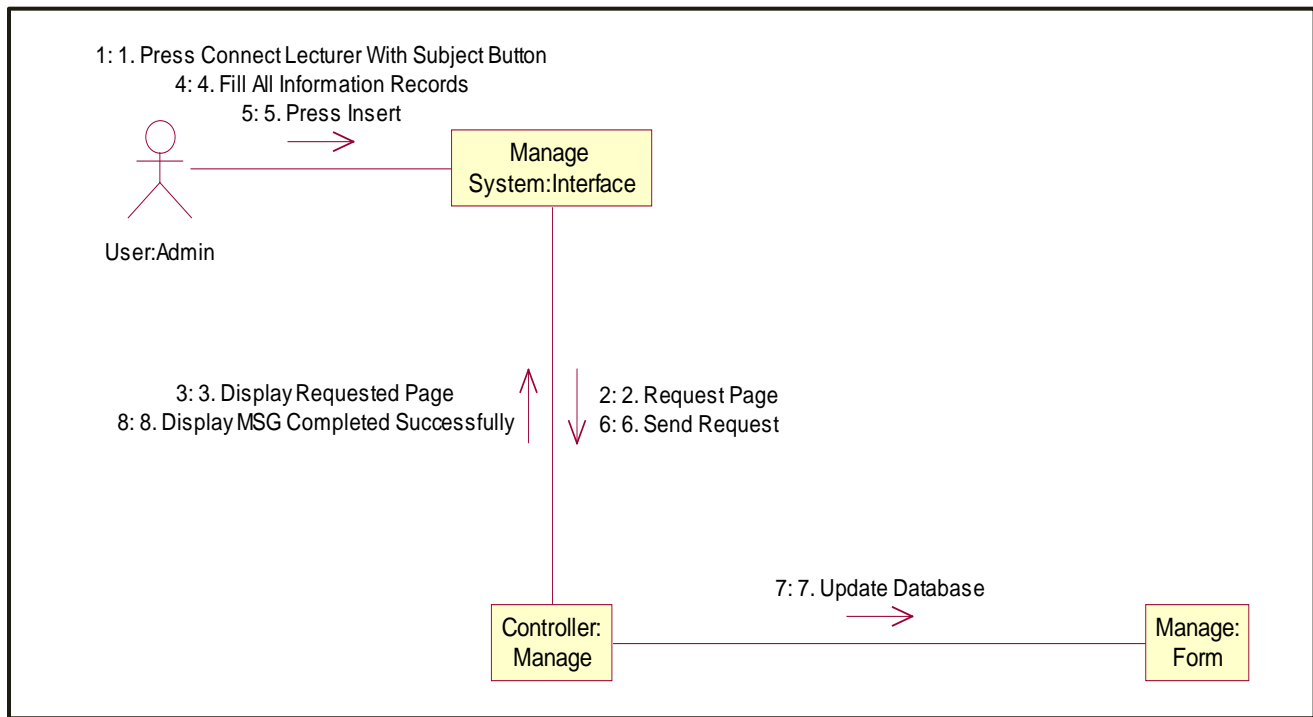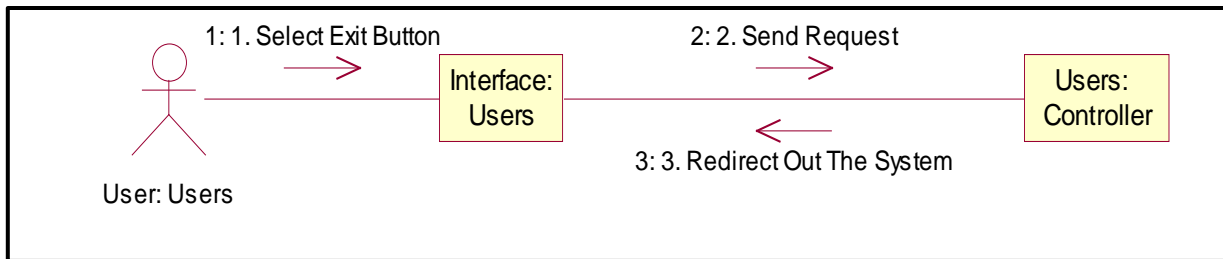

Figure 4.28.Logout

Figure 4.28 illustrates the relationship and interaction between the systems objects when performing a logout procedure.

4.7.0 CLASS DIAGRAM

Lecturer Interface
- Display : Dispaly
- System Information : String

- Display System Info()
- Set Exam Form()
- Set Modification Form()
- Display Modification Form()
- Display Exam Form()

Student Interface
- Display : Display
- System Information : String

- Display System Info()
- Display Exam Info()
- Set Exam Form()
- Display Modification Form()
- Set Modification Form()

Exam
- Subject Name : String
- Exam Name : String
- Exam Number : Integer
- Exam Date : Date
- Exam Status : String

- Set Exam()
- Set Student answer()
- Set Exam Info()
- Display Exam Form()
- Set Exam Result()
- Display Exam result()

Manager
- Exam Form : String
- Modification Form : String
- Student Information : Array
- Lecturer Information : Array
- Subject Information : String

- Login()
- Get User Form()
- Add New User()
- Upate User Information()
- Get Exam Form()
- Validate Modification Form()
- Validate Login()
- Display Modification Form()
- Display Student Result()
- Get Modification()
- Get Connect Users()

Has

1 : *

1

User Interface
- Display : Display
- System Information

- Display System Info()

Dsiplay

1

1 : *

Control

1 : *

Has

Lecturer
- UserName : String
- Password : Integer

- Set User Name()
- Set password()
- Get Username()
- Get password()
- Validate lecturer()

Admin Interface
- Display : Display
- System Information : String

- Display System Info()
- Display Modification Info()
- Display User Form()
- Set Modification()
- Set User Form()
- Set Connect Users()

Admin
- Username : String
- Password : Integer

- Set Username()
- Set Password()
- Get Username()
- Get Password()
- Validate Admin()

Manage

1 : *

Users
- Username : String
- Password : Integer

- Validate()

1

1 : *

Student
- Username : String
- Password : Integer

- Set Username()
- Set Password()
- Get Username()
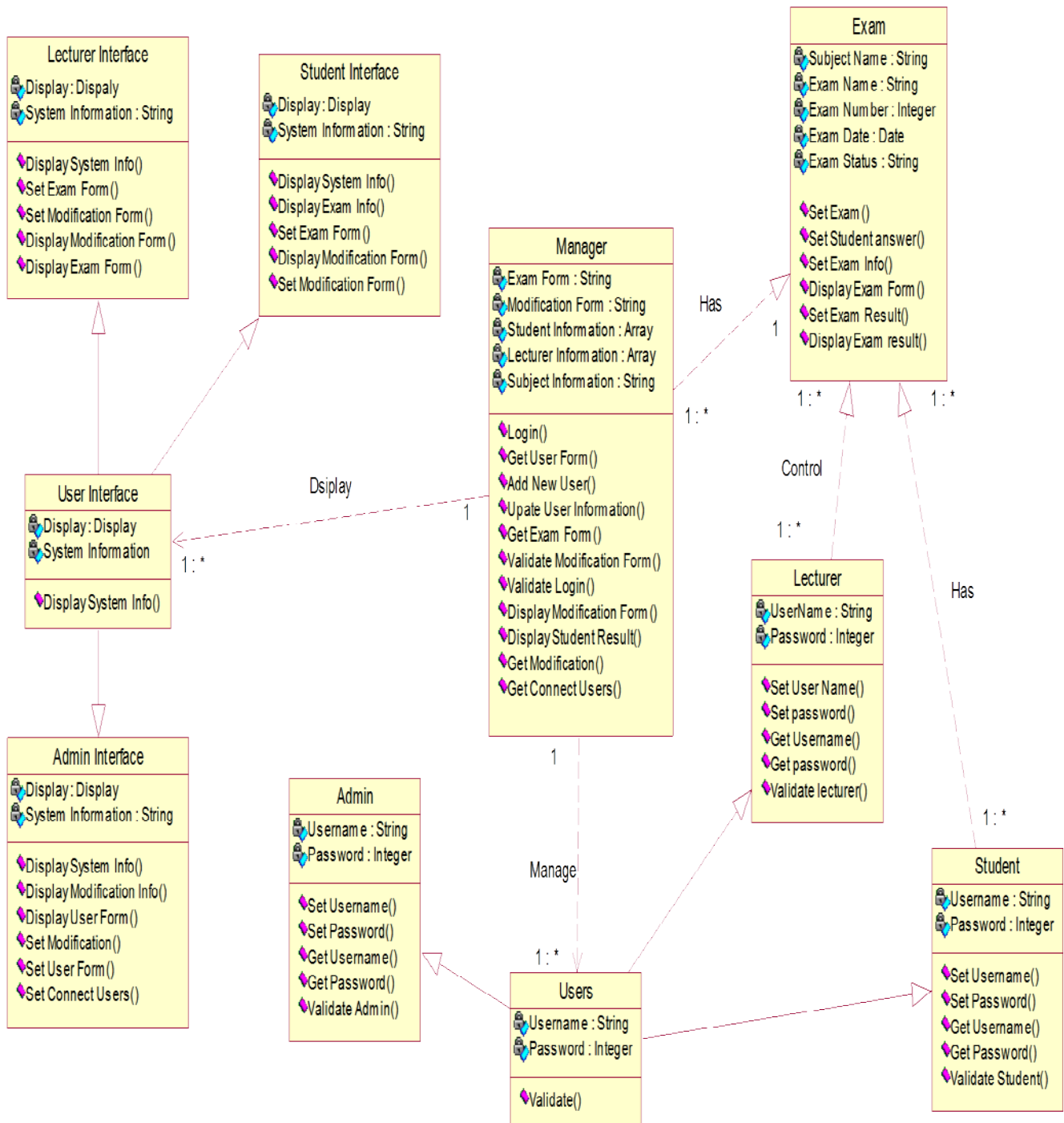- Get Password()
- Validate Student()

Figure 4.29.Class Diagram

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Figure 4.29 shows the inter-relationships, and the operations and attributes of the classes existing in the computer-based examination package.

4.8.0 SUMMARY

In this chapter an illustration of the system components, its relationships, and its interaction with each other has been presented.UML diagrams has specified the all of the activity diagrams, sequence diagrams, collaboration diagrams and class diagrams along with the specification of the system use cases.

CHAPTER FIVE

EVALUATING AND RESULTS

5.0 INTRODUCTION

This chapter will implement the final stage for the research methodology, observe and evaluate the system by applying the system in real case for the users. In this study we have 30 participants in our sample for evaluation the system; just 3 of them are lecturers, and the others are students, this process were implemented on 26/11/2011–28/11/2011 at Language Centre, specifically in computer lab. The students tested all the elements in the system, then they answered the questionnaires, which use to evaluate the system, the researcher had an interview session with the lecturer. The main aim for this process is to achieve the third objective in the research, which has to evaluate the effectiveness of have electronic examination system. This process is divided into two sections, the first section for the students using questionnaires, the second section using interview with the lecturers.

5.1 USER FEEDBACK AND USABILITY TESTING RESULT

In this section the researcher use usability questionnaire to get the advantages and disadvantages for the system from the users. According to Lewis, J. R. (1995) IBM Computer Usability Satisfaction Questionnaires, the questionnaire proposes that when users are given new software to use it, they can evaluate all the elements of the system and the researcher can use their feedback to make the system more efficiency. The researcher use SPSS program to explain and analysis the gathering data.

In order to evaluate the proposed model, the developed system was presented to 30 participants in UUM, 30 students and staff. Then the questioner was distributed in order to collect the users' feedback. The questioner was conducted in order to evaluate the users' satisfaction and to see whether the proposed system has fully the users' requirements as collected through interview. The questioner as shows in appendix A, intended to see whether the system is acceptable, efficient and get the users' satisfaction.

The users who participate in the test are IT-related persons and most of them have excellent knowledge about web application system. The user comments about the system were different from each other. This study weighs up the testing with three categories such as effectiveness (strongly agree), efficiency (agree) and satisfaction.

5.2   STUDENTS EVALUATION

❖ **QUESTIONNAIRE (SECTION 1)**

The below Table (5.1) and Figure (5.1) show the Frequency and Percent of male and female. The number of male that has been taken from the sample was 13 students, and their percentage was 43.3%. The number of female that has been taken from the sample was 17 students, and their percentage was 56.7%.

Table 5.1: GENDER

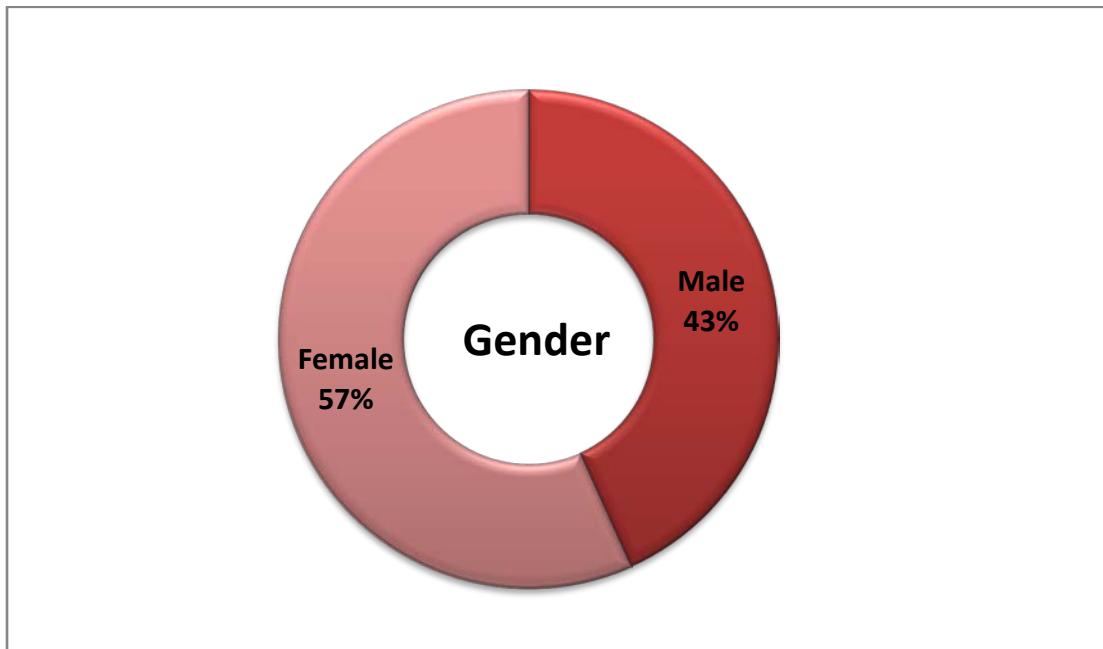|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	13	43.3	43.3	43.3
	female	17	56.7	56.7	100.0
	Total	30	100.0	100.0	

Figure 5.1. Gender

The below Table (5.2) and Figure (5.2) show the Frequency and Percent of Occupation (Student, lecturer). The number of student that has been taken from the sample was 27 students, and their percentage was 90%. The number of lecturer that has been taken from the sample was 3 lecturers, and their percentage was 10.0%.

Table 5.2: OCCUPATION

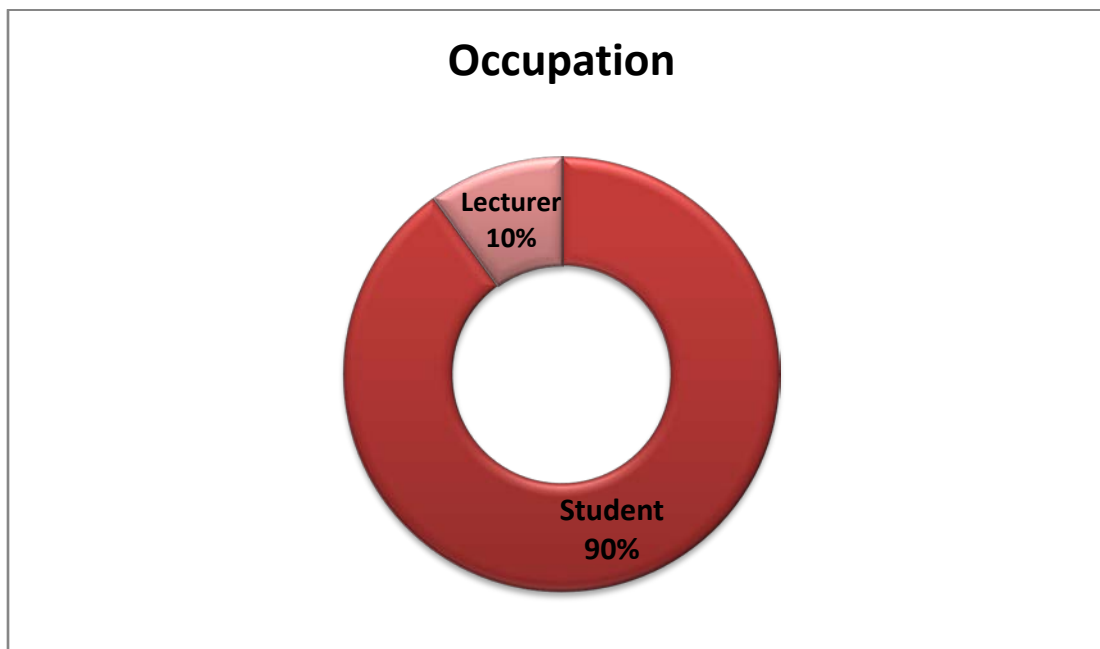|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	student	27	90.0	90.0	90.0
	lecturer	3	10.0	10.0	100.0
	Total	30	100.0	100.0	

Figure 5.2. Occupation

The below Table (5.3) and Figure (5.3) show the Frequency and Percent of Education Background (Bachelor Degree, Master Degree, PhD). The number of students they have a bachelor degree was 22 students, and their percentage was 73.3%. The number of students they have a master degree was 7 students, and their percentage was 23.3%. The number of PhD student was one student, and his percentage was 3.3%.

Table 5.3: EDUCATION BACKGROUD

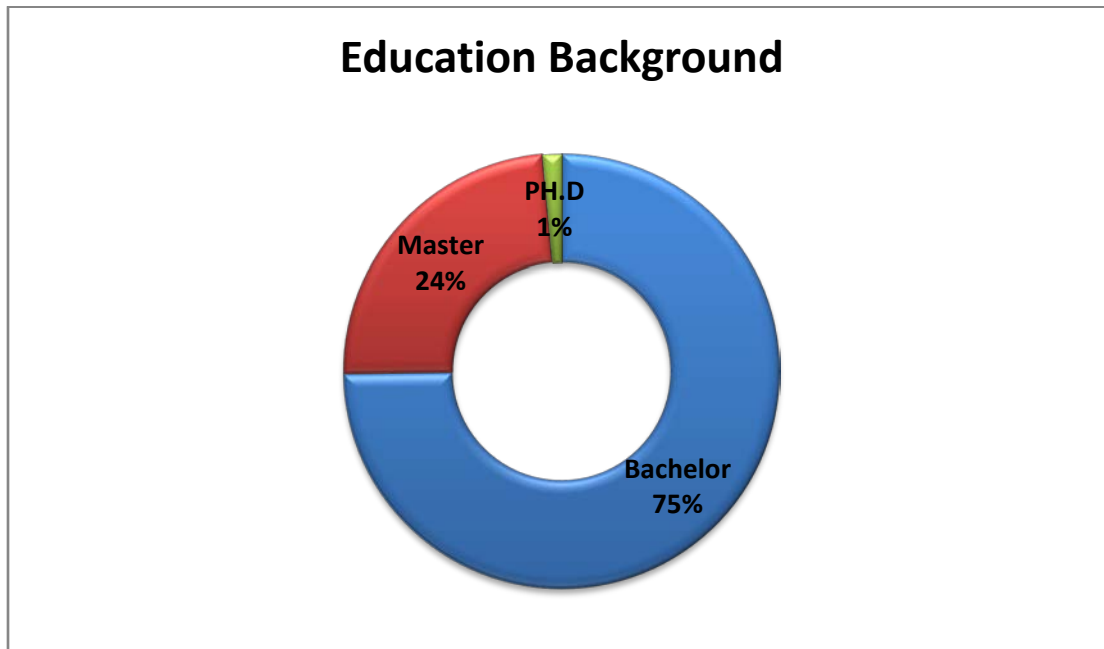|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	bachelor	22	73.3	73.3	73.3
	master	7	23.3	23.3	96.7
	PhD	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

Figure 5.3. Education Background

The below Table (5.4) and Figure (5.4) show the Frequency and Percent of Attending ELPTS (Yes, NO). All of the participants in our sample have been attended the exam (ELPTS).

Table 5.4: ATTENDING ELPTS

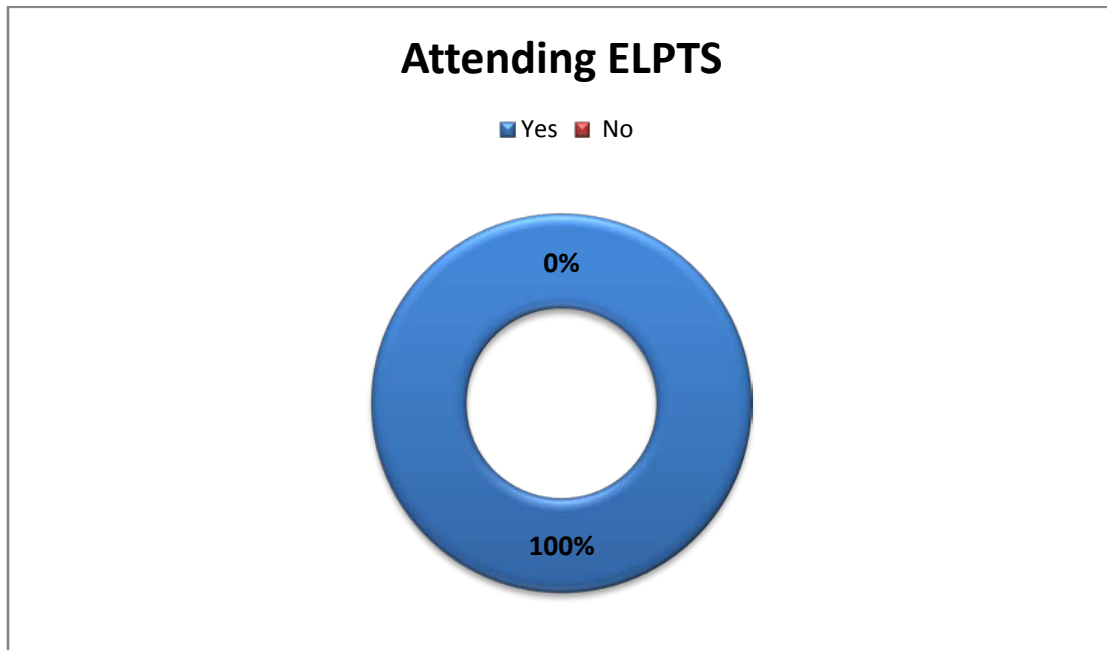|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**yes**	30	100.0	100.0	100.0

Attending ELPTS

■ Yes ■ No

0%

100%

Figure 5.4. Attending ELPTS

5.3   DESCRIPTIVE STATISTICS

5.3.1   Descriptive Statistics for the Questionnaire

This section is for explanation and description in general on the number of respondents for the questionnaire, and the percentage for each question rely on user's answers and feedback, as shown in Table (5.5).

Table 5.5: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Section 2					
The pictures or photographs on the web pages are of good quality	30	3	5	4.40	.621
It is easy to understand each of the pages	30	3	5	4.50	.572
Headings and subheadings on the web pages are helpful	30	4	5	4.60	.498
The web page is standard format and readable with a browser	30	3	5	4.50	.630
On supporting pages, there is always a return link to the home page	30	4	5	4.53	.507
Section 3					
There is a meaningful title on each of the web pages	30	3	5	4.57	.568
The information on the pages is easy to understand	30	4	5	4.67	.479
There are links with other website, for more explanation	30	3	5	4.47	.571
The web pages are user friendly and easier to get the information	30	3	5	4.40	.563
It is interesting to use this system	30	3	5	4.37	.615
Section 4					
The website is beneficial for both the University and the students	30	3	5	4.33	.661
The system allows administrator to modify/add exam question very easily	30	4	5	4.57	.504
The system allows student to take English test	30	3	5	4.53	.629
Do you think it is user friendly to attend online exam?	30	3	5	4.53	.571
Is this are efficient, effective and satisfactory system?	30	3	5	4.50	.572

		Frequency			30	3	5		

Is availability of up-to-date and useful information important for your purpose	30	3	5	4.47	.629
Are you satisfied with the usefulness of the information for you purpose?	30	3	5	4.30	.596
Valid N (list wise)	30				

5.3.2 Descriptive Statistics for each Question

This section is to get the type of user's answers/feedback on each question in the questionnaire, which explain the level of satisfaction the users on the system. In this section using SPSS, we will describe the feedback for each question in the table as follow:

❖ **QUESTIONNAIRE (SECTION 2)**

Q1: "The pictures or photographs on the web pages are of good quality**"**

Table 5.6: Section 2 - Q 1

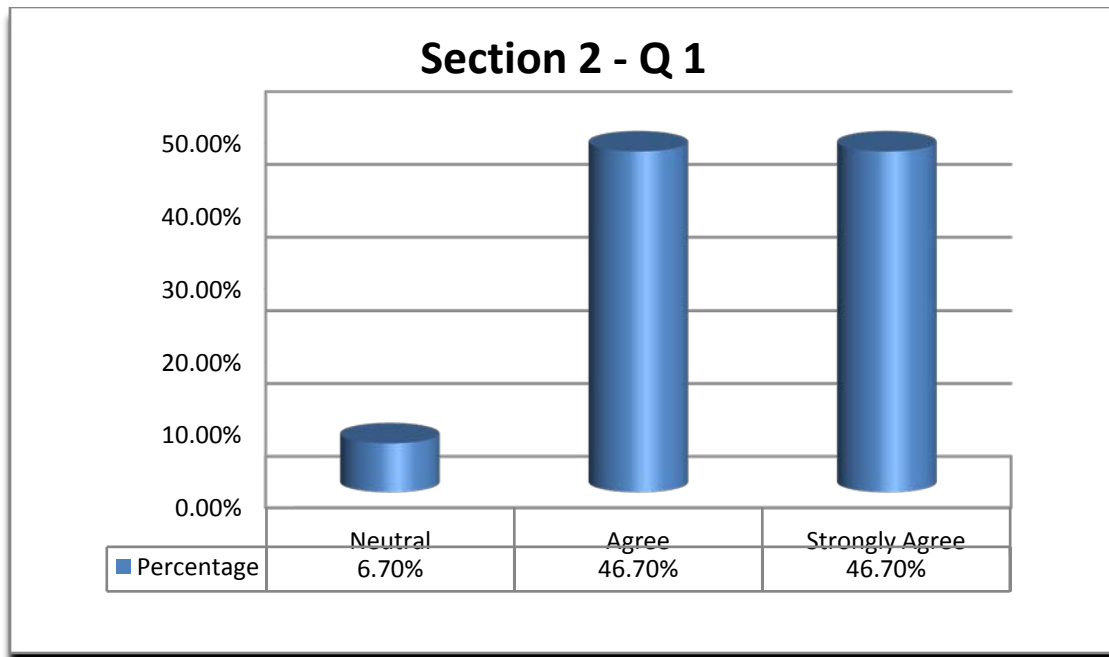|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**2**	**6.7**	**6.7**	**6.7**
	agree	**14**	**46.7**	**46.7**	**53.3**
	strongly agree	**14**	**46.7**	**46.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Figure 5.5. Section 2(Q1)

In this question, the number of respondents was 30 participants, 14 participants were "strongly agree" on the system by 46.7 percent from all respondents, 14 participants were "agree" on the system by 46.7 percent from all respondents, and 2 participants were "neutral" on the system by 6.7 percent from all respondents.

Q2: **"**It is easy to understand each of the pages**"**

Table 5.7: Section 2 - Q 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**1**	**3.3**	**3.3**	**3.3**
	agree	**13**	**43.3**	**43.3**	**46.7**
	strongly agree	**16**	**53.3**	**53.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	
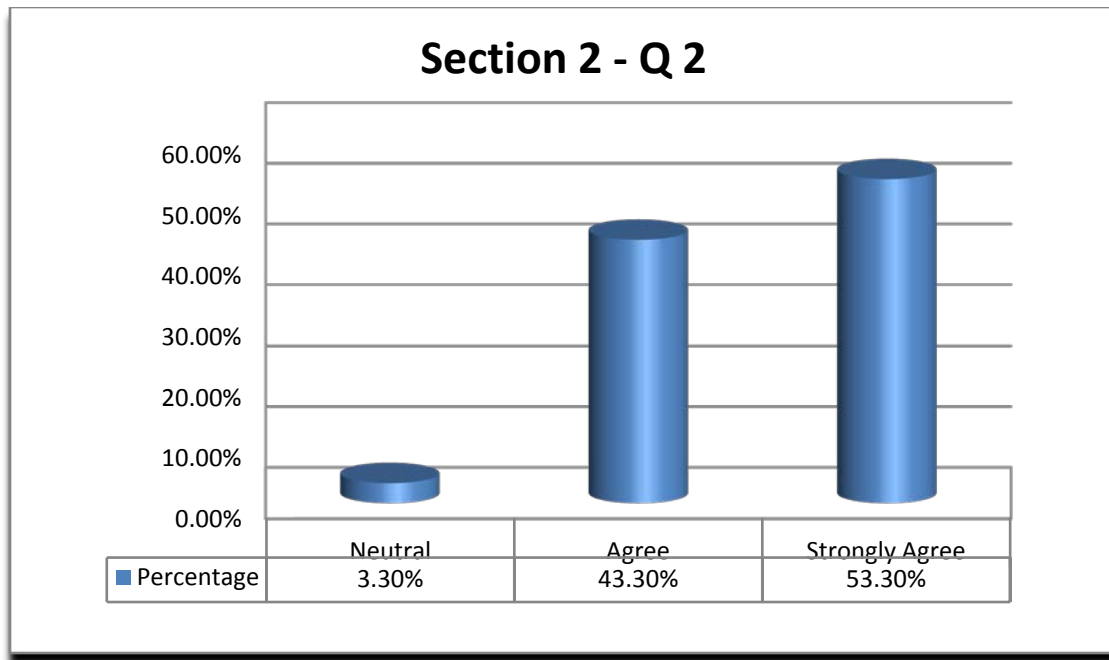
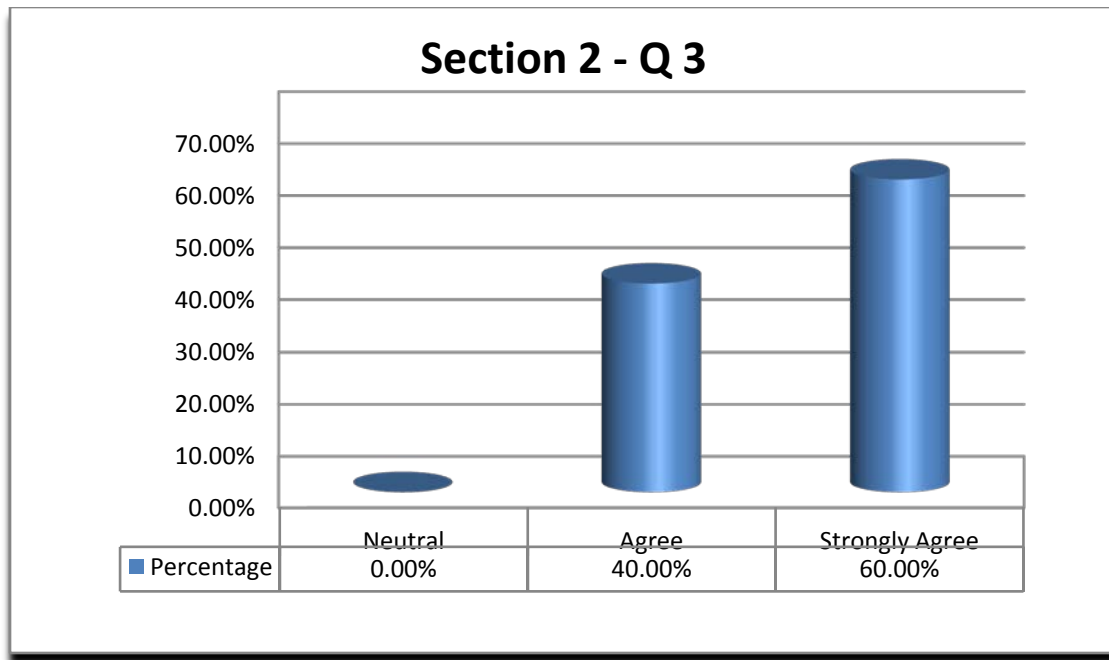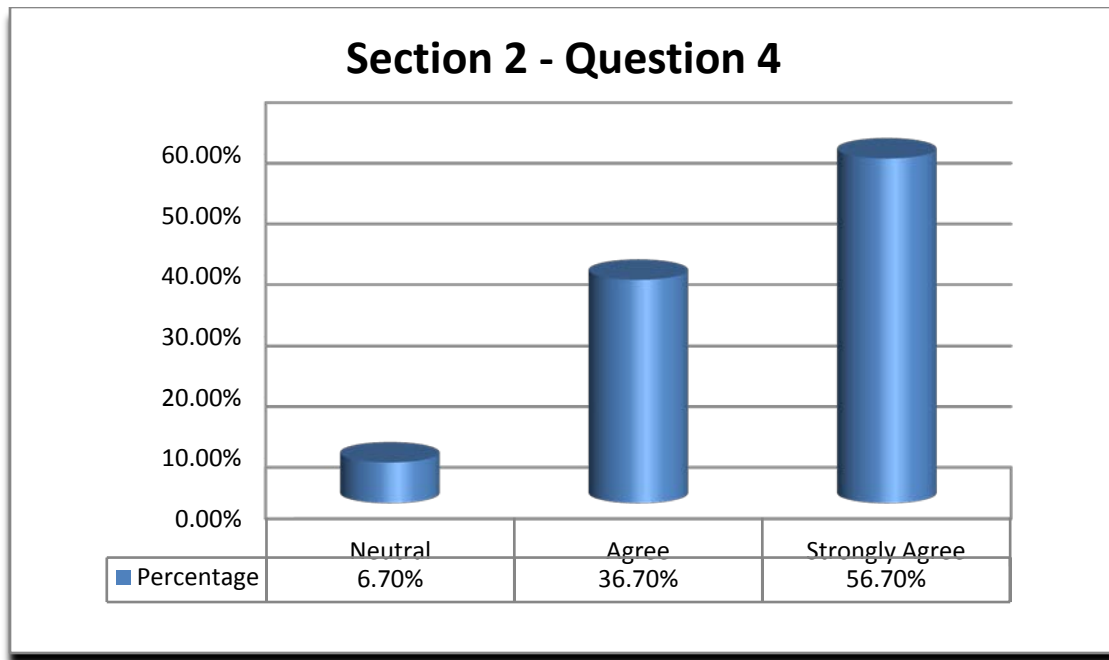Figure 5.6. Section 2(Q2)

In this question, the number of respondents was 30 participants, 16 participants were "strongly agree" on the system by 53.3 percent from all respondents, 13 participants were "agree" on the system by 43.3 percent from all respondents, and only one participant were "neutral" on the system by 3.3 percent from all respondents.

Q3: **"** Headings and subheadings on the web pages are helpful"

Table5.8: Section 2 - Q 3

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**agree**	**12**	**40.0**	**40.0**	**40.0**
	strongly agree	**18**	**60.0**	**60.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Figure 5.7. Section 2(Q3)

In this question, the number of respondents was 30 participants, 18 participants were "strongly agree" on the system by 60 percent from all respondents, 12 participants were "agree" on the system by 40 percent from all respondents.

Q4: ''The web page is standard format and readable with a browser''

Table 5.9: Section 2 - Q 4

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neutral	2	6.7	6.7	6.7
	agree	11	36.7	36.7	43.3
	strongly agree	17	56.7	56.7	100.0
	Total	30	100.0	100.0	

Figure 5.8. Section 2(Q4)

In this question, the number of respondents was 30 participants, 17 participants were "strongly agree" on the system by 56.7 percent from all respondents, 11 participants were "agree" on the system by 36.7 percent from all respondents, and 2 participants were "neutral" on the system by 6.7 percent from all respondents.

Q5: "On supporting pages, there is always a return link to the home page"

Table 5.10: Section 2 - Q 5

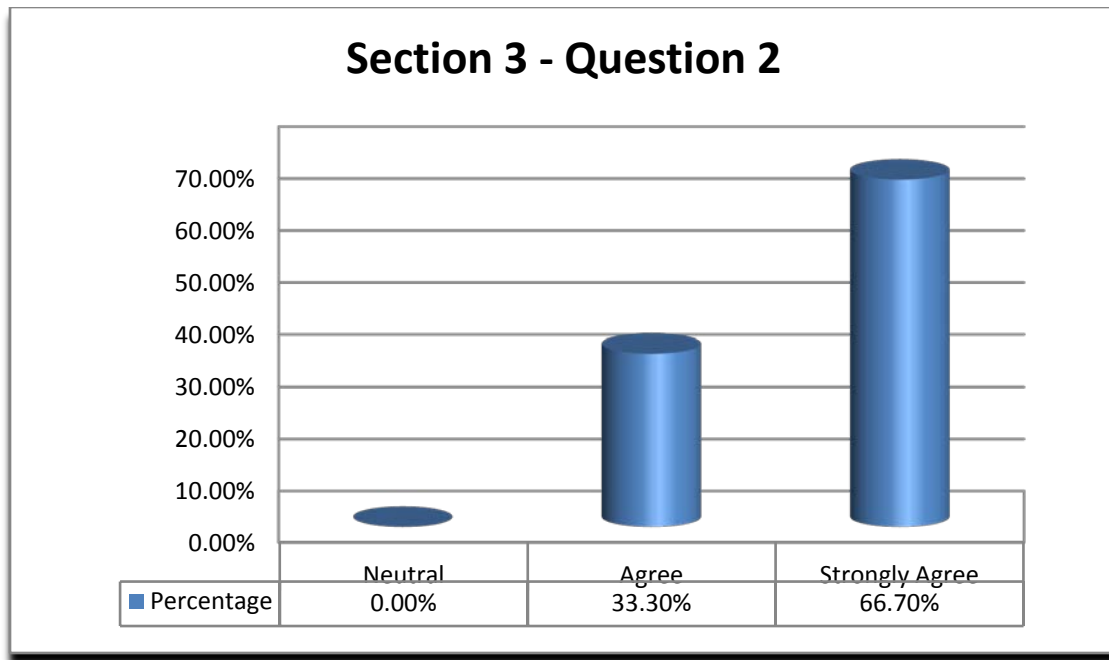|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**agree**	**14**	**46.7**	**46.7**	**46.7**
	strongly agree	**16**	**53.3**	**53.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	
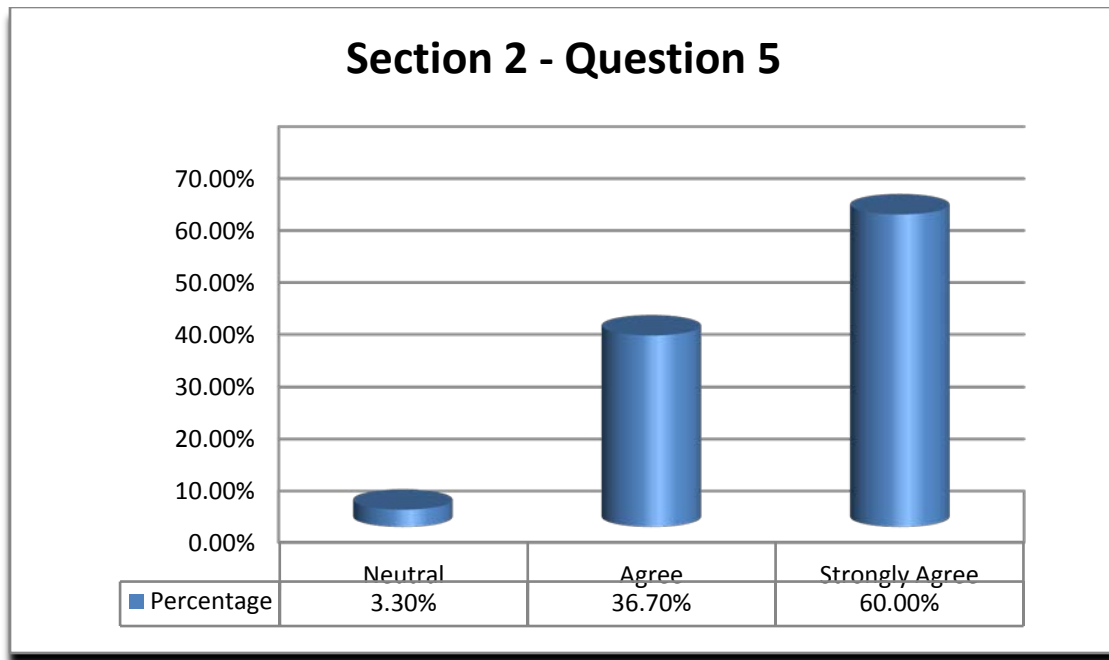
Figure 5.9. Section 2(Q5)

In this question, the number of respondents was 30 participants, 16 participants were "strongly agree" on the system by 60 percent from all respondents, 14 participants were "agree" on the system by 40 percent from all respondents.

❖ **QUESTIONNAIRE (SECTION 3)**

Q1:   "There is a meaningful title on each of the web pages"

Table 5.11: Section 3 - Q 1

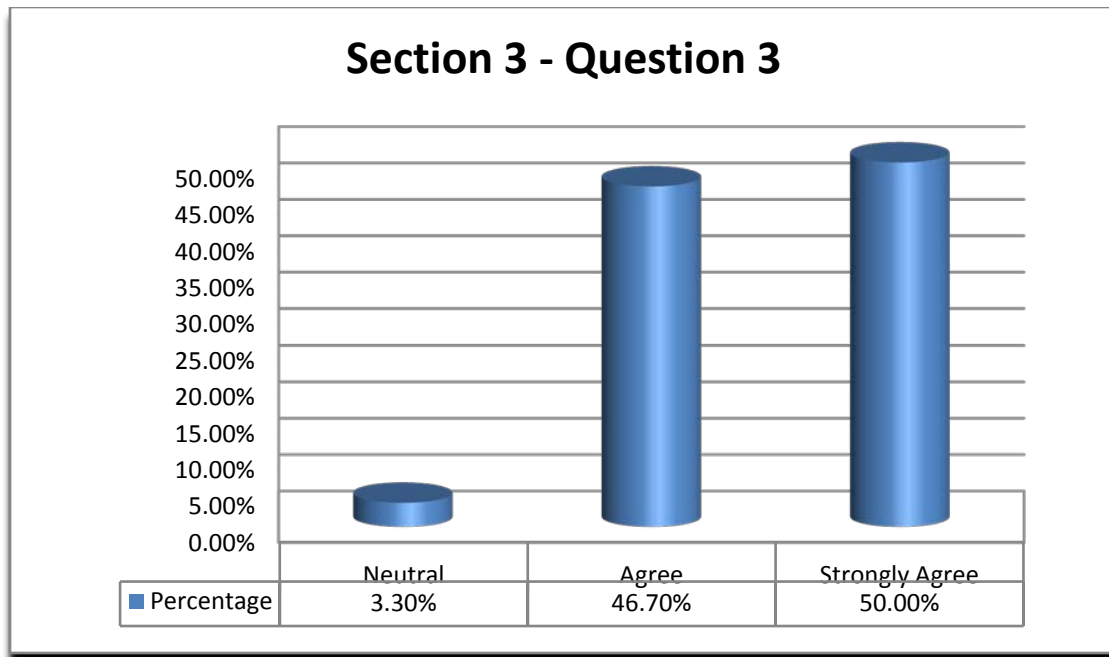|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Neutral**	**1**	**3.3**	**3.3**	**3.3**
	Agree	**11**	**36.7**	**36.7**	**40.0**
	strongly agree	**18**	**60.0**	**60.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	
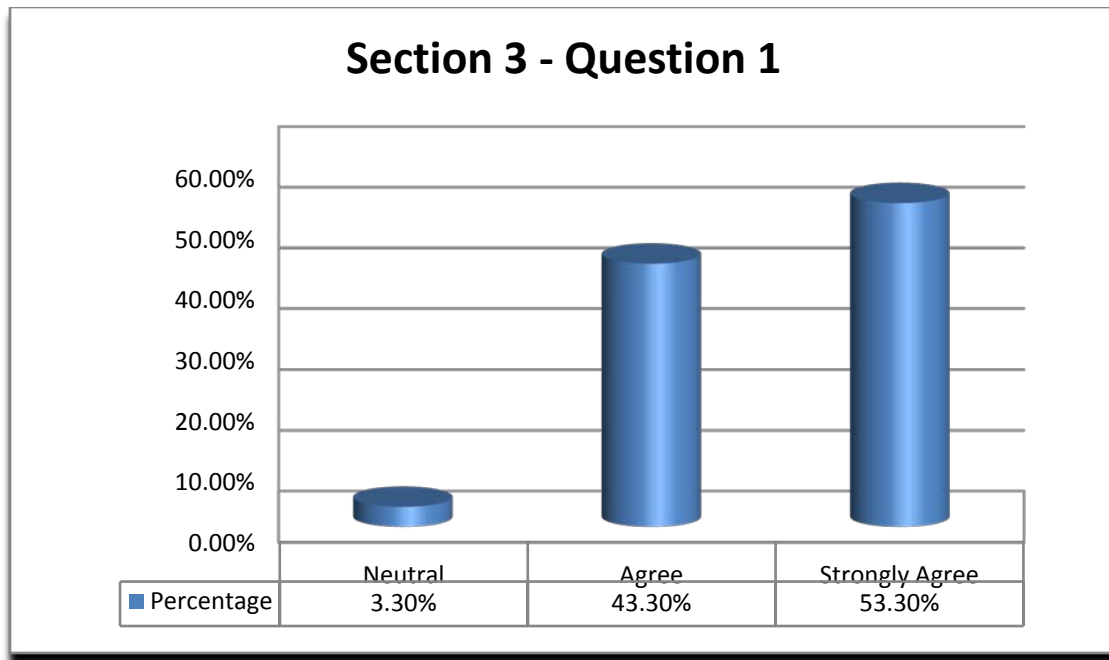
Figure 5.10. Section 3(Q1)

In this question, the number of respondents was 30 participants, 18 participants were "strongly agree" on the system by 53.3 percent from all respondents, 11 participants were "agree" on the system by 43.3 percent from all respondents, and only one participant were "neutral" on the system by 3.3 percent from all respondents.

Q2: **"**The information on the pages is easy to understand**"**

Table 5.12: Section 3 - Q 2

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**agree**	**10**	**33.3**	**33.3**	**33.3**
	strongly agree	**20**	**66.7**	**66.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Figure 5.11. Section 3(Q2)

In this question, the number of respondents was 30 participants, 20 participants were "strongly agree" on the system by 66.7 percent from all respondents, 10 participants were "agree" on the system by 33.3 percent from all respondents.

Q3: **"**There are links with other website, for more explanation**"**

Table 5.13: Section 3 - Q 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**1**	**3.3**	**3.3**	**3.3**
	agree	**14**	**46.7**	**46.7**	**50.0**
	strongly agree	**15**	**50.0**	**50.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Section 3 - Question 3

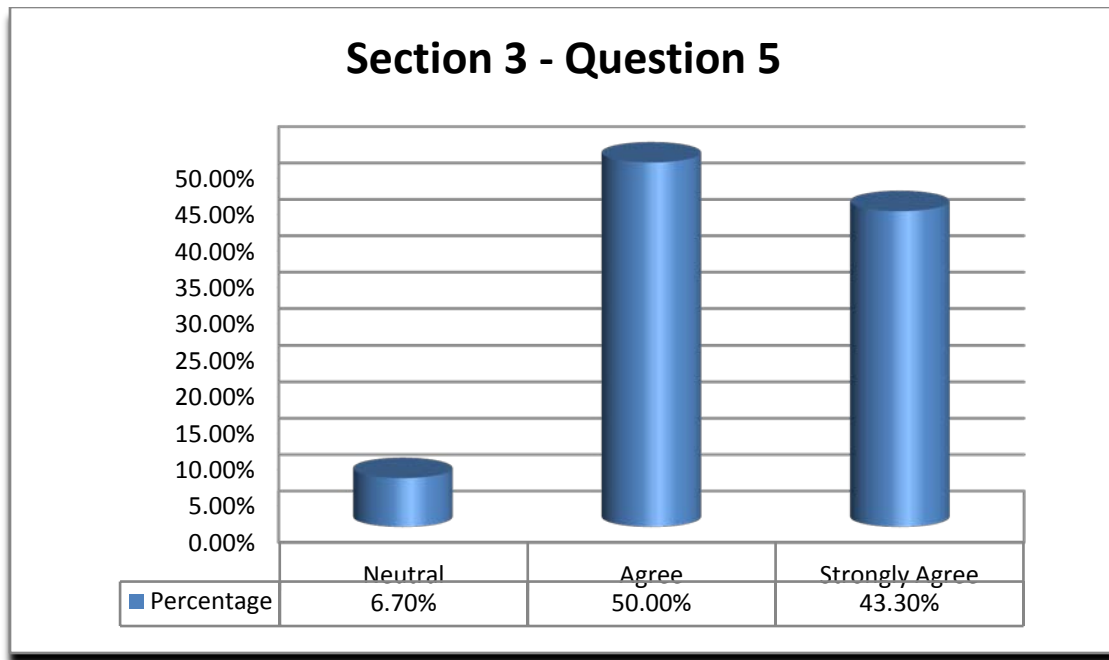|	Neutral	Agree	Strongly Agree
■ Percentage	3.30%	46.70%	50.00%

Figure 5.12. Section 3(Q3)

In this question, the number of respondents was 30 participants, 15 participants were "strongly agree" on the system by 50 percent from all respondents, 14 participants were "agree" on the system by 46.7 percent from all respondents, and only one participant were "neutral" on the system by 3.3 percent from all respondents.

Q4: **"**The web pages are user friendly and easier to get the information**"**

Table 5.14: Section 3 - Q 4

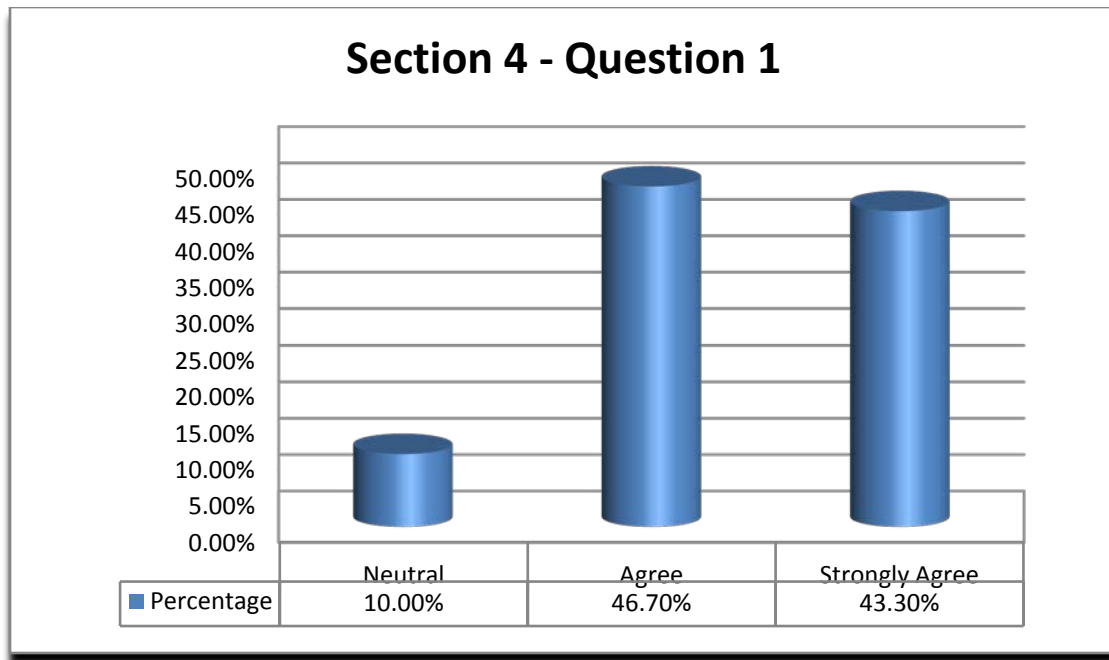|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**1**	**3.3**	**3.3**	**3.3**
	agree	**16**	**53.3**	**53.3**	**56.7**
	strongly agree	**13**	**43.3**	**43.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

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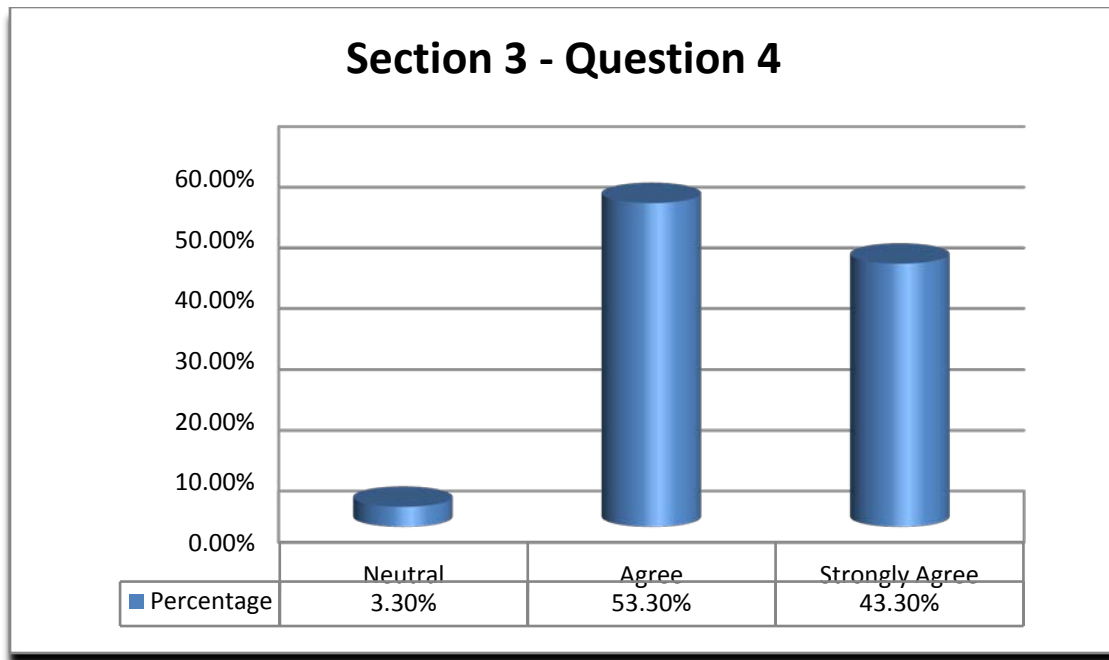
Figure 5.13. Section 3(Q4)

In this question, the number of respondents was 30 participants, 13 participants were "strongly agree" on the system by 43.3 percent from all respondents, 16 participants were "agree" on the system by 53.3 percent from all respondents, and only one participant were "neutral" on the system by 3.3 percent from all respondents.

Q5: **"**It is interesting to use this system**"**

Table 5.15: Section 3 - Q 5

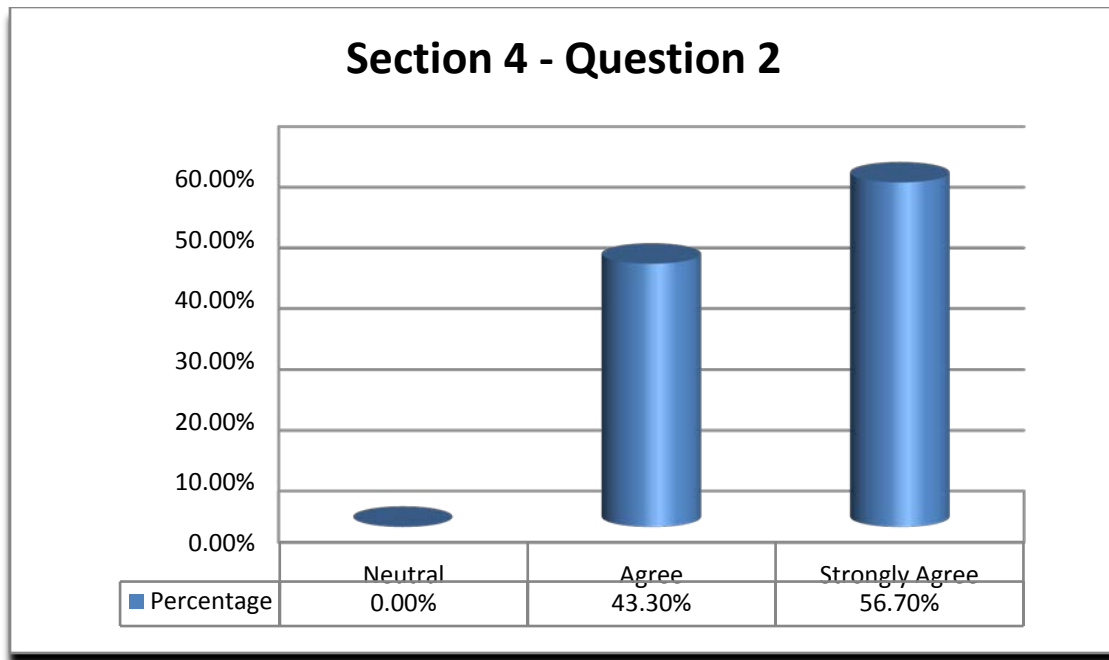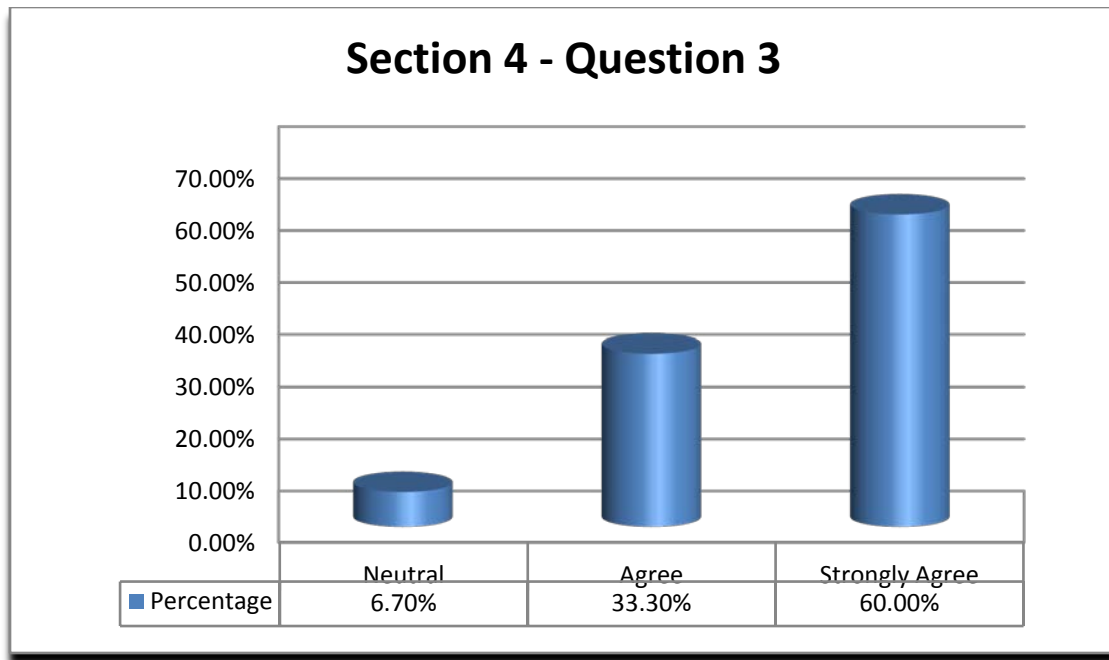|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**2**	**6.7**	**6.7**	**6.7**
	agree	**15**	**50.0**	**50.0**	**56.7**
	strongly agree	**13**	**43.3**	**43.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Figure 5.14. Section 3(Q5)

In this question, the number of respondents was 30 participants, 13 participants were "strongly agree" on the system by 43.3 percent from all respondents, 15 participants were "agree" on the system by 50 percent from all respondents, and 2 participants were "neutral" on the system by 6.7 percent from all respondents.

❖ **QUESTIONNAIRE (SECTION 4)**

Q1:   "The website is beneficial for both the University and the students"

Table 5.16: Section 4 - Q 1

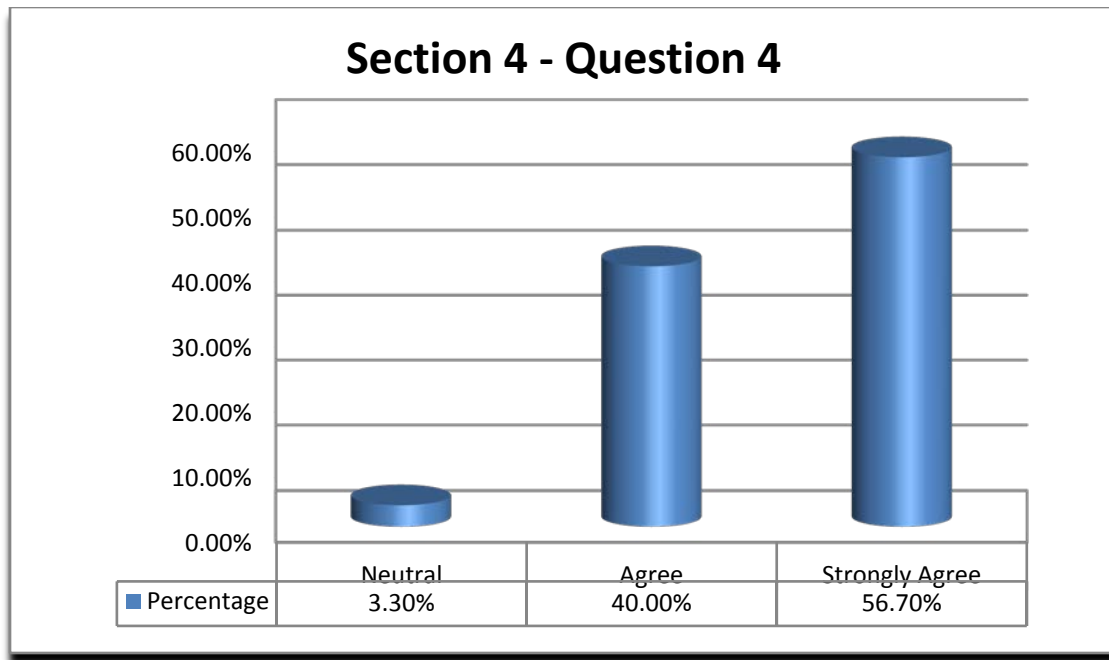|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**3**	**10.0**	**10.0**	**10.0**
	agree	**14**	**46.7**	**46.7**	**56.7**
	strongly agree	**13**	**43.3**	**43.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Figure 5.15. Section 4(Q1)

In this question, the number of respondents was 30 participants, 13 participants were "strongly agree" on the system by 43.3 percent from all respondents, 14 participants were "agree" on the system by 46.7 percent from all respondents, and 3 participants were "neutral" on the system by 10 percent from all respondents.

Q2: **"**The system allows administrator to modify/add exam question very easily**"**

Table 5.17: Section 4 - Q 2

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**agree**	**13**	**43.3**	**43.3**	**43.3**
	strongly agree	**17**	**56.7**	**56.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Figure 5.16. Section 4(Q2)

In this question, the number of respondents was 30 participants, 17 participants were "strongly agree" on the system by 56.7 percent from all respondents, 13 participants were "agree" on the system by 43.3 percent from all respondents.

Q3: **"**The system allows student to take English test**"**

Table 5.18: Section 4 - Q 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**2**	**6.7**	**6.7**	**6.7**
	agree	**10**	**33.3**	**33.3**	**40.0**
	strongly agree	**18**	**60.0**	**60.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Section 4 - Question 3

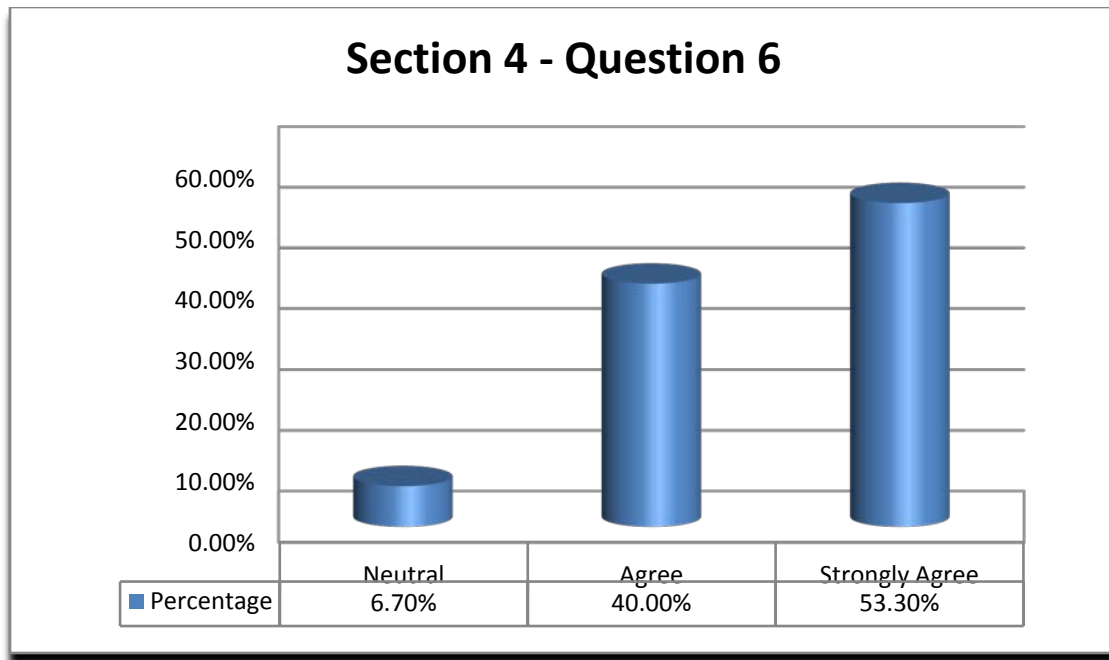|	Neutral	Agree	Strongly Agree
■ Percentage	6.70%	33.30%	60.00%

Figure 5.17. Section 4(Q3)

In this question, the number of respondents was 30 participants, 18 participants were "strongly agree" on the system by 60 percent from all respondents, 10 participants were "agree" on the system by 33.3 percent from all respondents, and 2 participants were "neutral" on the system by 6.7 percent from all respondents.

Q4: **"**Do you think it is user friendly to attend online exam?**"**

Table 5.19: Section 4 - Q 4

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**1**	**3.3**	**3.3**	**3.3**
	agree	**12**	**40.0**	**40.0**	**43.3**
	strongly agree	**17**	**56.7**	**56.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Figure 5.18. Section 4(Q4)

In this question, the number of respondents was 30 participants, 17 participants were "strongly agree" on the system by 56.7 percent from all respondents, 12 participants were "agree" on the system by 40 percent from all respondents, and only one participant were "neutral" on the system by 3.3 percent from all respondents.

Q5: **"**Is these are efficient, effective and satisfactory system?**"**

Table 5.20: Section 4 - Q 5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**1**	**3.3**	**3.3**	**3.3**
	agree	**13**	**43.3**	**43.3**	**46.7**
	strongly agree	**16**	**53.3**	**53.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	
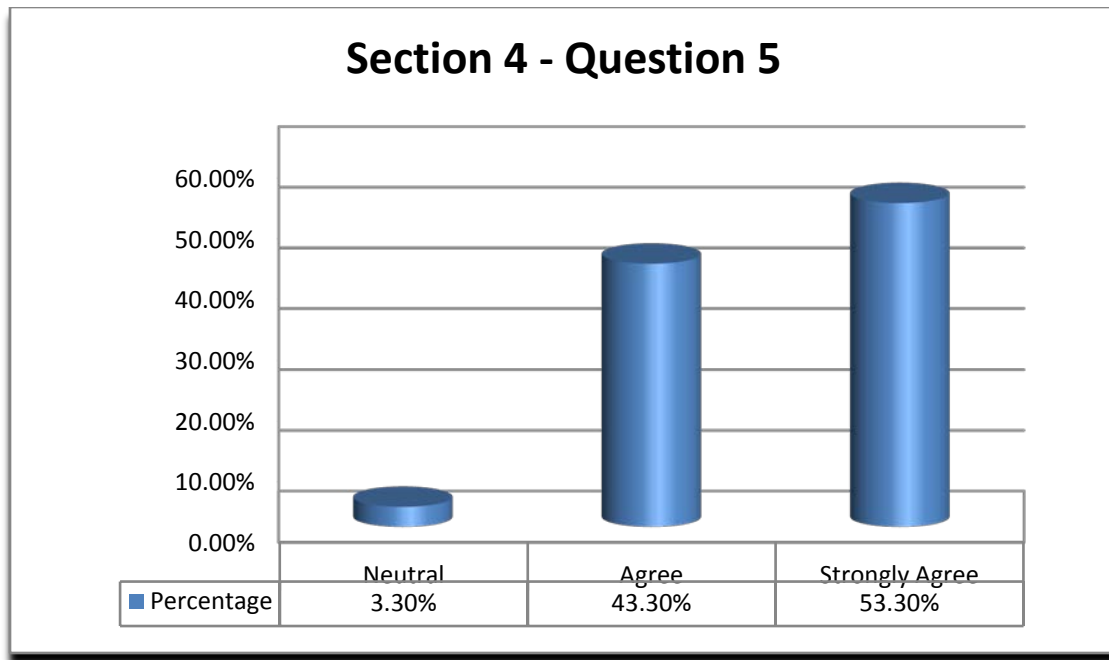
Figure 5.19. Section 4(Q5)

In this question, the number of respondents was 30 participants, 16 participants were "strongly agree" on the system by 53.3 percent from all respondents, 13 participants were "agree" on the system by 43.3 percent from all respondents, and only one participant were "neutral" on the system by 3.3 percent from all respondents.

Q6: **"**Is availability of up-to-date and useful information important for your purpose**"**

Table 5.21: Section 4 - Q 6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	2	6.7	6.7	6.7
	agree	12	40.0	40.0	46.7
	strongly agree	16	53.3	53.3	100.0
	Total	30	100.0	100.0	

Figure 5.20. Section 4(Q6)

In this question, the number of respondents was 30 participants, 16 participants were "strongly agree" on the system by 53.3 percent from all respondents, 12 participants were "agree" on the system by 40 percent from all respondents, and 2 participants were "neutral" on the system by 6.7 percent from all respondents.

Q7: **"**Are you satisfied with the usefulness of the information for you purpose?**"**

Table 5.22: Section 4 - Q 7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**neutral**	**2**	**6.7**	**6.7**	**6.7**
	agree	**17**	**56.7**	**56.7**	**63.3**
	strongly agree	**11**	**36.7**	**36.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	
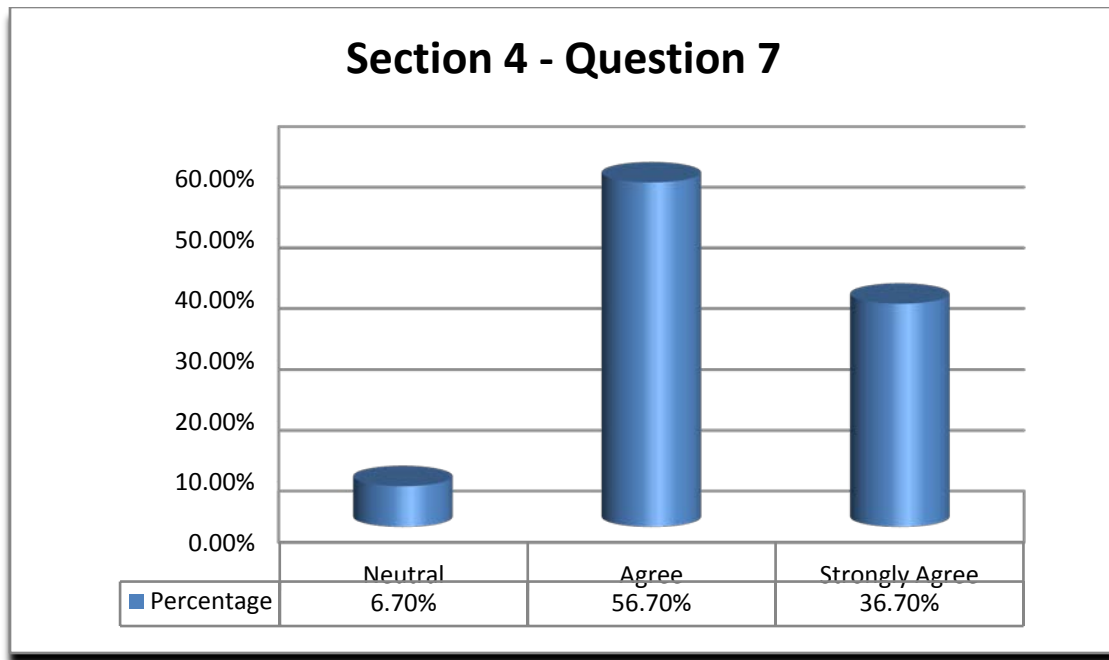
Figure 5.21. Section 4(Q7)

In this question, the number of respondents was 30 participants, 11 participants were "strongly agree" on the system by 36.7 percent from all respondents, 17 participants were "agree" on the system by 56.7 percent from all respondents, and 2 participants were "neutral" on the system by 6.7 percent from all respondents.

5.4   LECTURERS EVALUATION

In this section the researcher was implement the system to allow the lecturers to use it, and get their feedback on the system, this process was as interview with the lecturer, who used the system, the interview was about the evaluation elements Usability, Functionality, Easy to use, Usefulness, and Interface).

The lecturers were so satisfied on the system functionality and usability, the researcher also asked the lecturers about, if they have a chance to choose between this system and traditional system to create their exam, their answer was use electronic examination system better than traditional exam, because they believe that, electronic examination system is easy to use and effectively as shown in Table 5.23.

Table 5.23. Sample ST.DIV

	NO	MEAN	ST.DIV
SATISFACTION	30	4.506667	0.564577
EFFICIENT	30	4.493333	0.564577
EFFECTIVENESS	30	4.461905	0.59582

On the other hand, there are some comments for the lecturers on the system to make it more efficiency, these comments are as follow:

❖ Add more messages in the system functions, to let the users know this function finish successfully or not, and add more instructions in the system to help the users.

❖ The interface for the system is suitable but it has to be more beautifulness, such add some animations.

5.5 SUMMARY

This chapter discussed on the findings of the study. After the system was developed, it was presented to 30 participants, in order to evaluate whether the system achieved the users' needed. Based on the user feedback and face-to-face interview result has been analyzed. Finally, satisfactory result has been presented.

CHAPTER SIX

CONCLUSION AND SUGGESTIONS

6.0   INTRODUCTION

The chapter summarizes the study and reviews the project's entire steps. It also provides an overview of the findings based on the research objectives, and discusses the present contribution of the study as well as the future recommendations.

As mentioned in the first chapter, the objectives of the study includes: the creation of a prototype examination comprising of multiple choice questions that has a storage with a capability of storing innumerable questions, and the evaluation and testing of an EMS. This creation will be user-friendly allowing the relevant individuals to use them in an easy way whether they are creating the examination questions, answering the questions or correcting the examination.

6.1   EVALUATION PROCESS

The researcher depended on a list of guidelines in the evaluation process. These guidelines are as follows:

- **Number of student:** The total number of students was 30 and the researcher chose the number to check the capability of the system.

- **Students Type:** All the students in the study sample were studying in the Language Centre. The researcher aimed at collecting data from a large sample.

- **Selected students:** The students were randomly selected whereby the researcher did not depend upon any criteria for selection.

The findings from the evaluation process revealed that majority of the students preferred to use computer-based examination in lieu of traditional examination. The students displayed pleasure and satisfaction in dealing with computer-based examination.

6.2   CONTRIBUTIONS OF THE STUDY

Through the study, users are now able to take their examinations through electronic examination which will be a replacement to traditional examination.

6.3   SUGGESTIONS

The ELPTS System has been developed and tested on a local-host. Thus, the evaluation of its true performance cannot be done due to limited financial budget. There are several recommendations on the study as follows:

- The ELPTS system should be implemented and tested in the real world environment. To get real performance developer should upload the system in web-server.
- The system should be upgraded with more useful and beneficial functions according to the user's needs.
- The security features did not implement in whole system. Developer need to put attention/ implement security features when they want to use it.

6.4   SUMMARY:

A system of examination based on computer was created providing a system that is effective and efficient and that helps lectures in creating and correcting examinations. After system-testing, the findings confirmed that is able to achieve its functions.

The proposed web-based prototype of English Language Placement Test System (ELPTS) has been successfully implemented for both effectiveness and efficiency. It reduces workload, time and effort-saving and looks for necessary information for the users.

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APPENDIX A: QUESTIONNAIRE

WEB-BASED ENGLISH LANGUAGE PLACEMENT TEST SYSTEM

(ELPES) FOR UUM

Dear participants,

I'm a master student from information technology department Universiti Utara Malaysia. It would be much appreciated if you could spend a few minutes of your time to fill in the attached questionnaire. The questionnaire divided into four (4) sections. Section 1 is general information about the participant. Section 2 is about visual aspect of the system, its outlook, the ease of use and learning, Section 3 is contents of the Web page, its information, system user friendliness, and section 4 measuring the usefulness, benefits of using the system, effectiveness and satisfaction of users.

Thank you for your kind cooperation.

Sincerely,

Ahmad Mtair Khadair Alhawamleh (808165)

Universiti Utara Malaysia.

College of Arts and Sciences (CAS)

E-mail (Ahmad_Alhwamla@yahoo.com)

General Information:

1. **Gender:**   [   ] Male [   ] Female

2. **Occupation:** _____

3. **Education background**

[   ] Diploma   [   ] Bachelor Degree   [   ] Master   [   ] Ph.D.

4. **Have you attended the UUM English placement test** [   ] Yes   [   ] No

Please check the appropriate column. The numbers I to 5 represent the following:

Section 2

1= Strongly Disagree;**2**= Disagree;   **3**= Neutral   **4**= Agree;   **5**= Strongly Agree

	Visual aspects of the page	**1**	**2**	**3**	**4**	**5**
1	The pictures or photographs on the web pages are of good quality					
2	It is easy to understand each of the pages					
3	Headings and subheadings on the web pages are helpful					
4	The web page is standard format and readable with a browser					
5	On supporting pages, there is always a return link to the home page					

Section 3

	Contents	1	2	3	4	5
1	There is a meaningful title on each of the web pages					
2	The information on the pages is easy to understand					
3	There are links with other website, for more explanation					
4	The web pages are user friendly and easier to get the information					
5	It is interesting to use this system					

Section 4

	Benefits of the Website	1	2	3	4	5
1	The website is beneficial for both the University and the students					
2	The system allows administrator to modify/add exam question very easily					
3	The system allows student to take English test					
4	Do you think it is user friendly to attend online exam?					
5	Is this are efficient, effective and satisfactory system?					
6	Is availability of up-to-date and useful information important for your purpose					
7	Are you satisfied with the usefulness of the information for you purpose?					

Narrative Evaluation

Based on your perception and evaluation of the website, explain whether the website useful for your purpose. Include aspects of authenticity, authority, and subject Content. -----------------------

----

Signature   **Date**

Thank you for your participation

APPENDIX B: SYSTEM SCREENS

WEB-BASED ENGLISH LANGUAGE PLACEMENT TEST SYSTEM

(ELPES) FOR UUM

1. System Main Page:

Figure 7.1: main page

This is the system main page as figure (7.1) above shown has three main buttons (student, lecturer, about). This "student" button allow the student to inter the exam by user ID and password, the "lecturer" button allow the lecturer to inter the system by user ID and password, and the "about" button allow the users to know some information about UUM English placement test procedure.

Figure 7.2: Login

The figure (7.2) shown has two text box for the username and password for each user. In this screen the system will check the username and password for the users, then it will allow or not for them to login the system, rely on validate their information. In addition this screen will divide the login process depends on the user type (Admin, Lecturer, and Student).

3. <u>Lecturer main page</u> :

Figure 7.3: Lecturer

Lecturer main screen has seven functions help the lecturer to insert and save the questions, create the exam, determine the date and time for exam, select the students for the exam, check the student's results, and print student's results.

4. <u>Add Exam</u> (1) :

Figure 7.4: Add exam (1)

In this screen the lecturers can insert the exam name, the number of questions that, and the time

for the exam process. Once the lecturer fill the form and click submit, the system will save all of

the data that the lecturer insert it in the data based.

5. <u>**Add Exam**</u> **(2) :**

Figure 7.5: Add exam (2)

In this screen the lecturers can insert the questions titles, and the number of answers that will be given for each question. Once the lecturer fill the form and click submit, the system will save all of the data that the lecturer insert it in the data based.

6. **Add Exam (3):**

Figure 7.6: Add exam (3)

In this screen the lecturers can insert the choices of answers, and the correct answers. All of this

choice will show in the exam pages on student's accounts except the correct answer.

7. **Manage Exam :**

Figure 7.7: Manage exam

In this screen the lecturers can update the exam questions, answer choice, and the correct answer, in additional the lecturer can delete and exam or question.

8. Delete Exam :
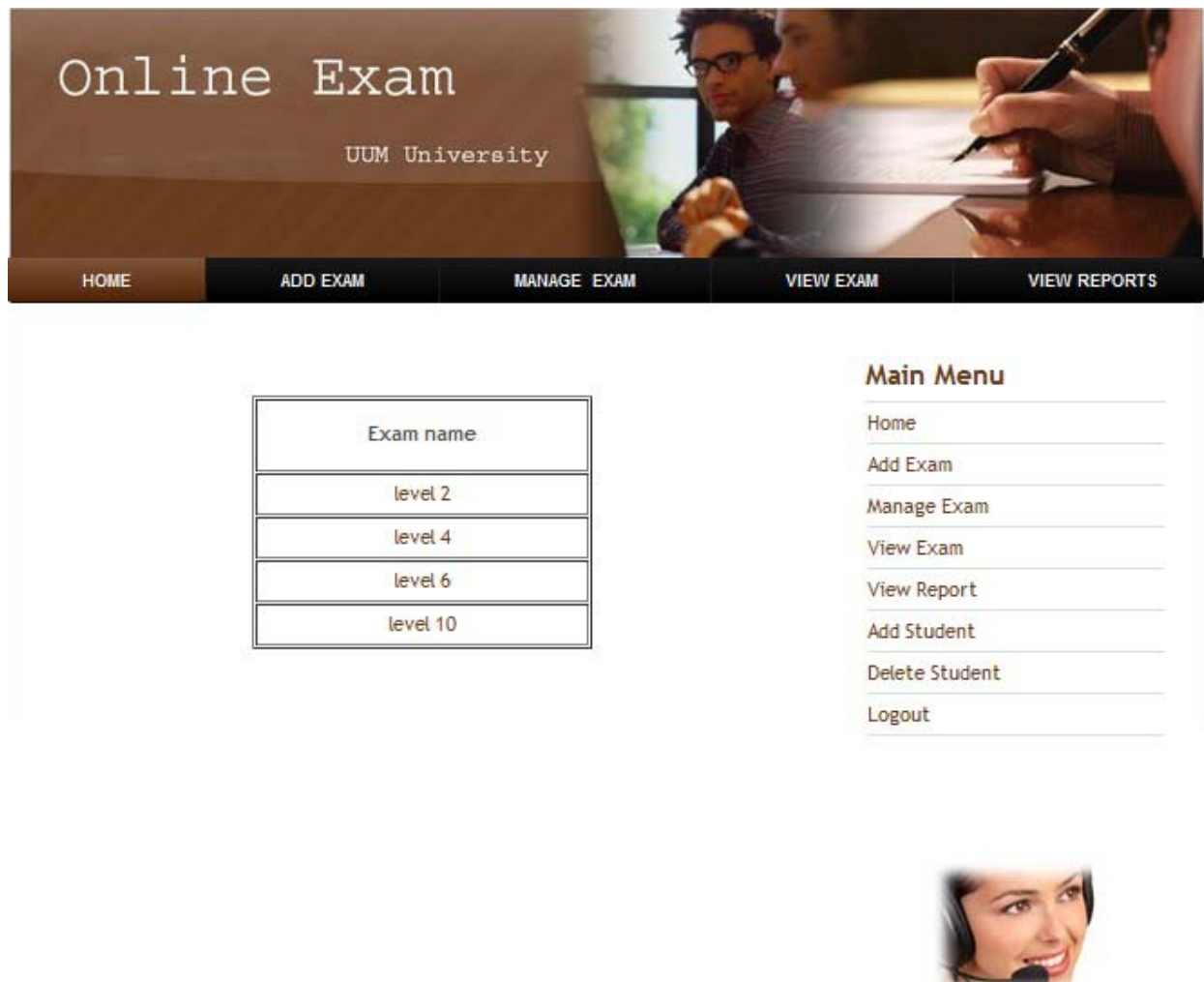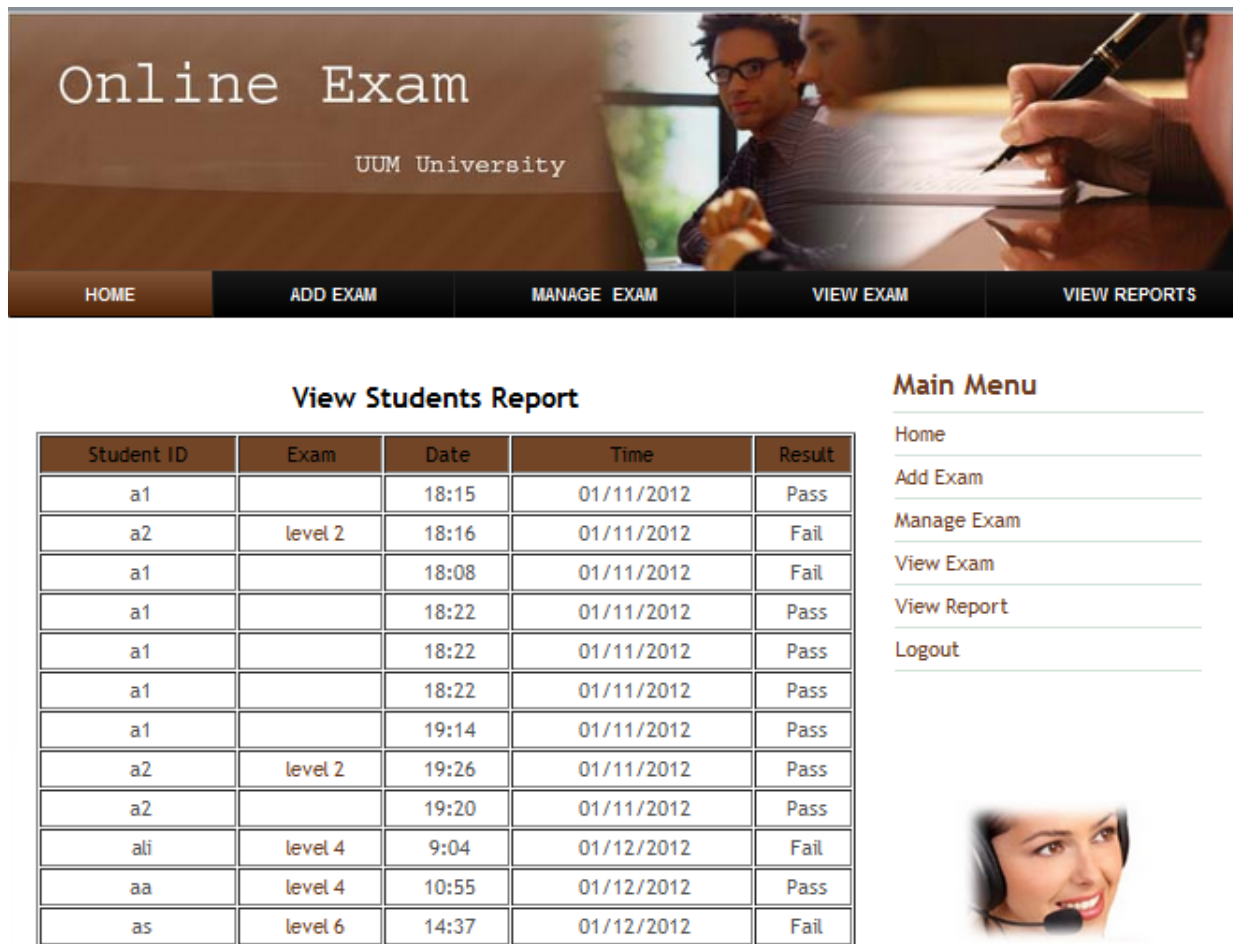
Figure 7.8: Delete exam

This screen allow the lecturers to delete any exam from the data based, the system show the list of exams, after that the lecturer choose which exam want to delete, and directly the system will show message to the lecturer if he want to delete or no.

9. <u>View Students Report</u> :

Figure 7.9: View report

This screen show the students report as figure above shows. The figure shows the students ID and exam name, date of the exam, time of the exam, and the students result.

10. Add New Students :

Figure 7.10: Add new student

In this form the lecturer will insert the student information, to create account for the student to allow him/her for use the system whether. The important thing in this form is that, the admin must fill all the fields.

11. Delete Student :

Figure 7.11: Delete student

This screen allow the lecturers to delete any student from the data based, the system show the list of students name, after that the lecturer choose which student want to delete, and directly the system will show message to the lecturer if he want to delete or no.

12. <u>Exam Process</u> :

Figure 7.12: Exam process

This form will browse the exam questions one by one as shown in figure (7.12) the student can move from one question to another by press submit button. On the top of this form there three label, which view the exam name, exam date, and time. Once the student click finish the system will check the student's exam answers and correct the answers and publish the results.

13. <u>Exam Results</u> :

Figure 7.13: Exam result

In this screen the students can know the exam result, that after when he/she finish the exam and click on finish button. The screen will show the student answer, the right answer, and the exam result.