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Developing an e-exam Management System for Universities Case Study - Omdurman Islamic University

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Abstract

In this study, The researchers developed a system that provides a solution to the problem of traditional exams in the university. The system aims to increase the speed and quality of the use of electronic exam systems and secure them, reduce the phenomenon of exam leakage and fraud, facilitate the process of extracting results and student reports, save time and effort in the process of traditional.

Keywords : E-exams,Department of Exams, Professors, Students, Results.

1-Introduction

E-examinations are the ongoing and regular educational process aimed at evaluating a student's performance using the Internet, which is an easy way to measure students' performance electronically; The university professor was able to identify the level they reached after the learning period to identify the strengths and weaknesses by preparing the exams in a way that is easy to apply to

students, corrected electronically and immediately, ensuring credibility and transparency in correction.

The system is insurance and protection, where unauthorized persons are not allowed to enter the system and display the exam only in time.

2-Previous studies

All of Dr. Ahmad Hassan and Islam Mohammed Abdul Rahim and Ahmad Ali in 2013 established the Edupro - E-Exam system which aims to assist students in conducting examinations electronically by using the MCQ system built using the ASP.NET programming language and the type of multiple-choice questions. Both exam coordinators helped with the ease of setting exams and saving effort and cost by setting up an electronic exam, The ease of extracting and printing results by applying to the University of Medical Sciences using the E-Exam program has led to positive and satisfactory results after its application and the effectiveness and ease of use of the system [1].

Ali Yahya Saleh Bakeel in 2020 has created a research on computing administrative procedures for administering examinations by designing an electronic system that facilitates communication between colleges, exams management and information technology management to organize exam schedules It connects the Department of Examinations and Colleges with the Department of Information Technology and assists the computerized system to organize the distribution of the student and manage communication between the joint units for the conduct of the examinations in order to invest time and effort, by applying to the

International University of Africa[2].

Each member of the faculty at Dhofar University has studied the effectiveness of using the modal platform (Moodle) The study aimed to learn the effectiveness of using the Moodle platform in developing electronic test design skills in faculty at the University of Dhofar, and the study tool consisted of a cognitive test, a note card, to measure electronic test design skills (Create e-test questions, adjust e-test characteristics, manage e-test).

The study demonstrated the effectiveness of using the Moodle platform to develop the electronic test design skills of faculty members on its cognitive and performance aspects. One of the study's most important recommendations was the need to train faculty members in all faculties of Dhofar University and to raise their interest in using the Moodle system, designing electronic tests and applying them to university students at the bachelor's and graduate levels[3].

Each member of the faculty at Qaseem University studied the building of electronic tests. This study aims at how to develop and design electronic tests. The experiment was conducted using the Quizcreator program using the programming languages known as visualbasic and javascript.

The program creates a complete electronic test, preparedness, development of answers and the answer method within a given time frame. The distinction is that it supports the Arabic language.

The result of the study proved the program's effectiveness, ease of use and access to it free of charge [4].

Study Tech-code24 in 2021 the study talks about the establishment of an electronic examination system project designed in PHP language. It contains three control panels, the teacher's board and the student's board. The importance of this project is to solve all the problems of traditional examinations. The teacher can add an unlimited amount of questions and answers as well as a main screen in which the examinations the student must enter and the ease of obtaining this system easily and free [5].

In 2015 the study entitled Research Paper on the College Management System, aims to develop the College Management System (CMS), which is important for the educational institution or college. The system (CMS) is an Internet-based application that is accessible throughout the enterprise with its specific ads. This system can be used to monitor the attention of the college and the student, the system (c. m. s) of the College of Engineering has been developed to keep it accessible and accessible, as this study produces the design of the project taking into account the daily problems faced by the college [6].

The Ministry of Education in Saudi Arabia carried out collection tests using the examsof platform for educational institutions.

This program works on computers and laptops running Microsoft Windows or Mac. It can also be used on mobile devices running iOS. IOS

The program automatically corrects the tests and releases the result in a short time with analysis of the different success and failure ratios [7].

Abdulrahman Ahmed Salim Salim Hamid,in June 2020 entitled: The interaction in electron tests between the ranking of questions (graduate/random) and their presentation pattern (one question in the screen/test all in the screen) influenced the attainment, skill performance and trend towards them in graduate students at Qassim University.

The research aimed to develop the trend towards electron tests according to a proposed model for building a question bank and electron tests in postgraduate students, by recognizing the impact of question order (graduate/random) and the pattern of their presentation (one question or all test, in the screen). The research sample consisted of (16) students at the doctoral level of the Department of Education Technology in the second chapter 1441/1442 A.H. of the Faculty of Education of the University of Qassim, with the decision to apply technological innovations

in the educational environment, and the students were distributed in four experimental groups. The research tools were: a personal interview for students, an achievement test aimed at measuring the cognitive aspect of the targeted skills, an electronic skills performance note card to monitor students' performance under the Corona pandemic, and a trend measure to recognize students' trends towards electron tests. The results showed that there was a statistically significant difference at the level (0.05) between the average grades of the two pilot groups' students regarding the trend in favour of graded question ranking.

It has also revealed that there are statistically significant differences at 0.05 levels between the grading averages of students of experimental groups, moving towards electron tests; in favour of groups in which questions are gradually generated.

Regarding skill performance, he reassured the researcher that the results of the educational content were complete, as the results were all positive, and showed that there were no statistically significant differences at the level (0.05) which confirmed the integrity of the educational content provided to students. The researcher recommends arranging questions in electron tests gradually, as well as in content subjects. He showed all the questions on one page. and randomly arrange questions, when students are in the same exam room. He presented each question on a separate page, when the students were together in the same hall. The option is to retract one of the questions and change the answer [8].

As for the University of Science and Technology of Jordan, the Center for E-Learning and Open Learning Sources has established and developed an electronic system for e-examinations, which includes multiple advantages and great possibilities and achieves all the requirements and needs that ensure the conduct of e-examinations. It meets the needs of teachers and uses the latest software techniques. It is also characterized by its ability to create student response reports and other discriminatory and difficult transactions, and through the system can present the exam to students in a safe and restricted environment.

The electronic examination system is one of the functions of the Measurement and Evaluation Division of the E-Learning Center and Open Learning Sources. The Division's staff manages and coordinates the conduct of e-examinations and communicates with faculty members in the process of introducing examinations and answers to different models and depending on the nature of the examinations.

The Measurement and Evaluation Division is also responsible for supervising laboratories, managing the conduct of examinations and coordinating between the student and the supervisors

assigned to the examination, as well as equipping computers inside laboratories and conducting the necessary maintenance, and assisting students inside the laboratory hall in case of any technical defect in computers during the exam.

The results highlighted the rapid completion of the examinations in terms of time taken to correct questions as well as accuracy in giving results and transparency and the possibility to extract statistical reports that assess the percentage of responses to each of the exam questions, which helps to develop the teaching process and identify students' weaknesses for subsequent evaluation [9].

Dr. Ahmed Shaaban Ahmed Abd Al-Hamid,in June 2020 conducted a study entitled: Directions of the student of the library and information departments of Egyptian universities towards electronic testing

The current study aims to identify students' trends in the library and information departments of Egyptian universities towards electronic testing and to reveal differences between male trends.

Women and students with computer courses who have not received e-testing courses. The researcher relied on the analytical descriptive curriculum, and the research tool was identified by the researcher, where the study sample was 311 students. The study explained that the student had positive trends towards e-tests and that there were difficulties in applying e-tests and showed no differences between male and female trends towards e-tests. The study recommended the holding of e-test courses for students and faculty members to spread the culture of applying e-tests among university students and faculty [10].

3-Results

1) 1) Computing the manual system into a computerized system that is easy to use and navigate between screens.

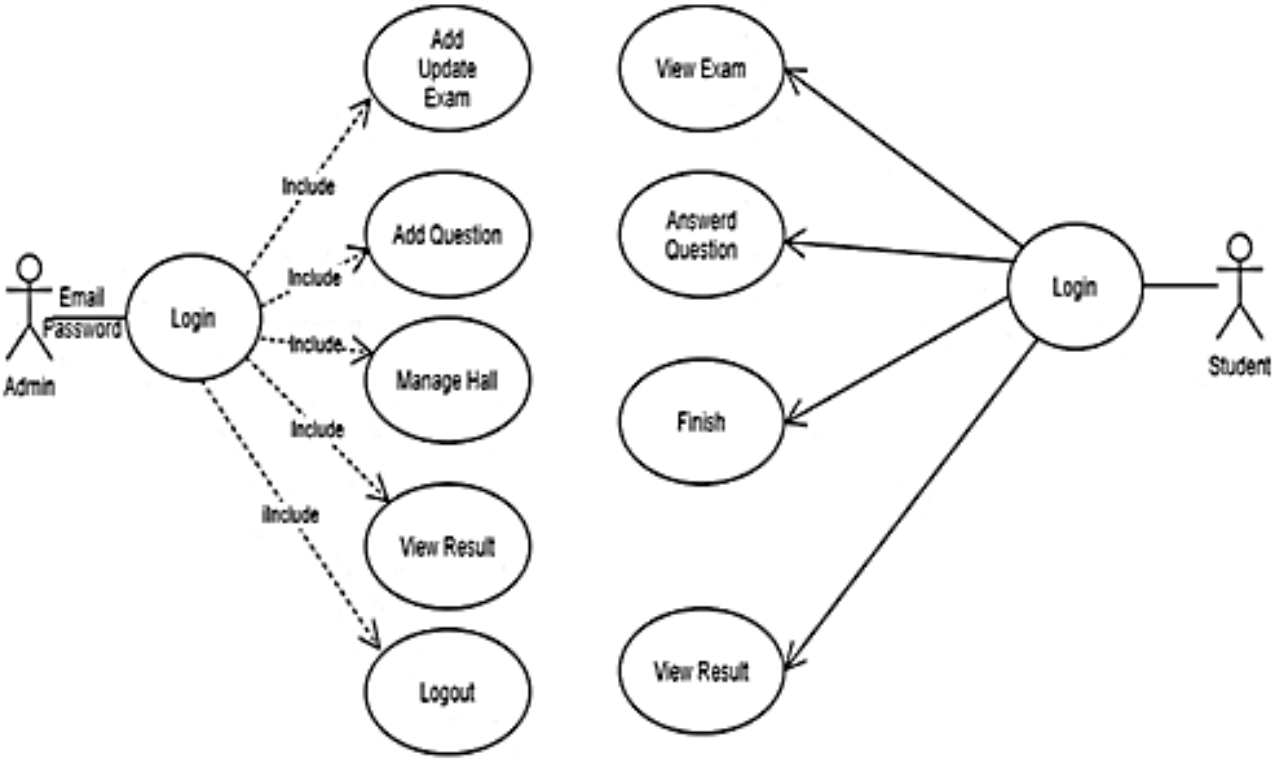
2) Facilitates the inclusion of portable materials to the electronic examination system.

3) Unauthorized users are not allowed to access the system and prevent any users from unauthorized encroachment.

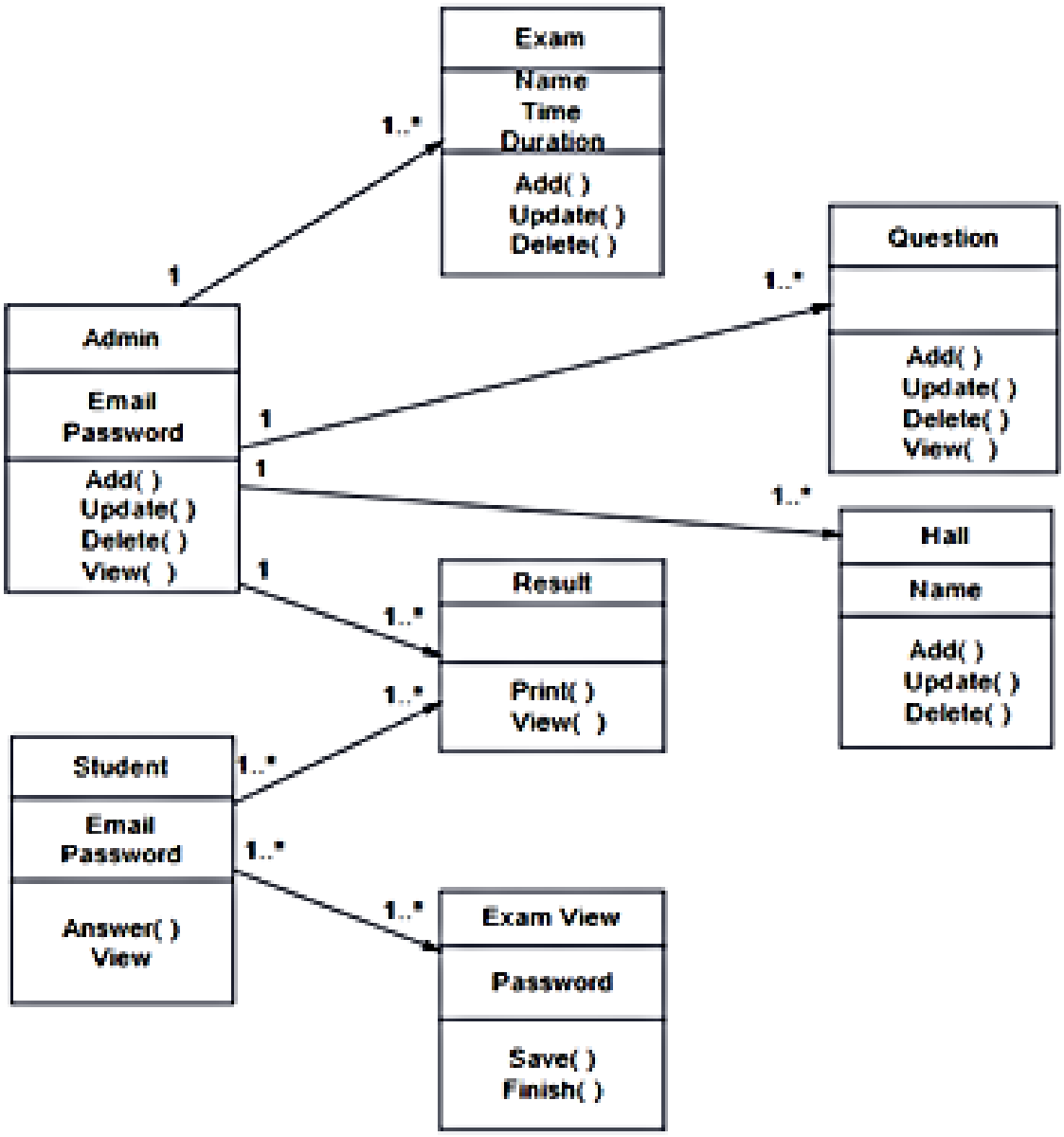
4) The system was tested and evaluated by the Department of Examinations and the Registrar of the College of Computing, checking all the functions of the system, free of errors and ensuring that the system helps in administering the exams.

5) The system helps with easy data handling (storage, processing and retrieval).

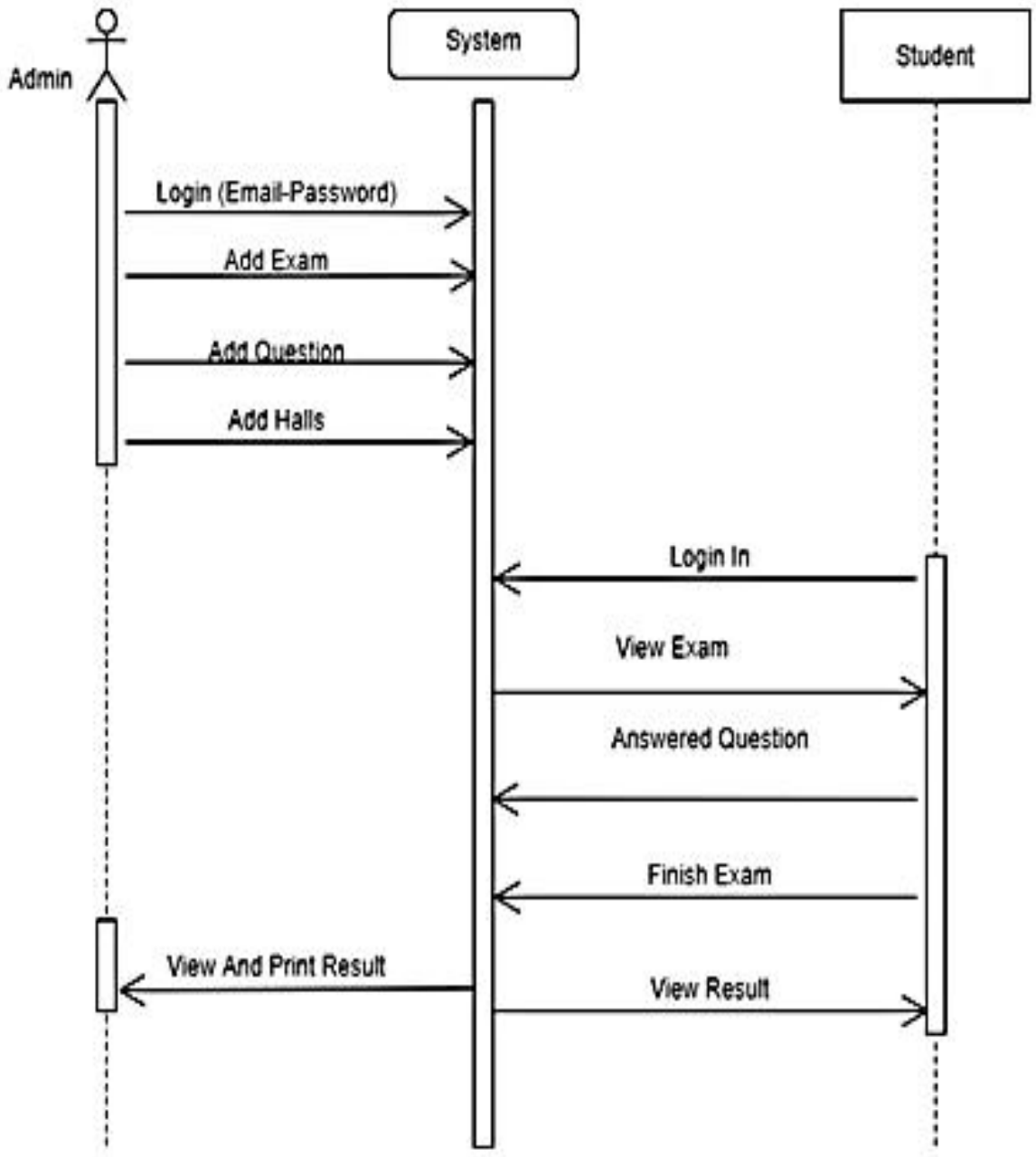
6) The system contributes to archiving all exam results.



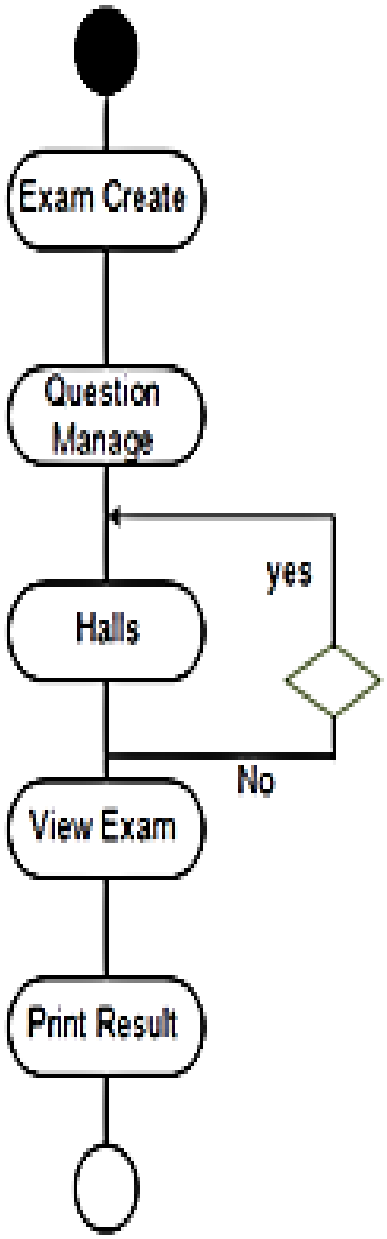
Use case diagram



Class Diagram



Sequence Diagram



State Diagram

4- Discussion of results

This electronic system, which can serve any educational institution dependent on electronic examinations, has been designed as a final examination for flexibility. All the objectives of the research have been achieved as explained in the following paragraphs:

Increasing the speed and quality of use of electronic examination systems and securing them, this goal has been achieved by designing an electronic system designed in Laravel's php language framework consisting of an integrated working environment MVC with high speed and flexibility in performance and protection.

Reduce the phenomenon of leaking the exam and cheating, and facilitate the process of extracting results and student reports. This goal has been achieved by controlling the creation of an electronic exam that is placed an hour before the exam and opens automatically at the start of the session. It corrects the exam automatically and shows and prints the results.

Saving time and effort in the traditional examination process which reduces the pressure on the infrastructure of the educational institution and relieves the effort of observers and faculty. This goal was achieved through this system, which in turn saves time, effort and cost in the process of printing the examination instead of papers and relieves the effort on observers.

5- Recommendations

This modest work was only the beginning of a long work to computerize all examinations related to the administration of examinations.

Although the objectives of this research are to computerize administrative procedures for electronic examinations and to achieve the integration required to link the Department of Examinations with colleges and the Department of Computer Science and Information Technology, ongoing development remains open; The researcher therefore recommends that those seeking to develop this research should take into account the following:

1- Develop the system to include second-round examinations.
2- Certification system.
3- The automatic generating system for the lecture schedule taking into account all restrictions as well as the student of portable materials so that the student can attend.

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