Blackboard

Umm Al Qura University

College of Engineering and Computers in Al-Qunfudhah

Department of Computer Scienc

Software Name : Blackboard

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Phase 1

1.1 Introduction:

Blackboard is an electronic learning management system used in many universities and educational institutions around the world. It allows students and professors to communicate and share educational content online. It can be used for delivering lectures, course materials, assignments, and tests, as well as discussions through forums or instant messaging .We conducted a survey to gather people's opinions about the Blackboard application, and we found that the total number of users was 100%. The ease of use of the application was rated at 91.7%. However, 58.3% of users reported facing issues with slow content loading.
Additionally, the ability to access materials was rated at 100%, while the overall satisfaction with the application was rated at 50%.

1.1.1 Blackboard's purpose

The main aim of this educational management system is to simplify the learning experience for both students and teachers by serving as an intermediary in accessing study materials, examination papers, assignments and all other forms of learning resources .Messaging, virtual classrooms, and performance reviews are all features that help educators talk to learners. It tackles the problems — fragmented educational content, and haphazard communication — to simplify learning, making it more efficient and systematic. Why does the program exist? The purpose behind the development of this platform is to fulfil the current requirement in education sector i. Checkout Academic Video Online, for a perfect solution to manage online and hybrid learning environments. Enhanced student-teacher communication. Coursework and Test/Exercise Sheets are readily available. Performance evaluation and feedback from teachers to students in an efficient way.

1.1.2 problems it solves:

1- Poor course management: Schools and universities still operate with fragmented systems — platforms for assignments, another separate system for messages, and yet something different for tests; these make it harder to manage all that has to be accomplished.

2- Communication Bottlenecks: Teachers and students may struggle to communicate quickly and effectively, causing assignments to slip between the cracks and instructions to seem out of sync.

3- Poor Security: Some current platforms do not take security seriously leading to the exposure of personal and academic information.

4- While Many platforms have scalability problems when the number of users goes up and you can experience crashes or slow loading.

Phase 2

1.2Functional Requirement:

1.2.1 User requirement

A system that facilitates the learning process and allows teachers and students

to easily access educational content in one place and interact with each other.

1.2.2 System requirements

1- The system shall provide a means of logging in to the system:The system allows students and teachers to create a new account using a phone number or email and set a password or log in if they have previously created a valid and confirmed account.

2- The system shall allow users to manage courses:
The system allows users to access the courses they are enrolled in and Instructors can upload assignments, exams, and educational content.

3- . The system shall allow for student performance evaluation:The system allows instructors to manage student evaluations, including recording grades.

4- The system shall provide notifications and alerts:
The system sends instant notifications to users about important updates, such as assignment deadlines, content modifications, exam results, or messages from instructors.

5- The system shall allow for user management:The system allows administrators to manage user permissions (students and teachers), including content modifications, report viewing, and user interaction.
6- . The system shall provide forums for discussion and communication:The system provides platforms for group and individual discussions, enabling students and instructors to interact and share ideas and questions related to the coursework.

7- The system shall allow mobile access:The system supports full access from mobile phones and tablets, with a flexible design that adapts to different screen sizes for ease of use anywhere.

1.3 Non-Functional requirements:

1- Usability: How easy it is for users to navigate and use the platform.

2- Performance: The speed and responsiveness of the platform, particularly during high usage times.

3- Reliability: The platform's uptime and stability, ensuring it does not crash or experience frequent outages.

4- Security: The security of user data, including privacy and protection against unauthorized access.

5- Scalability: The ability of the platform to handle an increasing number of users or larger data sets without degrading performance.

1.4 Main Tasks:

1.4.1 Allows students to access course content, assignments, and tests provided by teachers.
1.4.2 Facilitates communication between students and teachers through messages or virtual class rooms.
1.4.3 Enables course registration and allows students to access them at any time
1.4.4 Allows teachers to upload and manage grades for students.
1.4.5 Provides students with a progress tracker to monitor their performance in each course.
1.4.6 Integrates a calendar feature to display upcoming deadlines, assignments, and tests.
1.4.7 Supports discussion forums where students can collaborate and ask questions.
1.4.8 Includes a notification system for upcoming assignments, announcements, or messages.
1.4.9 Offers a resource library where teachers can upload supplementary materials like readings, videos, and external links.
1.4.10 Provides analytics for teachers to track student engagement with course content and assignments.

1.5 Comparison of Blackboard with Similar application " Madrasati " :

There are numerous educational platforms similar to Blackboard, such as Madrasati. Each platform offers its own unique features and tools for both educators and students. The table below provides a detailed comparison between Blackboard and the Madrasati platform. By examining these key points, users can better understand which platform might be more suitable for their specific needs, whether in terms of usability, features, or access to resources.

	Blackboard	Madrasti
user interface	Flexible and globally diverse, but may be less .intuitive for some users	Easy to use and tailored for the Saudi educational system.
Accessibility and Scalability	Designed to support a large number of users efficiently	Flexible in terms of access, but faces challenges in international expansion.
Support and Training	More comprehensive support and training system.	May require additional training for teachers.
Content Variety	Diverse content to meet global user needs.	Limited content tailored to the local system.

Phase3

1.6 system architecture :

System architecture refers to the overall structure of the system, which includes allthe components and processes required to achieve a specific function. The user interface is considered part of the system architecture. The user interface includes elements that help users interact with the system. Therefore, it can be said that theuser interface is an important component within the system architecture, as it plays a vital role in how users interact with the system as a whole.

1.6.1 User interfaces

1.6.1.1 Login Interface

Figure 1

The "Blackboard" interface shown in the Figure 1 is the login interface for the learning management system of Umm Al-Qura University, which is used in many universities around the world, including Umm Al-Qura University itself. It features a simple design that makes it easy for users to navigate and access the system. The language used is Arabic, making it convenient for Arabic-speaking students. The interface includes clear instructions for users on how to log in, which helps facilitate the process.

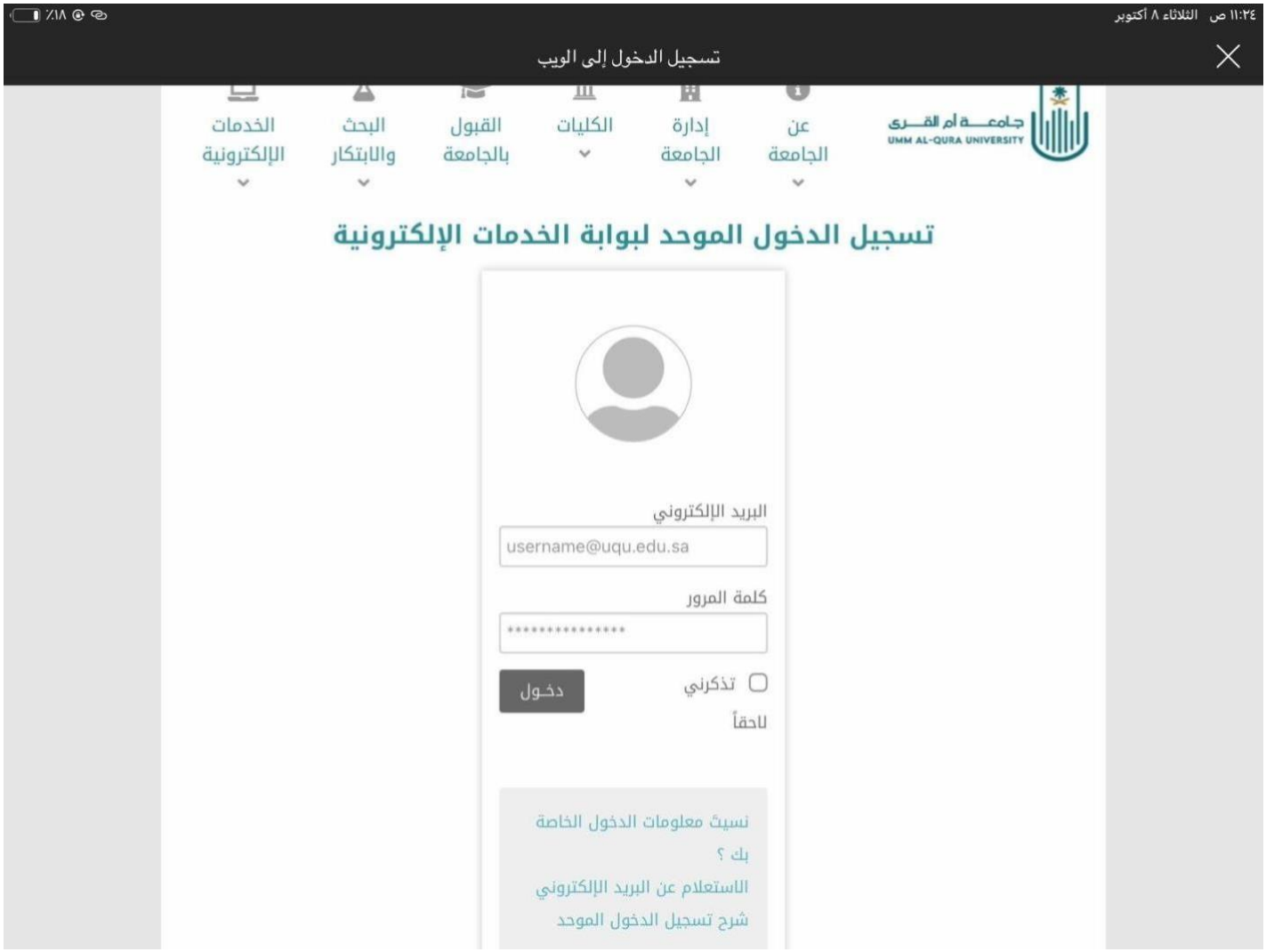

Figure 2

The purpose of this interface in figure 2 when displayed by the Blackboard system is to allow users to log into their accounts onthe electronic services portal of Umm Al-Qura University to access the e-learning system. Through this interface, students and faculty members can log into their accounts to take advantage of the features offered by Blackboard.

1.6.1.2 Course Interface

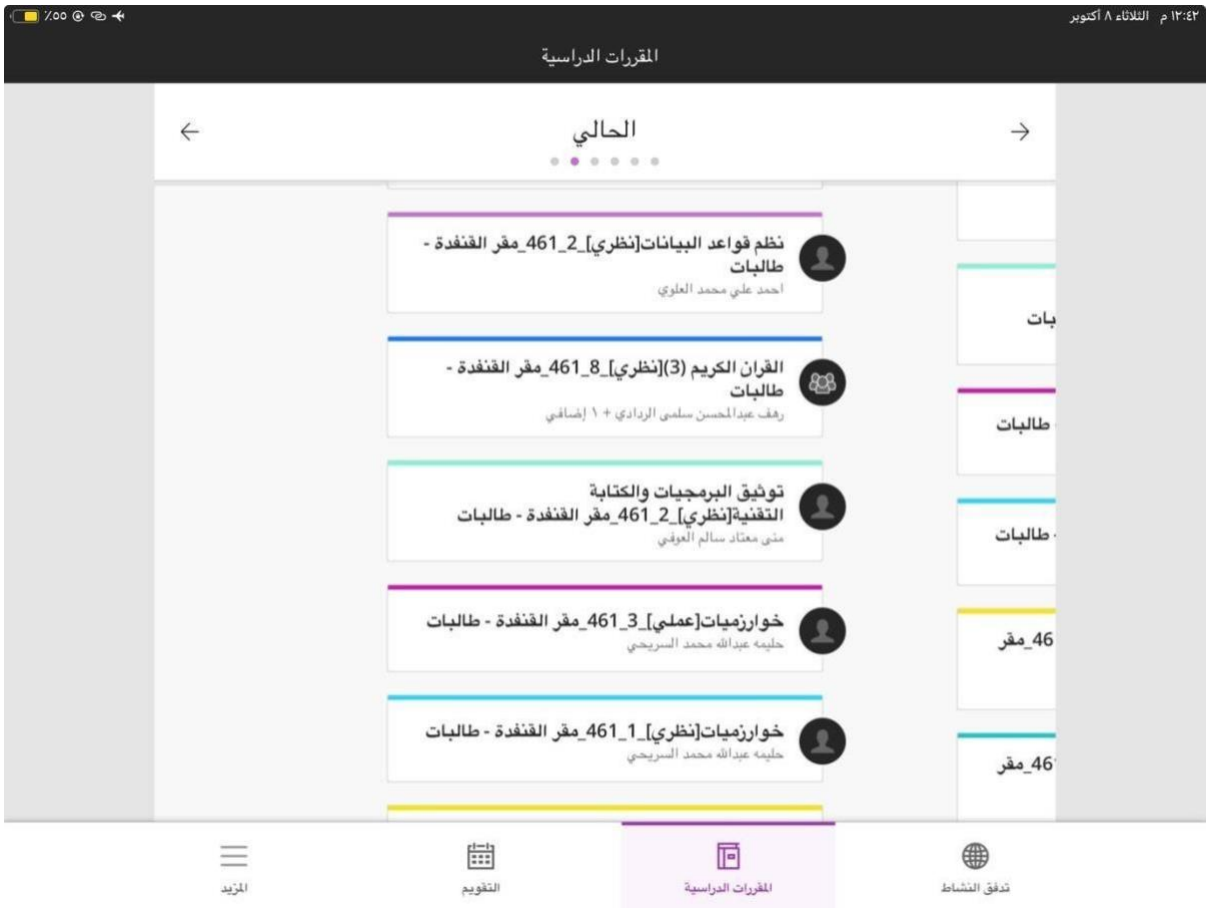

Figure 3

This interface in figure 3 displays the courses registered in the academic system. It shows the details of the courses registered for this semester. This display makes it easier for students to see all the courses they have registered for and also view the instructors and sections assigned to each course.

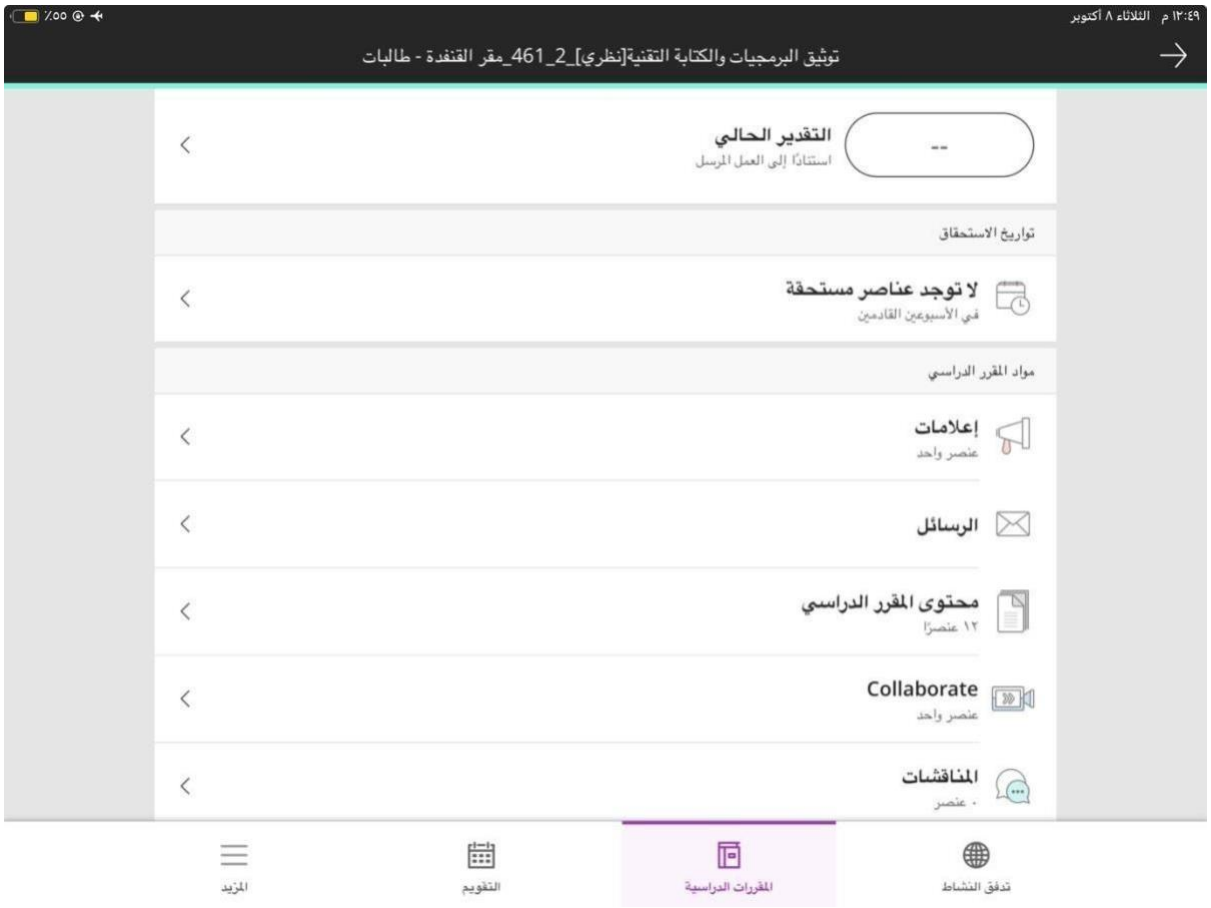

Figure 4

This interface in figure 4 is part of the "Blackboard" educational platform, providing you access to a set of toolsand educational resources related to your courses. The interface allows you to track grades, submit assignments, view announcements, access course materials, and attend virtual sessions and discussions.

1.7 System diagrams :

It is a diagram that illustrates the flow of information within the system and the interaction of its components, such as users, servers, and databases, contributing to the understanding of the system'sstructure and relationships.

1.7.1 Activity diagram

The activity diagram in the image illustrates the steps the user takes to access an assignment through the system. The user begins by logging in, then checks if the login was successful. If successful, they are directed to the courses page, where they select the desired course. Next, they verify the existence of the assignment, and if it is found, they proceed to select the assignment page. Finally, the system displays the assignment details. The diagram represents an organized process that illustrates the user's interaction with the system tosuccessfully access the assignment.

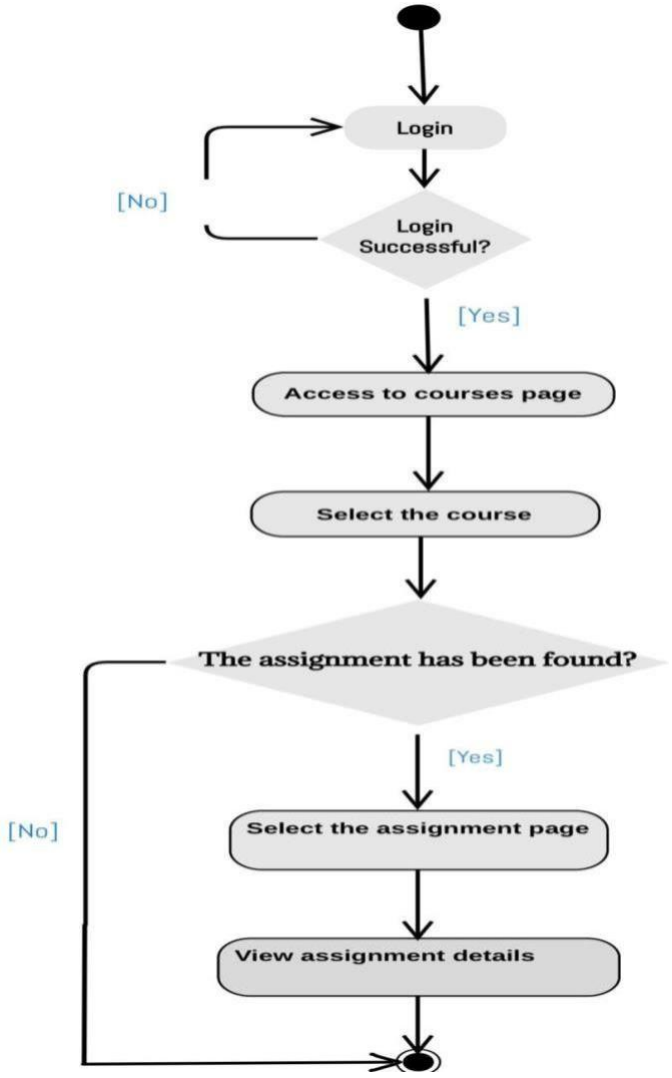

Figure5

1.7.2 sequence diagram

The sequence diagram illustrates the user registration and login process. The user begins by submitting theirregistration information, such as username, password, and email. After that, the registration is confirmed through an email message. Once the registration is completed, the user proceeds to log in by entering their credentials. If the information is correct, it is verified against the database, and access is granted. If the information is incorrect, a notification appears indicating that the data is invalid.

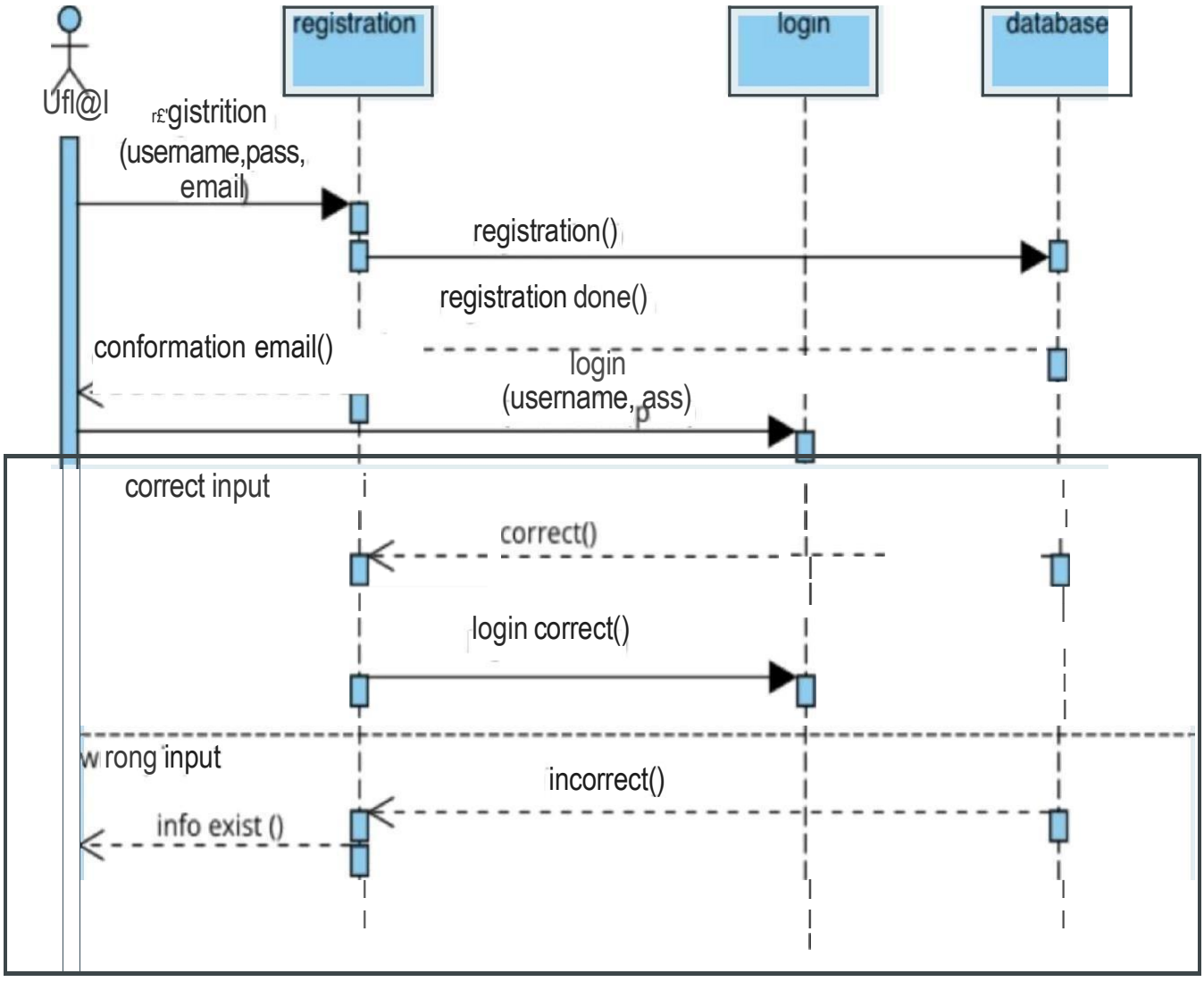

Figure 6

1.8 Technical specifications :

A Technical Specification is a document or a set of specifications that describe the technical details of a specificproduct or system. This document contains precise information and usually includes the database, server, and programming language.

1.8.1 Database used in Blackboard

Blackboard often relies on relational databases such as Oracle or Microsoft SQL Server to store information relatedto users, courses, and assessments. The database used mayvary depending on the infrastructure chosen by the institution using the system.

1.8.2 Server used in Blackboard

Blackboard is typically run on Linux or Windows Server platforms. Apache Tomcat is used as the application server,and it may also leverage strong infrastructures such as Amazon Web Services (AWS), Microsoft Azure, or dedicatedlocal servers.

1.8.3 Programming language used in Blackboard

Blackboard is primarily written using Java, along with otherlanguages like JavaScript for front-end interactions, and various web technologies such as HTML and CSS.

1.9 Conclusion :

The electronic learning system "Blackboard" used at Umm Al-Qura University highlights its importance in enhancing the learning experience for both students and teachers. "Blackboard" contributes to the unification of educational resources and facilitates communication through user-friendly interfaces, thereby improving educational effectiveness.

The document addresses the problems the system resolves, such as course management, communication speed, and information security. It also outlines the functional and non-functional requirements of the system, assisting in its development and performance improvement.

Furthermore, a comparison was made with similar applications like "Madrasati," providing a comprehensive view of the advantages and disadvantages of each. The overall architecture of the system was discussed, focusing on user interfaces and diagrams that illustrate the flow of information.

It is clear that "Blackboard" is a powerful tool that enhances the learning process, necessitating ongoing efforts to improve performance, reliability, and security to better meet users' needs in the future.

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Survey Questions:
https://docs.google.com/forms/d/e/1FAIpQLSfIHaw2cFb3fXHfDFpISP8k5xbZxjVfaCUVodyLXVkqd8DBQA/viewform
Surv

1.11 Appendices

Get hup

"In this file, we used Apple's style."