Digitization of Fayoum University colleges

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Abstract

This project and this idea aim to simplify and facilitate some matters of life and is considered a great social service as it links many things.

For example, if you are a student, you will face a problem, which is that you will need a statement from the college that proves that you are a student and that you have paid the fees. To do that, you wait until the next morning.

And here lies the problem, as if your condition is serious, you will face many problems.

Another example

If you are in a place where you are asked to prove your identity and that you are Egyptian or you have insurance or you are allowed to do a certain thing, then you will go from the place where you are to go to your or the headquarters of your university or college to take a statement about this and if we are late, you wait for the morning and if The morning was an official holiday, so you are waiting for what comes next

And here is the problem that in everything you are asked for proofs, papers, and so on

Therefore, what we have reached is that there must be a solution to all these problems and their solution is the following:

We all know that a web app is an indispensable thing today and very little if you find someone who does not have a smartphone.

Therefore, we will make an application that works on citizens' web application. This webapp contains all their personal data and everything from the name, photo, ID number, The student is enrolled in the cam

band and in any college and other necessary and important things as it provides some other services such as

Show Fayoum hospitals near students and specialize each of them and which of them is appropriate for students. The college administration can also communicate with students and doctors in order to inform them of any matter related to administrative affairs, whether it is a student or an entire team for each college at Fayoum University.

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Quick Overview

1.1 Introduction

Digitization of Fayoum university colleges For any Faculty process is a phase that each student and

Student affairs officer and College director go through multiple times during the academic year.

Good advising is a necessity as it will bring the student to clarify, plan and

implement their progress in their study. Hence the technology is running fast, we

have to keep up with this evolution to facilitate these two processes. To benefit

the student but also the student affairs officer and College director.

With the technology evolving it is becoming harder and harder to maintain

paperwork due to various issues one is that the data might get lost.

The project aims to streamline and optimize the university's operations by integrating different components such as student records, course management, administrative tasks, and more. By implementing this system, I sought to enhance efficiency, improve communication, and facilitate access to essential resources within our university community.

This chapter will cover an intro to the project from the user's point of view.

including the Project problem Definition, Project Motivation, Project objectives,

Project scope statement, and an overview of the project.

1.2 Problem Statement

Fayoum University recognizes the importance of efficient communication and streamlined paperwork processes for resolving various problems that arise within its academic community. However, the current system heavily relies on the involvement of College Directors, students, and Student Affairs Officers, creating bottlenecks and hindering effective problem resolution. There is a need to develop a solution that minimizes this dependency while simultaneously improving communication between doctors, student affairs staff, and the diverse student body.

The existing paperwork system at Fayoum University requires extensive coordination and involvement from College Directors, students, and Student Affairs Officers to address and resolve problems. This reliance on specific individuals and departments often leads to delays, miscommunications, and inefficiencies. Additionally, the system does not facilitate direct communication between doctors, student affairs staff, and the students across different faculties, making it challenging to establish effective channels of information exchange.

To address these challenges, Fayoum University aims to implement a solution that simplifies the paperwork process and enhances communication between professors, student affairs staff, and the students. This solution should empower individuals to independently navigate the paperwork requirements and facilitate direct communication channels that bridge the gap between the academic community and administrative staff.

By developing a digital platform or system, Fayoum University seeks to enable doctors and student affairs staff from all faculties to easily

communicate with students. This platform should allow for efficient sharing of information, timely updates, and seamless collaboration, eliminating the need for constant involvement of College Directors, students, and Student Affairs Officers. It should provide a user-friendly interface that ensures transparency, accessibility, and convenience for all stakeholders.

Through this streamlined approach, Fayoum University aims to expedite the resolution of problems and promote effective communication channels between doctors, student affairs staff, and students from various faculties. By reducing dependence on specific individuals and simplifying paperwork procedures, the university aspires to create an environment that encourages active problem-solving and facilitates efficient communication, ultimately enhancing the overall academic experience for its students.

1.3 Motivation

The motivation behind solving the problem of paperwork at Fayoum University, without the need for College Directors, students, and Student Affairs Officers, and facilitating improved communication between doctors, student affairs staff, and students across different faculties is driven by several key factors:

Efficiency and Time Savings: By streamlining the paperwork process and eliminating the need for constant involvement of College Directors, students, and Student Affairs Officers, the university aims to enhance efficiency and save valuable time for all stakeholders. This streamlined approach will reduce bureaucratic hurdles, eliminate unnecessary delays, and allow for faster problem resolution.

Empowering Problem Solvers: Enabling individuals and teams to independently manage their paperwork encourages a sense of ownership and empowerment among problem solvers. By simplifying the paperwork requirements and providing a self-service platform, Fayoum University seeks to foster a culture of initiative and self-reliance, empowering individuals to take charge of their problem-solving projects.

Enhanced Communication Channels: The motivation also lies in improving communication channels between doctors, student affairs staff, and students from different faculties. By developing a digital platform that facilitates direct and efficient communication, the university aims to bridge the gap between administrative staff and students. This enhanced communication will facilitate better understanding, collaboration, and support for problem-solving initiatives.

Transparency and Accountability: Implementing a digital system that allows individuals to track the progress of their paperwork fosters transparency and accountability. Both doctors and student affairs staff will have access to real-time updates, ensuring that everyone involved remains informed about the status of problem-solving projects. This transparency enhances trust and facilitates smoother coordination.

Student Experience and Engagement: Simplifying paperwork procedures and improving communication channels contribute to an enhanced student experience. By making it easier for doctors and student affairs staff of all faculties to communicate with different students, Fayoum University aims to create an inclusive and engaging environment. This encourages active student participation, fosters meaningful interactions, and supports the holistic development of students.

Overall, the motivation behind solving the paperwork problem and facilitating improved communication at Fayoum University is driven by the desire to create a more efficient, transparent, and student-centered problem-solving ecosystem. By empowering problem solvers, streamlining paperwork, and enhancing communication channels, the university seeks to cultivate a culture of innovation, collaboration, and excellence within its academic community.

1.4 Objectives

The objectives for solving the problem of paperwork at Fayoum University, without the need for College Directors, students, and Student Affairs Officers, and facilitating improved communication between professors, student affairs staff, and students across different faculties, while increasing work efficiency and making it systematic, include:

Streamline Paperwork Process: The primary objective is to develop a streamlined paperwork process that minimizes bureaucracy and reduces dependencies on specific individuals. This involves designing a digital platform or system that allows individuals and teams to easily submit, track, and manage their paperwork related to problem-solving initiatives.

Enhance Communication Channels: Improve communication between doctors, student affairs staff, and students from different faculties by implementing a digital solution that facilitates direct and efficient communication. This objective aims to create a platform where doctors and staff can easily communicate with students, addressing their queries, providing necessary information, and fostering collaboration.

Increase Work Efficiency: Implementing an automated paperwork system and providing all necessary information through a centralized digital platform will significantly increase work efficiency. This objective aims to minimize manual paperwork, reduce administrative burdens, and enable individuals to focus more on problem-solving and productive tasks.

Establish a Systematic Approach: Create a systematic approach to handling paperwork and problem-solving initiatives. The objective is to develop clear guidelines, standardized procedures, and efficient workflows that ensure consistency and reliability in the paperwork process. This will help maintain organization, improve coordination, and enhance the overall effectiveness of problem resolution.

Provide Comprehensive Information and Services: Through the digital platform, provide students with all the necessary information related to their education, including course registration, exam referrals, and other relevant details. This objective aims to eliminate the need for physical visits to college offices, making the entire process accessible and convenient for students.

Improve Accessibility and Convenience: The objective is to enhance accessibility and convenience for all stakeholders involved. Students should be able to access the required information and complete necessary processes online, eliminating unnecessary travel and waiting times. This will also benefit doctors and student affairs staff, enabling them to manage tasks efficiently and effectively.

By achieving these objectives, Fayoum University aims to create a more efficient, organized, and student-centric environment. The implementation of a streamlined paperwork process, improved communication channels, and a comprehensive digital platform will

result in increased productivity, reduced administrative burden, and an enhanced experience for both students and staff.

1.5 Project Scope Statement

The scope of the project aims to solve the problem of paperwork at Fayoum University, focusing on minimizing the involvement of College Directors, students, and Student Affairs Officers, while facilitating improved communication between doctors, student affairs staff, and students across different faculties. The project also aims to increase work efficiency, establish a systematic approach, and provide a comprehensive digital platform for accessing all necessary information.

The project scope includes the following elements:

Development of a Digital Platform: The project involves the development and implementation of a digital platform or system that allows individuals and teams to manage their paperwork processes. This platform should enable students to complete the registration process online without physically visiting the college. It should also provide a means for doctors and student affairs staff of all faculties to communicate with students effectively.

Streamlined Paperwork Processes: The project focuses on streamlining paperwork processes to minimize bureaucracy and reduce dependencies on College Directors, students, and Student Affairs Officers. This includes creating a simplified and standardized paperwork submission, tracking, and management system.

Improved Communication Channels: The project aims to enhance communication channels between doctors, student affairs staff, and students. The digital platform should facilitate direct and efficient communication, allowing for addressing queries, providing necessary information, and fostering collaboration.

Access to Comprehensive Information: The digital platform will provide students with access to all necessary information related to their education. This includes course registration, exam referrals, and other relevant details. Students will no longer need to visit college offices for these processes, as they can be completed through the website.

Work Efficiency and Systematic Approach: The project aims to increase work efficiency by implementing an automated paperwork system and digitizing various processes. The goal is to minimize manual paperwork, reduce administrative burdens, and enable individuals to focus on problem-solving and productive tasks. A systematic approach will be established through clear guidelines, standardized procedures, and efficient workflows.

It's important to note that the scope of the project focuses specifically on solving the paperwork problem and improving communication within the university. It does not encompass broader issues related to infrastructure development or major changes in the university's policies and practices.

The project will be limited to Fayoum University and its affiliated faculties and departments. The digital platform will be designed and customized to meet the specific needs of the university's paperwork processes and communication requirements.

By successfully implementing the project scope, Fayoum University aims to create a more efficient, organized, and student-centric environment, where paperwork is streamlined, communication is improved, and all necessary information is easily accessible through the digital platform.

1.5.2 Project Acceptance Criteria

- **Digital Platform Development:**

The digital platform should be developed and implemented according to the specified requirements, providing a user-friendly interface and seamless navigation for all stakeholders, including students, doctors, and student affairs staff.

- **Online Registration Process:**

The registration process should be fully functional through the digital platform. Students should be able to complete the registration process online without the need to physically visit the college or interact with College Directors, student affairs officers, or other administrative staff.

- **Communication Enhancement:**

The digital platform should facilitate improved communication between doctors, student affairs staff, and students. It should enable direct and efficient communication channels, allowing for timely responses to student inquiries, provision of necessary information, and effective collaboration.

- **Comprehensive Information Availability:**

All information required by students, including course details, exam referrals, and other relevant information, should be accessible through the digital platform. Students should be able to retrieve this information without the need for physical visits to college offices or Student Affairs Officers.

- **Increased Work Efficiency:**

The implementation of the digital platform should lead to increased work efficiency and productivity. Administrative tasks should be streamlined, reducing the reliance on manual paperwork, and enabling staff members to focus on problem-solving and other value-added activities.

- **Systematic Approach:**

The project should establish a systematic approach to paperwork and problem-solving initiatives. Standardized procedures, clear guidelines, and efficient

workflows should be in place to ensure consistency and reliability in the paperwork process.

- **User Satisfaction:**

The acceptance criteria also include user satisfaction with the digital platform. Feedback from students, doctors, and student affairs staff should indicate that the system is easy to use, addresses their needs effectively, and improves their overall experience with paperwork and communication.

- **Training and Support:**

Adequate training and support should be provided to users of the digital platform. Users should receive guidance and assistance in utilizing the system effectively, ensuring a smooth transition from the previous paper-based processes.

Meeting these acceptance criteria will demonstrate the successful implementation of the project, solving the paperwork problem at Fayoum University, improving communication channels, increasing work efficiency, and providing a comprehensive digital platform for students and staff members.

Chapter 1 – Introduction

The traditional paperwork processes at Fayoum University have long been a source of frustration, inefficiency, and unnecessary delays for both students and administrative staff. Students are often required to visit multiple offices, including the College Director's office, the Student Affairs Officer, and various departments, to complete essential tasks such as registration and obtaining referrals for examinations. This cumbersome system not only consumes valuable time and effort but also hampers effective communication between professors, student affairs staff, and students across different faculties.

In an effort to address these challenges and create a more streamlined and efficient environment, this project aims to solve the problem of paperwork at Fayoum University. By leveraging modern technology and implementing a comprehensive digital platform, the university seeks to revolutionize its administrative processes and transform the way students, doctors, and student affairs staff interact.

The primary objective of this project is to develop a digital solution that eliminates the need for College Directors, students, and Student Affairs Officers in the paperwork process. By providing an online platform, students will no longer have to physically visit college offices to complete essential tasks. They will be able to complete the registration process, access information, and even obtain referrals for examinations through a convenient website.

Furthermore, this digital platform will facilitate improved communication between doctors, student affairs staff, and students from different faculties. By providing a centralized communication channel, it will enable efficient and direct interaction, ensuring timely responses to student inquiries, providing necessary information, and fostering collaboration.

By implementing this digital solution, Fayoum University aims to increase work efficiency and establish a more systematic approach to administrative operations. The transition from manual paperwork to a digitized system will minimize administrative burdens, reduce dependency on physical documents, and allow staff members to allocate their time and efforts towards problem-solving and productive tasks.

Additionally, this project seeks to provide students with a comprehensive education system, where all necessary information is easily accessible through the digital platform. Course details, exam referrals, and other pertinent information will be readily available, eliminating the need for students to visit college offices for such matters.

In conclusion, this project represents an exciting opportunity to revolutionize the paperwork processes at Fayoum University. By leveraging digital technology, it aims to improve communication, increase work efficiency, and provide students with a more convenient and accessible education system. Through the elimination of unnecessary visits to college offices and the provision of comprehensive information via the website, this project will transform the administrative landscape and enhance the overall experience for students, professors, and student affairs staff alike.

Chapter 2 - Literature Review

The literature review in this chapter provides a historical overview of the integration of various faculties within Fayoum University with the university hospital. The main objective is to facilitate the process of booking doctors and professors and enhance communication with students by leveraging current technology and systems. The review examines relevant studies and research findings related to this topic and highlights the importance of integrating faculties and the hospital to improve overall efficiency and communication.

The literature reveals that integrating faculties with the university hospital has several benefits. It allows for better coordination and utilization of resources, improves access to medical services for students, and enhances the overall healthcare experience within the university community. By linking faculties with the hospital, the process of booking appointments with doctors and professors becomes more streamlined, eliminating the need for manual paperwork and reducing administrative burdens.

Moreover, the literature emphasizes the role of current technology and systems in facilitating this integration. Digital platforms and communication tools play a vital role in enhancing communication channels between faculty members, doctors, professors, and students. By utilizing online booking systems, students can easily schedule appointments with doctors and professors, reducing waiting times and improving access to healthcare services.

Additionally, the literature highlights the significance of reviewer feedback in this context. Through the integration of reviewer feedback systems, students can provide valuable input on their experiences with doctors and professors, enabling continuous improvement in service quality and addressing any issues or concerns that may arise.

Overall, the literature supports the idea that integrating faculties with the university hospital and leveraging current technology and systems can significantly improve the process of booking doctors and professors and enhance communication with students. This integration allows for a more efficient and accessible healthcare system within Fayoum University, benefiting both students and faculty members. The literature review provides a foundation for the project,

highlighting the importance of this integration and setting the stage for further research and implementation.

Chapter 3 – Project Management

provides an overview of the project management aspects of the solution for solving paperwork problems at Fayoum University. It covers essential components such as the project plan, feasibility study, project timeline, and the technologies that will be used.

The project plan outlines the overall strategy and approach for implementing the solution. It includes details on the project's objectives, scope, deliverables, and stakeholders involved. The plan also addresses potential risks and challenges that may arise during the project's execution and proposes mitigation strategies to ensure successful implementation.

The feasibility study conducted assesses the viability and practicality of the project. It examines various factors such as technical feasibility, economic feasibility, operational feasibility, and legal and ethical considerations. The study provides insights into the project's potential benefits, potential obstacles, and recommendations for moving forward.

The project timeline outlines the sequence of activities and milestones that need to be achieved throughout the project's duration. It provides a clear overview of the project's timeline, including important deadlines and dependencies between tasks. The timeline helps in tracking progress and ensuring that the project stays on schedule.

The chapter also discusses the technologies that will be utilized in the project. It highlights the digital platforms, software applications, and systems that will be employed to streamline administrative processes, enhance communication, and provide a comprehensive education system. The technologies chosen should align with the project's objectives and contribute to increased efficiency and improved student experience.

Overall, Chapter 3 serves as a roadmap for managing the project effectively. It outlines the plan, assesses feasibility, provides a timeline, and identifies the

technologies required for successful implementation. This chapter sets the foundation for project execution, ensuring that all aspects of the project are considered and addressed in a systematic and organized manner.

Chapter 4 – System Analysis

Chapter 4 focuses on the system analysis phase of the project, providing a detailed examination of the system requirements and the methodology used for development. The chapter covers key aspects such as the agile development life cycle, methodological assumptions, functional requirements (including the use case diagram), and non-functional requirements.

The agile development life cycle is discussed as the chosen methodology for system analysis and development. This iterative and flexible approach allows for continuous improvement and adaptation throughout the project. It emphasizes collaboration, frequent feedback, and incremental development to ensure that the system meets the evolving needs of the stakeholders.

Methodological assumptions are identified and described to establish a framework for the analysis. These assumptions provide guidance on how to approach the analysis process and help ensure consistency and clarity in understanding the system requirements.

The functional requirements are presented, with a focus on capturing the system's desired behavior and functionalities. The use case diagram is used as a visual representation to illustrate the interactions between actors (such as students, doctors, and staff) and the system. This diagram helps to identify the various use cases and their relationships, providing a comprehensive understanding of the system's functional requirements.

Non-functional requirements are also addressed, which define the qualities and constraints of the system beyond its specific functionalities. These requirements include aspects such as performance, security, usability, and scalability. By considering non-functional requirements, the system can be designed to meet the necessary standards and provide an optimal user experience.

Overall, provides a thorough analysis of the system, employing an agile development life cycle and methodological assumptions to guide the process. The functional requirements, represented through the use case diagram, capture the desired behavior of the system, while the non-functional requirements ensure that the system meets the necessary standards and user expectations. This analysis serves as a foundation for the subsequent stages of system design and development.

Chapter 5 - System Design

This chapter discusses system design by describing how to do this. The system operates through the discussed sequence and activity diagrams.

Diagrams, Class Diagrams, Context Diagram, DFD Diagrams, Entity Relationship Diagram, and Use case diagram.

Chapter 6– System Development

This chapter includes the implementation and testing of the system. How it was implemented And includes the Framework of the system

CHAPTER 2
PROJECT MOTIVATION
"Why Paperless System''

2.1 Paperless Systems:

Digitization of Fayoum University Institutions, Connecting Student Affairs Staff, University Professors, and Students

In today's digital age, the concept of paperless systems has gained significant traction across various industries, including the education sector. Fayoum University, recognizing the potential benefits and the need for technological advancements, aims to implement a paperless system that connects student affairs staff, university professors, and students within each division. The primary objective is to streamline administrative processes and eliminate the reliance on physical paperwork.

The digitization initiative involves creating a centralized platform or website that serves as a hub for all administrative activities and communication channels. This platform would allow seamless interactions between students, student affairs staff, and university professors, enabling efficient exchange of information, documents, and requests.

By implementing this paperless system, Fayoum University intends to extract all administrative papers associated with each college and digitize them. This means that all paperwork traditionally required for various administrative processes, such as enrollment, registration ,

referrals, and examination scheduling, will be handled electronically through the university website.

The digital platform will serve as a bridge between the different colleges at Fayoum University and Fayoum University Hospital. It will facilitate the exchange of necessary information, medical records, and referrals, eliminating the need for physical paperwork and reducing administrative burdens. For instance, students will no longer have to physically visit the college or hospital to complete registration or obtain referrals for medical examinations. Instead, these processes can be seamlessly accomplished through the university website.

The digitization effort aims to enhance communication, collaboration, and efficiency among stakeholders. It will provide student affairs staff and university professors with direct access to student information, facilitating timely and personalized support. Additionally, it will enable students to easily navigate administrative procedures, access relevant resources, and communicate with faculty and staff through a centralized and user-friendly interface.

By implementing a comprehensive paperless system, Fayoum University expects to achieve numerous benefits. These include improved accessibility to administrative services, reduced paperwork and storage requirements, enhanced data security, streamlined processes, and increased operational efficiency. Moreover,

the digitization of administrative procedures will contribute to a more sustainable and environmentally friendly campus by significantly reducing paper usage.

In summary, the digitization of Fayoum University institutions, connecting student affairs staff, university professors, and students, involves the implementation of a paperless system that leverages a university website. Through this system, administrative papers for each college will be extracted and managed electronically, fostering efficient communication, and streamlining administrative processes. The project aims to enhance accessibility, improve collaboration, and increase operational efficiency while reducing the reliance on physical paperwork.

2.3 Disadvantages of Fully Digitalized Fayoum Hospital

- Security of data in cloud and in digital format poses a great risk for unauthorized access.
- Training and application of the software could be a challenging task especially in a setup where the staff is used to the conventional operational methods.
- Complying with the software upgrades and regulations requires a constant tab.

2.4 Paperless Digitization of Fayoum University colleges VS Paper-based System:

Digitization of Fayoum University colleges	Paper-based System
Computer-based	Paper-based
Available on websites	Not used
Management many departments { The new university hospital building , The old university hospital building and Students Affairs for Faculty of computers and intelligence please }	Management few departments
The system is scalable for any college in Fayoum university	The system is not scalable
Lower errors and more efficiency	Low efficiency
Data security and retrieving ability	Lower security
Time Saving	Time Consuming
cost is based on the software	Lower cost
Improved student care	Lower student care

CHAPTER 3

PROJECT MANAGEMENT

3.1 Overview

In this chapter will discuss the development methodology used in the project and how it was accomplished, the plan that our team follow to implement the whole project and the team members and their role and tasks they done.

3.2 Development Methodology

The development methodology used in our project is “the agile methodology”. The goal of Agile Methods is to allow an organization to be.

agile, but what does it mean to be Agile? Jim Highsmith says that being. Agile means being able to “Deliver quickly, Change quickly”. While agile techniques vary in practices and emphasis, they share common.

characteristics, including iterative development and a focus on interaction, communication, and the reduction of resource intensive intermediate artifacts. Developing in iterations allows the development team to adapt.

quickly to changing requirements. Working in close location and focusing on communication means teams can make decisions and act on them immediately rather than wait on correspondence intermediate artifacts that. do not add value to the final deliverable means more resources can be. devoted to the development of the product itself and it can be completed sooner.

3.3 Feasibility Study

Feasibility study: is a test of system proposal according to its workability,

impact of the organization, ability to meet needs and effective use of the

resources. It focuses on these major questions:

1. What are the user's demonstrable needs and how does a candidate

system meet them.

2. What resources are available for the given candidate system?

3. What are the likely impacts of the candidate system on the organization?

4. Whether it is worth to solve the problem?

During feasibility analysis for this project, the following are primary areas of interest.

are to be considered. Investigation and generating ideas about a new

system does this.

3.3.1 Technical feasibility

A study of resource availability that may affect the ability to achieve an

acceptable system. This evaluation determines whether the technology.

needed for the proposed system is available or not.

• Can the work for the project be done with current equipment existing

software Technology & available personal?

• Can the system be upgraded if developed?

• If new technology is needed then what can be developed? This is.

concerned with specifying equipment and software that will be successful.

satisfy the user requirement. May include The technical needs of the system ?

3.3.1.1 Front-end and back-end selection

An important issue for the development of a project is the selection of

suitable front-end and back-end. When we decided to develop the project,

we went through an extensive study to determine the most suitable.

platform that suits the needs of the Fayoum university as well as helps in

development of the project. The aspects of our study included the following.

factors.

Front-end selection:

• It must have a graphical user interface that assists employees that

are not from IT background.

• Scalability and extensibility.

• Flexibility.

• Must provide excellent reporting features with good printing support.

• Platform independent.

• Easy to debug and maintain.

• Event driven programming facility.

• Front end must support some popular back end.

Back-end Selection:

• Multiple user support.

• Efficient data handling.

• Provide inherent features for security.

• Efficient data retrieval and maintenance.

• Stored procedures.

• Popularity.

• Operating System compatible.

• Easy to install.

Technical feasibility is frequently the most difficult area encountered at this stage.

3.3.2 Operational Feasibility

It is mainly related to human organizations and political aspects. The points

to be considered are:

• What changes will be brought with the system?

• What organization structures are disturbed?

• What new skills will be required?

• Do the existing staff members have these skills?

If not, can they be trained in due course of time?

• The system is operationally feasible as it very easy for the end users to operate it.

• It only needs basic information about Windows and web

platforms.

3.3.3 Schedule feasibility

Time evaluation is the most important consideration in the development of

project. The time schedule required for the development of this project is very.

important since more development time effect machine time, cost and

cause delay in the development of other systems. A reliable Hospital

Management System can be developed in the considerable amount of

time.

3.3.4 Economic feasibility

It involves conducting a cost-benefit analysis to determine if the benefits outweigh the costs and if the project is financially viable. This analysis includes estimating the initial investment required for system development, hardware and software procurement, implementation costs, and ongoing maintenance expenses. Additionally, it considers the potential cost savings resulting from reduced paperwork, streamlined processes, and improved efficiency.

Economic justification is generally the “Bottom Line” consideration for most.

systems. Economic justification includes a broad range of concerns that.

includes cost benefit analysis. In this we weight the cost and the benefits

associated with the candidate system and if it suits the basic purpose of the organization. profit making, the project is making to the analysis and design phase.

The financial and the economic questions during the preliminary

investigation is verified to estimate the following:

• The cost to conduct a full system investigation.

• The cost of hardware and software for the class of application being

considered.

• The benefits in the form of reduced cost.

• The proposed system will give the minute information, as a result the

performance is improved.

• This feasibility checks whether the system can be developed with the

available funds. The Hospital Management System is not required.

enormous amount of money to be developed.

The cost of project depends upon the number of man-hours required.

3.3.5 Legal Feasibility:

The legal feasibility examines the compliance of the proposed digitization project with relevant laws, regulations, and data privacy requirements. It is crucial to ensure that the system adheres to data protection regulations, safeguards sensitive information, and maintains the privacy and confidentiality of student records. This aspect also considers any contractual obligations, intellectual property rights, and legal implications related to the implementation of the digital platform.

Based on the feasibility study, the digitization of Fayoum University institutions, connecting student affairs staff, university professors, and students, appears to be a viable and beneficial project. The technical assessment indicates that the necessary technical infrastructure can be established or upgraded to support the digital platform. The economic analysis demonstrates potential cost savings and improved efficiency, offsetting the initial investment and ongoing maintenance expenses. The operational evaluation suggests that with proper training and support, stakeholders can adapt to the digitized processes. Lastly, the legal assessment ensures compliance with relevant regulations and data protection requirements.

Overall, the feasibility study concludes that implementing the digitization project is feasible, offering numerous benefits such as streamlined processes, improved accessibility, enhanced communication, and reduced paperwork. It provides a solid foundation for the project's successful execution and paves the way for the subsequent stages of development, implementation, and integration of the digital platform within the university's administrative framework.

3.4 The plan (Team structure and tasks dividing)

Ta M	Task Name	Duration	Start	Finish	Predecessors	Resource Names
	Digitizing Fayoum University Institutions	**200 days**	**س ٠١/١٠/٢٢**	**خ ٠٦/٠٧/٢٣**		
	Gathering requirements	**22 days**	**س ٠١/١٠/٢٢**	**إ ٣١/١٠/٢٢**		**All members of team**
	gather information about project	22 days	س ٠١/١٠/٢٢	إ ٣١/١٠/٢٢		All members of team
	Planning	**31 days**	**ج ٠٢/١٢/٢٢**	**ج ١٣/٠١/٢٣**		**All members of team**
	creat project plan	8 days	ث ٠١/١١/٢٢	خ ١٠/١١/٢٢		Mostafa Mahmoud sal
	Divide project into tasks	3 days	ج ١١/١١/٢٢	ث ١٥/١١/٢٢		Yousef fadl Abd El Sala
	make project schedual	13 days	أ ١٦/١١/٢٢	ج ٠٢/١٢/٢٢		Yousef fadl Abd El Sala
	system analysis	**30 days**	**خ ٠١/١٢/٢٢**	**أ ١١/٠١/٢٣**		**Mostafa Mahmoud sal**
	funcational&non-funcational requirement	2 days	إ ٠٥/١٢/٢٢	ث ٠٦/١٢/٢٢		Mostafa Mahmoud salah
	Data flow diagram	2 days	ث ٠٦/١٢/٢٢	أ ٠٧/١٢/٢٢		Yousef fadl Abd El Sala
	User Case diagram	2 days	أ ٠٧/١٢/٢٢	خ ٠٨/١٢/٢٢		Yousef fadl Abd El Sala
	Design	**28 days**	**ج ١١/١١/٢٢**	**ث ٢٠/١٢/٢٢**		**Mostafa Mahmoud sal**
	Context Diagram	6 days	ج ١١/١١/٢٢	ج ١٨/١١/٢٢		Mostafa Mahmoud sal
	sequance diagram	5 days	ج ٠٩/١٢/٢٢	خ ١٥/١٢/٢٢		Yousef fadl Abd El Sala
	class diagram	3 days	خ ١٥/١٢/٢٢	إ ١٩/١٢/٢٢		Mostafa Mahmoud sal
	activity diagram	1 day	ث ٢٠/١٢/٢٢	ث ٢٠/١٢/٢٢		Mostafa Mahmoud sal
	Database design	**14 days**	**ث ٠٨/٠٢/٢٢**	**ج ٢٥/٠٢/٢٢**		**Mostafa Mahmoud sal**
	Entity Relationship Diagram	4 days	س ٠٨/٠١/٢٢	أ ١٢/٠١/٢٢		Mostafa Mahmoud sal
	user interface/User Experience	8 days	ث ٢٥/٠١/٢٢	خ ٠٣/٠٢/٢٢		Mohamed Ramadan
	implementation	**76 days**	**ث ١٥/٠٢/٢٢**	**أ ٠١/٠٦/٢٢**		
	create database	14 days	ث ١٥/٠٢/٢٢	ج ٠٤/٠٣/٢٢		Mostafa Mahmoud sal
	creat web site V1.0	**27 days**	**ج ٢٨/١٠/٢٢**	**إ ٠٥/١٢/٢٢**		**Mostafa Mahmoud sal**
	Front-end pages	9 days	ج ٢٨/١٠/٢٢	أ ٠٩/١١/٢٢		Mostafa Mahmoud sal
	Back-end pages	9 days	أ ٠٩/١١/٢٢	إ ٢١/١١/٢٢		Mohamed Ramadan
	Application Programming Interface(API)	9 days	إ ٢١/١١/٢٢	خ ٠١/١٢/٢٢		Mohamed Ramadan
	creat Web site V2.0	**27 days**	**ج ٢٨/١٠/٢٢**	**إ ٠٥/١٢/٢٢**		**Mohamed Ramadan;M**
	Front-end page	13 days	ج ٢٨/١٠/٢٢	ث ١٥/١١/٢٢		Mostafa Mahmoud sal
	Back-end page	14 days	ث ١٥/١١/٢٢	ج ٠٢/١٢/٢٢		Mohamed Ramadan
	Testing	**15 days**	**إ ١٦/٠٥/٢٢**	**ج ٠٣/٠٦/٢٢**		**All members of team**
	Back-end Testing	5 days	إ ١٦/٠٥/٢٢	ج ٢٠/٠٥/٢٢		Mohamed Ramadan
	DataBase testing	5 days	ج ٢٠/٠٥/٢٢	خ ٢٦/٠٥/٢٢		All members of team
	Documentation	4 days	خ ٢٦/٠٥/٢٢	ث ٣١/٠٥/٢٢		Mostafa Mahmoud sal
	Meeting	**6 days**	**ج ٠٣/٠٦/٢٢**	**ج ١٠/٠٦/٢٢**		**All members of team**
	Exams	3 days	ج ٠٣/٠٦/٢٢	ث ٠٧/٠٦/٢٢		All members of team
	Final_projectDisscussion	3 days	ث ٠٧/٠٦/٢٢	خ ٠٩/٠٦/٢٢		All members of team

CHAPTER 4

SYSTEM ANALYSIS AND DESIGN

4.1 System Requirements

The system requirements document outlines the essential functionalities and features expected from the system. It serves as a blueprint for the development team to understand and implement the desired system behavior. The following sections summarize the key aspects of the system requirements:

Purpose:

The purpose of the system is to provide a comprehensive platform for students, administrators, super administrators, and professors to manage various tasks within an educational institution. The system aims to streamline processes such as student profile management, request handling, admissions, communication, and administrative tasks.

Users:

The system will cater to multiple user roles, including students, administrators, super administrators, and professors. Each user role will have specific functionalities and privileges within the system.

Functionality:

The system will support the following core functionalities:

User Registration and Login:

Students, administrators, super administrators, and professors can register and log in to the system using their respective credentials.

Student Functionality:

- Students can view their profile information.
- Students can log in using their university email.
- Students can make requests.

- Students can cancel booking requests.
- Students can send emails to professors and student affairs officers.
- Students can post requests.
- Students can search for admission-related information.

Super Administrator Functionality:

- Super administrators can log in to the system with special privileges.
- Super administrators can manage system settings and update the database.
- Super administrators can accept, reject, or put requests on hold.
- Super administrators can send emails to address student problems.
- Super administrators can send announcements related to college payments.
- Super administrators can manage admission processes.
- Super administrators can search for students by ID.
- Super administrators can add students, professors, and administrators.

Administrator Functionality:

- Administrators can log in to the system with their credentials.
- Administrators can search for students by ID.
- Administrators can accept, reject, or put requests on hold.
- Administrators can manage system settings and update the database.
- Administrators can send emails to address student problems.
- Administrators can send announcements related to college payments to students.

Professor Functionality:

- Professors can view profiles of students and administrators.
- Professors can search for students by ID.
- Professors can send emails to address student problems.

Additional Requirements:

- The system should ensure secure user authentication and data privacy.
- The system should have an intuitive user interface for ease of use.
- The system should be able to handle a large volume of user data efficiently.
- The system should be scalable to accommodate future enhancements and increasing user demands.
- The above abstract provides a brief overview of the system requirements, highlighting the main functionalities and user roles. For detailed requirements, please refer to the complete system requirements document.

4.1.0 Documented Abstract

The first step, the students log in on the system and enter them.

information including student id, student name, student phone,

and student e-mail if found. When the student goes to the doctor, the doctor.

checks student medical history (if it's not the first time for the student) then.

examine him to determine the required medications or tests. These

medications and tests are stored on student's medical history to be.

accessed easily.

If there are required tests, the student goes to the laboratory and the receptionist enters student id to know what tests are required for this. patient. After doing these tests for the student, results (return data) are stored on patient's medical history. The test results are shown by the doctor.

and then determine the required medications from the pharmacy. At the

end, the student goes to the pharmacy to take its medications (stored on the

system by the doctor). All of this information about students are secured and

will be kept up to date and their record should be kept in the system for historical purposes.

4.1.1 Functional Requirements

student :

- view profile
- student login by University email
- make a request for booking doctor
- cancel booking for request
- sending a News for professors and Student affairs officer one to many
- post Request
- Search Admissions Administrator

Super Administrator:

- Super Admin login

- manage system setting and update Database
- student login by University email
- Accept the Request
- Reject the Request
- Pending the Request
- Send a News for any problem with the student
- Send an announcement to pay for anything related to the college
- manage Admission
- Search for student by ID
- Add students , professors, and Administrators

4.1.2 Non-Functional Requirement

Non-functional requirements cover all the remaining requirements which.

are not covered by the functional requirements. They specify criteria that.

judge the operation of a system, rather than specific behaviors.

Non-functional requirements specify the system's quality characteristics or quality attributes.

System non-functional requirements:

- **Performance:**

The system should respond to user actions within an acceptable timeframe.

The system should be able to handle concurrent user requests without significant performance degradation.

The system should load user profiles and data quickly to provide a seamless user experience.

- **Reliability:**

The system should be available and accessible to users with minimal downtime.

The system should ensure data integrity and prevent data loss or corruption.

The system should have backup and recovery mechanisms to restore data in case of system failures.

- **Security:**

The system should implement secure authentication mechanisms to protect user accounts.

User data, including personal information, should be encrypted and stored securely.

The system should have access controls to restrict unauthorized access to sensitive functionalities and data.

The system should be protected against common security vulnerabilities such as cross-site scripting (XSS) and SQL injection.

- **Scalability:**

The system should be able to handle increasing user loads and accommodate future growth.

The system architecture should support horizontal scalability, allowing the addition of more servers or resources to handle increased demand.

- **Usability:**

The system should have a user-friendly interface, making it easy for users to navigate and perform tasks.

Clear and intuitive instructions should be provided to guide users through various functionalities.

The system should be compatible with different devices and screen sizes to ensure accessibility for all users.

- **Maintainability:**

The system code should follow coding best practices and be well-documented to facilitate future maintenance and updates.

Modular and decoupled components should be used to allow easy modification or addition of new functionalities.

The system should have automated tests and error logging mechanisms to assist in debugging and troubleshooting.

Data base (No SQL MongoDB)

What is an Entity Relationship Diagram?

An Entity Relationship Diagram (ERD) is a pictorial representation of the information that can be captured by a database. Such a “picture” serves two purposes. It allows database professionals to describe an overall design concisely

yet accurately. An ER Diagram can be easily transformed into the relational schema. There are three components in ERD: Entities, Attributes, and Relationships.

the purposes they are created for and the audiences they are meant to target.

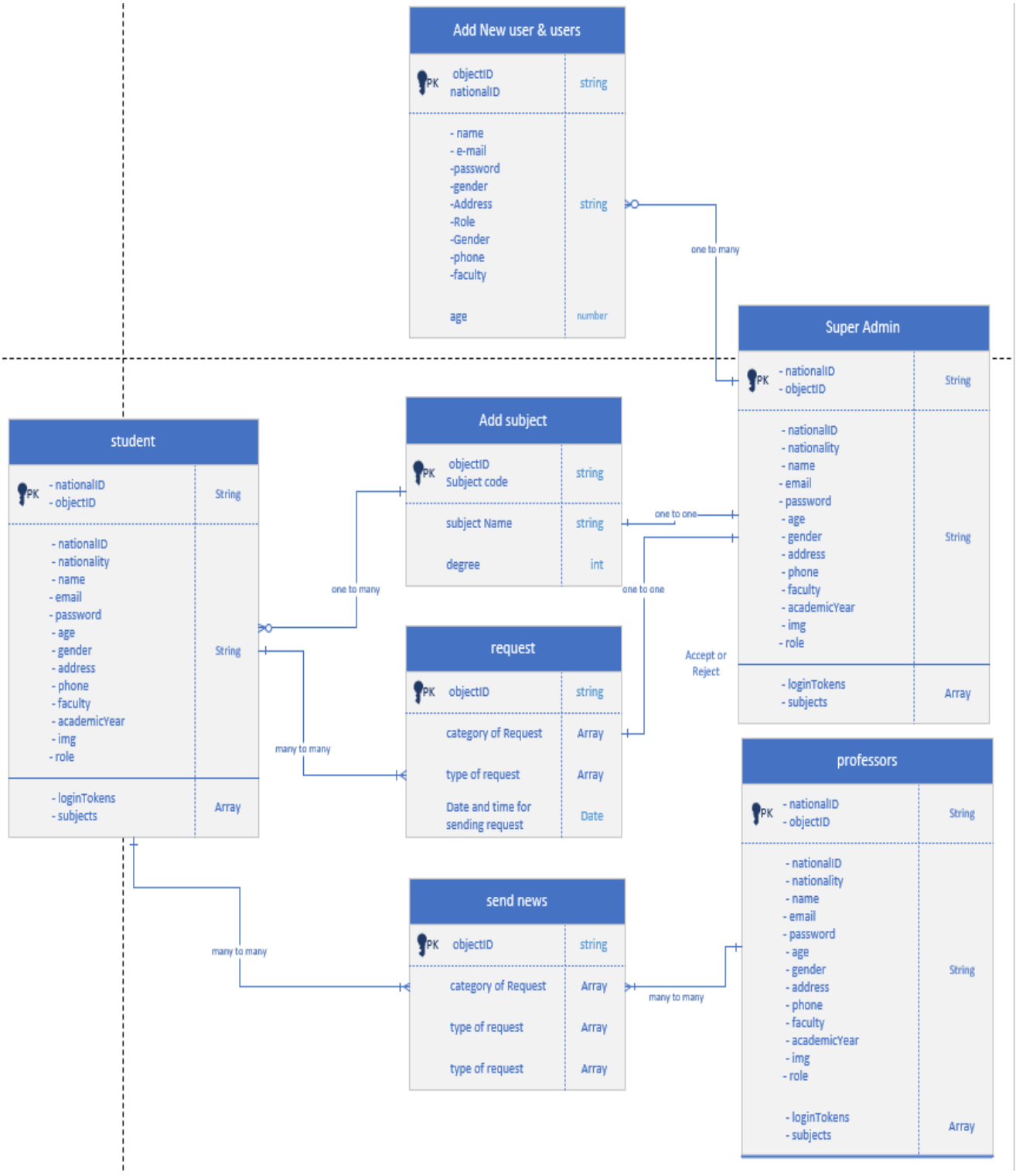
Conceptual model vs Logical model vs Data model:

ERD feature	Conceptual	Logical	Data
Entity (name)	Yes	Yes	Yes
Relationship	Yes	Yes	Yes
Column		Yes	Yes
Column's Type		Optional	Yes
Primary Key			Yes
Foreign Key			Yes

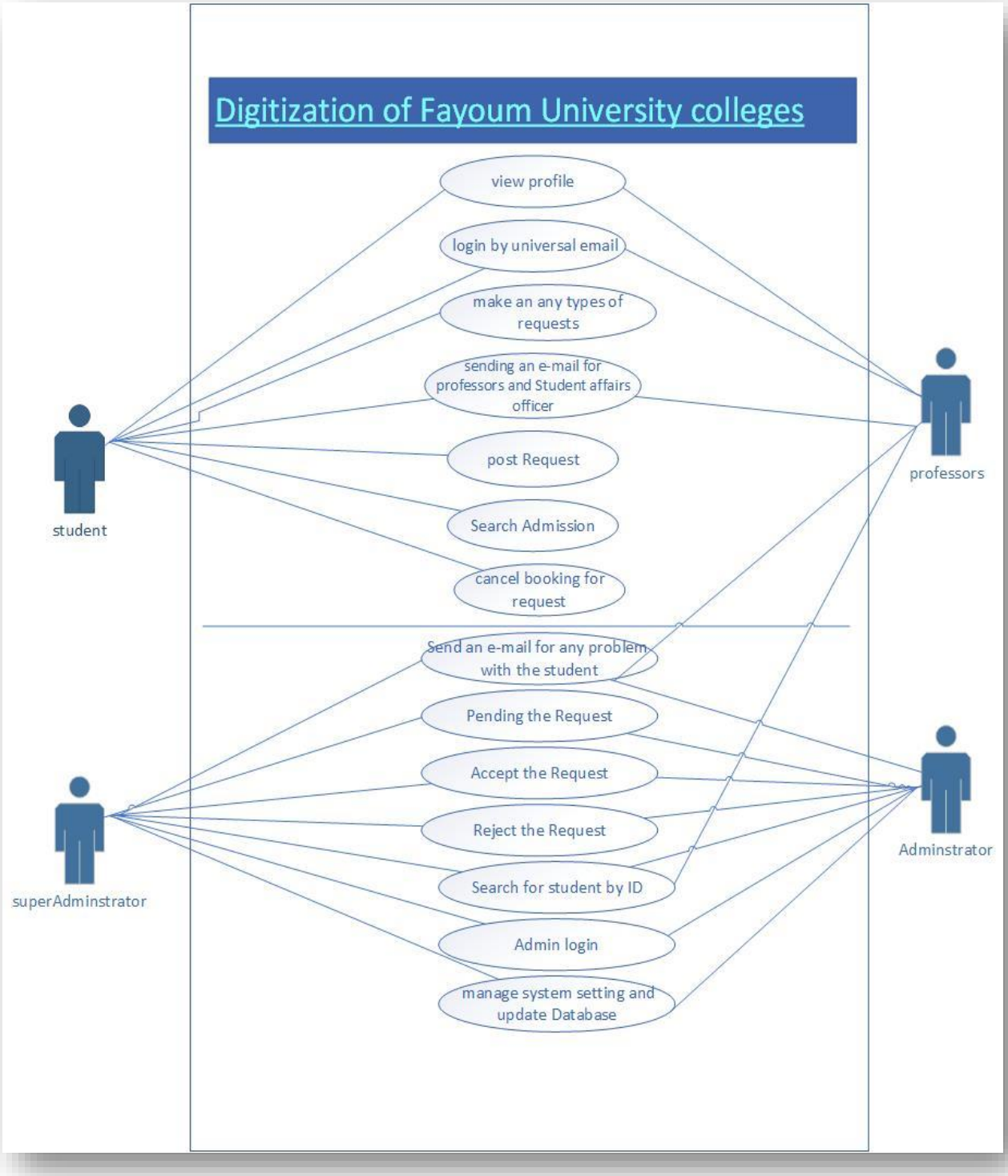
In the table, it summarizes the characteristics of the three data model:

- The **Conceptual Model** Is To Establish The Entities, Their Attributes, And Their Relationships.
- The **Logical Data Model** Defines The Structure Of The Data Elements And Set The Relationships Between Them.
- The **Data Model** Describes The Database-Specific Implementation Of The Data Model.

4.1.3 Data Model diagram by (Crow's Foot Database Notation)



❖ Use case Diagram:



Use Case ID 1:

Use Case Name: View Profile

Description: This use case allows users (students, administrators, and professors) to view their own profiles or the profiles of other users.

Use Case ID 2:

Use Case Name: Student Login by University Email

Description: This use case allows students to log in to the system using their university email credentials.

Use Case ID 3:

Use Case Name: Make a Request for Booking Doctor

Description: This use case enables students to make a request for booking an appointment with a doctor.

Use Case ID 4:

Use Case Name: Cancel Booking Request

Description: This use case allows students to cancel their previously made booking request for a doctor's appointment.

Use Case ID 5:

Use Case Name: Sending an Email for Professors and Student Affairs Officer

Description: This use case enables students, professors, and student affairs officers to send emails to each other.

Use Case ID 6:

Use Case Name: Post Request

Description: This use case allows users (students, administrators, and professors) to post requests or messages on the platform.

Use Case ID 7:

Use Case Name: Search Admission

Description: This use case allows users (students, super administrators, and administrators) to search for admission-related information.

Use Case ID 8:

Use Case Name: Send an e-mail for any problem with the student.

Description: This use case allows users (professors, super administrators, and administrators) to send e-mail to students and specific students for any problem.

Use Case ID 9:

Use Case Name: Send an e-mail for any problem with the student.

Description: This use case allows users (professors, super administrators, and administrators) to send e-mail to students and specific students for any problem.

Use Case ID 10:

Use Case Name: Search for student by ID.

Description: This use case allows users (students, super administrators, administrators, and professors) to search for student information .

Use Case ID 11:

Use Case Name: manage system setting and update Database.

Description: This use case allows users (super administrators, administrators) to update and Add students , Specific student and Change the password .

4.1.5 Sequence Diagram

A sequence diagram provides a visual representation of the interactions and messages exchanged between different components or actors in a system. It shows the chronological order of these interactions, illustrating how objects or actors collaborate to achieve a specific functionality or use case.

We have 5 sequence diagram in system sequence.

In the context of the provided system functionalities:

Student Makes a Request for revealed in the Fayoum hospital:

The system processes the request and communicates with the Super Administrator to obtain a response.

The Super Administrator sends an acceptance or rejection message back to the system.

The system notifies the student about the status of their request.

Super Administrator Manages Admission:

The Super Administrator logs in and accesses the system's admission management functionality.

They perform operations such as searching for students by ID, accepting or rejecting admission requests, or putting requests on hold.

If there are any issues faced by students, the Super Administrator sends news messages to them.

Additionally, the Super Administrator sends announcements to all students regarding college-related payments.

Administrator Manages System Settings:

The Administrator logs in and gains access to the system's settings and database management functionality.

They update the system settings and make necessary modifications to the database as required.

Professors View Profile and Interact with Students:

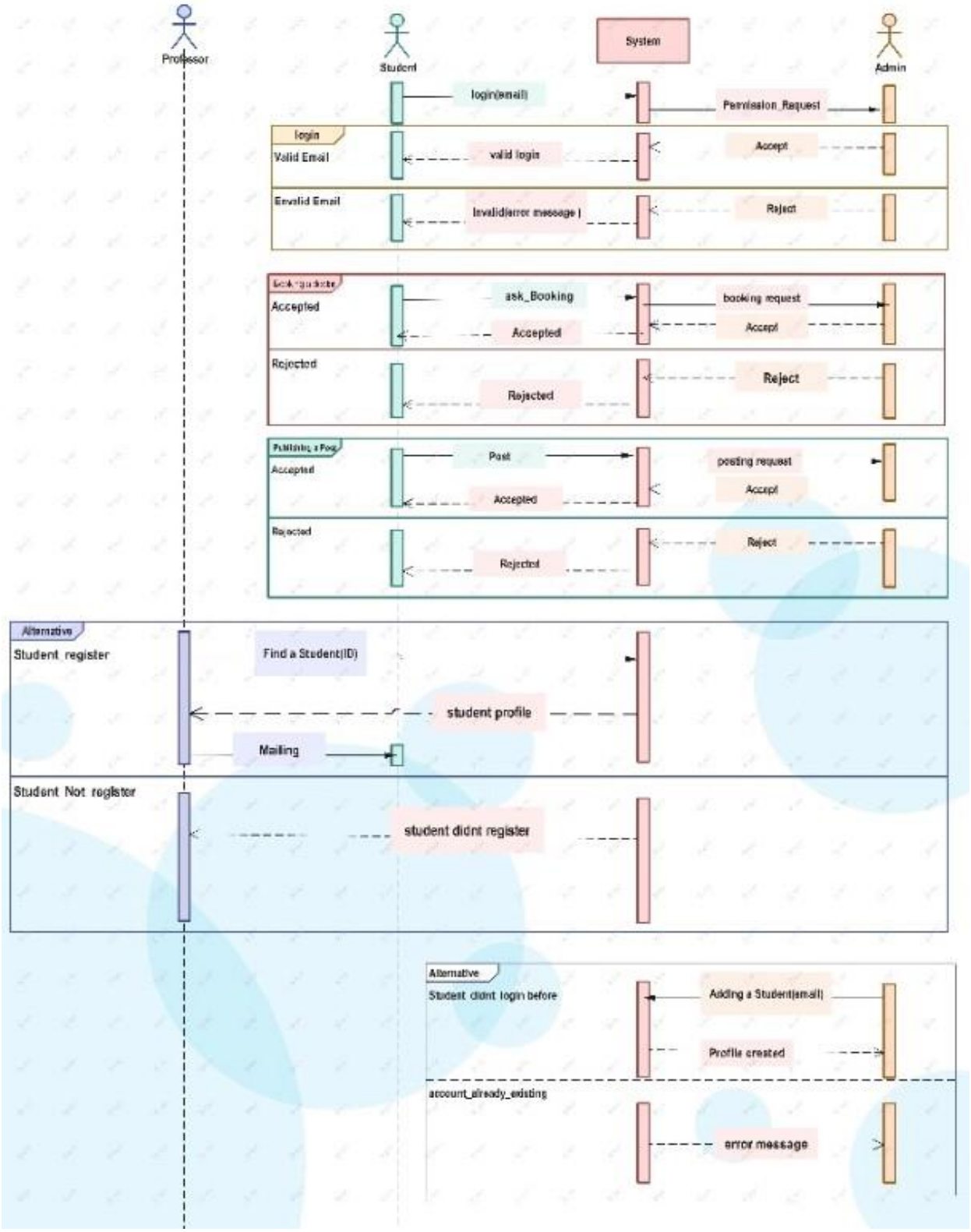
Professors can view their profiles and search for students using their ID.

If a problem is identified with a student, the Professor sends a news message to communicate the issue.

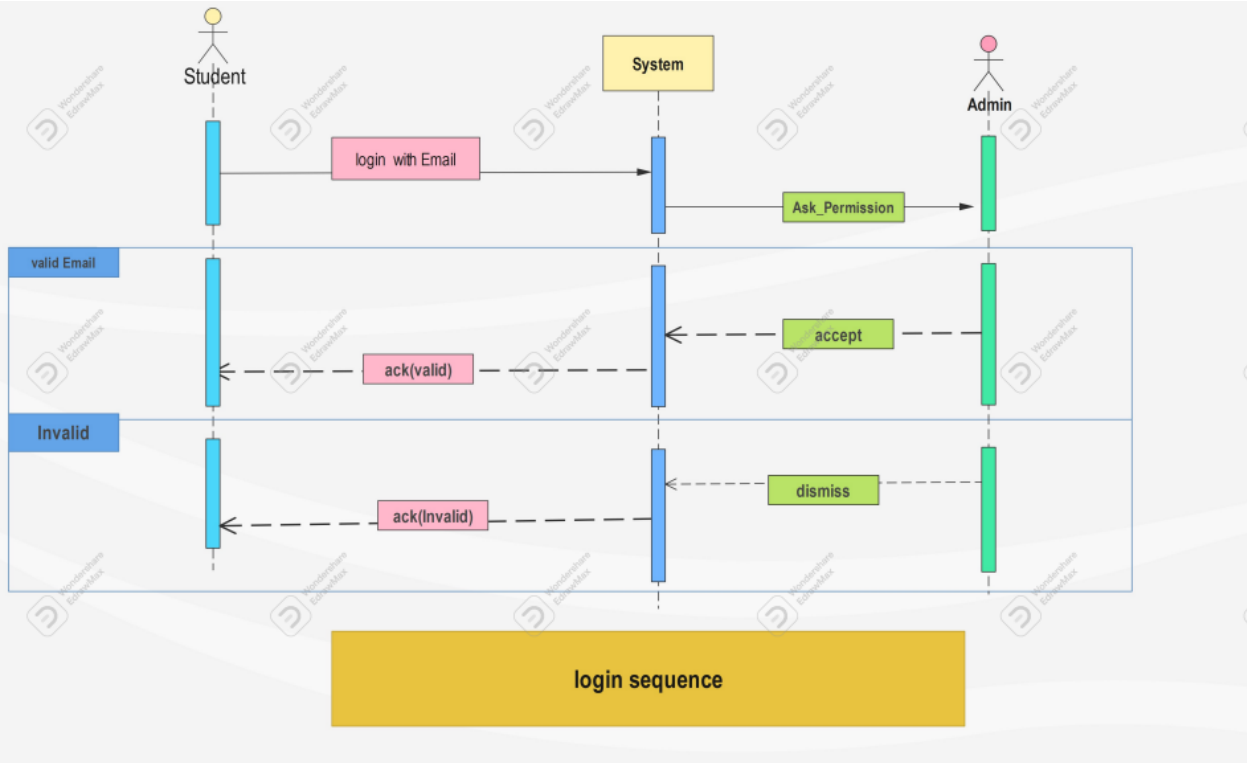
Professors also have the capability to send announcements to students regarding college-related matters.

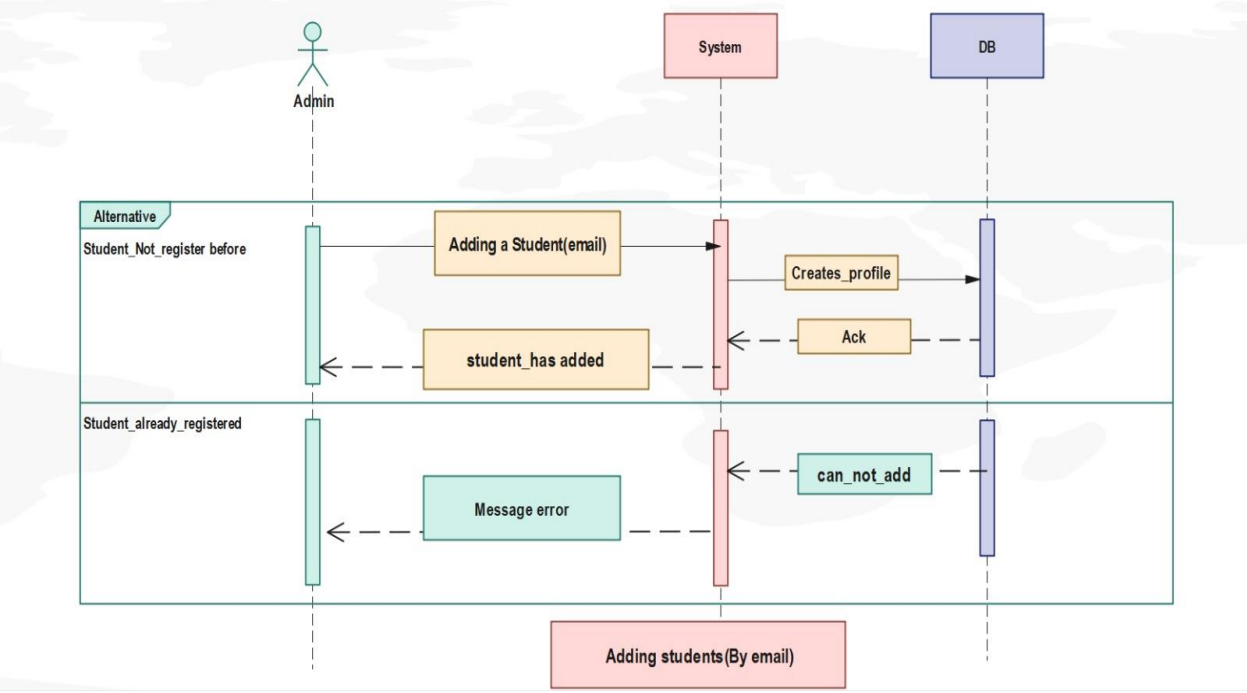
These summarized sequence diagrams provide an overview of the interactions and message flows between different actors and components in the system. They highlight the key steps and communication patterns involved in executing specific functionalities.

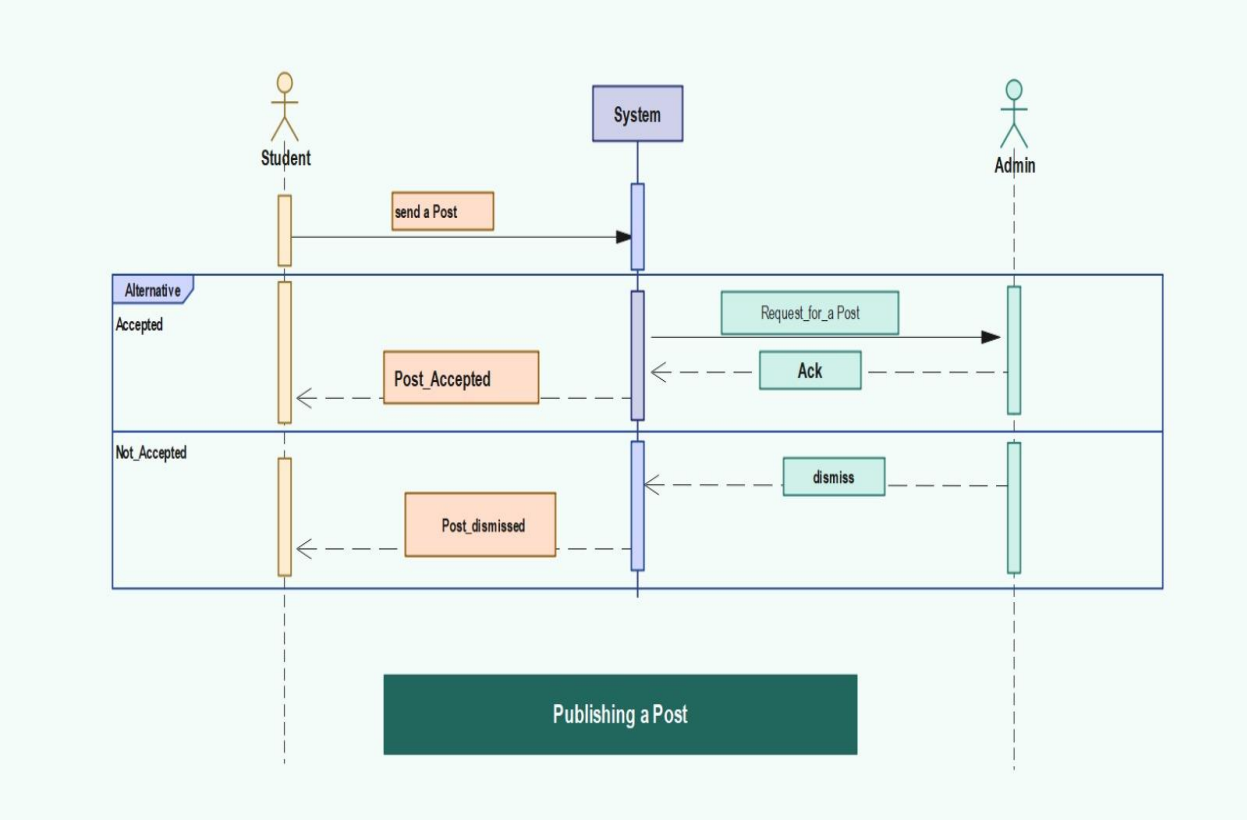
Sequence Diagram:

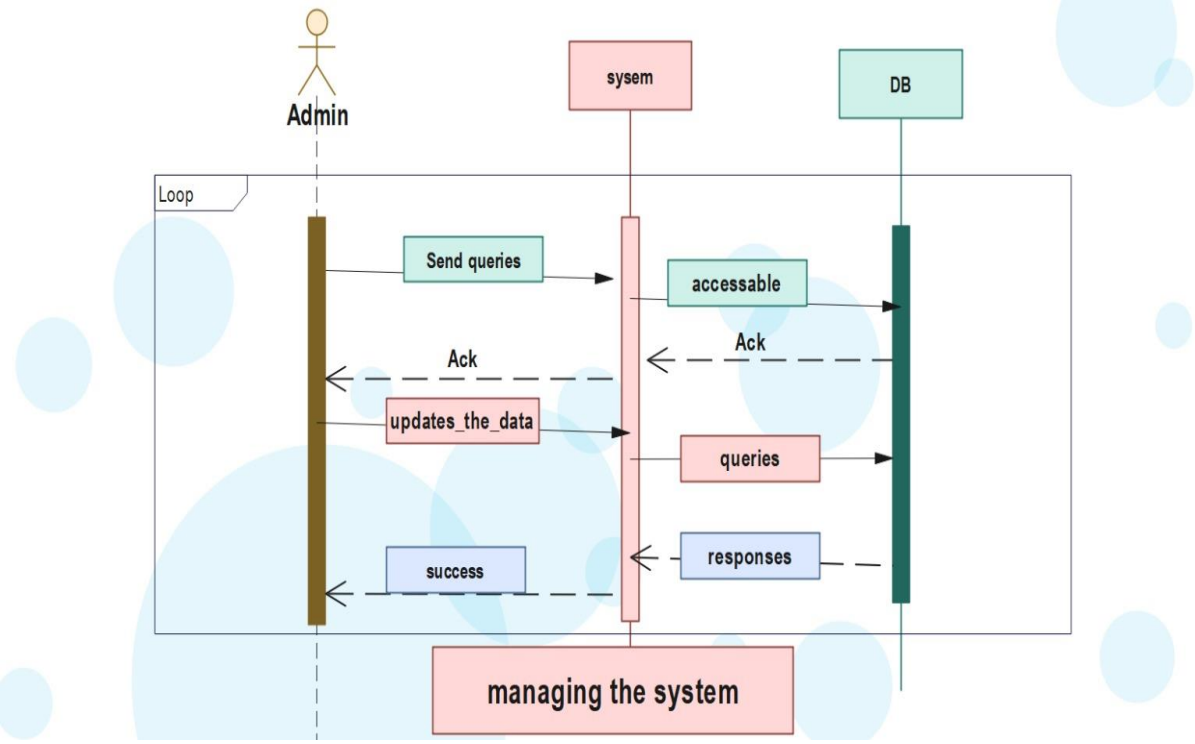


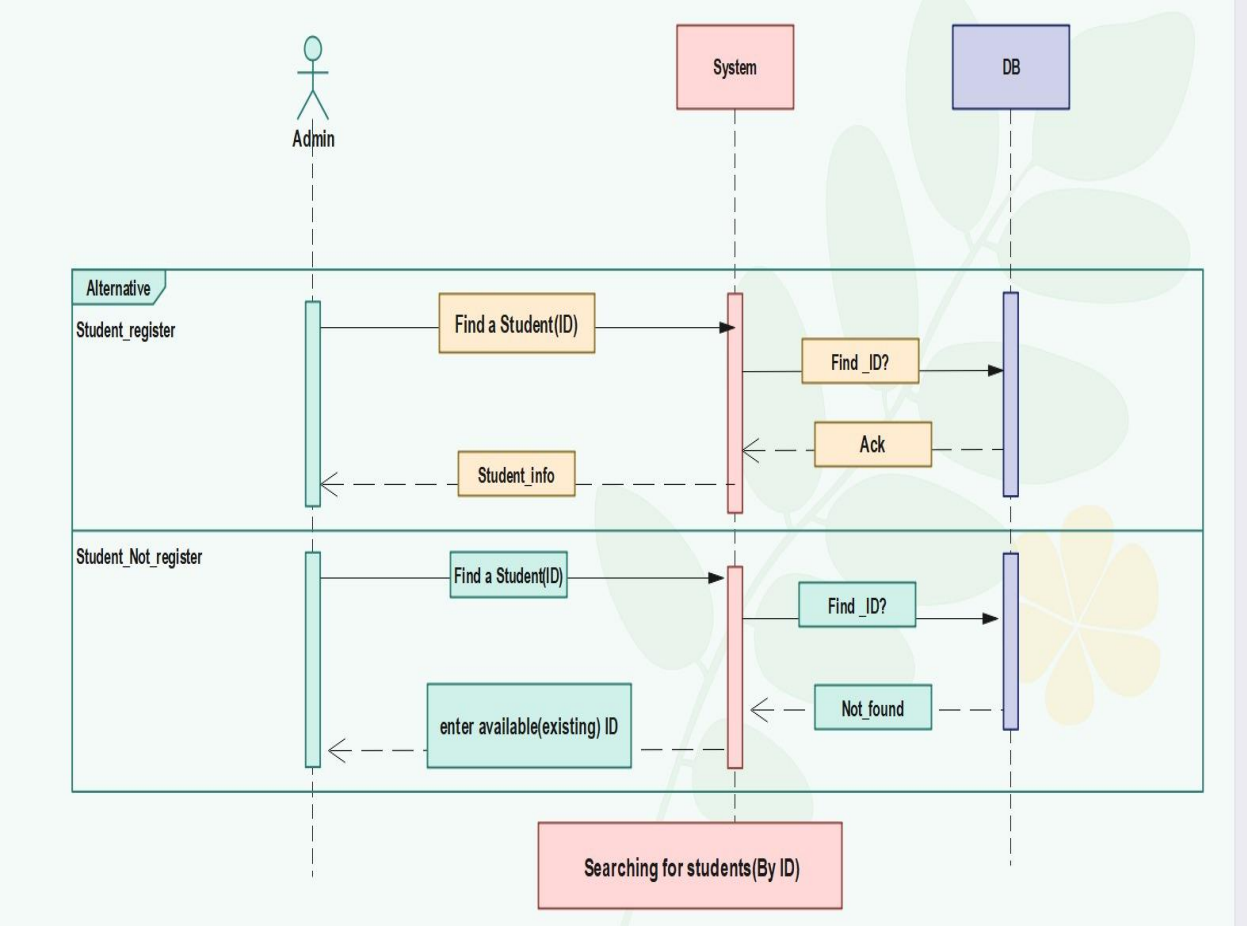
System Sequence Diagram:






Student
System
Admin
send a Post
Alternative
Accepted
Request_for_a Post
Post_Accepted
Ack
Not_Accepted
dismiss
Post_dismissed
Publishing a Post


Admin
sysem
DB
Loop
Send queries
accessable
Ack
Ack
updates_the_data
queries
responses
success
managing the system


Admin
System
DB
Alternative
Student_register
Find a Student(ID)
Find _ID?
Ack
Student_info
Student_Not_register
Find a Student(ID)
Find _ID?
Not_found
enter available(existing) ID
Searching for students(By ID)

4.1.6 Development Methodology

- Agile methodology

The Agile methodology is a way to manage a project by breaking it up into several.
phases. Agile is an iterative approach to help teams deliver value to their customers.
faster and with fewer headaches. It involves constant collaboration with stakeholders.
and continuous improvement at every stage. Once the work begins, the teams cycle.
through a process of planning, executing, and evaluating. Requirements, plans, and
results are evaluated continuously so teams have a natural mechanism for responding.
to change quickly.

The Agile Software Development Life Cycle

The Agile software development life cycle is the structured series of stages that a

product goes through as it moves from beginning to end. It contains six phases:

concept, inception, iteration, release, maintenance, and retirement.

- Phase1: Concept

The first phase is the Concept which consists of a few activities such as
identifying background issues, problem statements, objectives, and the scope of
the project, discussing key requirements, estimate the time and cost of a
potential project. This detailed analysis helps to decide whether the project is feasible before commencing work.

- Phase2: Inception

Once the concept is outlined, it is time to build the design process By discussing further requirements and building them into diagrams.

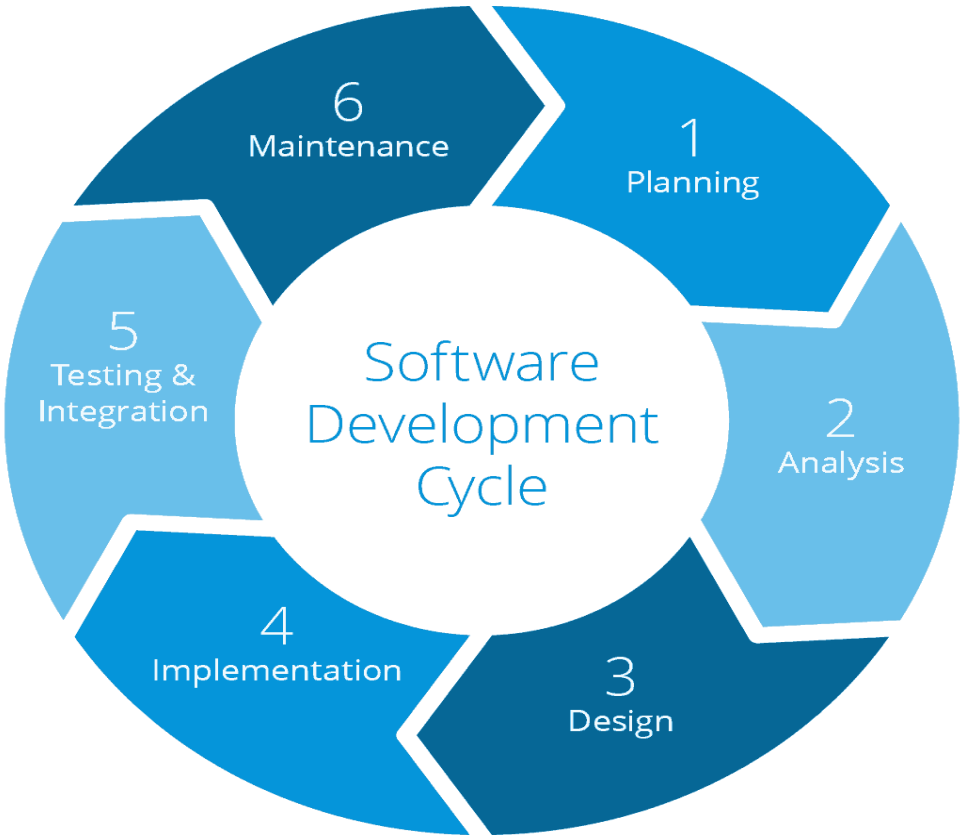
- Phase3: Iteration

Next up is the iteration phase, also referred to as construction. (implementation). It tends to be the longest phase as the bulk of the work is.
conducted here. The developers will work with UX designers to combine all the
project requirements into a design, and then turn the design into code.

The goal is to build the bare functionality of the project by the end of the first iteration or sprint. Additional features can be added in later iterations.

- Phase4: Release

Once the project is almost ready for release, it needs to be tested first to ensure.
the software is fully functional. When the testing process is complete the project
can then be released into production.



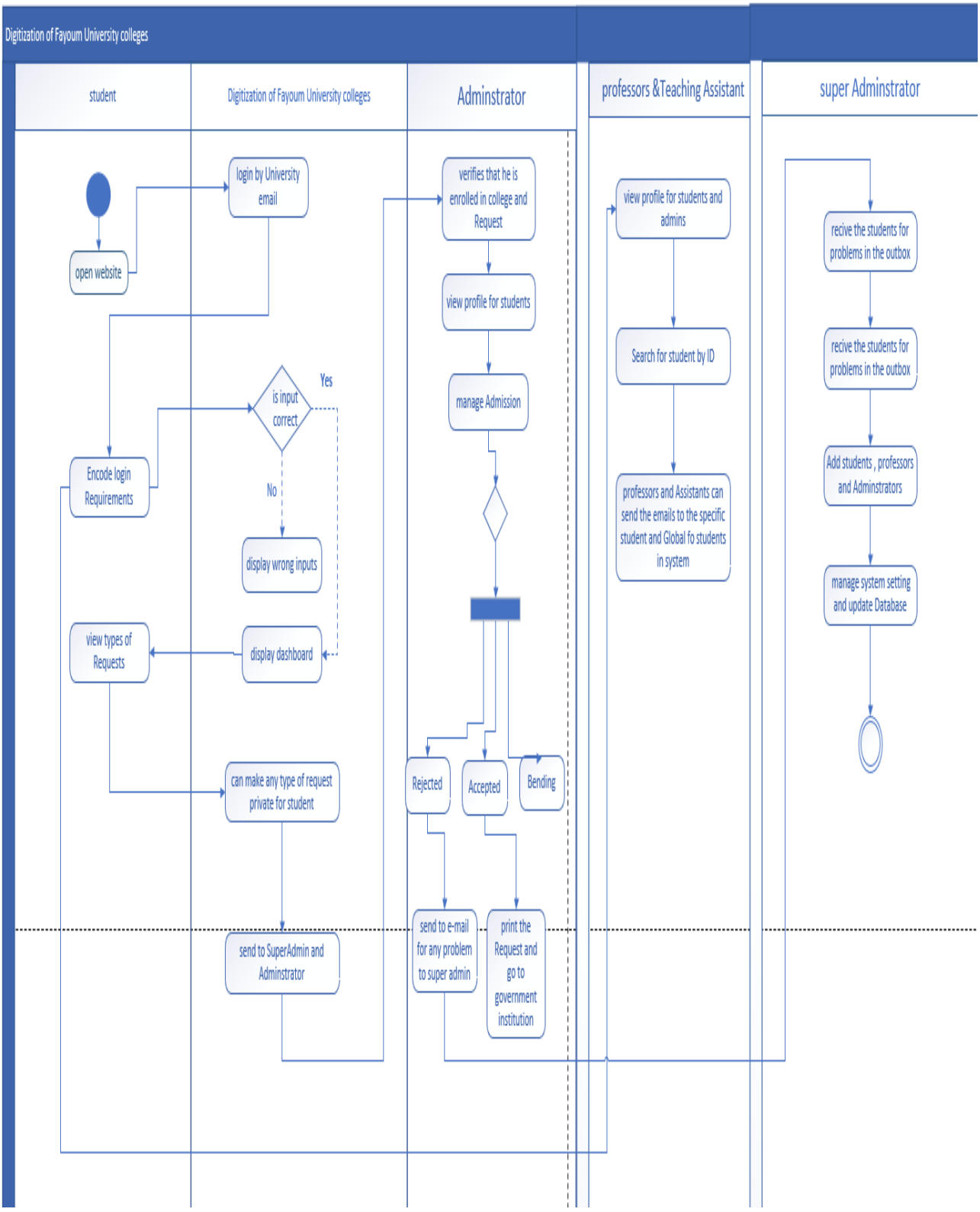
4.1.6 Class Diagram

Usage of Class diagrams

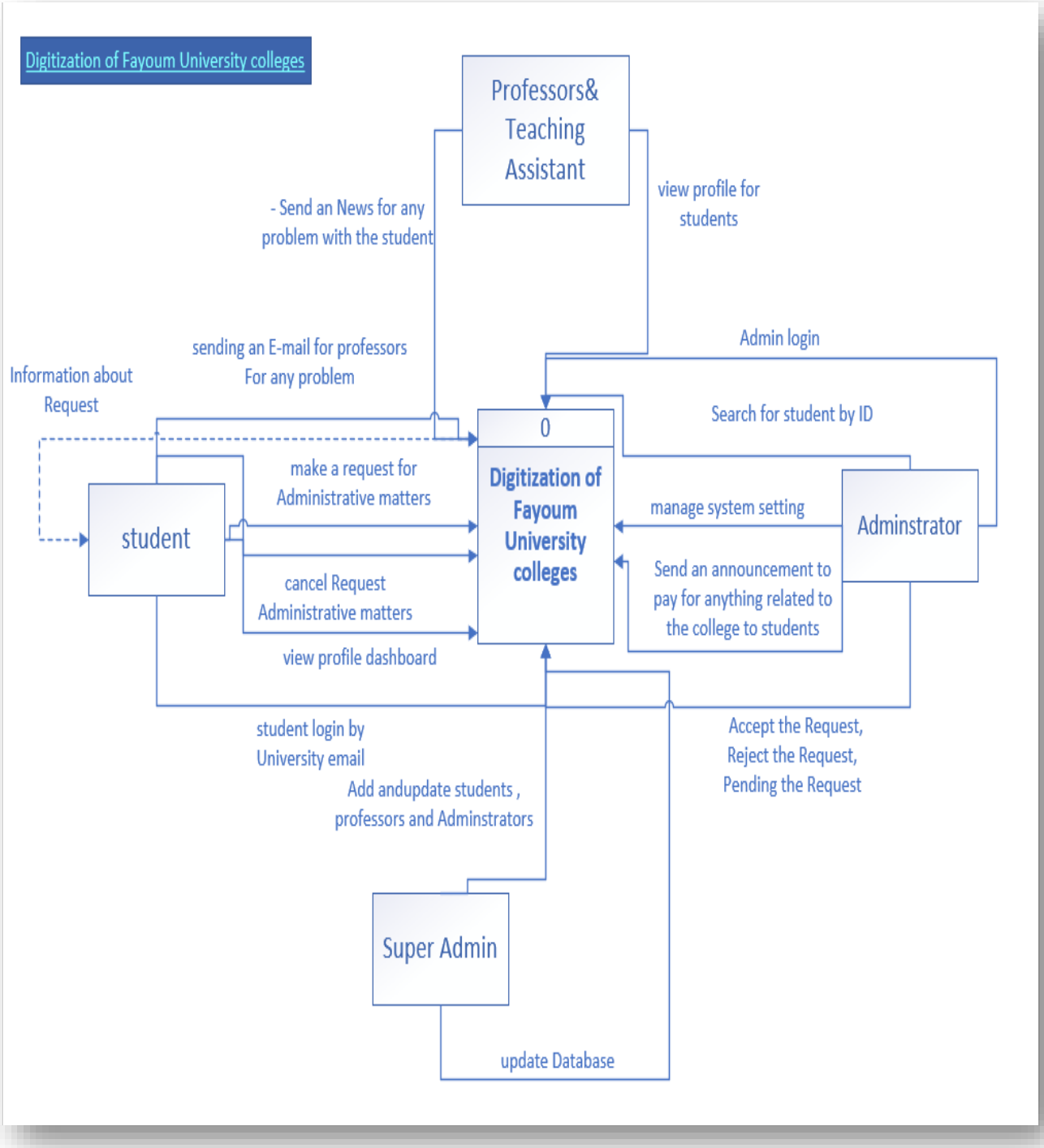
The class diagram is used to represent a static view of the system. It plays an essential role in the establishment of the component and deployment diagrams. It helps to construct an executable code to perform forward and backward engineering for any system, or we can say it is mainly used for construction. Class diagrams can be used for the following purposes:

1. To describe the static view of a system.
2. To show the collaboration among every instance in the static view.
3. To describe the functionalities performed by the system.
4. To construct the software application using object-oriented languages.

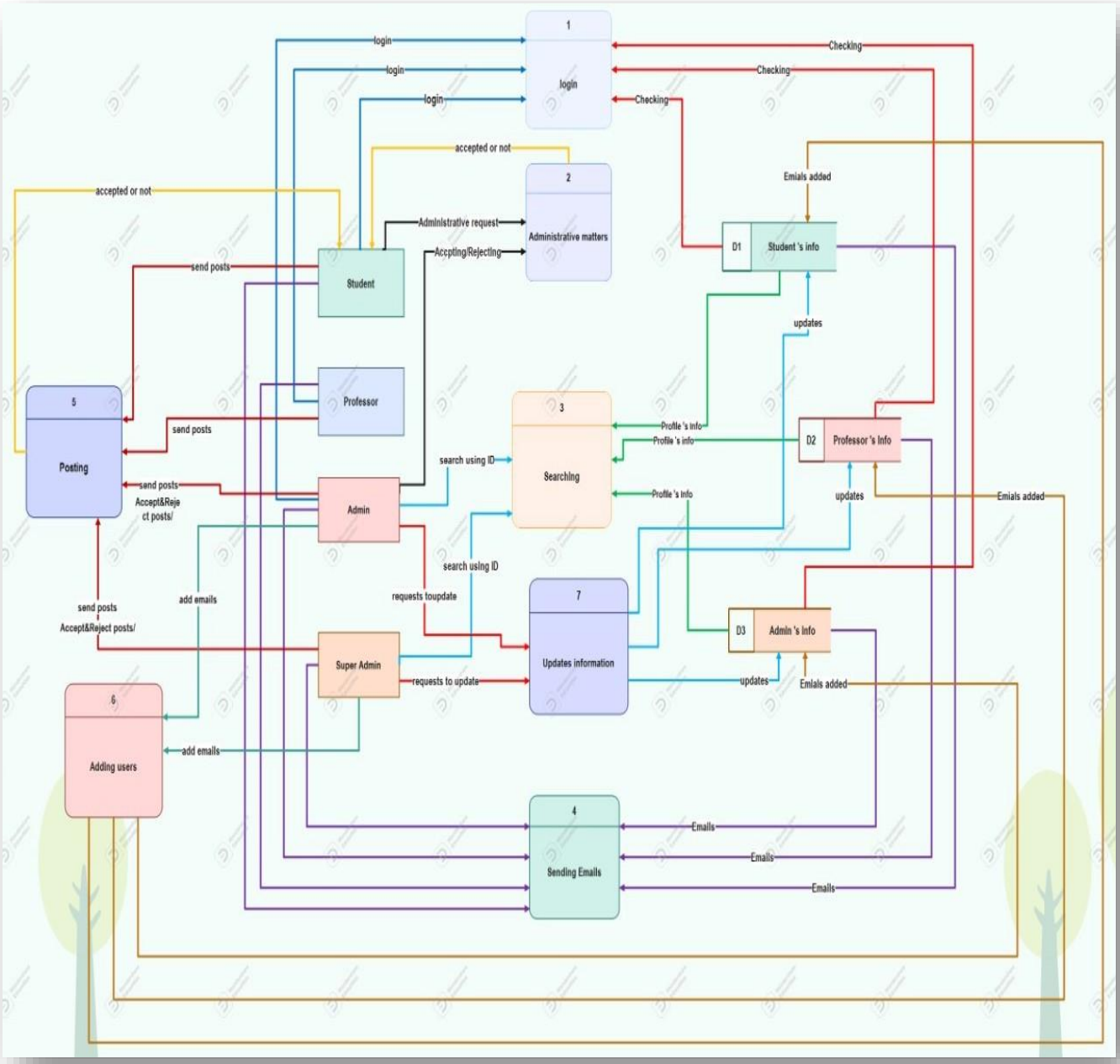
4.1.7 Activity Diagram



4.1.8 Context Diagram



4.1.9 DFD Diagram



CHAPTER 5
PROJECT DEVELOPMENT

6.1 Overview:

The system development aims to address the problem of paperwork at Fayoum University by creating a digital solution that eliminates the need for physical interactions between the College director, students, and Student Affairs officers. The goal is to streamline processes, improve communication, and increase work efficiency. The overview section provides a high-level description of the project, its objectives, and its impact on the university community. It emphasizes the importance of creating a more organized and systematic system that centralizes all necessary information for students and reduces the need for physical visits to complete various tasks.

6.2 Methodological Assumptions:

The methodological assumptions in this system development project involve adopting an agile development approach that allows for iterative and incremental improvements. It focuses on close collaboration between the development team, stakeholders, and end-users to gather feedback and incorporate changes throughout the development process. The assumption is that by using agile methodologies, the system can be developed in a flexible and adaptable manner, ensuring it aligns with the specific needs and requirements of the university community.

6.2.1 User Requirements:

The user requirements in this system development project are crucial for designing a solution that caters to the needs of different stakeholders, including students, doctors, and student affairs staff. The user requirements involve understanding the specific pain points and challenges faced by each group and identifying the functionalities and features that would enhance their experience. This may include features such as easy access to information, online registration processes, digital referrals for examinations, and improved communication channels. The user requirements serve as the foundation for designing a user-centric system that simplifies tasks and improves overall efficiency.

6.2.2 System Requirements:

The system requirements outline the technical specifications and functionalities needed to develop the desired solution. It involves determining the hardware, software, and network requirements to support the system's operations. The system requirements for this project would include a user-friendly website or platform that integrates various modules such as registration, information database, communication tools, and examination referrals. The system should be secure, scalable, and easily accessible to users from different faculties and departments. Additionally, it should provide a comprehensive education system that centralizes all necessary information for students, eliminating the need for physical visits to complete administrative tasks.

By addressing user requirements and system requirements, the system development project aims to create a digital solution that

revolutionizes paperwork processes at Fayoum University. It strives to enhance work efficiency, improve communication, and provide a seamless experience for students, doctors, and student affairs staff. The user-centric approach ensures that the system caters to the specific needs of the university community while meeting technical specifications and ensuring a more organized and systematic workflow.

6.3 Used Technologies MERN stack.

is well-suited for developing modern web applications that require real-time updates, responsive user interfaces, and scalable back-end systems. It has gained popularity among developers due to its flexibility, performance, and the vibrant ecosystem of tools and resources available for each component.

The MERN stack is a JavaScript-based framework for developing web applications.

MERN is named after Mongo DB, Express, React, and Node, the four key technologies that make up the layers of the stack.

The MERN architecture is designed to make building web applications in JavaScript and handling JSON incredibly easy.

6.3.4 MERN Stack Components

React.js Front End

React.js allows you to extend your HTML tags with metadata in order to create dynamic, interactive web experiences much more powerfully than, say, building them yourself with static HTML and JavaScript (or jQuery).

React is a JavaScript library for building user interfaces. It allows developers to create reusable UI components and efficiently update the UI when data changes. React follows a component-based architecture, promoting modularity, reusability, and performance. It is widely used for building interactive and dynamic front-end applications.

Express.js and Node.js Server Tier

Node.js:

Node.js is a JavaScript runtime environment that allows developers to execute JavaScript code on the server-side. It uses an event-driven, non-blocking I/O model, which makes it efficient and scalable for handling concurrent requests. Node.js has a vast ecosystem of libraries and packages, providing developers with a wide range of tools for building server-side applications.

Express.js:

Express.js is a fast and minimalist web application framework built on top of Node.js. It provides a simple and intuitive way to handle HTTP requests, define routes, and implement middleware. With Express.js, developers can quickly set up a robust API or web server with minimal boilerplate code. It offers features like routing, middleware support, template engine integration, and error handling, making it a popular choice for building server-side applications in the MERN stack.

MongoDB:

MongoDB is a NoSQL database that provides a flexible and scalable data storage solution. It uses a document-oriented

data model, allowing developers to store and retrieve data in JSON-like documents. MongoDB is known for its ability to handle large amounts of data and its ease of scalability.

CORS:

stands for Cross-Origin Resource Sharing. It is a mechanism implemented in web browsers that allows controlled access to resources located on a different domain or origin.

When a web page makes a request to a different domain for resources such as API data, fonts, or images, the browser enforces the same-origin policy by default, which restricts the access to those resources. CORS provides a way to relax this restriction and enable cross-origin requests under certain conditions.

To ensure secure and controlled access, CORS uses HTTP headers to enable or restrict cross-origin requests. The server hosting the requested resource must include specific CORS headers in its response to inform the browser whether the requested resource can be accessed from the original domain.

These CORS headers include:

Access-Control-Allow-Origin: Specifies which domains are allowed to access the resource.

Access-Control-Allow-Methods: Specifies which HTTP methods (e.g., GET, POST, PUT, DELETE) are allowed for the resource.

Node mailer :

is a module for Node.js applications to allow easy as cake email sending. The project got started back in 2010 when there was no sane option to send email messages, today it is the solution most Node.js users turn to by default.

```
const nodemailer = require('nodemailer');
// Create a transporter object
const transporter = nodemailer.createTransport({
  service: 'gmail',
  auth: {
    user: 'your-email@gmail.com',
    pass: 'your-password',
  },
});
// Define the email message
const mailOptions = {
  from: 'your-email@gmail.com',
  to: 'recipient@example.com',
  subject: 'Hello from Nodemailer',
  text: 'This is a test email sent using Nodemailer.',
};
// Send the email
transporter.sendMail(mailOptions, function (error, info) {
  if (error) {
    console.log('Error sending email:', error);
  } else {
    console.log('Email sent:', info.response);
  }
});

```

body-parser:

is a middleware module in Node.js that is used to parse the request body of incoming HTTP requests? It extracts the data from the body of the request and makes it accessible in the rebody property of the request object.

```
//body-parser

const express = require('express');
const bodyParser = require('body-parser');

const app = express();

// Parse JSON bodies
app.use(bodyParser.json());

// Parse URL-encoded bodies
app.use(bodyParser.urlencoded({ extended: false }));

// Define routes
app.post('/api/users', (req, res) => {
  // Access the parsed data from req.body
  const { name, email } = req.body;

  // Perform actions with the extracted data
  // ...

  res.send('User created successfully');
});

// Start the server
app.listen(3000, () => {
  console.log('Server started on port 3000');
});
```

Validator:

is a popular JavaScript library that provides a set of functions for validating and sanitizing strings, numbers, and other types of data. It offers a wide range of validation rules and utility functions that can be used to ensure data integrity and security in web applications.

The validator library can be used in both client-side and server-side JavaScript environments, such as Node.js. It provides functions to perform common validation tasks, such as checking if a string is a valid email address, validating URLs, verifying if a string contains only alphanumeric characters, and more.

```
// Validator

const validator = require('validator');

const userInput = '<p>This is <b>bold</b> text.</p>';

const sanitizedInput = validator.stripTags(userInput);

console.log(sanitizedInput); // Output: "This is bold text."
```

Mongoose:

is a popular Object-Document Mapping (ODM) library for Node.js that provides a convenient way to interact with MongoDB databases? It helps simplify the process of defining schemas, validating data, and performing database operations in MongoDB.

```
// Connecting to MongoDB:
const mongoose = require('mongoose');
mongoose.connect('mongodb://localhost/mydatabase', {
  useNewUrlParser: true,
  useUnifiedTopology: true,
})
  .then(() => console.log('Connected to MongoDB'))
  .catch((error) => console.error('Error connecting to MongoDB:', error));

// Defining a schema:
const mongoose = require('mongoose');

const userSchema = new mongoose.Schema({
  name: { type: String, required: true },
  email: { type: String, required: true, unique: true },
  age: { type: Number, default: 0 },
});

const User = mongoose.model('User', userSchema);
```

Json web token:

is a popular library used for generating and verifying JSON Web Tokens (JWT) in Node.js applications. JWTs are a compact and self-contained way of securely transmitting information between parties as a JSON object. They are commonly used for authentication and authorization purposes.

```
//Verifying a JWT
const jwt = require('jsonwebtoken');

const token = 'your_token';
const secretKey = 'your_secret_key';

jwt.verify(token, secretKey, (error, decoded) => {
  if (error) {
    console.log('Token verification failed:', error.message);
  } else {
    console.log('Token verified. Decoded payload:', decoded);
  }
});


// Generating a JWT:
const jwt = require('jsonwebtoken');

const payload = { userId: 1234, username: 'john_doe' };
const secretKey = 'your_secret_key';

const token = jwt.sign(payload, secretKey, { expiresIn: '1h' });

```

CHAPTER 6
PROJECT IMPLEMENTATION

6.1 Testing

1. Verify that the portal for new student registration has all the mandatory fields required for registering a student.

2. Verify that after filling in the student details, they are stored in the database.

3. Verify that new details of new professors can be added to the system.

4. Verify that the patient's medical history is existing and updated in the system.

5. Verify that user entered a valid university e-mail and password and ID.

6. Verify that test results are uploaded correctly.

7. Verify that students can book an appointment with the Fayoum Hospital and verify the graduation student didn't book the fayoum hospital .

The steps testing:

- **Requirement Analysis: Review the system requirements and ensure they align with the objectives of streamlining processes, improving communication, and increasing work efficiency. Verify that the system adequately centralizes all necessary information for students and eliminates the need for physical visits.**

- **Test Planning: Develop a comprehensive test plan that outlines the testing approach, objectives, test scenarios, and test cases. Determine the resources, timeline, and roles involved in the testing process.**

- **Test Environment Setup: Prepare the testing environment, including configuring the necessary hardware, software, and network infrastructure to simulate the real-world usage of the system.**

- **Functional Testing: Validate the functional aspects of the system by executing test cases that cover various scenarios. Ensure that all system functionalities work as expected, such as user registration, document submission, and communication channels.**

- **User Interface Testing: Evaluate the user interface for usability, consistency, and responsiveness. Verify that the system's design and layout are intuitive and user-friendly, enabling efficient navigation and interaction.**

- **Integration Testing: Test the integration between different components and modules of the system. Verify that the data flows seamlessly and accurately between the College director, students, and Student Affairs officers, eliminating any gaps or inconsistencies.**

- **Performance Testing: Assess the system's performance under different load conditions. Measure its response time, scalability, and resource utilization to ensure it can handle the expected user load without compromising performance.**

- **Security Testing: Verify the system's security measures to protect sensitive data and prevent unauthorized access. Test authentication mechanisms, data encryption, and vulnerability assessments to ensure data privacy and integrity.**

- **User Acceptance Testing: Engage representative users from Fayoum University to test the system and provide feedback. Gather their input on usability, functionality, and overall satisfaction with the digital solution.**

- **Bug Tracking and Reporting: Document and track any issues or defects identified during testing. Report them to the development team for resolution and ensure timely fixes are implemented.**

- **Regression Testing: Re-test the system after bug fixes or updates to ensure that the changes do not introduce new issues and that existing functionalities remain intact.**

- **System Validation: Conduct a final validation of the system to ensure it meets the defined objectives and performs as expected in real-world scenarios.**

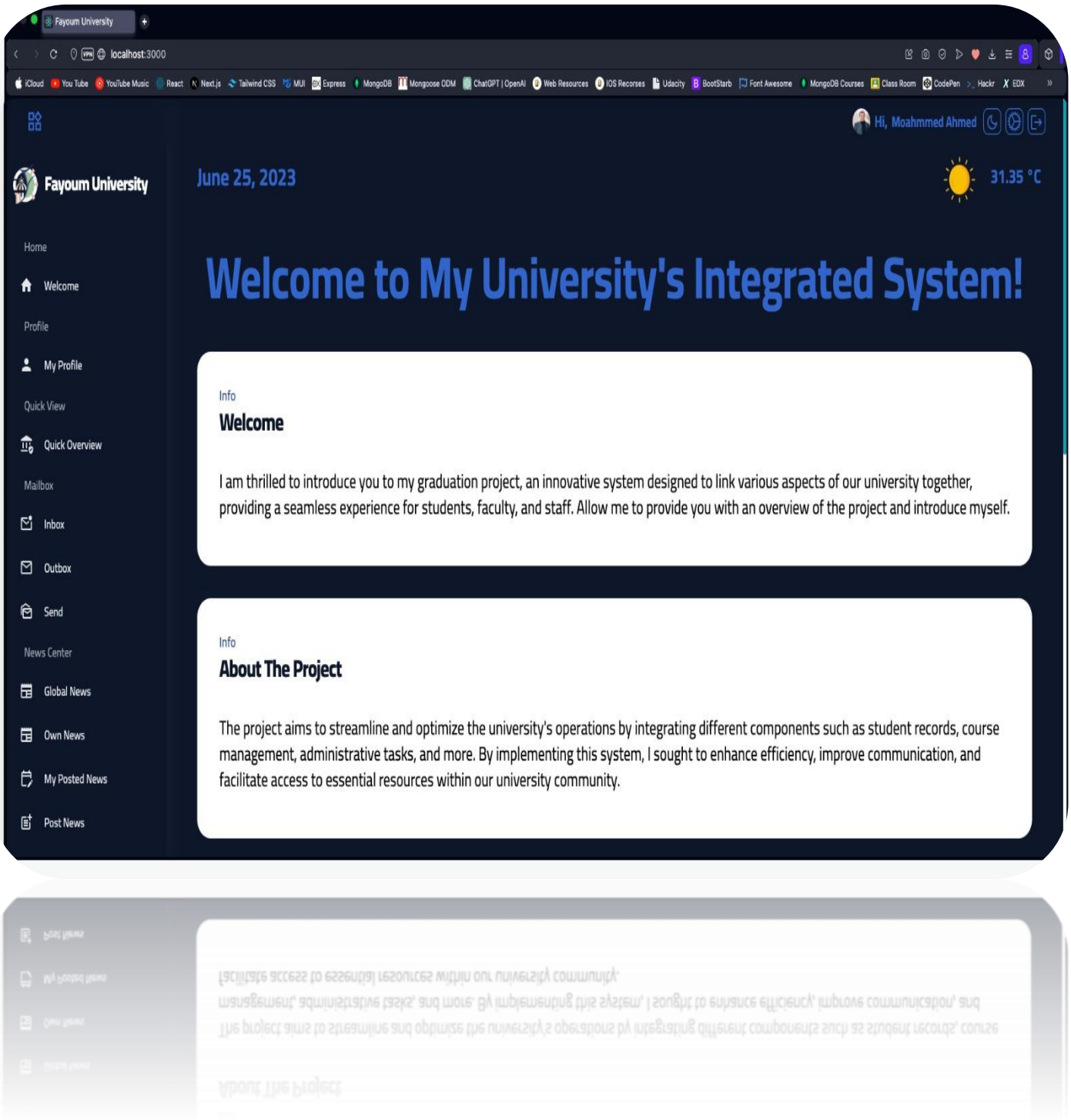
Testing plays a crucial role in the system development process aimed at addressing the problem of paperwork at Fayoum University. The testing phase ensures the effectiveness and reliability of the digital solution designed to eliminate the need for physical interactions between the College director, students, and Student Affairs officers.

During testing, various aspects of the system will be thoroughly examined and evaluated to ensure that it meets the intended objectives. This includes verifying the streamlined processes, assessing the improvement in communication, and measuring the overall work efficiency. The testing phase will focus on identifying any potential issues or bugs in the system and ensuring that it functions seamlessly.

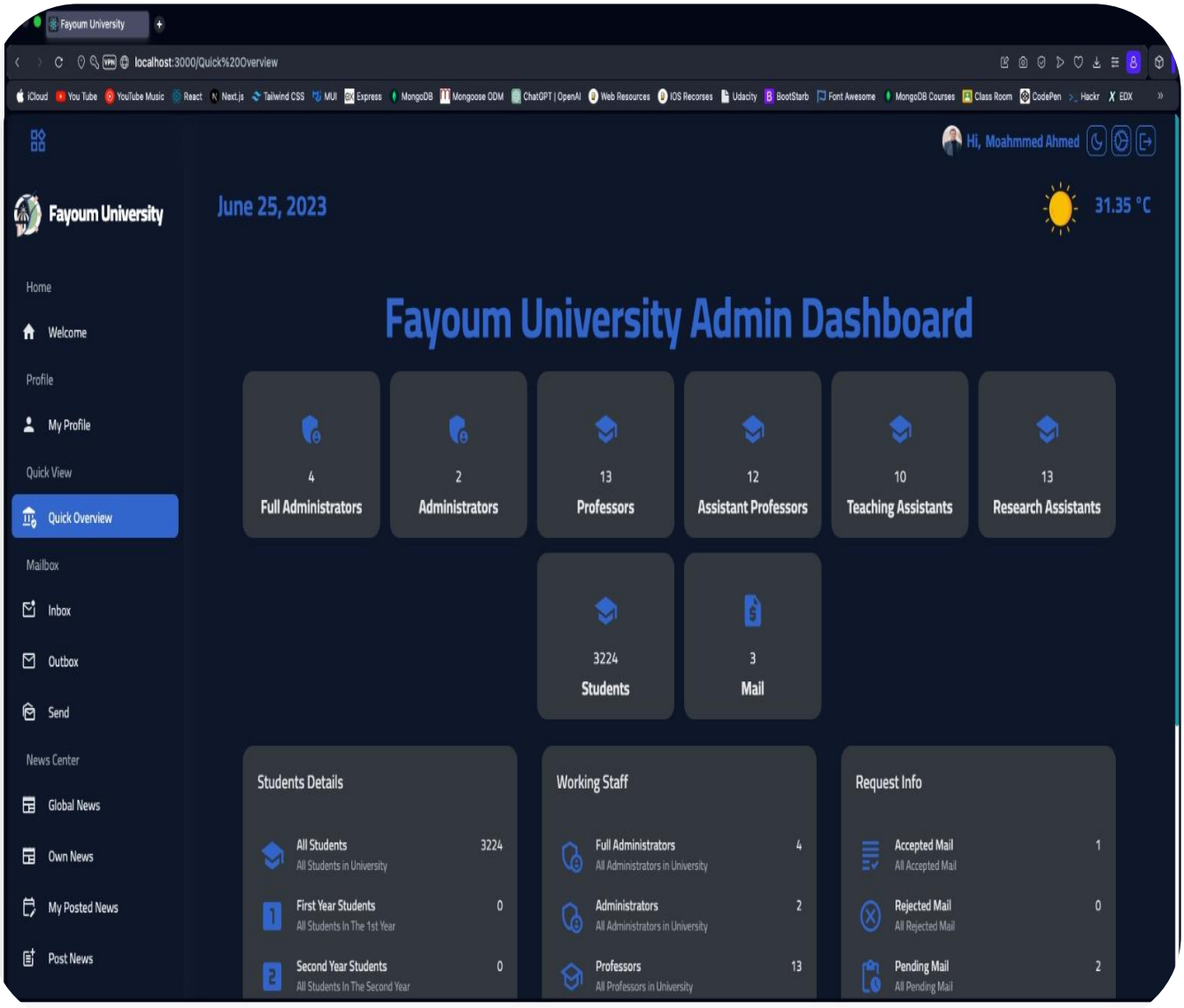
The primary goal of testing is to validate the system's functionality and performance, ensuring that it meets the needs of the university community. By conducting comprehensive testing, the system can be fine-tuned to provide a more organized and systematic approach, centralizing all necessary information for students. This, in turn, reduces the need for physical visits to complete various tasks, such as registration processes and obtaining referrals for examinations.

6.2 screenshots for user interface

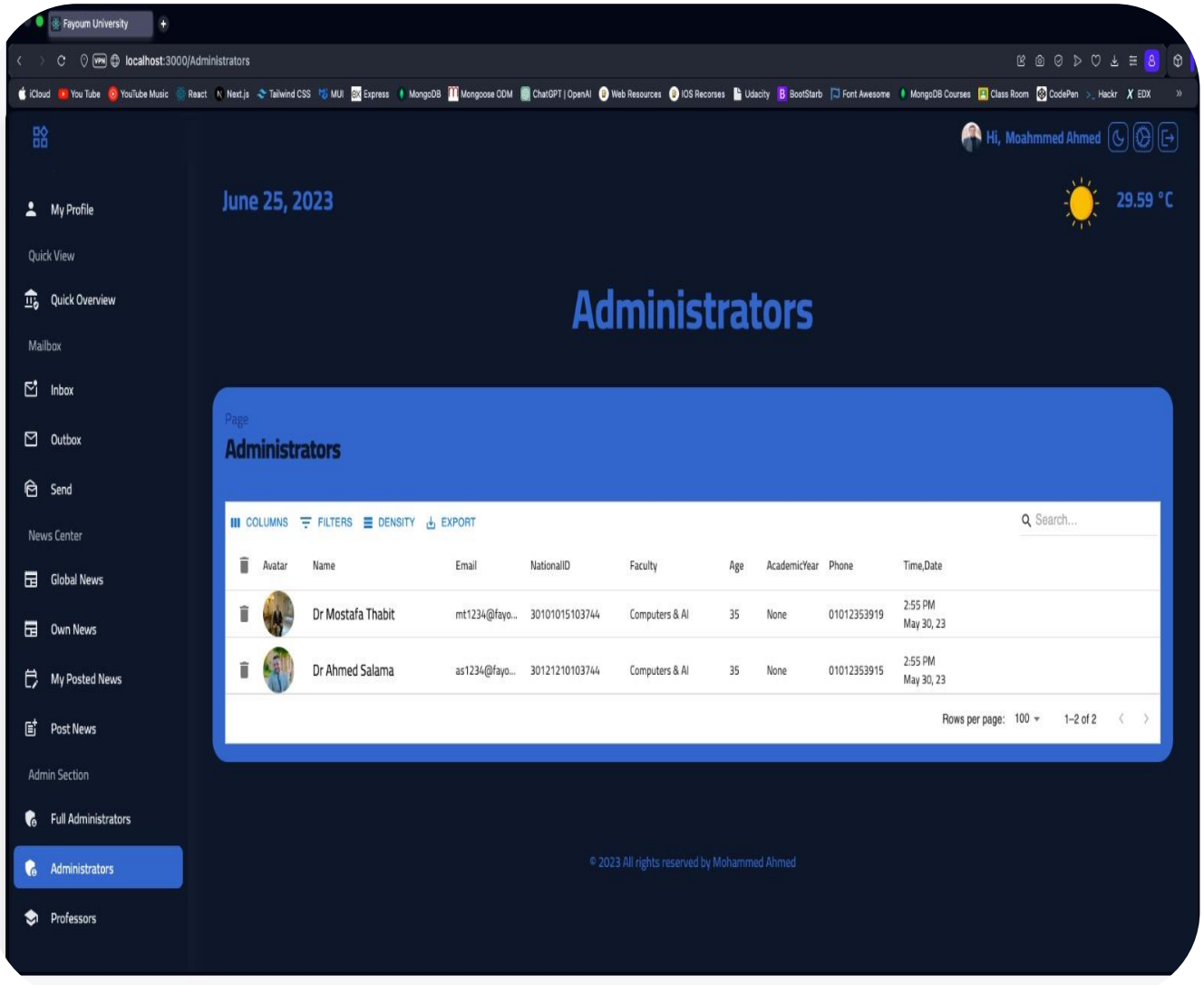
Welcome page.



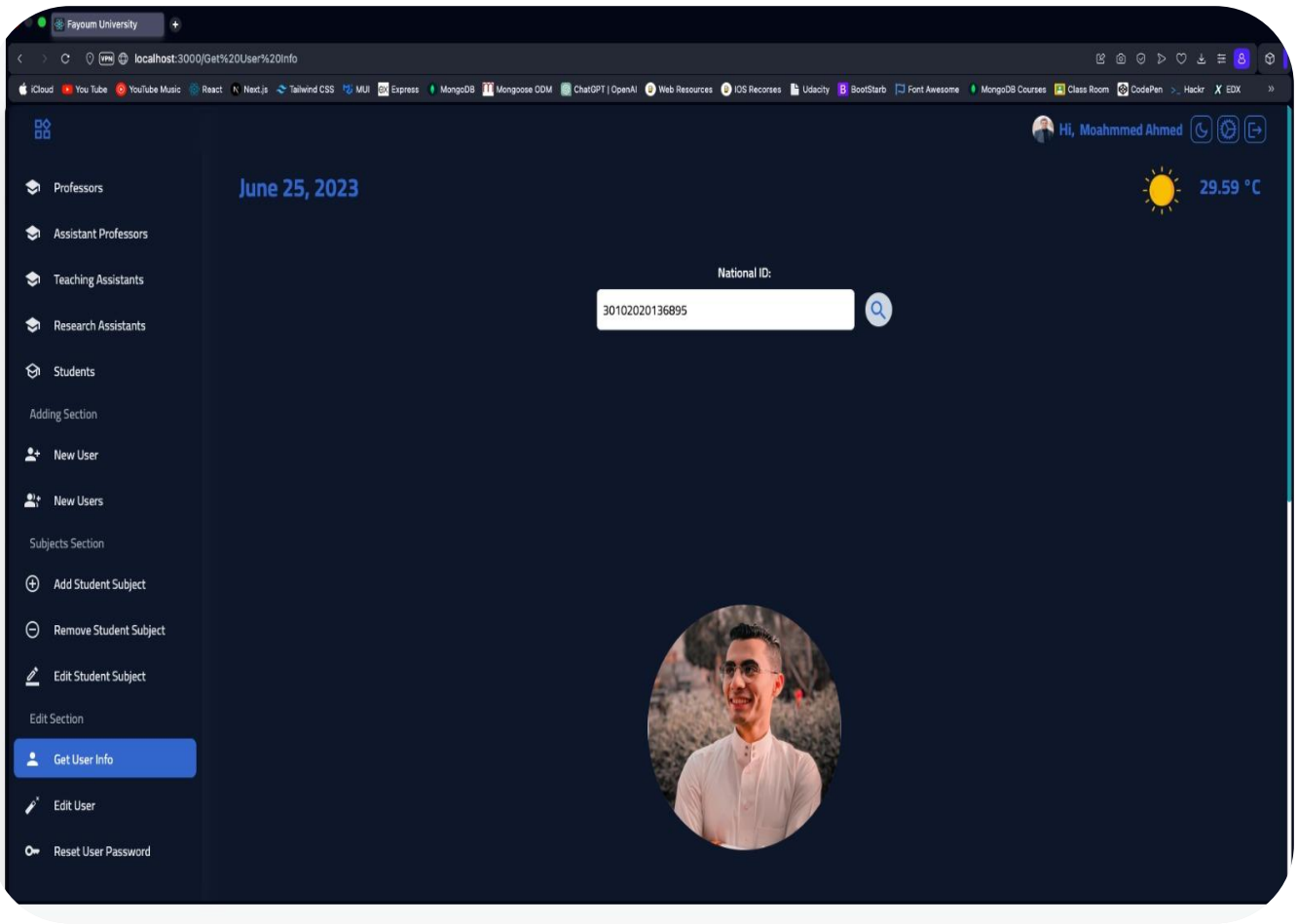
Admin Dashboard



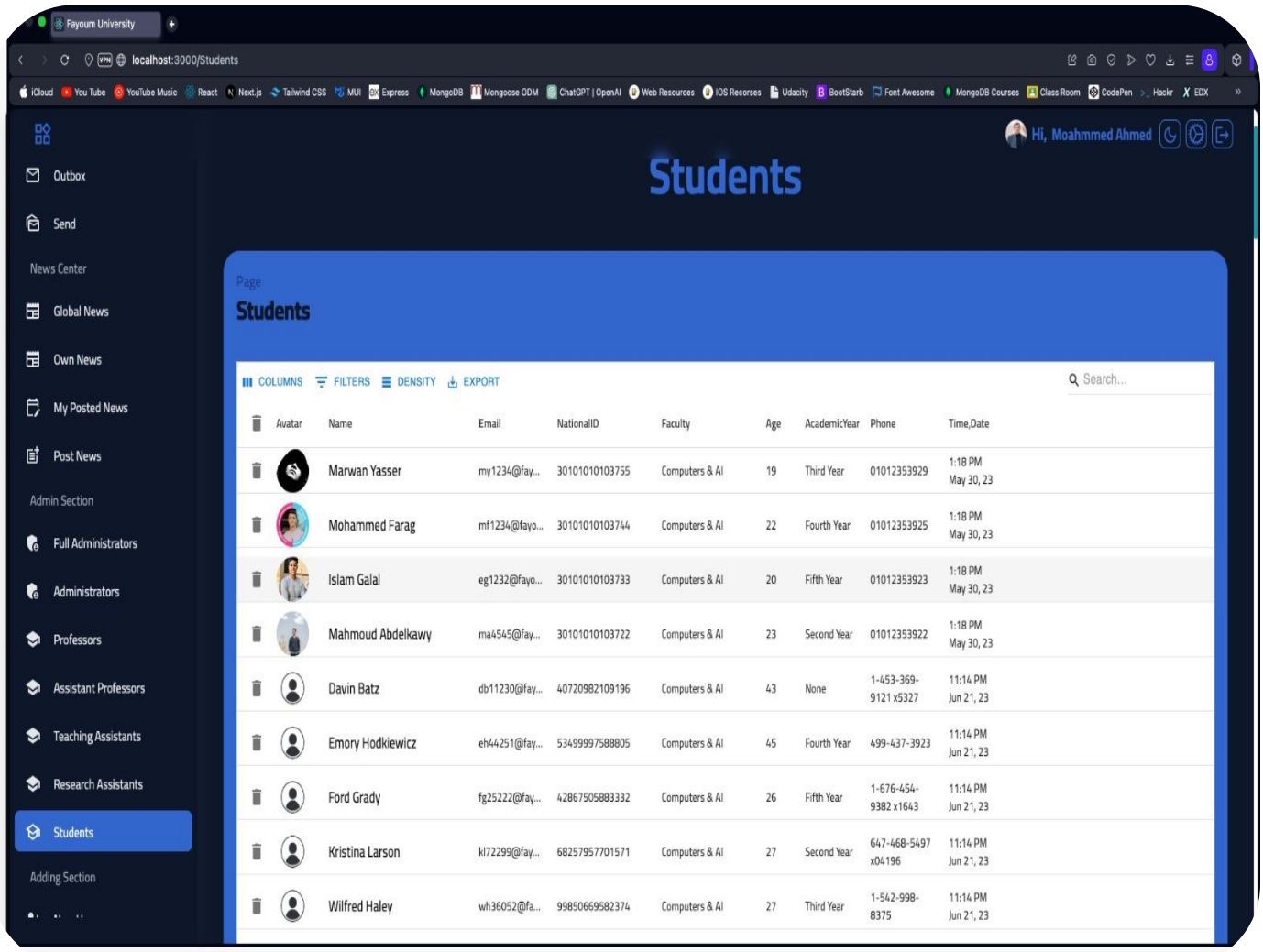
Administrator page:



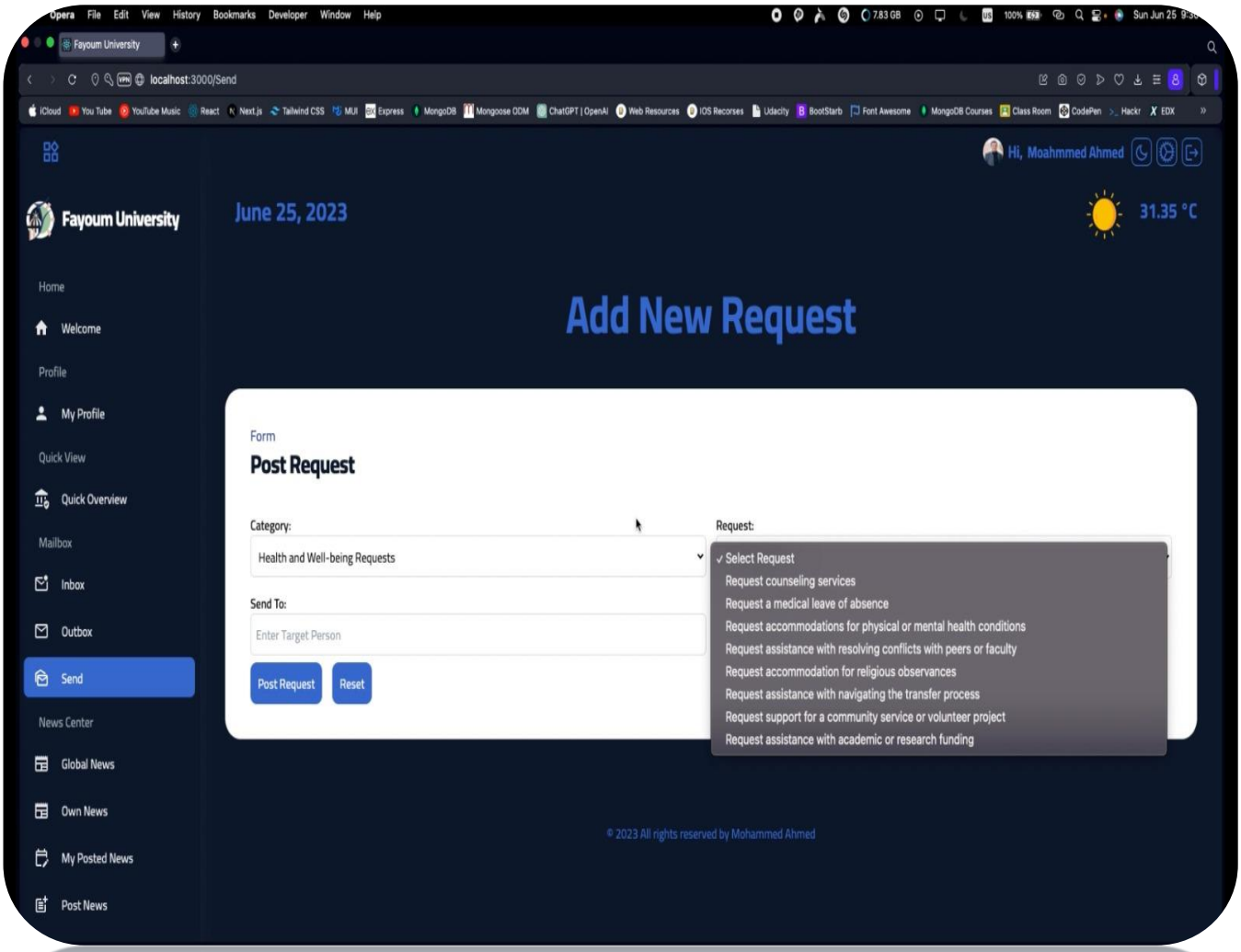
Search for ID student



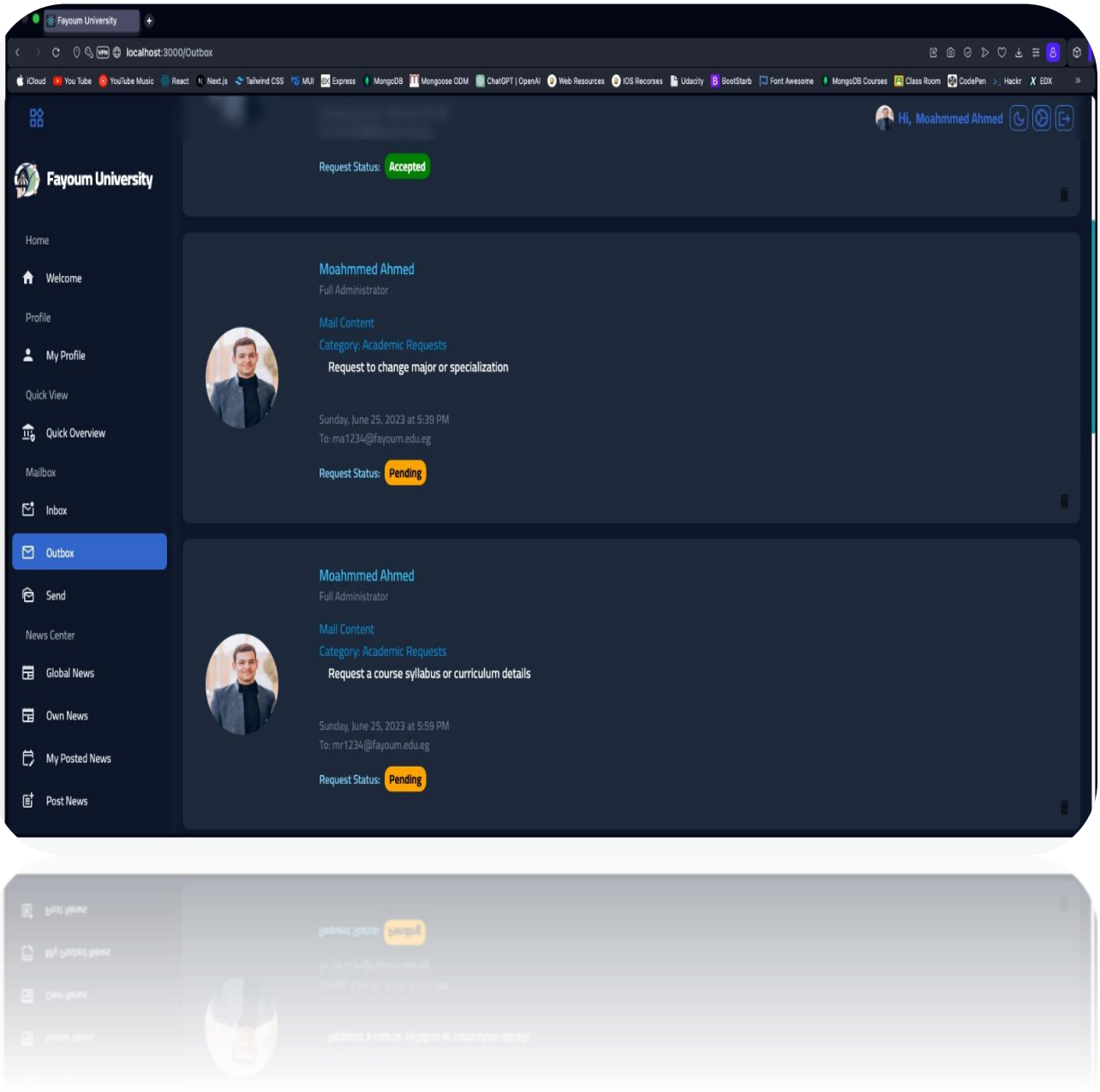
Student Home Page



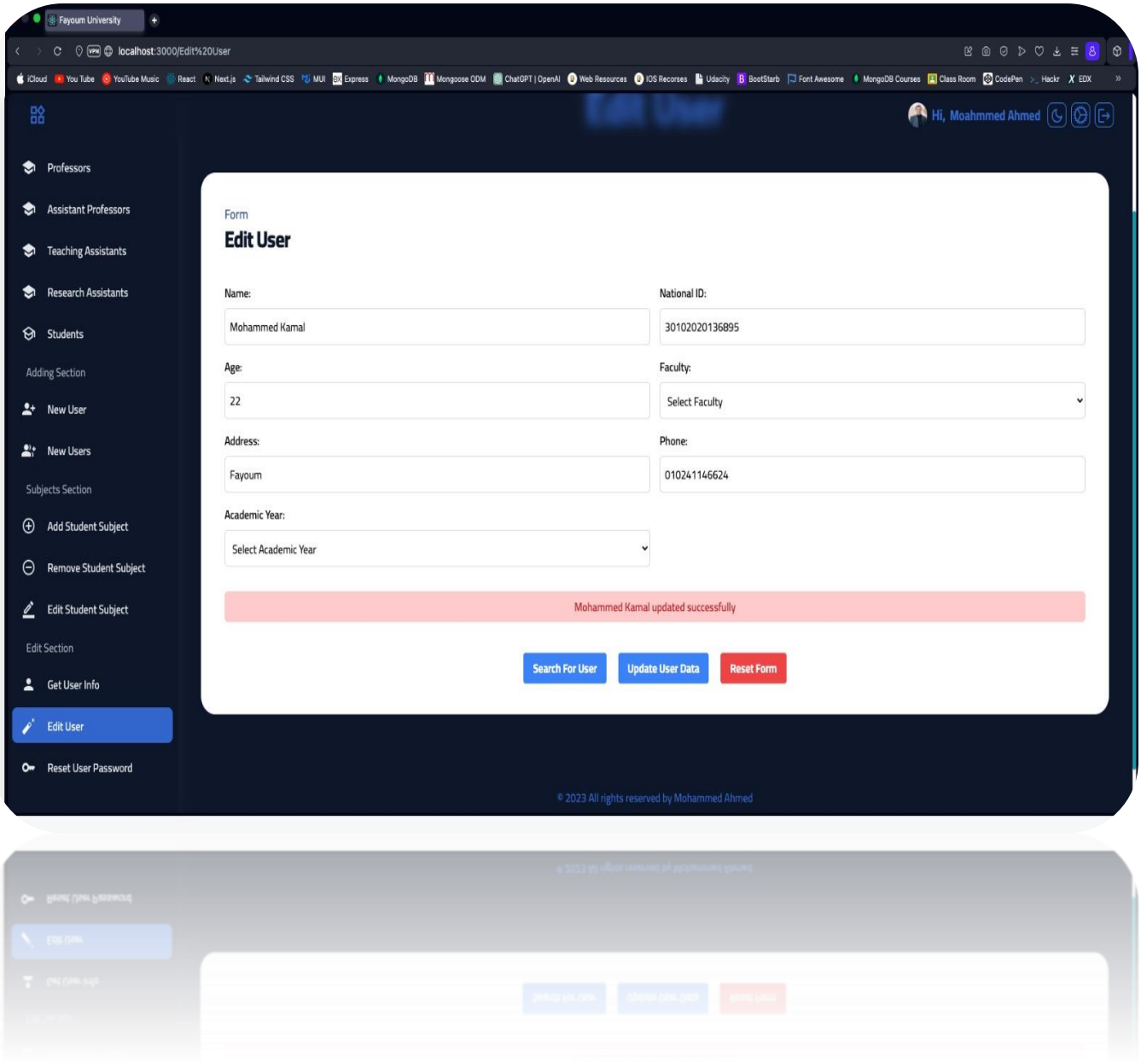
Add New Request



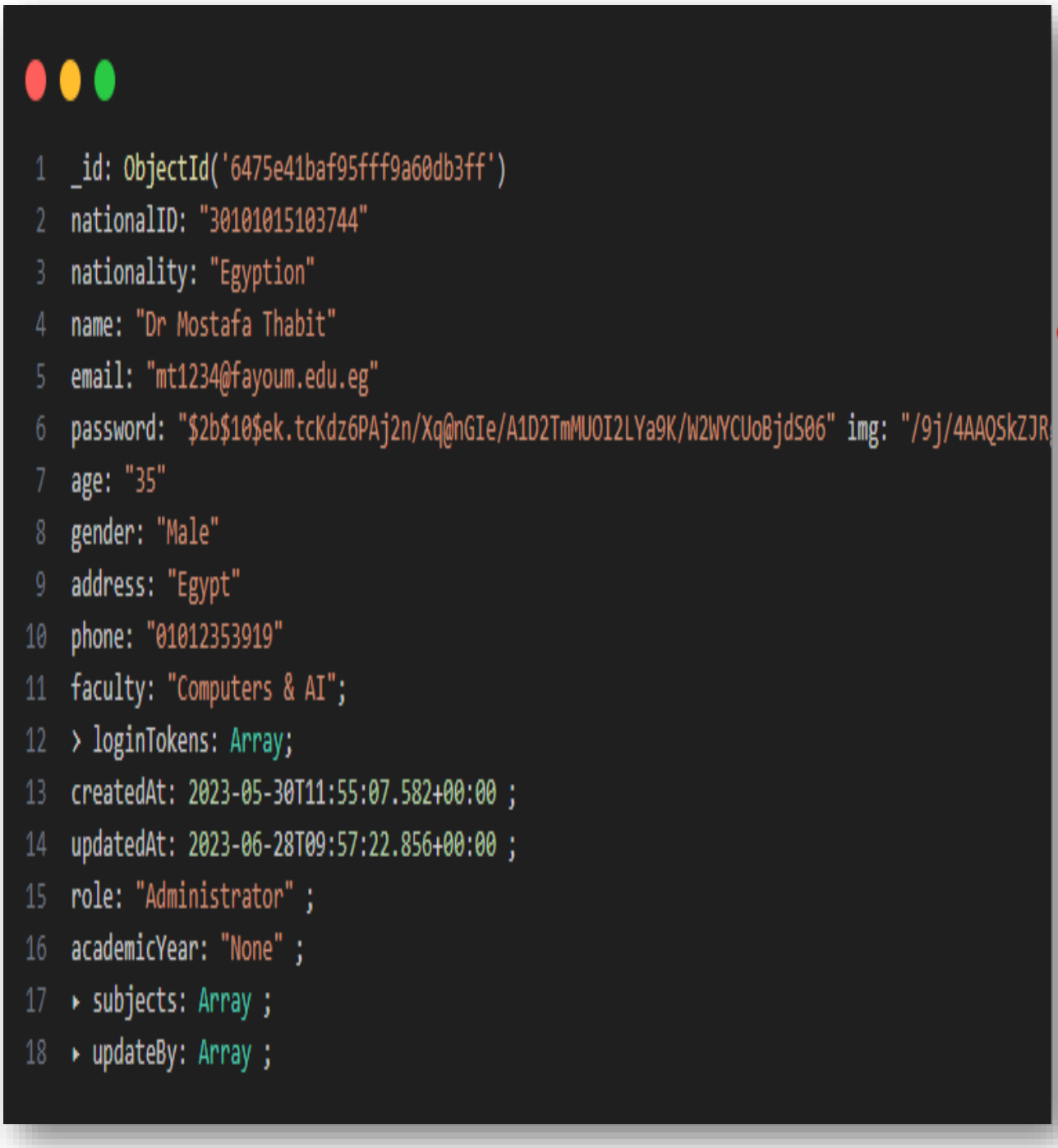
Outbox for Requests



Edit user.


Fayoum University
localhost:3000/Edit%20User
Hi, Moahmmed Ahmed
Professors
Assistant Professors
Teaching Assistants
Research Assistants
Students
Adding Section
New User
New Users
Subjects Section
Add Student Subject
Remove Student Subject
Edit Student Subject
Edit Section
Get User Info
Edit User
Reset User Password
Form
Edit User
Name:
Mohammed Kamal
National ID:
30102020136895
Age:
22
Faculty:
Select Faculty
Address:
Fayoum
Phone:
010241146624
Academic Year:
Select Academic Year
Mohammed Kamal updated successfully
Search For User
Update User Data
Reset Form
© 2023 All rights reserved by Mohammed Ahmed

Super Administrator MongoDB(Json file code)



```
_id: ObjectId('6475e41baf95fff9a60db3ff')
nationalID: "30101015103744"
nationality: "Egyption"
name: "Dr Mostafa Thabit"
email: "mt1234@fayoum.edu.eg"
password: "$2b$10$ek.tcKdz6PAj2n/Xq@nGIe/A1D2TmMUOI2LYa9K/W2WYCUoBjdS06" img: "/9j/4AAQSkZJR
age: "35"
gender: "Male"
address: "Egypt"
phone: "01012353919"
faculty: "Computers & AI";
› loginTokens: Array;
createdAt: 2023-05-30T11:55:07.582+00:00 ;
updatedAt: 2023-06-28T09:57:22.856+00:00 ;
role: "Administrator" ;
academicYear: "None" ;
› subjects: Array ;
› updateBy: Array ;
```

CHAPTER 7

CONCLUSION AND FUTURE WORK

7.1 Conclusion

In conclusion, the system development undertaken at Fayoum University has successfully tackled the challenge of paperwork by implementing a digital solution. The project's primary objective was to eliminate the requirement for physical interactions among the College director, students, and Student Affairs officers, while also enhancing overall efficiency and communication.

Through the development of a centralized and systematic system, all essential information for students is now readily available, eliminating the need for physical visits to complete administrative tasks. This digital solution has streamlined processes and significantly improved the overall work environment.

The project's impact on the university community has been substantial, as it has created a more organized and efficient system for managing paperwork. Students can now access information and complete necessary procedures without having to visit the college or seek assistance from multiple individuals. This has not only saved time and effort but has also enhanced the student experience and reduced administrative burdens.

Moving forward, there is potential for future enhancements and expansion of the system. Feedback from users and stakeholders should

be collected to identify areas of improvement and address any remaining challenges. Continuous monitoring and evaluation of the system's performance will help ensure its effectiveness in the long run. Furthermore, exploring opportunities to integrate additional features and technologies can further enhance the system's capabilities and provide even greater benefits to the university community.

Overall, the successful implementation of the digital solution has paved the way for a more efficient, streamlined, and centralized approach to managing administrative tasks at Fayoum University. It sets a strong foundation for future developments and enhancements, ultimately contributing to a more productive and student-centric educational environment.

The main goal of our project is to provide a paperless hospital system. It’s a
flutter application in which students and doctors can communicate which. Each other easily from anywhere. Our project is easy to use and it save the time for the patient because it stores patient medical history which help the patient in communication with the pharmacy and the laboratory.

7.2 Future work

In the future, there are several potential areas of work and improvement for the system development project at Fayoum University. The primary objective of the project is to address the issue of paperwork and enhance efficiency within the university community by implementing a digital solution.

One area for future work is to gather feedback from users, including students, College directors, and Student Affairs officers, to assess the effectiveness and usability of the system. This feedback can help identify any areas of improvement or additional features that could be implemented to further streamline processes and enhance user experience.

Continuous monitoring and evaluation of the system's performance will also be crucial. This includes regularly assessing its impact on reducing paperwork, improving communication, and increasing work efficiency. By closely monitoring the system, any issues or bottlenecks can be identified and addressed promptly, ensuring its continued effectiveness.

Moreover, future work may involve integrating the system with other existing university systems and databases to create a more comprehensive and interconnected platform. This integration would allow for seamless data sharing and facilitate a more holistic approach to managing student affairs and administrative processes.

Additionally, exploring the potential of incorporating advanced technologies such as artificial intelligence (AI) or machine learning (ML) can further enhance the system's capabilities. For example, AI-based chatbots or virtual assistants could be developed to provide instant support and assistance to students and staff, reducing response times and enhancing user satisfaction.

Lastly, continuous training and support for users should be provided to ensure they are proficient in utilizing the system's features and maximizing its benefits. Ongoing training sessions and resources can help users adapt to the digital solution and take full advantage of its capabilities.

By addressing these future work areas, the system development project can continue to evolve, meet the evolving needs of Fayoum University, and provide a seamless and efficient experience for all stakeholders involved.

We aim to add more features to our application which will help many users.
in all governorates. Many hospitals will be added so that the students search.
for the nearest hospital and then begins to book appointments with doctors