***The World Islamic Sciences and Education University***

جامعة العلوم الاسلامية العالمية

Faculty of Information Technology

كلية تكنولوجيا المعلومات

****

GRADUATION PROJECT

**Title**

Academic services for the IT

**Students**

Nadine Raed Salem 3200605039

Saber Ahmad Falaha 3200601024

Ahmad Emad Alhwetat 3200601029

**Supervisor**

Dr. Malek Al-Momani

SEMESTER I

2023/2024

# Acknowledgements

We extend our heartfelt appreciation to Dr. Malek Al-Momani, our supervisor, for his unwavering guidance, support, and motivation during the course of our graduation project. His exceptional expertise and invaluable perspectives significantly contributed to our project’s success, and we deeply appreciate his consistent availability and commitment, even amidst his busy schedule. Our endeavor was marked by challenges that encouraged us to engage in critical thinking and push ourselves to attain our utmost potential. Dr. Malek Al-Momani's mentorship has been invaluable, and we express genuine gratitude for his guidance. Furthermore, we are thankful to the Software Engineering Department for furnishing us with the necessary resources and backing that enabled us to bring our project to completion.

# Abstract

The Academic services for the IT (Information Technology) system is specifically designed for IT students, catering to the majority of their requirements, including access to study materials, lectures, and various resources. ***Problems:*** The issues we aimed to address were manifold. Firstly, students struggled with identifying the materials they could download for their upcoming semester. Additionally, unforeseen circumstances sometimes led to students missing lectures, resulting in a knowledge gap. Lastly, there was a lack of a comprehensive application encompassing all aspects of their subjects, from the subject matter itself to past exam questions and summaries. To resolve these challenges, we set out to create an application with specific objectives in mind. ***objectives:*** Our primary objectives were shaped by the problems identified earlier. We sought to provide students with a solution that not only clarified lecture schedules but also offered extensive subject-related resources, including past exam questions and summaries. Furthermore, we aimed to offer tailored advice for each specialization, guiding students on what study materials and related courses to explore. ***method:*** To accomplish these objectives, we employed the Scrum methodology, a flexible and efficient framework designed to deliver value throughout the project's development phase. ***Design:*** Prior to implementation, we utilized various design tools, including context diagrams, data flow diagrams, use case diagrams, activity diagrams, and more, to create a well-thought-out plan. ***Testing:*** Upon project completion, we devised test cases to validate the system's performance across various scenarios. ***Conclusion:*** The results of our efforts demonstrated that the system effectively saves students time, effort, and money in fulfilling their academic needs. It is with these positive outcomes in mind that we embarked on this project.

**الملخص**

تم تصميم نظام الخدمات الأكاديمية لتكنولوجيا المعلومات خصيصًا لطلاب تكنولوجيا المعلومات، حيث يلبي معظم متطلباتهم، بما في ذلك الوصول إلى المواد الدراسية والمحاضرات والموارد المختلفة. المشاكل: كانت القضايا التي نهدف إلى معالجتها متعددة. أولاً، واجه الطلاب صعوبة في تحديد المواد التي يمكنهم تنزيلها للفصل الدراسي القادم. بالإضافة إلى ذلك، أدت الظروف غير المتوقعة في بعض الأحيان إلى تغيب الطلاب عن المحاضرات، مما أدى إلى فجوة معرفية. وأخيرًا، كان هناك نقص في التطبيق الشامل الذي يشمل جميع جوانب المواد الدراسية، بدءًا من الموضوع نفسه وحتى أسئلة وملخصات الامتحانات السابقة. لحل هذه التحديات، شرعنا في إنشاء تطبيق مع وضع أهداف محددة في الاعتبار. الأهداف: تشكلت أهدافنا الأساسية من خلال المشاكل التي تم تحديدها سابقًا. لقد سعينا إلى تزويد الطلاب بحل لا يوضح جداول المحاضرات فحسب، بل يقدم أيضًا موارد واسعة النطاق ذات صلة بالموضوع، بما في ذلك أسئلة وملخصات الامتحانات السابقة. علاوة على ذلك، كنا نهدف إلى تقديم نصائح مخصصة لكل تخصص، وتوجيه الطلاب حول المواد الدراسية والدورات ذات الصلة التي يجب استكشافها. الطريقة: لتحقيق هذه الأهداف، استخدمنا منهجية سكروم، وهي إطار مرن وفعال مصمم لتقديم القيمة طوال مرحلة تطوير المشروع. التصميم: قبل التنفيذ، استخدمنا أدوات تصميم متنوعة، بما في ذلك مخططات السياق، ومخططات تدفق البيانات، ومخططات حالة الاستخدام، ومخططات الأنشطة، والمزيد، لإنشاء خطة مدروسة جيدًا. الاختبار: عند اكتمال المشروع، قمنا بتصميم حالات اختبار للتحقق من صحة أداء النظام عبر سيناريوهات مختلفة. الخلاصة: أظهرت نتائج جهودنا أن النظام يوفر بشكل فعال الوقت والجهد والمال للطلاب في تلبية احتياجاتهم الأكاديمية. ومع أخذ هذه النتائج الإيجابية في الاعتبار، شرعنا في هذا المشروع.

**Table of Contents**

[Acknowledgements II](#_Toc156902942)

[Abstract III](#_Toc156902943)

[List of Tables VI](#_Toc156902944)

[Table of Figure VIII](#_Toc156902945)

[CHAPTER 1 1](#_Toc156902946)

[INTRODUCTIN 1](#_Toc156902947)

[1.1 Introduction 2](#_Toc156902948)

[1.2 Problem statement 2](#_Toc156902949)

[1.3 Project objectives 3](#_Toc156902950)

[1.4 Research strategy 3](#_Toc156902951)

[1.5 Scope 4](#_Toc156902952)

[1.6 Gant chart 5](#_Toc156902953)

[1.7 Project outline 5](#_Toc156902954)

[CHAPTER 2 7](#_Toc156902955)

[LITERATURE REVIEW 7](#_Toc156902956)

[2.1 Overview 8](#_Toc156902957)

[2.2 Comparative Study 8](#_Toc156902958)

[2.2.1 Moodle 8](#_Toc156902959)

[2.2.2 Coursera 8](#_Toc156902960)

[2.2.3 Grad Café 8](#_Toc156902961)

[2.3 Related work 9](#_Toc156902962)

[2.4 Summary 9](#_Toc156902963)

[CHAPTER 3 10](#_Toc156902964)

[METHODOLOGY 10](#_Toc156902965)

[3.1 Overview 11](#_Toc156902966)

[3.2 Feasibility Study 11](#_Toc156902967)

[3.2.1 Technical feasibility 11](#_Toc156902968)

[3.2.2 Operational Feasibility 11](#_Toc156902969)

[3.2.3 Schedule Feasibility 12](#_Toc156902970)

[3.3 Requirements 13](#_Toc156902971)

[3.3.1. Functional Requirements 13](#_Toc156902972)

[3.3.2. Non-Functional Requirements 14](#_Toc156902973)

[3.4 Tools 14](#_Toc156902974)

[3.5 Programming Languages 15](#_Toc156902975)

[3.6 Methodology Process 15](#_Toc156902976)

[CHAPTER 4 18](#_Toc156902977)

[DESIGN MODELS 18](#_Toc156902978)

[4.1 Overview 19](#_Toc156902979)

[4.2 Context Diagram 19](#_Toc156902980)

[4.3 Data Flow Diagram 20](#_Toc156902981)

[4.4 Use Case Diagram 21](#_Toc156902982)

[4.3 Use Case Specification 22](#_Toc156902983)

[4.5 activity diagram 31](#_Toc156902984)

[4.5.1 Activity login/logout 31](#_Toc156902985)

[4.5.2 Activity Register 32](#_Toc156902986)

[4.5.3 Activity lectures 33](#_Toc156902987)

[4.5.4 Activity indicative plan 34](#_Toc156902988)

[4.5.5 Activity lectures schedule 35](#_Toc156902989)

[4.5.6 Activity materials 36](#_Toc156902990)

[4.5.7Activity problems box 37](#_Toc156902991)

[4.5.8 ER Diagram 38](#_Toc156902992)

[CHAPTER 5 39](#_Toc156902993)

[TESTING AND RESULTS 39](#_Toc156902994)

[5.1 Overview 40](#_Toc156902995)

[5.2 Test Design 40](#_Toc156902996)

[5.3User Acceptance Testing 48](#_Toc156902997)

[CHAPTER 6 51](#_Toc156902998)

[CONCLUSION AND FUTURE WORKS 51](#_Toc156902999)

[6.1 Overview 52](#_Toc156903000)

[6.2 Project Summary 52](#_Toc156903001)

[6.3 Achieved Objectives 52](#_Toc156903002)

[6.4 Contribution 54](#_Toc156903003)

[6.5 limitation 54](#_Toc156903004)

[6.6 Future Work 54](#_Toc156903005)

[References 55](#_Toc156903006)

[Appendix 56](#_Toc156903007)

# 

# List of Tables

[Table 2.1 Comparison between systems 9](#_Toc156861143)

[Table 3.2 Technical Feasibility 11](#_Toc156861144)

[Table 3.3 Operational Feasibility 12](#_Toc156861145)

[Table 3.4 Schedule Feasibility Study 12](#_Toc156861146)

[Table 3.5 functional requirements 13](#_Toc156861147)

[Table 3.6 Non-functional requirements. 14](#_Toc156861148)

[Table 3.7 Tools Utilized 15](#_Toc156861149)

[Table 3.8 Programming Languages 15](#_Toc156861150)

[Table 3.9 Methodology process 16](#_Toc156861151)

[Table 4.10 Register 22](#_Toc156861152)

[Table 4.11 Login && Logout 23](#_Toc156861153)

[Table 4.12 Manage material 24](#_Toc156861154)

[Table 4.13 View Plan 25](#_Toc156861155)

[Table 4.14 View Lectures 25](#_Toc156861156)

[Table 4.15 View Materials 26](#_Toc156861157)

[Table 4.16 Searching 27](#_Toc156861158)

[Table 4.17 View lecture Schedule 27](#_Toc156861159)

[Table 4.18 Problem Box 28](#_Toc156861160)

[Table 4.19 Manage Lectures 29](#_Toc156861161)

[Table 4.20 View users 29](#_Toc156861162)

[Table 4.21 Update lecture Schedule 30](#_Toc156861163)

[Table 5.22 Test 41](#_Toc156861164)

# Table of Figure

[Figure 1.1 Gantt chart 5](#_Toc156860988)

[Figure 4.2 Context Diagram 19](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860989)

[Figure 4.3 Data Flow Diagram 20](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860990)

[Figure 4.4 Use Case Diagram 21](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860991)

[Figure 4.5 Activity login/logout Diagram 31](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860992)

[Figure 4.6 Activity Register Diagram 32](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860993)

[Figure 4.7 Activity Lectures Diagram 33](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860994)

[Figure 4.8 Activity indicative Plan Diagram 34](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860995)

[Figure 4.9 Activity lectures schedule Diagram 35](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860996)

[Figure 4.10 Activity Materials Diagram 36](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860997)

[Figure 4.11 Activity problems box Diagram 37](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860998)

[Figure 4.12 ER Diagram 38](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156860999)

[Figure 5.13 Question 1 48](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156861000)

[Figure 5.14 Question 2 48](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156861001)

[Figure 5.15 Question 3 49](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156861002)

[Figure 5.16 Question 4 49](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156861003)

[Figure 5.17 Question 5 50](file:///C:\Users\Dell\Downloads\finally1.docx#_Toc156861004)

# CHAPTER 1

## INTRODUCTIN

### 1.1 Introduction

In today's educational landscape, technology continues to advance, offering transformative possibilities. This research delves into the development of a mobile application aimed at granting student access to a diverse array of services, information, and university resources. The objective is to foster innovation and enhance operational efficiency within the academic sphere.

This study endeavors to comprehensively explore available resources while conducting a comparative analysis to identify and recommend the most effective integration strategies. By doing so, it aims to provide valuable insights into the corporate landscape by introducing a software solution that consolidates lectures, materials, and tools. This amalgamation of resources aims to empower students with the requisite knowledge, enabling them to harness technology effectively.

University students' performance is directly impacted by their ability to align with the curriculum and achieve their potential. Yet, the rigors of academic pressures often impede their ability to effectively manage lectures and information. Consequently, our program is meticulously crafted to mitigate this challenge. It presents a structured framework designed to facilitate comprehensive engagement with coursework.

This program serves to augment students' capacity to navigate the vast pool of information, fostering a more efficient and organized approach to education. Through its implementation, students gain a tool that not only aids in managing academic responsibilities but also optimizes their overall learning journey, empowering them to excel amidst their academic endeavors.

### 1.2 Problem statement

The primary challenge addressed in this research pertains to the discrepancy between students' academic preferences and available program offerings within educational institutions. This misalignment often leads to students enrolling in courses that do not entirely meet their academic aspirations, resulting in inefficient resource utilization and potential impediments to their academic progress.

The identified problem encompasses several key aspects: inadequate alignment between students' preferences and available academic programs, leading to suboptimal course selections; difficulties accessing pertinent educational materials necessary for comprehensive learning; potential gaps in understanding due to missed lectures or unforeseen circumstances hindering in-person attendance; and a lack of sufficient guidance contributing to the challenges faced by students in navigating their academic coursework effectively.

Addressing this issue is crucial as it impacts students' ability to effectively manage their academic responsibilities and optimize their learning experiences. The aim of this research is to propose and develop a mobile application that mitigates these challenges by providing students with comprehensive access to resources, aiding in course selection alignment, facilitating material accessibility, and enhancing guidance mechanisms to optimize their academic pursuits.

### 1.3 Project objectives

The primary aim is to create software that consolidates diverse academic functionalities into a single application. This includes providing access to recorded lectures across different disciplines, allowing the download of study materials, facilitating the recording of lecture schedules (both in-person and online), and offering a platform for students to articulate their academic challenges, receiving personalized advice and recommendations for effective solutions.

In order to accomplish the primary objective of the project/research, a set of sub-objectives have been identified as pivotal milestones that collectively contribute to the fulfillment of the main goals.

**1:** To fully express the problem statement and comprehend the existing project's scope. This entails developing a comprehensive grasp of the current state of affairs and the difficulties that students encounter in the educational setting.

**2:** To develop and deploy software that can combine the fundamental academic services that students need throughout their time in college into a single, cohesive application.

**3:** To verify the application's efficiency and functionality in delivering essential academic services from the university that are especially designed for the College of Information Technology.

### 1.4 Research strategy

The strategic choice of a research methodology profoundly influences the process of data collection and analysis, thereby serving as a pivotal determinant in research endeavors. This section aims to meticulously examine diverse research strategies available, emphasizing their nuances and implications to aid in informed selection.

In the domain of software development, the Software Development Life Cycle (SDLC) stands as a foundational process governing product or service design and development. Established in the 1960s, SDLC consists of systematic stages, offering comprehensibility and structured implementation. However, its rigidity concerning alterations after initial stages poses limitations.

Conversely, Agile methodology, originating in 2001 through collaborative efforts among 17 software developers, adopts an iterative approach in project management. It boasts faster execution, particularly beneficial for small-scale projects, and its adaptability to dynamic changes in requirements stands as a distinguishing feature.

Within the Agile framework, Scrum serves as a refined subset that fosters effective team collaboration, primarily in managing complex product development. Employing meetings, roles, and tools, Scrum optimizes team structure and workload management, beneficial not only for software development but also for diverse teams united toward a shared objective.

The selection of Scrum methodology for our project is substantiated by several compelling reasons, encompassing its multifaceted benefits:

* Enhanced Adaptability and Flexibility.
* Fostering Innovation and Creativity.
* Cost Efficiency.
* Continuous Quality Improvement.
* Organizational Alignment and Synergy.
* Heightened Employee and Customer Satisfaction.
* Risk Mitigation and Transparency.

Additionally, Scrum promotes a culture of accountability, empowers cross-functional collaboration, and facilitates an environment where team members take ownership of their tasks, contributing to heightened productivity and efficiency [[1]](#one).

### 1.5 Scope

In our project, we will focus on saving students time and effort by collecting the greatest number of recorded lectures for faculty members for free and giving summaries and courses for the greatest number of subjects and majors conceivable.

### 1.6 Gant chart

The project timeline and Gantt Chart serve as fundamental components outlining the structured roadmap and visual representation of the project's sequential phases, activities, and their respective durations.

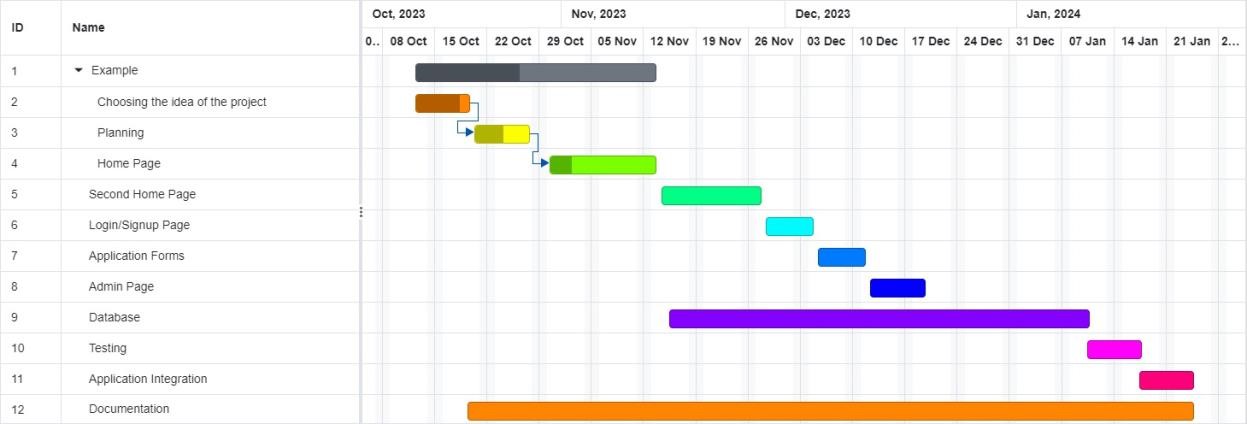


Figure 1.1 Gantt chart

### 1.7 Project outline

**Chapter 1:** provides an overview of the identified problem, delineates the project's objectives, and details the action plan, outlining its sequential steps and processes to be executed.

**Chapter 2:** entails a comparative analysis between the to-be developed system and existing systems, drawing in a conclusion regarding the efficacy and optimization of the newly constructed system.

**Chapter 3:** encompasses the comprehensive feasibility study and methodology employed in the project, detailing both the functional and non-functional requirements critical for its successful execution.

**Chapter 4:** illustrates the system's functionality using a series of diagrams in a straightforward manner and demonstrates how to use the system.

**Chapter 5:** addresses the implementation and evaluation stages, detailing each implementation method and its execution process.

**Chapter 6:** provides a project summary and outlines potential areas for future work and development.

# CHAPTER 2

## LITERATURE REVIEW

### 2.1 Overview

This chapter delineates the process of assessing the system by comparing it with other existing systems, ultimately arriving at the conclusion that the system was constructed optimally. Our application improves efficiency for students, saving them time and effort.

### 2.2 Comparative Study

In this segment, we present the relevant work, which is also referred to as academic services or student applications. The purpose of this section is to spotlight endeavors undertaken by others that bear a connection to our own work.

#### 2.2.1 Moodle

Moodle serves as a learning platform meticulously crafted to offer educators, administrators, and learners a unified, secure, and comprehensive system. It is designed to facilitate the creation of personalized learning environments, encompassing features such as delivering course content, accessing recorded lectures, submitting assignments, and fostering communication between instructors and peers.

The application model was developed using the Java programming language, while the website incorporates programming languages such as JavaScript, HTML, and PHP [[2]](#tow).

#### 2.2.2 Coursera

Coursera is a prominent massive open online course (MOOC) platform that provides an extensive array of courses from leading universities globally. Courses on Coursera are generally self-paced and often available for free, with the choice to purchase a certificate of completion.

The Coursera application, developed by Stanford University, utilizes programming languages such as ML, Racket, and Ruby to facilitate the learning experience [[3]](#three).

#### 2.2.3 Grad Café

This application is tailored for graduate students, providing valuable insights on diverse subjects, including selecting a graduate program, navigating the application process for graduate school, and preparing for the GRE. Additionally, the app incorporates a community forum that fosters connections among graduate students, enabling them to share advice and experiences.

The Grad Café application was created using Java programming language, while the website was developed using programming languages such as JavaScript, HTML, and PHP [[4]](#foure).

### 2.3 Related work

Table 2.1 Comparison between systems

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| Download maternal | Yes | Yes | No |
| Watching lecture recording | Yes | Yes | No |
| Giving advice and suggestion to students | No | No | Yes |
| Location of the halls | No | No | No |

Based on the information in the preceding table, it seems that there is currently no website or application worldwide that offers a comprehensive student service. This is in contrast to the Student University Services system, which stands out by providing all the services listed in the table within a single application.

### 2.4 Summary

Given the absence of a global system that consolidates these services into a single application, the need arose to develop one. This initiative aims to enhance students' access to academic materials and provide information such as the room number where a lecture will be conducted. The development of such an application serves to integrate these diverse services into a unified platform.

# 

# CHAPTER 3

## METHODOLOGY

### 3.1 Overview

This chapter encompasses the definition of the feasibility study, the tools employed in our work, the gathered requirements (both functional and non-functional), and the methodological process employed for the implementation of the project.

### 3.2 Feasibility Study

A feasibility study is a comprehensive analysis that assesses essential aspects of a project, encompassing economic, technical, legal, and scheduling considerations. The goal is to determine the likelihood of the project being successfully completed. In essence, a feasibility study serves as an evaluation of the project's overall viability, examining whether the endeavor is poised for success [[5]](#five).

#### 3.2.1 Technical feasibility

Securing the technical feasibility of the envisioned College of Information Technology application necessitates a thorough approach. This encompasses considerations such as platform compatibility, the design of user interfaces, seamless integration of features, implementation of robust security measures, and the formulation of effective strategies for ongoing maintenance [[6]](#six).

Table 3.2 Technical Feasibility

|  |  |
| --- | --- |
| **Main costs** | **Costs Financial** |
| Development costs | 1000$ |
| Maintenance costs | 800$ |
| Marketing costs | 200$ |
| Total cost | 2000$ |

#### 3.2.2 Operational Feasibility

Securing the operational feasibility of the application demands meticulous attention to several crucial factors. This includes evaluating user adoption, integrating seamlessly with existing processes, ensuring accessibility, allocating resources effectively, fostering collaboration with stakeholders, implementing change management strategies, establishing mechanisms for user feedback, maintaining data accuracy, prioritizing security measures, and maintaining a commitment to continuous improvement.

A well-crafted operational plan is instrumental in facilitating the successful deployment and long-term success of the application within the academic environment [[7]](#siven).

Table 3.3Operational Feasibility

|  |  |
| --- | --- |
| **Process** | **Percentage** |
| Readiness and Training | 90% |
| Maintenance Viability | 75% |
| Workflow Efficiency | 75% |
| Performance | 85% |
| Process Integration | 80% |

#### 3.2.3 Schedule Feasibility

Ensuring the schedule feasibility of the College of Information Technology application involves detailed planning, iterative development, thorough user testing, and post-launch support. The efficient execution of the project, with a focus on delivering a functional and valuable application for both students and teachers, can be achieved through the adoption of an agile methodology. This entails prioritizing features and aligning the development process with university timeframes, ultimately facilitating timely project completion [[8]](#Eight).

Table 3.4 Schedule Feasibility Study

|  |  |
| --- | --- |
| **Phase** | **Estimated time (in weeks)** |
| Estimate project completion time | 20 |
| Analysis of Time Risks | 2 |
| Scheduling Activities | 8 |
| Estimated Project Delay | 2 |
| Review and monitoring of the schedule | 1 |

### 3.3 Requirements

The following is a compilation of the system's functional and non-functional requirements. The priority column employs the following shorthand [[9]](#nine):

* M – Mandatory requirements (essential functionalities the system must perform).
* O – Optional requirements (functionalities the system may perform).

If specific requirements or details are required to be included in the list, please provide them, and we will assist further.

#### 3.3.1. Functional Requirements

Table 3.5 functional requirements

|  |  |  |
| --- | --- | --- |
| **No.** | **Functional** | **Description** |
| **1** | Log in | The users (students) and admins can log in |
| **2** | Log out | The users (students) and admins can log out |
| **3** | Register | Only users (students) can able to create new account |
| **4** | View Indicative Plan | Only users (students) can able view indicative plan |
| **5** | Search | The users (students) and admins can search watch lecture and materials to view |
| **6** | View lectures Schedule | The users(students) and admins can view the lectures schedule |
| **7** | View Materials | The users (students) and admins can able view materials |
| **8** | View Lecture | The users (students) and admins can able view lecture |
| **9** | Feedback | The users (students) and admins giving feedback about their experience using the application |
| **10** | Manage Materials | Only the admins can delete, add and view materials |
| **11** | Manage Watch Lecture | Only the admins can delete, update list lecture |
| **12** | Manage Lecture Schedule | Only the admins can update lectures schedule |

#### 3.3.2. Non-Functional Requirements

Table 3.6 Non-functional requirements.

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Requirement ID** | **Requirements Description** | **Priority** |
| 1 | **Usability** | Our project was designed with focus on simplicity, user-friendliness, and responsiveness. | **M** |
| 2 | **Simple navigation** | Our project prioritizes seamless navigation, ensuring a smooth movement between screens without encountering any obstacles that may hinder the user's progression. | **M** |
| 3 | **Security**  **Authentication** | Our project features a straightforward authentication system that necessitates user login to access screens. Users are identified by a combination of a username and a password. Access to the system and main screen is restricted and can only be granted upon successful login. | **M** |

### 3.4 Tools

It refers to the tools employed in the project that contributed to the project's success and its current state. These tools encompass various programs used for coding, database creation, diagrammatic representation, documentation, and the creation of charts such as the Gantt chart.

Table 3.7 Tools Utilized

|  |  |  |
| --- | --- | --- |
| **ID** | **Tools Utilized** | **Domain** |
| 1 | Visual Studio Code | code |
| 2 | Word Microsoft Office | documentation |
| 3 | Android Studio | code |
| 4 | Excel Microsoft Teams | communication |
| 5 | PowerPoint Microsoft Office | documentation |
| 6 | Draw.io | documentation |
| 7 | Zoom | communication |
| 8 | Firebase | code |

### 3.5 Programming Languages

It is essential to emphasize the tools employed in the Journals project, as these tools act as crucial assets necessary for organizing our work effectively. They play a pivotal role in managing projects and tasks, contributing to the overall success of the endeavor. The table below outlines the tools utilized in the project.

Table 3.8 Programming Languages

|  |
| --- |
| **Programming Languages** |
| Dart |
| flutter |

### 3.6 Methodology Process

A methodology is a systematic approach to accomplishing a task, characterized by a defined set of rules, methods, tests, activities, deliverables, and processes aimed at solving a specific problem. On the other hand, a process is simply a well-defined sequence of steps and decision points for executing a particular task.

Academic services for the IThas been created utilizing the Scrum framework, which is centered on agile development principles. The development process is organized into four sprints, with each sprint representing the fundamental unit of work for a Scrum team. This distinctive feature sets Scrum apart from other models in agile development.

Table 3.9 Methodology process

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sprint**  **Number** | **Sprint 1** | | **Sprint 2** | | **Sprint 3** | | **Sprint 4** | | |
|  |  | |  | |  | |  | | |
| Analyze | |  | Analyze |  | Analyze |  |  | Analyze |
| Design | | Design | Design |  | Design |
| Code | | Code | Code |  | Code |
| Test | | Test | Test |  | Test |
| Release | | Release | Release |  | Release |
|  | . |  |  |  |  |
| **Duration of sprint** | 3 weeks | | 4 weeks | | 3 weeks | | 3 weeks | | |
| **Output** | * Design Each Component:  -context diagram   -Use case diagram  -Data flow diagram (DFD1)  -ER diagram  -Activity  diagram   * Choosing the tools. | | * Development Tasks:   - Register user  - Login/Logout page  -User Homepage  -Admin Homepage | | * Deployment Phase * Testing | | * Documenting Process: - Methodology’s   -Results (Conclusion)  - Future Work | | |

# CHAPTER 4

## DESIGN MODELS

### 4.1 Overview

This chapter comprises design models, including the Context diagram, use case diagrams, Data Flow diagram, and ER (Entity-Relationship) diagram. These models illustrate the features of the developed software and delineate the relationships among the system components, providing a visual representation of their interactions.

### 4.2 Context Diagram

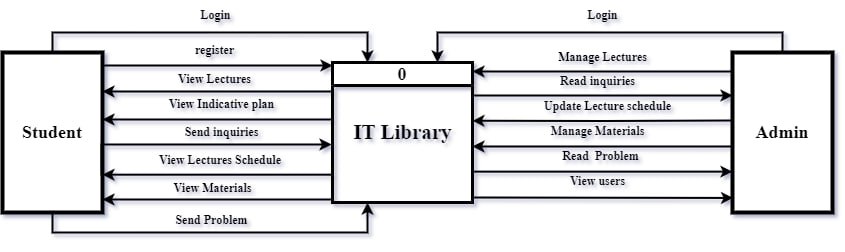


Figure 4.2 Context Diagram

### 4.3 Data Flow Diagram

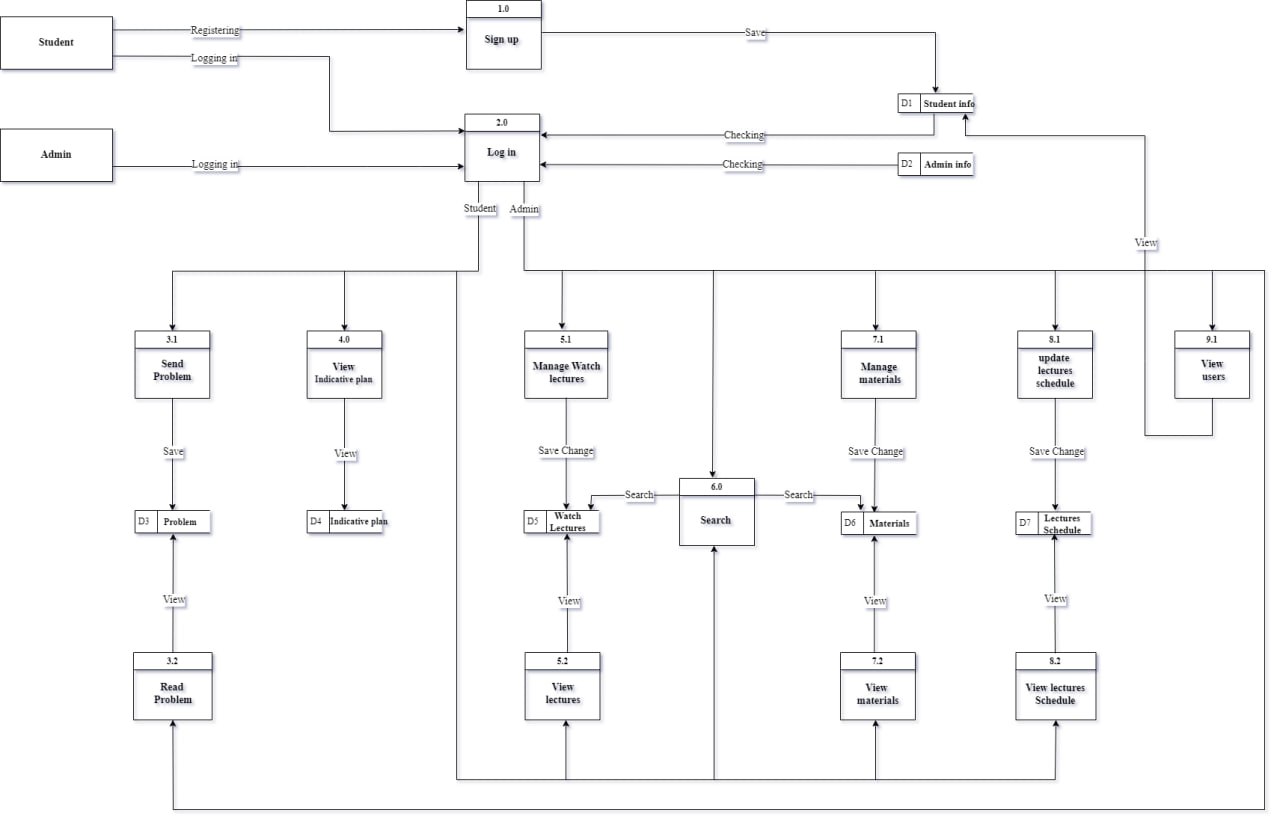


Figure 4.3 Data Flow Diagram

### 4.4 Use Case Diagram

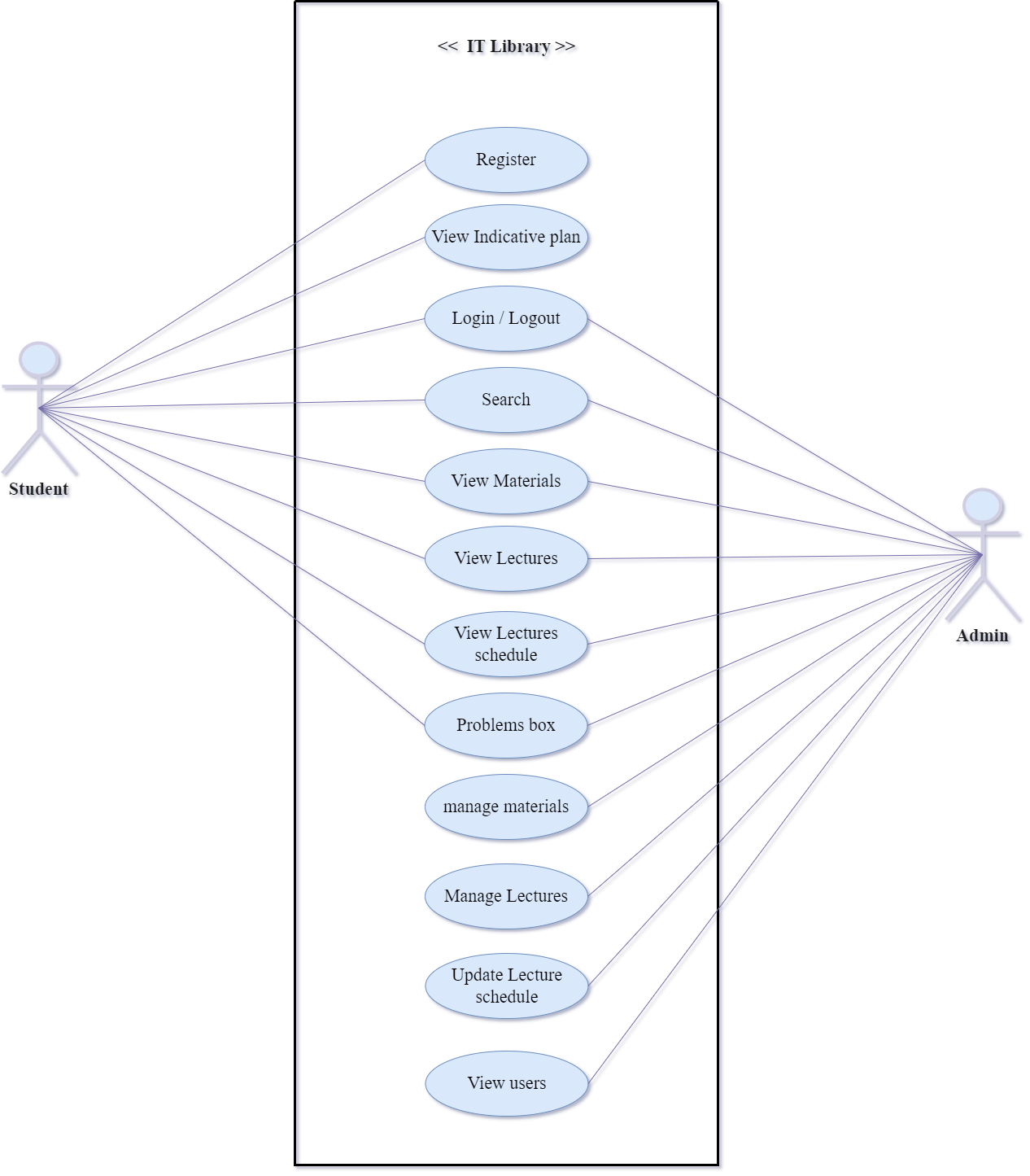


Figure 4.4 Use Case Diagram

### 4.3 Use Case Specification

1. **Register:**

Table 4.10 Register

|  |  |  |
| --- | --- | --- |
| **Use case:** | **Register** | |
| **ID:** | 001 | |
| **Description:** | Allow all users (Students) to register for the Your Path Application. | |
| **Actors:** | Student | |
| **Trigger:** | The user presses the “Sign up” button Inside the account creation form. | |
| **Preconditions:** | ‑--------- | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | Users enter personal data after clicking on the  “Sign Up” button from the Sign in page. |
|  |  | User presses the “Registration” button. |
|  |  | All inputs are required and the system checks if they are valid or invalid info (such as password). |
| **Alternative Flow:** |  | If the entered information fails validation, an error message is displayed.  The student is prompted to correct the invalid information.  The registration process continues from the point of error. |
|  | If the email entered by the student already exists in the system, an error message is displayed. |
|  | Email authentication is a process used to verify the legitimacy and integrity of an email message. |

1. **Login && Logout:**

Table 4.11 Login && Logout

|  |  |  |
| --- | --- | --- |
| **Use case:** | **Login / Logout** | |
| **ID:** | 002 | |
| **Description:** | Allow all users (Students and admin) to Log in and log out of the system. | |
| **Actors:** | Student, admin. | |
| **Trigger:** | User presses the “Login” button Inside the Login form. | |
| **Preconditions:** | To have an account created within the system. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | Users enter personal data after clicking on the "Login" button from the Home Screen. |
|  |  | User presses the “Login” button. |
|  |  | System checks if e-mail /password are correct. |
|  |  | System allows users to view Home Screen. |
|  |  | The user logs out after clicking the “Log Out” button from the Profile screen. |
| **Alternative Flow:** |  | If the entered information fails validation, an error message is displayed.  If the user forgets the password, they can click on the “Forgot Password” link.  The system sends a password reset link to the registered email.  User follows the link to reset the password. |
|  | User/Admin selects the logout option.  The system logs out the user/admin and redirects to the login page. |

1. **Manage material:**

Table 4.12 Manage material

|  |  |  |
| --- | --- | --- |
| **Use case:** | **Manage material** | |
| **ID:** | 003 | |
| **Description:** | The system allows admin view list material, delete material and to new material through specific admin page. | |
| **Actors:** | admin. | |
| **Trigger:** | The admin presses the delete (student) button from the admin page  The admin presses the view (student) button from the admin page | |
| **Preconditions:** | The admin must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The admin login the correct way from the admin  page. |
|  |  | Then press the “Delete” button. |
|  |  | Then press the “view” button. |

1. **View Plan:**

Table 4.13 View Plan

|  |  |  |
| --- | --- | --- |
| **Use case:** | **View Indicative Plan** | |
| **ID:** | 004 | |
| **Description:** | The system allows users (Students and admin) view plan. | |
| **Actors:** | users (Students and admin) | |
| **Trigger:** | The users (Students and admin) presses Indicative Plan button from the home page | |
| **Preconditions:** | The users (Students and admin) must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The users (Students and admin) login the correct way from the application. |
|  |  | Then press the “Indicative Plan” button. |

1. **View Lectures:**

Table 4.14 View Lectures

|  |  |  |
| --- | --- | --- |
| **Use case:** | **view lectures** | |
| **ID:** | 005 | |
| **Description:** | The system allows users (Students and admin) view lectures. | |
| **Actors:** | users (Students and admin) | |
| **Trigger:** | The users (Students and admin) presses Watch Lectures button from the home page | |
| **Preconditions:** | The users (Students and admin) must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The users (Students and admin) login the correct way from the application. |
|  |  | Then press the “Materials” button. |

1. **View Materials:**

Table 4.15 View Materials

|  |  |  |
| --- | --- | --- |
| **Use case:** | **View Materials** | |
| **ID:** | 006 | |
| **Description:** | The system allows users (Students and admin) view lectures. | |
| **Actors:** | users (Students and admin). | |
| **Trigger:** | The users (Students and admin) presses Materials button from the home page | |
| **Preconditions:** | The users (Students and admin) must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The users (Students and admin) login the correct way from the application. |
|  |  | Then press the “Materials” button. |

1. **Searching:**

Table 4.16 Searching

|  |  |  |
| --- | --- | --- |
| **Use case:** | **Search** | |
| **ID:** | 007 | |
| **Description:** | The system allows users (students and admin) to search for available lectures and materials. | |
| **Actors:** | users (Students and admin). | |
| **Trigger:** | The users (Students and admin) presses Materials button and watch lecture from the home page | |
| **Preconditions:** | The users (Students and admin) must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The users (Students and admin) login the correct way from the application. |
|  |  | Then, by pressing the "Materials" or "watch Lecture" buttons, a box will open in which he can search for whatever he wants. |

1. **View lecture Schedule:**

Table 4.17 View lecture Schedule

|  |  |  |
| --- | --- | --- |
| **Use case:** | **View lecture Schedule** | |
| **ID:** | 008 | |
| **Description:** | The system allows users (students and admin) to View Dates of face –to-face lectures. | |
| **Actors:** | users (Students and admin). | |
| **Trigger:** | The users (Students and admin) presses View Dates of face –to-face lectures button from the home page. | |
| **Preconditions:** | The users (Students and admin) must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The users (Students and admin) login the correct way from the application. |
|  |  | Then, by pressing the " View Dates of face –to-face lectures " the schedule will appear showing the lecture dates and location. |

1. **Problem Box:**

Table 4.18 Problem Box

|  |  |  |
| --- | --- | --- |
| **Use case:** | **Problem Box** | |
| **ID:** | 009 | |
| **Description:** | The system allows users (students) to. | |
| **Actors:** | users (Students) | |
| **Trigger:** | The users (Students) presses Problems facing the student from the home page. | |
| **Preconditions:** | The users (Students) must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The users (Students) login the correct way from the application. |
|  |  | Then, by pressing the " Problems facing the student" a box will appear in which the user can explain the problem he is facing |

1. **Manage Lectures:**

Table 4.19 Manage Lectures

|  |  |  |
| --- | --- | --- |
| **Use case:** | **Manage Lectures** | |
| **ID:** | 010 | |
| **Description:** | The system allows admin view list lectures, delete lectures and to new lectures through specific admin page. | |
| **Actors:** | admin. | |
| **Trigger:** | The admin presses the delete (student) button from the admin page  The admin presses the view (student) button from the admin page | |
| **Preconditions:** | The admin must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The admin login the correct way from the admin  page. |
|  |  | Then press the “Delete” button. |
|  |  | Then press the “view” button. |

1. **View users:**

Table 4.20 View users

|  |  |  |
| --- | --- | --- |
| **Use case:** | **View users** | |
| **ID:** | 011 | |
| **Description:** | The system allows admin view list information personal Users specific admin page. | |
| **Actors:** | admin. | |
| **Trigger:** | The admin presses the View User button from the admin page | |
| **Preconditions:** | The admin must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The admin login the correct way from the admin  page. |
|  |  | Then press the “View user” button. |

1. **Update lecture Schedule:**

Table 4.21 Update lecture Schedule

|  |  |  |
| --- | --- | --- |
| **Use case:** | **Update lecture Schedule** | |
| **ID:** | 012 | |
| **Description:** | The system allows admin view list table lecture Schedule user and update the table specific admin page. | |
| **Actors:** | Admin | |
| **Trigger:** | The admin presses “Add Schedule” button from the home page. | |
| **Preconditions:** | The admin must be logged in. | |
| **Scenario:** | Step | Action |
| **Main Flow:** |  | The admin login the correct way from the application. |
|  |  | Then, by pressing the "Add Schedule " will be add new table lecture seclude. |
|  |  | Then, by pressing the “Schedule Lecture " can update the data table schedule lecture. |

### 4.5 activity diagram

#### 4.5.1 Activity login/logout

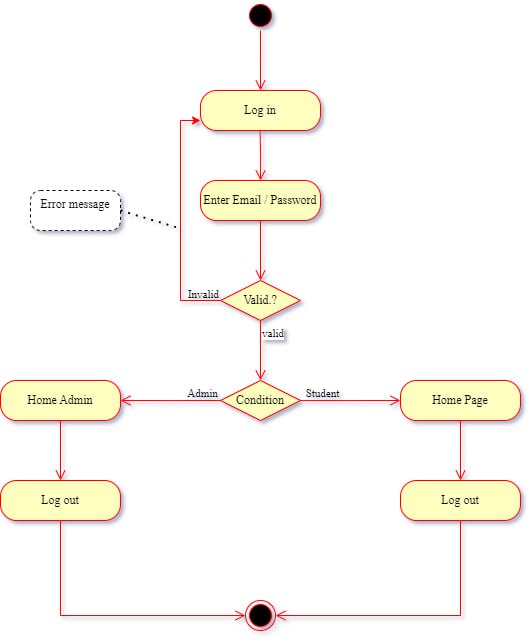


Figure 4.5Activity login/logout Diagram

#### 4.5.2 Activity Register

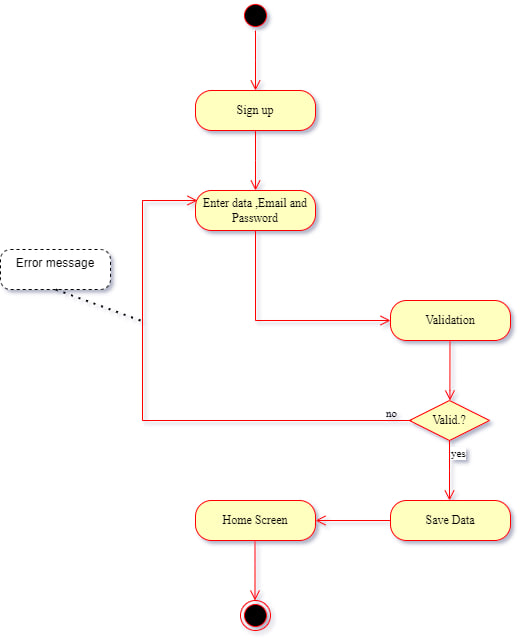


Figure 4.6 Activity Register Diagram

#### 4.5.3 Activity lectures

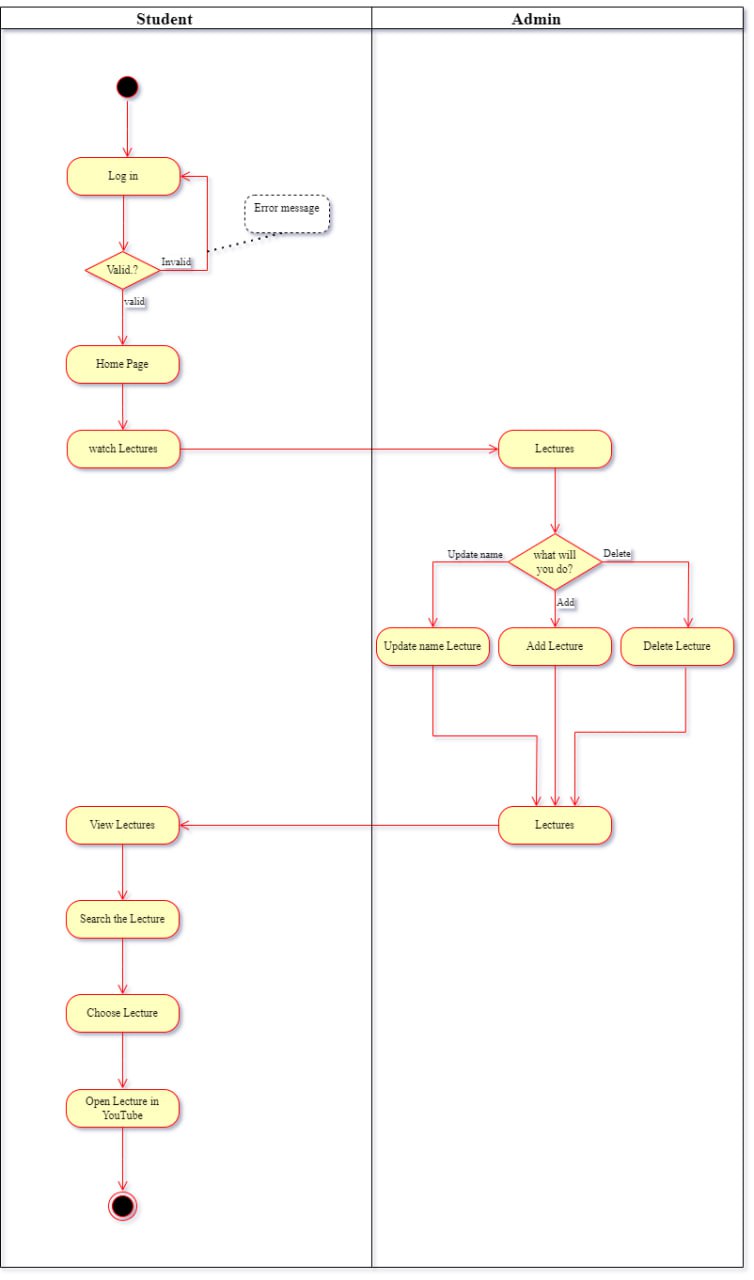


Figure 4.7 Activity Lectures Diagram

#### 4.5.4 Activity indicative plan

Figure 4.8 Activity indicative Plan Diagram

#### 4.5.5 Activity lectures schedule

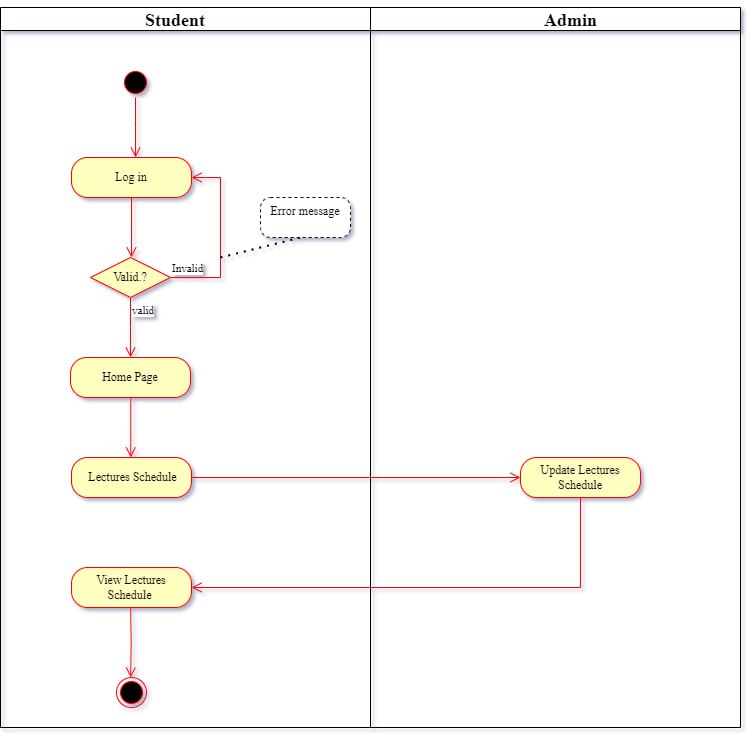


Figure 4.9 Activity lectures schedule Diagram

#### 4.5.6 Activity materials

Figure 4.10 Activity Materials Diagram

#### 4.5.7Activity problems box

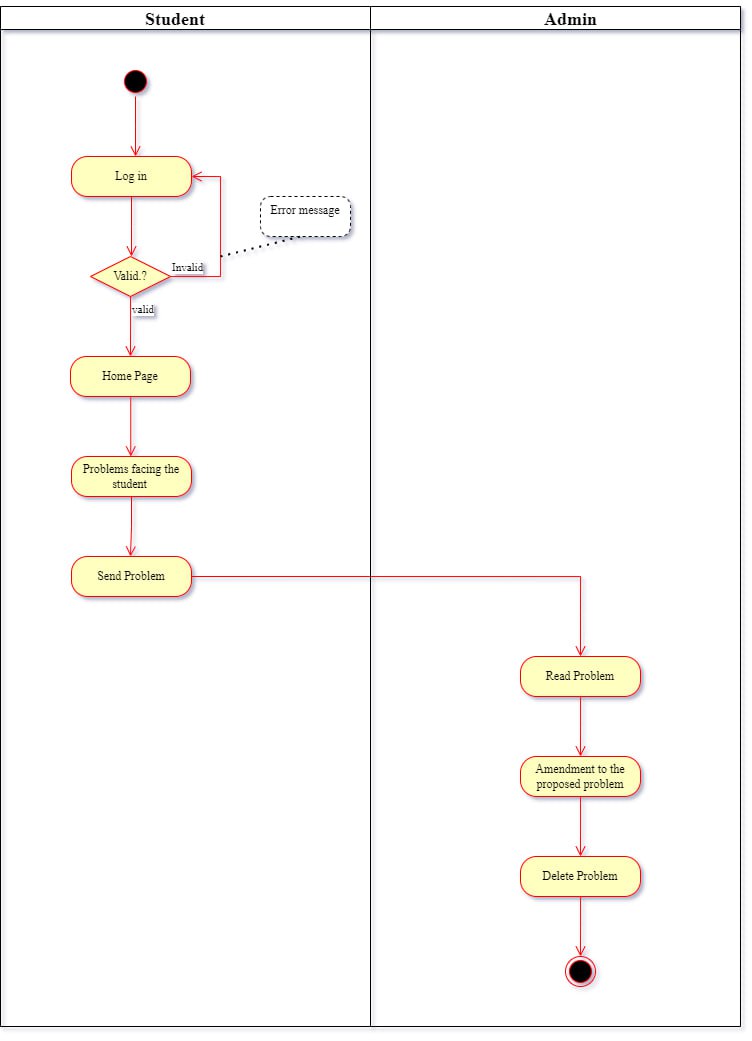


Figure 4.11 Activity problems box Diagram

#### 4.5.8 ER Diagram

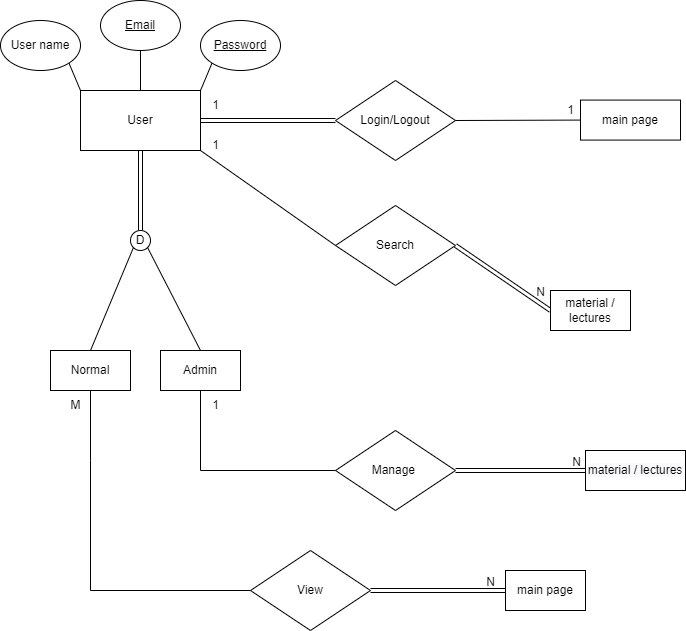


Figure 4.12 ER Diagram

# CHAPTER 5

## TESTING AND RESULTS

### 5.1 Overview

In this chapter, the system undergoes rigorous testing to ensure that each unit fulfills its designated tasks and maintains consistency with the other units within the system. This involves employing various software testing methods and evaluating the system's performance in an environment that closely mirrors the intended operational environment for which it was created.

### 5.2 Test Design

Test design is a systematic process that outlines how testing should be conducted. It encompasses the identification of testing techniques, formulation of test scenarios, creation of test cases, selection of test data, and specification of expected test results. This comprehensive approach ensures a structured and effective testing methodology.

Table 5.22 Test

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Test ID** | **Description** | **Test Steps** | **Input Data** | **Expected Results** | **Actual Results** | **Test Environment** |
| TC\_01 | Register | 1-navigate to app 2- click on the sin up button  3- Enter the name in the Name field 4-Enter your email into the field 5- Enter the password by entering the field 6- Enter the name of the specialty in the field 7- click on the create account button  8- Go to the email and click on the link to verify the email | username: test email: test@gmail.com password: test1919 specialty: CS | The message appears: “Check email then  Go to the Home screen to see the Apps bar and drawer.  There are five buttons and a series of images inside the body.  1- Article  2- Watch lectures  3- Table of lecturers  4- The indicative plan  5- Problems facing the student | The message appears: “Check email then  Go to the Home screen to see the Apps bar and drawer.  There are five buttons and a series of images inside the body.  1- Article  2- Watch lectures  3- Table of lecturers  4- The indicative plan  5- Problems facing the student | Passed |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TC\_02 | log in [valid] | 1- navigate to app 2- click on the log in button  3- fill email and password  4- click on the log in button | email: test@email.com pass: test1919 | Navigate to the home screen to see the appbar and drawer.  Five buttons and a series of photos are located inside the body.  1-Material  2-Watch lectures  3-Table of lecturers  4-The indicative plan  5-Problems facing the student | Navigate to the home screen to see the appbar and drawer.  Five buttons and a series of photos are located inside the body.  1-Material  2-Watch lectures  3-Table of lecturers  4-The indicative plan  5- Problems facing the student | Passed |
| TC\_03 | Log in using an invalid email but a valid password | 1- navigate to app  2- click on the log in button  3- fill email and password  4- click on the log in button | email: test@email.co pass: test1919 | Show error message  invalid email or password | Show error message  invalid email or password | Passed |
| TC\_04 | Log in using a valid email but an invalid password | 1- navigate to app  2- click on the log in button  3- fill email and password  4- click on the log in button | email: test@email.com pass: test 191 | Show error message  invalid email or password | Show error message  invalid email or password | Passed |
| TC\_05 | Log in using an invalid email but an invalid password | 1- navigate to app  2- click on the log in button  3- fill email and password  4- click on the log in button | email: test@email.co pass: test191 | Show error message  invalid email or password | Show error message  invalid email or password | Passed |
| TC\_06 | Click the "Log In" button without providing your email address and password. | 1- navigate to app  2- click on the log in button  3- click on the log in button |  | Show error message please enter both email and password | Show error message please enter both email and password | Passed |
| TC\_07 | Download a chapter of a specific material | 1- navigate to app  2- click on the log in button  3-fill email and password  4- click on the log in button  5-click on the materials button  6-Search for the material through the search field 7- click on the go to material button | email: test@email.com pass:test1919 material: java 1 | Go to Google Drive to access the material, which includes all chapters related to the material, summary, and years' questions. You can download | Go to Google Drive to access the material, which includes all chapters related to the material, summary, and years' questions. You can download | Passed |
| TC\_08 | Watch lectures for a specific subject | 1- navigate to app  2- click on the log in button  3- fill email and password  4- click on the log in button  5-click on the Watch lectures button  6-Search for the lectures through the search field 7-click on the Watch lectures button | email: test@email.com pass: test1919 Watch lecture: java 1 | Navigate to the course on YouTube for the topic you selected. | Navigate to the course on YouTube for the topic you selected. | Passed |
| TC\_09 | View the weekly lecture schedule | 1- navigate to app  2- click on the log in button  3-fill email and password  4- click on the log in button  5-click on the materials button  6-click on the lectures schedule | email: test@email.com pass: test 1919 | Go to the weekly lecture schedule page to get the complete schedule of all the lectures that will be held. | Go to the weekly lecture schedule page to get the complete schedule of all the lectures that will be held. | Passed |
| TC\_10 | Send me the application issue you are having. | 1- navigate to app 2- click on the log in button  3- fill email and password  4- click on the log in button  5-click on the problems facing the student button  6-Write the problem in the field 7-click on the send button  8- click on the ok button | email: test@email.com pass: test 1919 problem: Calculus is not present | Send a thank you message “The problem will be resolved as soon as possible” | Send a thank you message “The problem will be resolved as soon as possible” | Passed |
| TC\_11 | View Computer Science Plan and Extension Plan. | 1- navigate to app  2- click on the log in button  3- fill email and password  4- click on the log in button  5-click on the Indicative Plan button  6- click on the CS button | email: test@email.com pass: test 1919 | Go to the computer science page to see the indicative plan, the computer science plan, and the inquiry form. | Go to the computer science page to see the indicative plan, the computer science plan, and the inquiry form. | Passed |
| TC\_12 | Send a specific inquiry | 1- navigate to app  2-click on the log in button  3- fill email and password  4- click on the log in button  5-click on the Indicative Plan button  6- click on the CS button " 7- Fill in the field with an inquiry 8- click on the send inquiry button | email: test@email.com pass: test 1919 inquiry: How many hours can I book for the summer semester? | Send a message. Thank you. “We will respond to your inquiry as soon as we can.” | Send a message. Thank you. “We will respond to your inquiry as soon as we can.” | Passed |

### 5.3User Acceptance Testing

User Acceptance Testing (UAT), commonly conducted in many IT projects, is alternatively known as beta testing or end-user testing. It constitutes a crucial phase in software development where the software undergoes testing in the "real world" environment by the intended audience or business representatives. This phase ensures that the software aligns with the users' expectations and requirements before its final deployment.

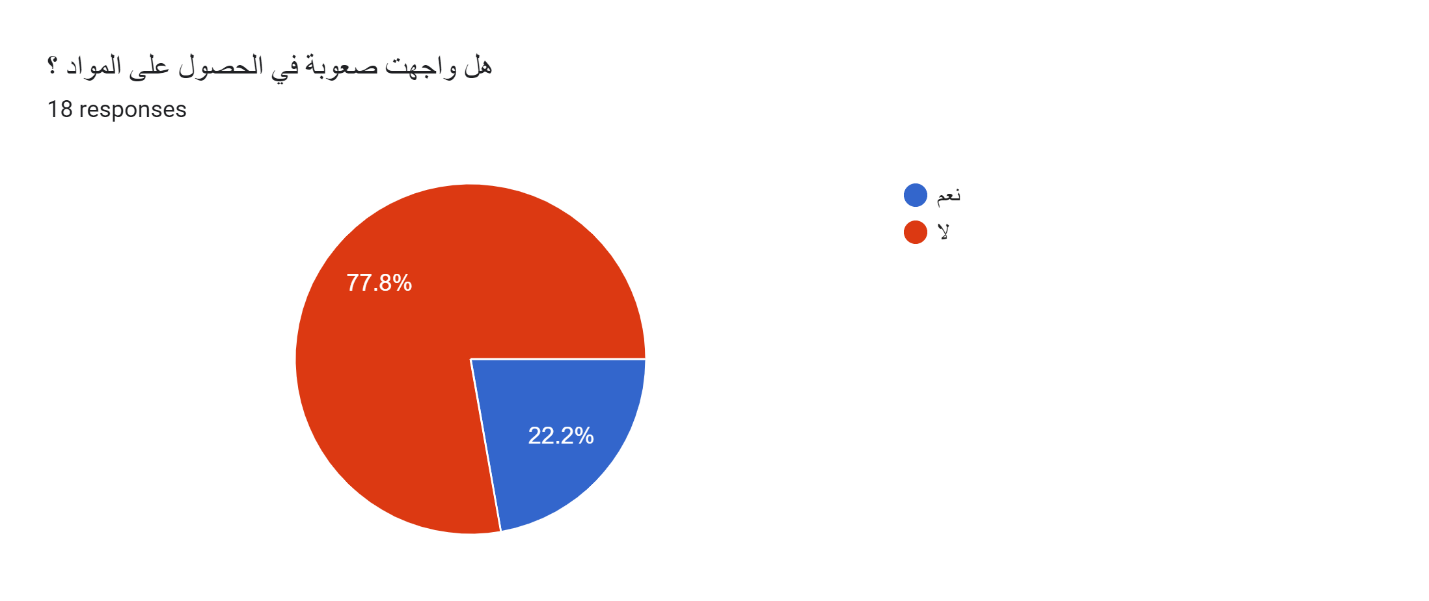
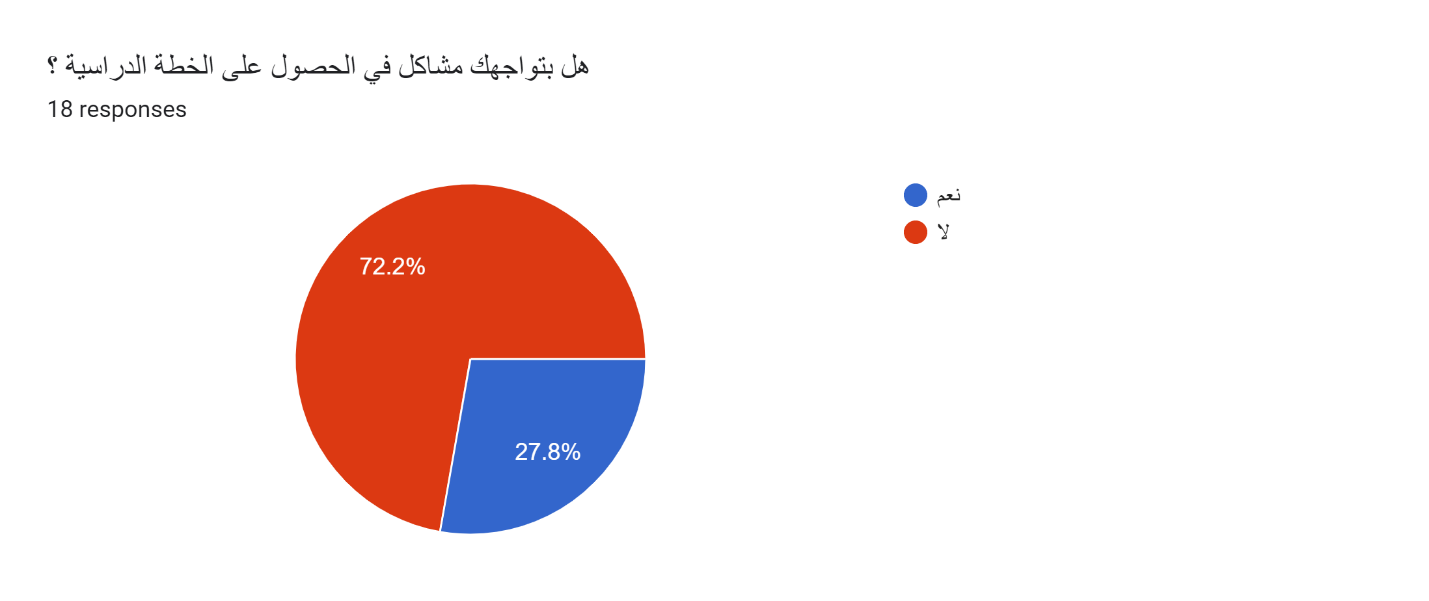
Based on user decisions, we discovered that 77.8% of people could do so and 22.2% could not.

Figure 5.14 Question 2

Figure 5.13 Question 1

Based on user decisions, we discovered that 72.2% of people could do so and 27.8% could not.

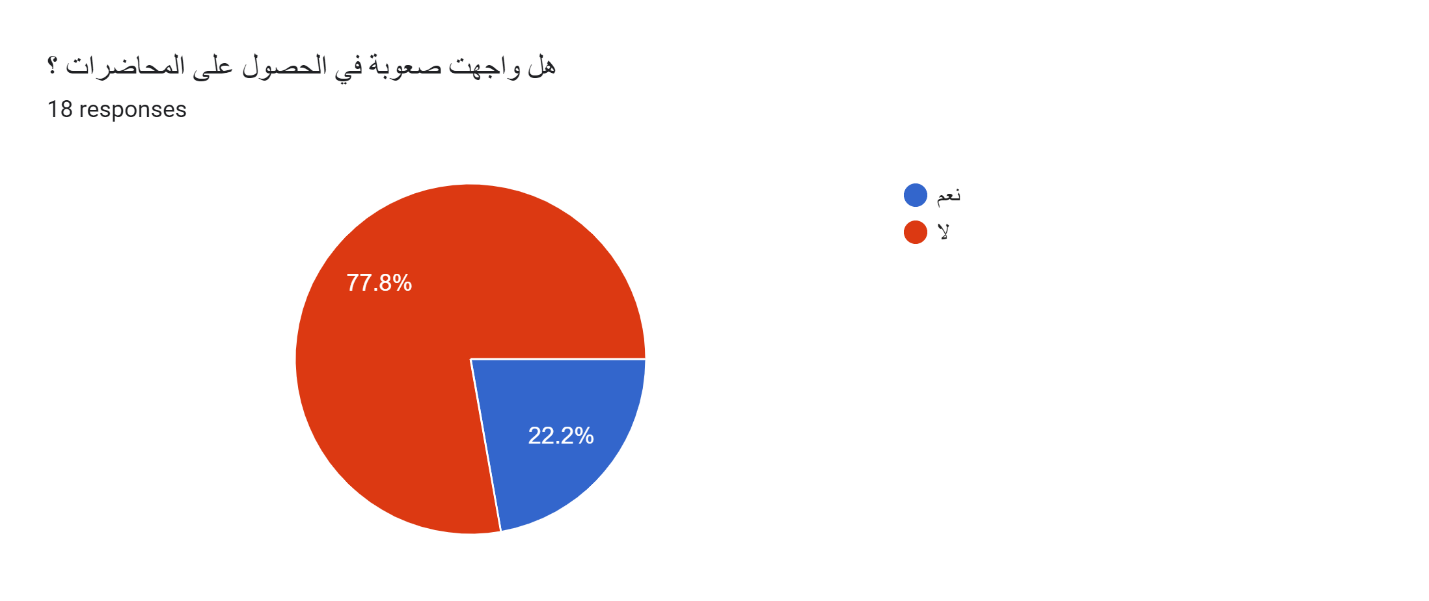


Figure 5.15 Question 3

Based on user decisions, we discovered that 77.8% of people could do so and 22.2% could not.

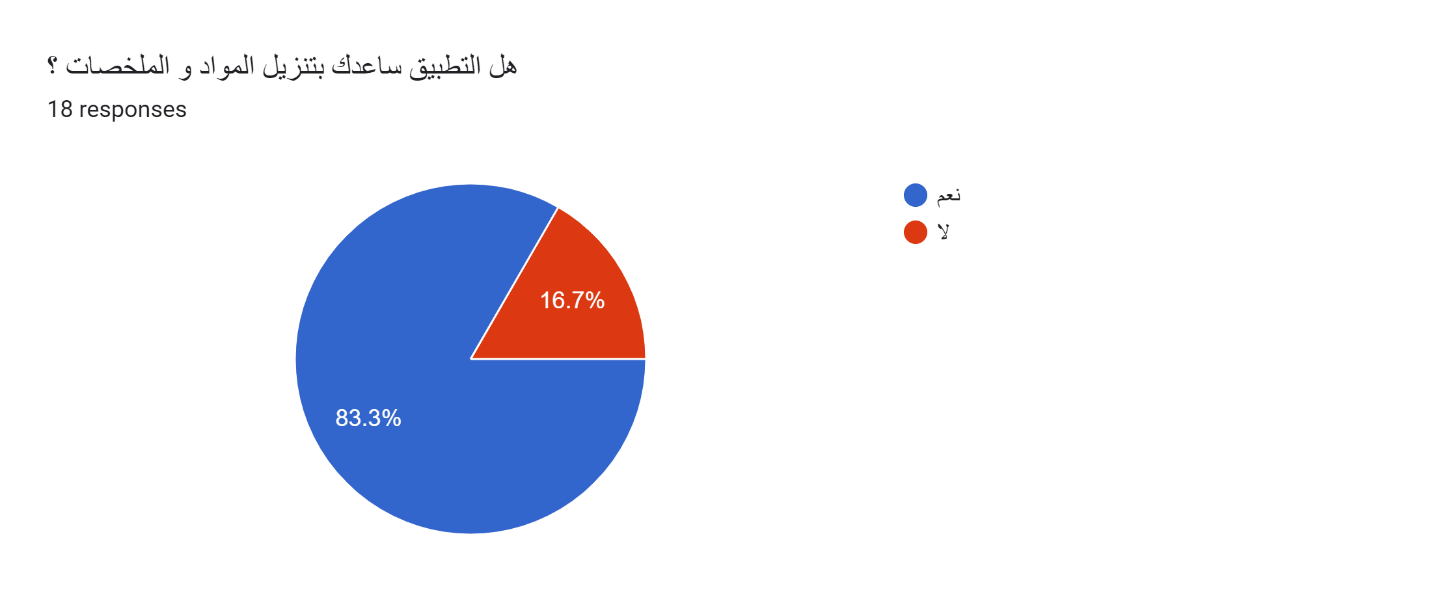


Figure 5.16 Question 4

Based on user decisions, we discovered that 83.3% of people could do so and 16.7% could not.

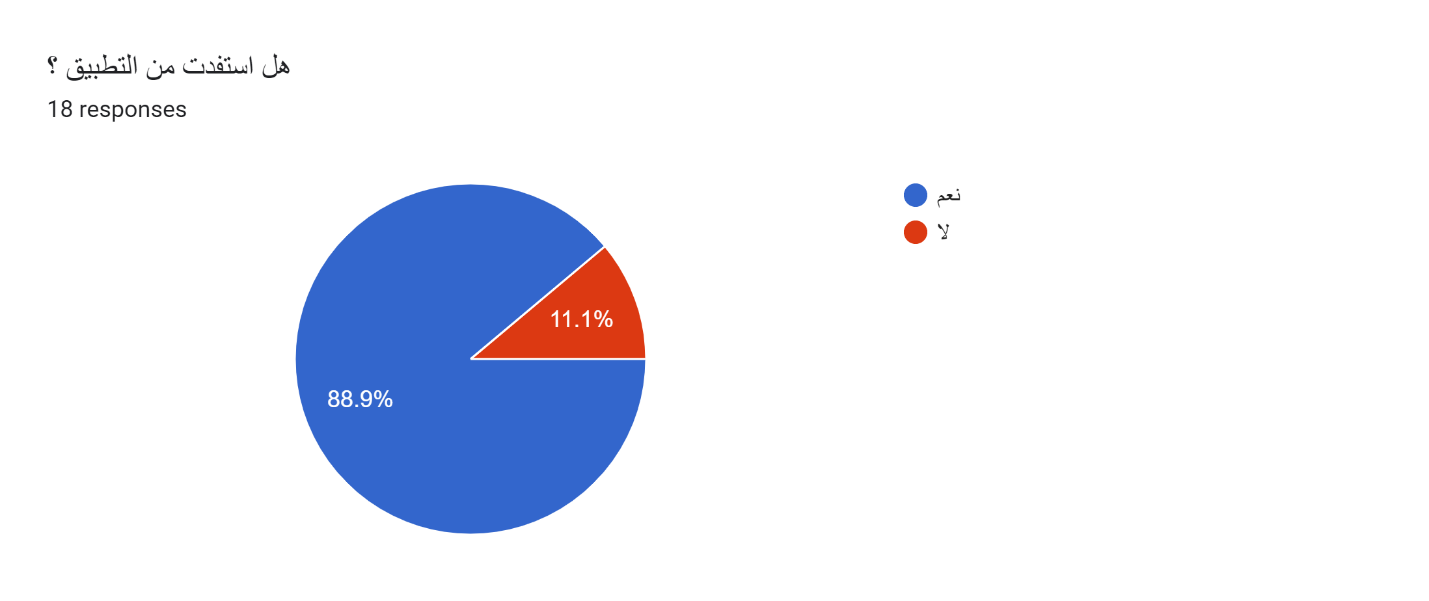


Figure 5.17 Question 5

Based on user decisions, we discovered that 88.9% of people could do so and 11.1% could not.

# CHAPTER 6

## CONCLUSION AND FUTURE WORKS

### 6.1 Overview

This chapter will present a holistic view of the IT Library, encompassing a project summary, objectives, contributions, achievements, limitations, and an exploration of future work.

### 6.2 Project Summary

This project is designed to streamline and optimize the process of accessing various resources related to a student's academic needs. It aims to save time and effort by providing convenient access to resources such as lecture recordings and the schedule of in-person lectures. This facilitates a broader understanding of subjects for students who may have missed a class or need additional review. Additionally, a thoughtful feature, the tree plan, assists students in organizing and downloading their study schedules. Furthermore, a dedicated problem box allows students to submit any challenges they encounter, contributing to a mechanism for prompt issue resolution.

### 6.3 Achieved Objectives

* **Objective 01:** Understand the current project scope and articulate the problem statement comprehensively. This involves gaining a thorough understanding of the existing situation and challenges faced by students within the academic context. The outcome of this analysis, as detailed in Chapter 2 where a comparison was made with other systems (Moodle, Coursera, and Grad Cafe) concerning their unique functionalities, led us to the conclusion that building the best system involves incorporating the majority of these functions into a single, cohesive system.
* **Objective 02**: Develop and implement software capable of integrating essential academic services required by students throughout their university careers into a unified application.

The initial phase involved selecting a methodology, and the choice was Scrum for building the system. This was executed through four sprints, with a sprint serving as the fundamental unit of work for the Scrum team. This distinctive characteristic sets Scrum apart from other agile development models.

Subsequently, a comprehensive system design was formulated, incorporating various diagrams such as the context diagram, data flow diagram, use case diagram, use case specification, activity diagram, and ER (Entity-Relationship) diagram.

Finally, the implementation phase ensued, where the code was developed using the Scrum methodology, ensuring the inclusion of all functions necessary for the correct performance of the system.

* **Objective 03**: To Validate the application's functionality and effectiveness in providing necessary university academic services specifically tailored to the College of Information Technology.

The validation process involves thorough testing and evaluation of the application to guarantee that it not only meets the specified functional requirements but also proven effective in addressing the unique academic requirements of the College of Information Technology. This phase aims to ensure that the software successfully fulfills its intended purpose and serves as a valuable solution for students within the specified academic context.

1.Test Design Specification:

* + Registration
  + Login [valid]
  + Login using an invalid email but a valid password
  + Login using a valid email but an invalid password
  + Login using an invalid email and an invalid password
  + Click the "Log In" button without providing email address and password
  + Download a specific material chapter
  + Watch lectures for a particular subject
  + View the weekly lecture schedule
  + Report an application issue
  + View Computer Science Plan and Extension Plan
  + Submit a specific inquiry

2.User Acceptance:

* + User feedback was systematically gathered, and the outcomes demonstrated that a significant majority of our system's users were impressed by the results.

### 6.4 Contribution

The application is designed for university students, aiming to assist them with academic responsibilities. It serves to streamline the process of locating academic courses, accessing their summaries and lectures, identifying schedules for in-person lectures along with their locations, and offering valuable advice throughout the student's academic journey. This holistic approach is intended to save students time and effort in managing their academic tasks efficiently.

### 6.5 limitation

* + The study's scope is restricted by a limited critical analysis, focusing exclusively on specific specializations.
  + We acknowledge a limitation in the form of a small sample size, which may impact the broader applicability of the findings.
  + The indicative plan page is inflexible and lacks the capacity for necessary adjustments, thereby constraining its adaptability.

### 6.6 Future Work

* Future research should strive for a more comprehensive critical analysis, encompassing a broader range of specializations.
* It is advisable for future studies to consider the utilization of a larger and more diverse sample size.
* Improvements in flexibility are imperative to enable modifications to all elements on the indicative plan page, thereby enhancing its adaptability.

# References

[1]. (2023.9). Retrieved from https://study.com/academy/lesson/agile-vs-sdlc-development.html

[2]. (2023.9). Retrieved from https://moodle.com/

[3]. (2023.9). Retrieved from https://www.coursera.org/

[4]. (2023.10). Retrieved from https://www.thegradcafe.com/

[5]. (2023.10). Retrieved from https://www.investopedia.com/terms/f/feasibility-study.asp

[6]. (2023.10). Retrieved from https://in.indeed.com/career-advice/career-development/what-is-technical-feasibility

[7]. (2023.10). Retrieved from https://www.lawinsider.com/dictionary/operational-feasibility

[8]. (2023.10). Retrieved from https://simplicable.com/new/schedule-feasibility

[9]. (2023.11). Retrieved from https://www.altexsoft.com/blog/functional-and-non-functional-requirements-specification-and-types/

[10]. W3Schools Retrieved from https://www.w3schools.com

[11]. Draw.io Retrieved from https://app.diagrams.net/

[12]. Visual Studio Code Retrieved from https://pub.dev/.

# Appendix

Figure P login code 1

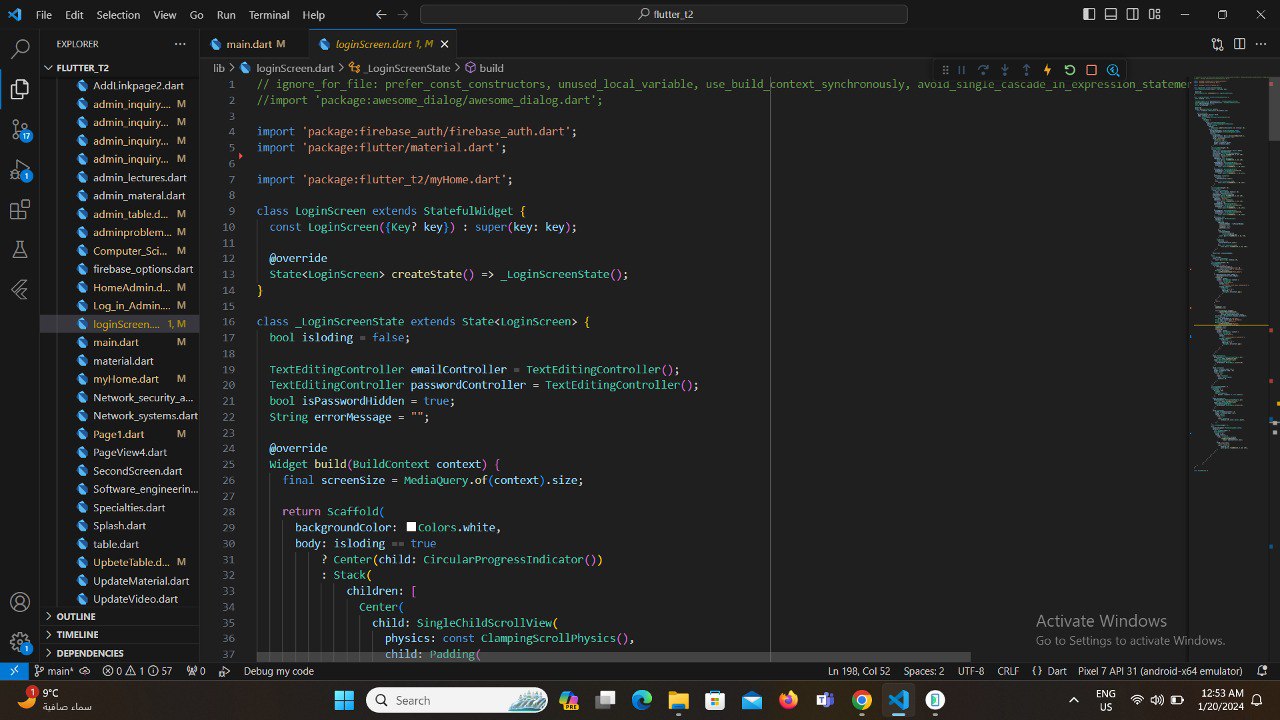


Figure P login code 2

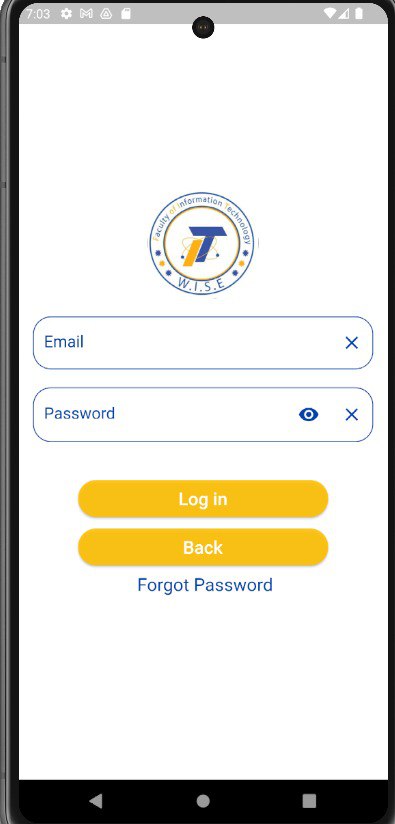
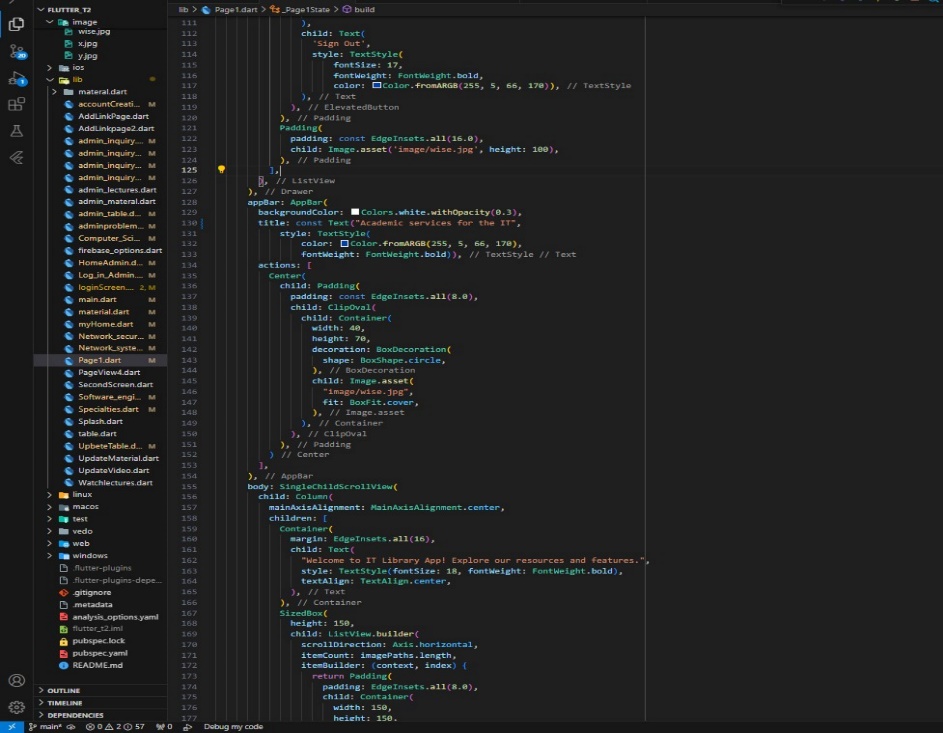


Figure P login output



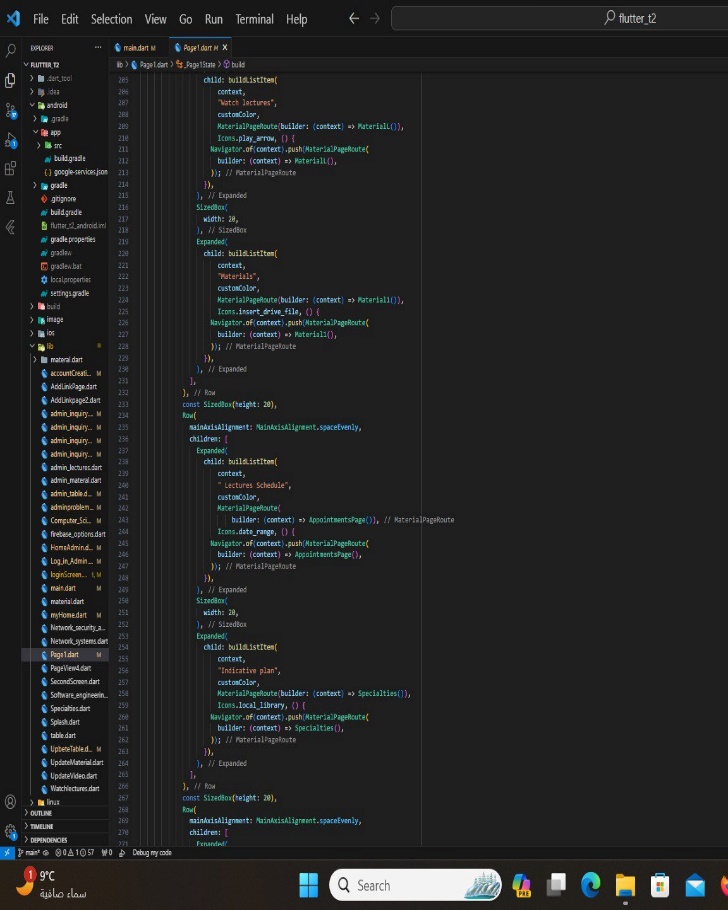
 Figure P home page code 1

Figure P home page code 2

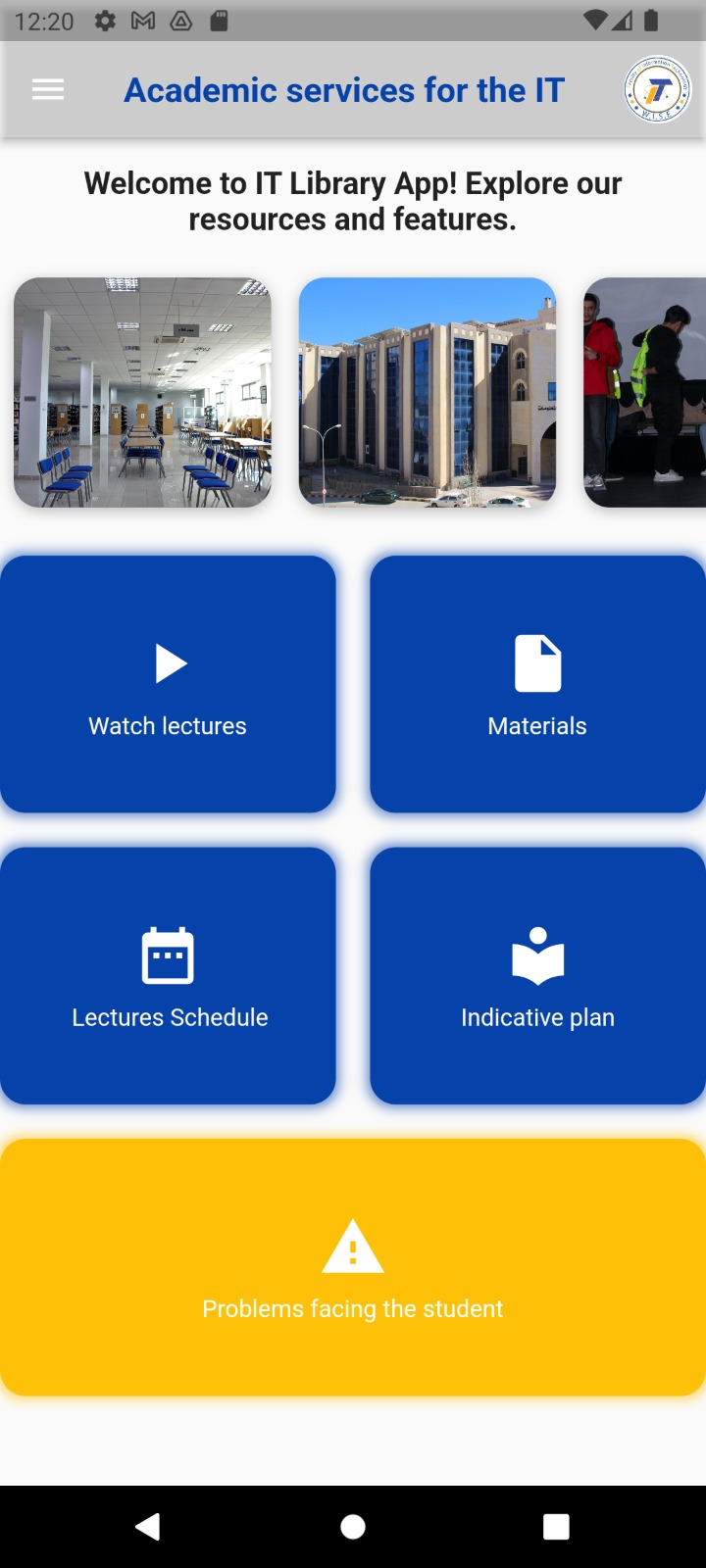


Figure P home page output

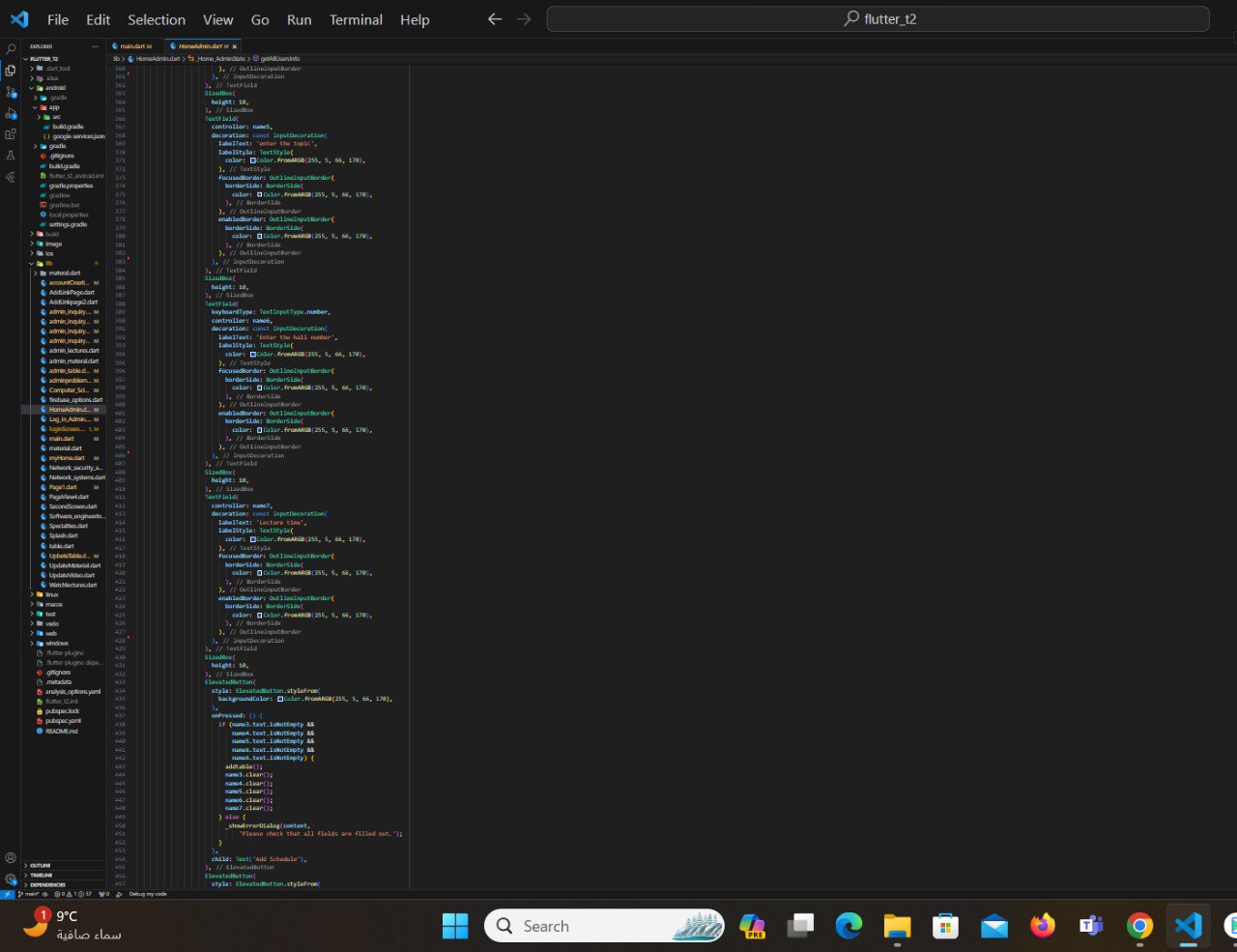


Figure P Admin code 1

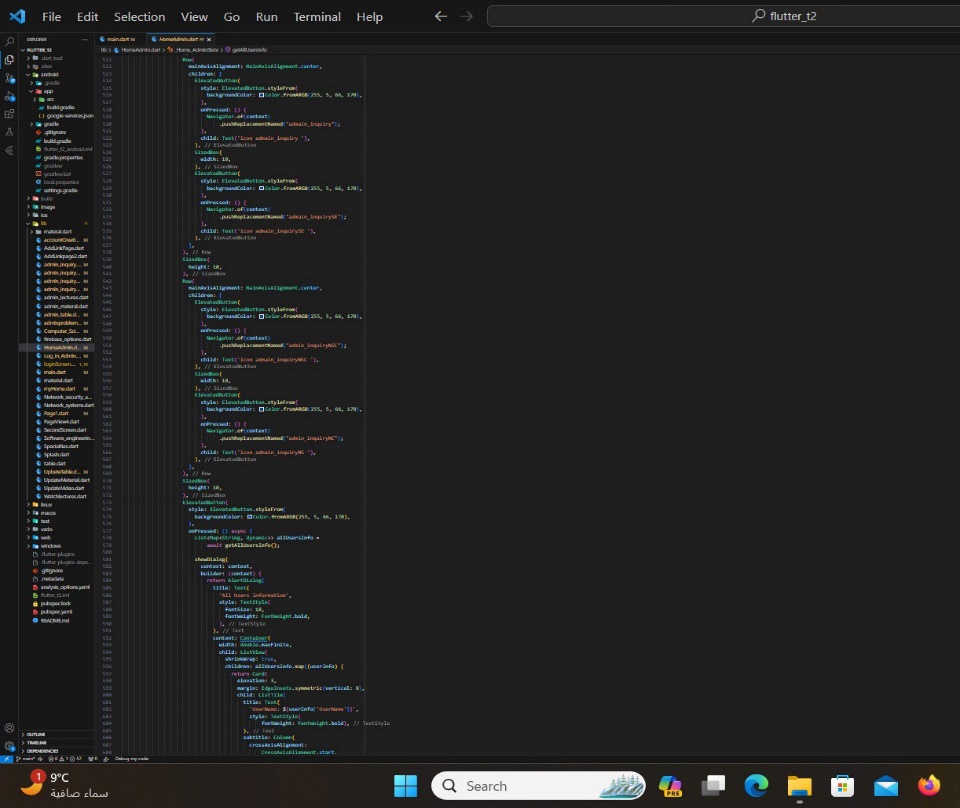


Figure P Admin code 2

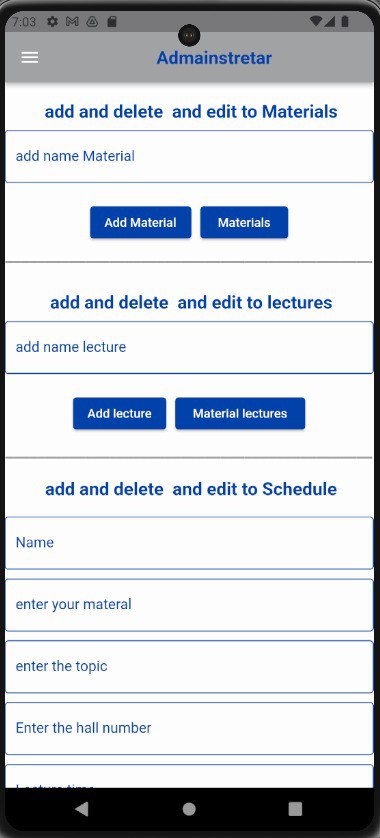


Figure P Admin output 1

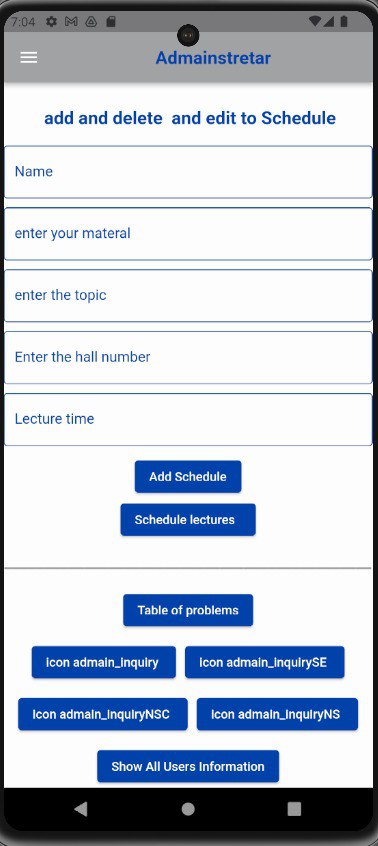


Figure P Admin output 2