TECHNICAL UNIVERSITY OF KENYA

FACULTY OF APPLIED SCIENCES AND TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATON SYSTEMS AND TECHNOLOGY

PROJECT TITLE: ATTACHMENT TRACKING SYSTEM FOR THE SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY.

PRESENTED BY:

OTIENO DANIEL KARANI

SCII/01374/2018

SUPERVISED BY:

SIMON MUCHIRI

ASCAR KAPKIYAI

PROPOSAL SUBMITTED TO THE SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY IN PARTICIAL FULFILLEMENT FOR THE BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY PROJECT OF THE TECHNICAL UNIVERSITY OF KENYA

FEBRUARY, 2023

DECLARATION

I hereby declare that this project is my own work and has never been presented before by any student in and out of our institution. I have been working on this project under strict supervision of Simon Muchiri and Ascar Kapkiyai of The Technical University of Kenya. I also declare that I found resources that were helpful to my project and I referred to them and all the citations and references are included in this document as it is a requirement by the institution. I declare that I did not ask anyone to directly contribute to my project by working on it but I consulted several people students and lectures to name a few.

Name: Daniel Karani Signature: _____

DEDICATION

I dedicate this project to my family for the support and sponsorship throughout my academic prowess.

ACKNOWLEDGMENT

I would like to take this opportunity to thank God for granting me good health, wisdom and knowledge to undertake this project. My sincere gratitude to my supervisors Mr. Simon Muchiri and Mr. Ascar Kapkiyai for their continuous support, guidance and motivation as I was doing my research. I would also want to greatly thank my family for their financial and moral support. Lastly, I would like to thank my friends and classmates for their support during the research period and their helpful insight too.

List of Figures

List of Tables

LIST OF ABBREVIATIONS

TUK - The Technical University of Kenya

SCIT – School of Computing and Information Technology

Table of Contents

CHAPTER ONE: INTRODUCTION

1.1 Introduction

In most tertiary institutions in Kenya have the attachment period towards the end or at the very end of a student's studies at the university as part of the course work and student's get assessed on the same. In this period, a student is expected to bring into manifestation what one has been learning in school into practical application and also learn on same. Mostly, students go for a period of 3 months and after this period the students get assessed by the supervisor assigned to them by the institution. Attachment is a very important part of a student's studies as this exposes a student to the practical application of the knowledge they have been gaining in school.

The main aim of this project is to work with School of computing and Information technology (SCIT) to come up with a system that will help manage the student's attachment. This project will help digitize some of the processes associated with student's attachment.

1.2 Background of the study

1.2.1 Background

In The Technical university of Kenya students learn course in the first two or three semesters(or terms) of their academic year and then at the last of semester of their academic year they do Industrial Based Learning(IBL) where they learn the practical aspect of what they have been learning in the course work and are assessed on the same and graded, this is mostly in their second and third years of study as most courses in this school take 4 years, but there are exceptions some courses are 5 to 6 years and that's mostly engineering and Architectural course nevertheless, they are subject to the IBL. When student move to their final year in their respective courses they are learning and they do their course work and do a project. On successful completion, they look for attachment or an internship on their own and report back to school on where they have secured an attachment or internship and the period they are going to take. Students may find industrial attachment through organizations like the National Industrial Training Authority (NITA) who have

a list of organizations that are offering attachments or internship and students would apply and keep checking with them on whether they have gotten a chance in any of the organizations they had applied. Typically, an attachment takes 3 months and it is the school requirement that a student must finish the 12 weeks of their attachment for them to be assessed. However, internship usually takes longer which is about 6 months. The students are then assessed by their school supervisor who come to the organization they are attaching or interning at and are assessed then graded and finally if the student doesn't have any problems that is supplementary, missing marks and uncomplete projects they are cleared for graduation by their department.

1.2.2 Overview of the current system

In the School of Computing in the Technical university of Kenya, Student's gets an attachment letter from the department and go ahead to find an attachment in various organizations. When a student gets an attachment in a given organization, they fill a google form that captures the information of where they are attached that is, the name of the organization where they are attached, the start and end date, registration number etc. The students are also is expected to download a logbook from the university website which they will fill in daily activities that they will be doing in the organization.

The students are also assigned supervisor by the school who are going to assess them physically in the organization where they are attached and give feedback and grade the student based on the activities done, organization's feedback on the student and supervisor's assessment on the organization.

1.2.3 Overview of the proposed system

This project was to come up with a system that will digitize attachment process for the school of computing. The system is a multi-user system that is the Admin, Students and Supervisors.

The Admin registers the supervisors (School Lectures) and assign them a certain number of students whom they will assess.

The supervisor on the other hand is able to login into the system and go to their dashboard where they will be able to see the students they are going to assess and view their activities and give feedback on the same, and based on that, the supervisor can be able to clear a student as whether they have passed or failed and this status is visible also from the Admin's side.

Lastly the student is able to login into the system and go to their dashboard and from there, they can fill in the logbook and document the daily activities they are tasked within the organization which the supervisor will be able to view and give feedback on.

1.3 Problem Statement

Attachment is very key and it is one of the parameters and criterion that is used to determine a student's final Grade Point Average (GPA) of a student and tentatively be cleared for Graduation. Sometimes a student my fail to find an attachment within the stipulated period and this may adversely affect them. This means that an attachment should be made easily available to students and also trackable such that students are able to apply for attachment and consequently their progress is trackable from a central point. This should be accompanied with a report that can be used for further insight on the students on attachment and make decisions.

There is also a need of flexibility where students can remotely request for assessment from their assigned supervisor in a click of a button.

The existing system requires a student to print out a logbook where the will fill in the activities that they have been doing therein, this would involve a lot of paper work and this project seeks to eliminate this by automating this.

1.4 Objectives

1.4.1 General Objectives (Main Objective)

The main objective of this project is to design, implement, test and deploy a web-based application that we will be able to allow students apply for attachment, track their attachment application and automate manual task like updating of the logbook.

1.4.2 Specific Objectives

1. To design a module for attachment application where students can find and apply for attachment and track their attachment application progress.
2. To implement a module that allows students to update their logbook.
3. To design an assessment module where students can be able to book for their assessment.
4. To implement an upload and download module where students can upload and download various documents such as reports.
5. To implement a reporting module that produce reports of each student who is in attachment.

1.5 Justification

Soliciting from various student's and Supervisors from SCIT, the idea has been widely accepted and they would want a digital solution with regards to attachment. Most students agree that if they can have the attachment process done with only a few clicks can ease their work as most students have access to internet and this would not be a problem to them. This research gives insight to other researchers in future who might want to improve something on the attachment process work that they can review to see previous solution and criticize and make improvements on the research.

1.6 Scope of the Study

In scope

1. To design and implement a logbook module to update logbooks.
2. To implement a reporting module for producing reports of each student.
3. To design and implement an assessment module.
4. To design an upload and download module for various documents.
5. To design and implement attachment application module.

Out of scope

Achieving the goal of developing for the whole project for the entire institution, it is limit only for SCIT.

1.7 Limitation of the proposed system

1. Despite the various benefits of using the system, there are some of the challenges which include: The user needs a smart device like a smartphone or a laptop in order to use the system. It also requires the use of the internet. Therefore, a user without the internet connection will not be in a position to access the system.
2. The system still does not cover the whole school, some of them still have to find attachment for themselves.

1.8 Project Risk and Mitigation

The risks identified from this project include;

1. **Technology Support** - some web technologies may fail to support some of the project objectives, this is mitigated by using those web technologies that support most of the features in the system.
2. **Security of data**- The system should include measures that can be used to handle user's data in a proper way. This will also make users to trust the system. This is mitigated by ensuring authorization to access a certain page and authentication to access the system.
3. **Being robbed** - This involves the possibility of the laptop containing the project being robbed. It can be mitigated by ensuring that there are several back-ups at different locations containing the same project for example, flash drive, CD, cloud etc.
4. **Laptop device may crush**- This is mitigated by constantly checking the operational status of the laptop to ensure that it is optimized at all times and also having a back-up.

1.9 Project Schedule

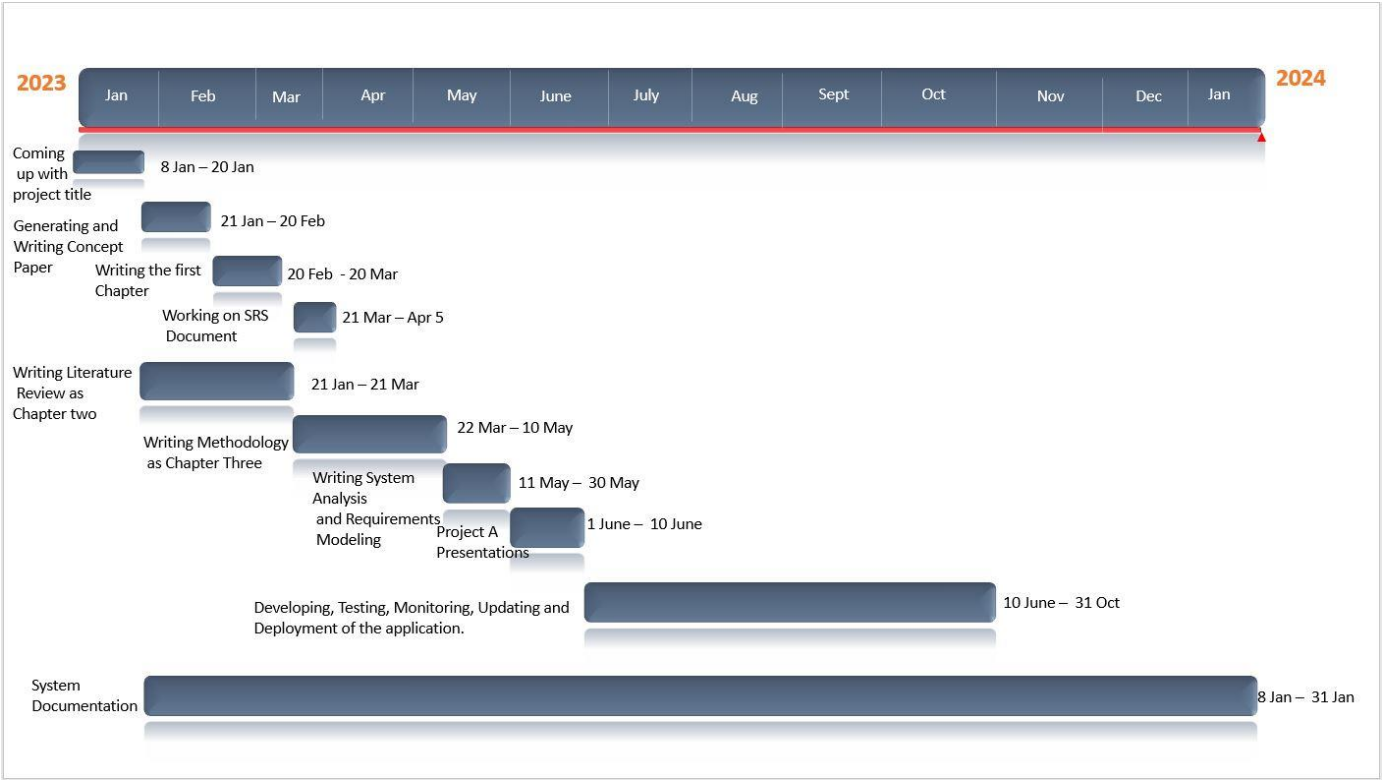


Figure 1: Project Schedule

1.10 Budget and Resources

Table 1: Budget Table

ITEM	COST
Laptop	**Ksh. 40,000**
Software (Open source)	**Ksh.0**
Hosting Fee	**Ksh.3000**
Miscellaneous expenses	**Ksh.7,000**
TOTAL	**Ksh.50,000**

CHAPTER TWO: LITERATURE REVIEW

There other existing approaches with regards to the same (industrial attachment) and this includes entities, applications or even existing manual systems. In this section we are going to perform and scrutinize the existing systems put in place, to facilitate the industrial attachment process and provide solutions to help build a better system.

2.1 Reviewed Similar Systems

2.1.1 National Industrial Training Authority (NITA)

The National Industrial Training Authority (NITA) is a state corporation established under the Industrial Training (Amendment) Act of 2011 (Allais, Stephanie 2020). Its mandate is to promote the highest standards in the quality and efficiency of Industrial Training in Kenya and ensure an adequate supply of properly trained manpower at all levels in the industry.
The Authority has its headquarters in Nairobi and five industrial training centers spread across the country; NITA Textile Training Institute, NITA Nairobi, NITA Kisumu, NITA Mombasa and NITA Athi River.

The Centers host a number of industry-oriented courses targeting workers in the formal and informal sectors. The courses include short and long programs [proficiency courses, skill upgrading courses, artisan courses, and tailor-made courses]. The Centers provide full board accommodation, training rooms, workshops and recreational facilities (Mwangi, 2015).

(Okelo, J., & Owuor, J, 2021) One of the services offered by NITA is industrial attachment, this section of NITA coordinates Industrial Attachment under the Industrial Attachment Program. It links industry and institutions for placement of students at the workplace for the acquisition of practical skills and appropriate work-ethics.

The attachment process is constantly monitored in order to ensure a high quality of training of graduates from Universities and other tertiary colleges. It's based at the NITA headquarters.

Students can apply for an attachment through the ITAP (Industrial Training Attachment Portal) portal where various openings for attachment.

2.1.2 Koforidua Technical University (KTU) Industrial Attachment Management System

(Dsane-Nsor, Sarah, et al., 2019) This is a web-based application developed to aid in the attachment process in Koforidua Technical University. The system is a multi-user that is the Administrator (Admin), the Students, Company Supervisor and the visiting Supervisor (Lecturer form the institution). The user is able to register and for a student they are able to perform different functions that pertains to the industrial attachment.

The system allows the students to fill in a e-Logbook and submit the same for review. A student can also submit reports on the attachment process. Company Supervisors and Visiting Supervisor are able to assess the student upon authentication and are able to fill a form with predefined criterion and the total score of the grade against each criterion is captured and stored (Dzorgbo and Azorliade, 2021).

(Nyame and Agyapong,2020) There is also the admin dashboard where the administrator after authentication is able to view all the registered students. The system also allows the Admin to assign supervisors to the students who are attached. The Admin can also view the score from the Visiting supervisor and Company supervisor which are tentatively used to grade the student.

2.1.3 LinkedIn, Brighter Monday, and Fuzu

(Chu, S. K. W. 2020) LinkedIn is the world's largest professional network on the internet. You can use LinkedIn to find the right job or internship, connect and strengthen professional relationships, and learn the skills you need to succeed in your career. You can access LinkedIn from a desktop, LinkedIn mobile app, mobile web experience, or the LinkedIn Lite Android mobile app (Van Iddekinge et al., 2016; Raabe & Beehr, 2018). A complete LinkedIn profile can help you connect with opportunities by showcasing your unique professional story through experience, skills, and

education. You can also use LinkedIn to organize offline events, join groups, write articles, post photos and videos, and more.

Brighter Monday and Fuzu are the same as LinkedIn (Nagery, O. S. 2019), they are professional social websites that are used to advertise career opportunities, various organizations which have opportunities would post them in this platform and their respective requirements for each opportunity. However, as a student you can be able to find internship opportunities in these platforms, one is required to upload their resume customized to meet the requirements. Student can apply and get opportunities on passing the criterion described (Sekhon et al., 2017; Gupta & Goswami, 2018).

2.2 Tools and Methodologies used in Reviewed Systems

2.2.1 The National Industrial Training Authority

(Wikiprocedure, 2022) The application for the attachment process is done through the ITAP portal where one creates an account and does user registration by filling in personal details which includes; user type (student), name, Id number, email address, phone address, user name and password. Enter the verification code provided then click register for submission.

A verification link is sent to the registered email so as to activate your ITAP-Account: a verification code is provided then one clicks submit to verify account. The user then logs into your ITAP account using the username and password that you registered with and click on "Edit Profile" so as to complete creating your user profile by filling the required details such as:

1. Date of birth
2. Gender
3. Learning institution
4. Study level
5. Admission number

6. Skill area
7. Disability status

(Mwangi, 2015) The user after submission can be able customize their application by selecting the quarter which they want to have their industrial attachment and any three preferred towns where they would want to take the industrial attachment and then one waits for Attachment Liaison Officer (ALO) based on the student's institution of study to verify the student's eligibility as a student for industrial attachment.

If a student qualifies for industrial attachment NITA officials will then take up the role of placing you to the Industries/Companies which have declared slots available, for work place training and one can log in your ITAP account to check on your industrial application status. Notification of your industrial attachment placement will be communicated through your ITAP account and the Attachment Liaison Officer (ALO) who is based in your institution of study (Okelo, J., & Owuor, J, 2021).

2.2.2 Koforidua Technical University (KTU) Industrial Attachment Management System

The system is a multi-user system having different users: The Administrator, Students and the Supervisor. Students are can register in two modes: A) Industrial Attachment at Koforidua Technical University. B) Industrial Attachment at a Company or other institution different from the university. These users are authorized to perform different functions after authenticating their credentials (Dzorgbo and Azorliade, 2021).

2.2.3 LinkedIn, Brighter Monday, and Fuzu

The named application above requires a user to register in order to access the features there in and some of the features that these systems have include:

1. **Keeping in touch:** People often change jobs and find new opportunities. They allow users to stay updated on where the people in their professional network are working and how to contact them.
2. **Getting help:** When a user's network of contacts can't help with a business problem, LinkedIn Groups help the user connect with experts through trusted introductions.
3. **Searching for jobs:** search feature lets users access thousands of employment listings, with options for filling out applications directly on the site. The application and the user's LinkedIn profile are sent directly to potential employers.
4. **Hiring new employees:** Hiring managers can use these to find candidates with in-demand career skills and appropriate experience or find candidates for an internship opportunity.

Some of these systems come into modes that is, the free version and the premium version. The free version is for basic membership but the options are limited. One can only send messages to people in in their network and have access to limited data on the last five people who viewed your profile and searches are limited to 100 results. On the other side of the coin, the premium version is an upgraded version of the free one and doesn't have any limitation of the free version (Kavoi et al., 2021).

2.3. Gaps in the existing systems

The existing systems do not a centralized point where student's industrial attachment progress in trackable from their point of application all through their completion in the various organization where they are attached. NITA for instance through their ITAP portal is mostly concerned with tracking the attachment application process and does not go beyond the whole attachment process

up to completion and this also observed in the Koforidua Technical University (KTU) Industrial Attachment Management System, for LinkedIn and other related systems (Fuzu and Brighter Monday) are mostly concerned with connecting job seekers and employer.

2.4. The proposed solution

The proposed solution was to design, develop and implement a web-based application to be used by the School of Computing and Information Technology (SCIT) in the Technical University of Kenya that provides a centralized way where student can be able to apply for an attachment and track their progress on the same and consequently track their entire attachment progress to completion and the supervisors can also be able to view their progress and assess them too.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

In this chapter, the methodology that was used in this project is discussed. This includes the methodology and tools, facts and data collection techniques, data and processes analyzing tools, implementation and testing tools, time schedule & project cost.

The final deliverable of this project was a system that will help the school of computing in TUK to be able to track the student's industrial attachment process.

3.1 Methodology and tools

(Ali, H., Khan, S. U., & Mallah, R. 2018) The methodology that will be used in this project is Agile Software Methodology. Applying this methodology will allow to divide the project into smaller and shorter parts.

It is an iterative development approach in which solution and requirements come from a collaboration of components. The tools used in this methodology are Data a Flow Diagrams, System flowcharts, Wireframes and Use case diagrams.

It involved collaborations of processes as shown in the diagram below. (Vijaya Raghavan et al., 2020)

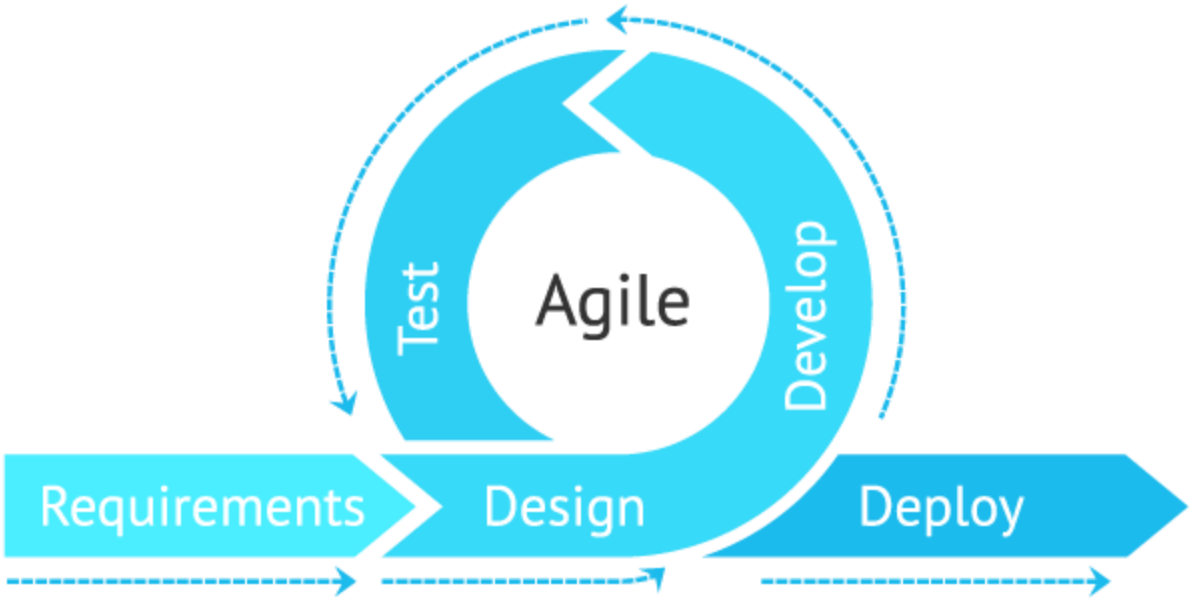


Figure 2: Agile Methodology

The following steps are followed in agile methodology;

Step 1. Planning

This involves breaking down the idea into small task. At this point the idea should be proved to be feasible. The sub tasks help the developer to focus on the major tasks and hence giving the high quality of a system. In this step, we determined if the idea was feasible. By carrying out technical, economical, operational and schedule feasibility study. After that, we broke it down it small tasks to make it easy to work with.

Step 2. Requirement analysis

This involves establishing both functional and non-functional requirements. This is done by gathering information from students and school website manager. In this step came up with data collection tools and techniques to be used in gathering information from the students and other users of the system. The information from the students is what we used to determine the functional and non-functional requirements of the system.

Step 3. Design

In this phase the system software is prepared with reference with the requirements identified in the previous step. This also involves determining the solution of the problem and how it can be met. At this step, we came up with a visual representation of the web-app. How the user interface will look like and explanation of its features and how it works.

Step 4. Develop

In this step, the proposed system is implemented by writing its code. The code is written considering its functional and non-functional requirements. At this step, we wrote the code of the system putting into consideration objectives and both functional and non-functional requirements. In this step we came up with the system itself.

Step 5. Testing

This involves trying to determine if the product developed is actually trying to solve the identified problem. The developed code is compared against the listed requirement. It has three steps; unit testing, system testing and integration of the units. Testing and validating this web-app is also important

Step 6. Deployment

After testing the product, it is made available to students through the website. This is not determined as the end of the project because if the students run into a problem while using the system, it is addressed by the developer. Deployment of this project should be though presenting it to my supervisors and my fellow students to try to interact with it. They will give feedback on its performance and functionality.

Reasons for using Agile Methodology

1. The project is broken into modules and Agile methodology helps to break down the project into sub-modules and helps the developer focus on major task.
2. Allows visualization of each project step and this makes it easy to follow along all the development steps.
3. It allows CI/CD (continuous integration and continuous development) and testing.
4. The Developer is involved all throughout the project.
5. Since project can be dynamic Agile methodology allows for the adoption of changing circumstances.

3.2 Sources of data

Primary Sources

The main data collection methods used includes;

1. **Observation**

   This involved actively looking at the current systems and determining where the problem is and its proposed solution. This was important because we interact with the current system to provide some crucial data.
2. **Questionnaires**

   This involved actively engaging the students and other users using open ended questions. Through this document the students were free and open to express their opinions regarding the proposed system.
3. **Literature Reviews**

I looked up at recent already existing systems and derive the data that they have collected to help me develop my project. I will get this literature by checking published documents and online journals.

4. **Interviews**

   It involved engaging School of Computing and Information Technology Director, Lectures in-charge of the attachment process and students that have been in or are currently in attachment.

Secondary Sources

Secondary data refers to information that is gathered from sources that already exist. Some of the sources I used to get this data include; reviewing of literature and analyzing systems that already exist.

3.3 Data collection Methods & Tools

The primary data will be collected using a softcopy of a set of questions distributed to users. It will be distributed by giving the links.

The tool that will be used to develop the questionnaire is Google forms. This is because it is easy to share the form, collect and analyze its information.

3.4 Resources & Materials required

Hardware Specifications

1. Laptop – Used as the working platform for the project

2. Processor speed – Intel (R) Core i5 ,2.60GHz
3. Memory requirements – Minimum of 4 GB RAM.
4. Hard disk capacity – Minimum of 500 GB.

Software Specifications

1. Operating System – Windows 10.
2. Development Environment – Visual Studio (VS-Code)
3. Software configuration management tools – git and GitHub to track file changes in the software
4. Backend development tools – Django (Python Framework), MySQL for data Storage.

CHAPTER FOUR: SYSTEM REQUIREMENT AND REQUIREMENT MODELING

4.1 Introduction

To develop the proposed System and meet the user needs, it was essential to take time to analyze the existing system, and gather requirements of the new proposed system. The analysis of the existing system was done by largely by reviewing feedback from students who have gone for attachment before and those that are currently in attachment. Data gathering for this analysis of existing system was done by talking to students and lectures, observing and collecting existing documents that are involved in the attachment process. As indicated in previous chapter, the gathering of data for the new proposed system was achieved through data gathering tools like questionnaires, interviews, observation and review of existing documents. Modelling of the existing system was done utilizing tools such as Flowcharts, Data flow diagrams, and Entity Relationship Diagrams.

4.2 Objectives of the System Analysis

The major objective of system analysis was to evaluate and help understand how the current system that is used in the attachment process works. The goal was to identify how that system works, where it deficient, where it flourishes and how it can be improved.

The system analysis aimed to identify gaps that would be crucial in developing the new system and to be better suited to serve attachment process for the School of Computing in TUK.

4.3 Problem Definition

The problem that has necessitated system analysis of the existing system and consequently an analysis to shed more light into development of the new system, is a lack of central platform where the attachment process can be coordinated and tracked from start to the end.

Most students are dependent on securing their attachment places based on their prior familiarity with someone in the organization, the proposed systems also seek to reduce this by having the ability to suggest attachment or internships place which they can apply.

4.4 Feasibility Study

A comprehensive analysis was conducted to assess the viability and practicality of implementing the proposed web application for managing student attachments. This study encompasses various dimensions, including technical feasibility, operational feasibility, and economic feasibility. Technically, the system's architecture leverages proven technologies, ensuring a seamless integration with existing infrastructures. Operationally, the proposed solution addresses key challenges related to user adoption, ease of use, and scalability. Furthermore, an in-depth economic feasibility analysis outlines the cost-benefit ratio, considering development, implementation, and maintenance expenses against the anticipated long-term advantages. The positive outcomes of this feasibility study affirm the viability of the web application.

4.4.1 Technical Feasibility

The proposed web application for managing and tracking student attachment at the School of Computing, Technical University of Kenya (TUK), demonstrates strong technical feasibility. Leveraging well-established technologies and adhering to industry best practices, the system aligns seamlessly with the existing IT infrastructure at TUK. Compatibility with the school's databases, networks, and security ensures a smooth integration process. The application's architecture supports scalability, enabling it to accommodate the anticipated growth in data volume and user interactions. Technical feasibility is further reinforced by the use of robust development frameworks, ensuring the reliability and sustainability of the system within the SCIT ecosystem.

4.4.2 Economic Feasibility

In terms of economic feasibility, the web application stands as a prudent investment for the School of Computing at TUK. The analysis reveals a favorable cost-benefit ratio,

considering development, implementation, and ongoing maintenance expenses against the long-term advantages. The system's efficiency in managing student attachments translates into streamlined administrative processes, reduced manual workload, and increased productivity. By automating attachment-related tasks, the web application minimizes operational costs associated with time and resource allocation. Additionally, the long-term benefits, such as improved data accuracy and accessibility, contribute to a positive economic outlook, justifying the investment and positioning the application as a valuable asset for the School of Computing.

4.4.3 Operational Feasibility

The proposed Systems' operational feasibility is evident in its ability to seamlessly integrate into the existing academic workflows. The user-friendly interface and intuitive design facilitate easy adoption by staff, students, and administrators. Through extensive user training and support mechanisms, the application ensures a smooth transition to the new system. The elimination of manual processes and the introduction of automated workflows enhance overall operational efficiency, reducing the likelihood of errors and delays. Furthermore, the system's scalability and adaptability to the School of Computing's unique operational requirements make it a practical and operationally feasible solution, aligning with the institution's commitment to advancing technological innovation.

4.5 System Analysis Tools

4.5.1 Use Case Diagrams

Use case diagrams are diagrams that illustrate functional features (use cases) of a system and how users will interact with the system to utilize each of the features or in various use cases. In this project, the use case diagrams were essential to illustrate the various interactions

between users and the attachment system through the web.

4.5.2 Entity Relationship Diagrams (ERD)

As previously noted, ERDs are diagrams used to illustrate how the database is modelled. They were used to show the entities in the system, their attributes and the relationships between them.

4.5.3 Data Flow Diagrams (DFD)

DFDs are diagram were used to illustrate how data will flow within the system. They are also used to show data stores that are required for a system.

4.5.4 Flow Charts

In this system, Flowcharts were used to illustrate the sequence of steps required to perform an action in the system. They were essential to illustrate how operations in the social network take place.

4.6 System Investigation

4.6.1 Introduction

An essential aspect of preparing for the development of the new system was to collect data about the existing system and get insight into what would be needed for the new system to solve the issues in the existing system and enable the same tasks more efficiently. The data

was collected through method such as questionnaires, interviews, and observation.

4.6.2 Data Collection

4.6.2.1 Questionnaire

The questionnaire primarily focused on gathering essential data to thoroughly understand the needs and requirements of the School of Computing (SCIT). The questionnaire is meticulously designed to capture insights from key stakeholders, which includes: students and administrators, to identify pain points in the current process of managing student attachments. By soliciting feedback on existing challenges, desired features, and user expectations, comprehensive data was collected and it inform the design and development of the web application effectively. The questionnaire covers a spectrum of topics, ranging from user preferences and accessibility requirements to data security concerns. Through this systematic data collection process, the resulting solution was tailored to the unique operational context of the School of Computing, addressing specific needs and fostering a positive impact on the overall management of student attachments.

4.6.2.2 Interview

Interviews serve a crucial component of data collection, enabling a comprehensive understanding of user needs, system requirements, and organizational goals. Through structured interviews with key stakeholders, including that is administrative staff, lectures and students at (TUK), valuable insights were gathered to inform the design and development of the proposed web application for managing student attachments. These interviews were focused on elucidating current challenges in attachment management, user expectations, and desired functionalities. Stakeholder input was instrumental in identifying specific system requirements, ensuring that the final solution addresses the unique needs of the School of Computing. The information obtained through these interviews forms the foundation for

subsequent analysis and design phases, guiding the development team towards creating a tailored and effective solution that aligns seamlessly with the school's operational context.

4.6.2.3 Observation

Through direct observation of daily workflows, interactions with stakeholders in this case mostly the students in attachment, and an examination of existing documentation, key insights were gathered regarding the management of student attachments. The observations focused on identifying manual processes, bottlenecks, and areas where the current system may be prone to inefficiencies. Additionally, user behaviors, preferences, and pain points were carefully documented to inform the development of a tailored solution. These on-the-ground observations provided valuable context, shedding light on both the strengths and limitations of the current attachment management practices. The insights gleaned during this observation phase serve as a foundational basis for the subsequent stages of the system investigation, guiding the design and development of an optimized web application.

4.6.3 Fact Recording

The initial steps of structuring the new application based on the information about current system involved collecting identifying facts about the new system. The following are the facts that were identified during the fact recording process.

4.6.3.1 System Requirements

System requirements are the core features that a system must enable to have achieved its goal. The proposed system is a multi-user system and functional requirements are divided per user as show below:

<u>Admin Functional Requirements</u>

1. Login to the System

2. Add Lectures
3. Search Lectures
4. Assign Supervisors to Students
5. View Students' Score
6. Post Attachment/Internship

Student Functional Requirement

1. Login to the System
2. Update Logbook
3. Upload Report
4. Request Assessment
5. Apply for Attachment/Internship

Visiting Supervisor Requirements

1. Login to the System
2. View Student Log Book
3. View Student Report
4. Grade Student

Organization Supervisor Requirement

1. View Student Logbook
2. Comment on Student Logbook
3. Grade Student

4.6.3.2 Input Requirements

Input requirements refer to the prerequisites that are needed to make the project possible.

These requirements for the project to create the attachment System include:

1. Hardware for the development
2. The software to do the development, including an operating system, and the relevant tools such as Django Framework and MySQL Database.
3. Internet access

4.6.3.3 Output Requirements

The expected deliverable is a web application that facilitates the attachment process for the school of computing.

4.7 System analysis

System analysis of the existing system illustrated how the attachment process flows without a dedicated platform. The analysis illustrated that the process is mainly manual and there is no centralized system that seamlessly facilitate most of the attachment process. Figure 3 below shows the summarized version of the existing system using a flow chart. Figure 4 shows the use case diagrams of the same.

4.7.1 Flowchart of the Existing System

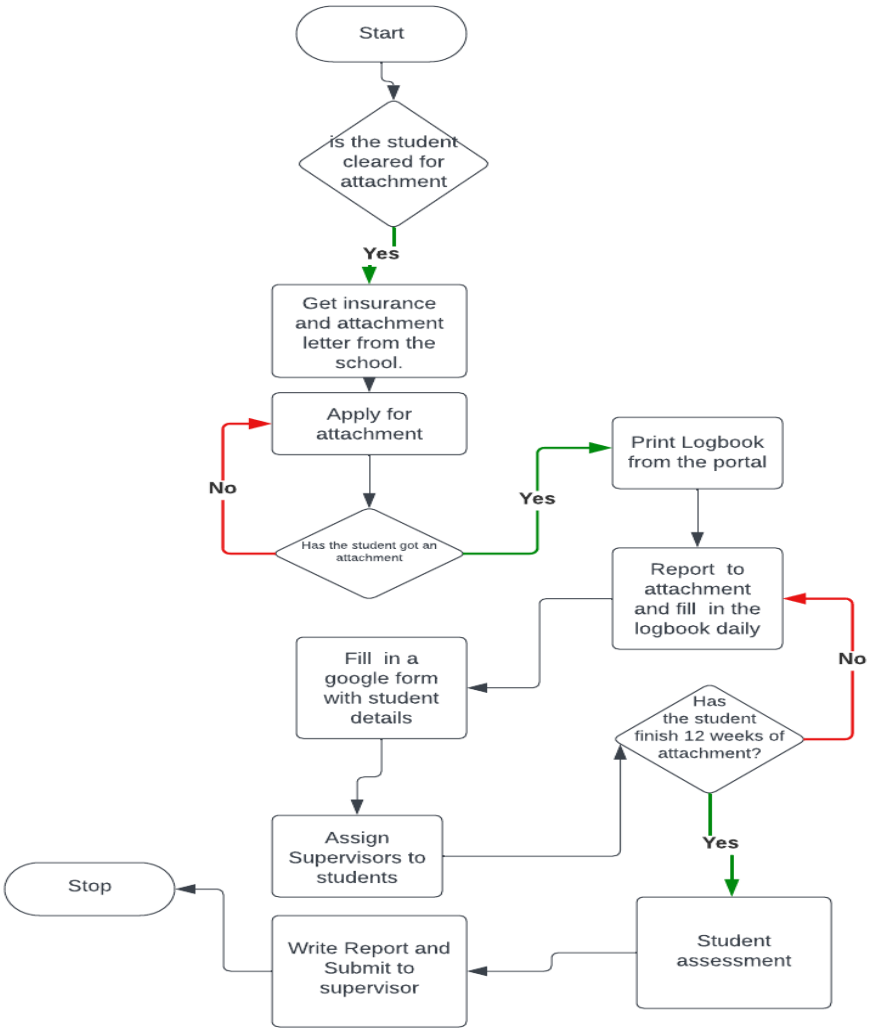


Figure 3: Current System Flow Chart

4.7.2 Use Case Diagram of the Existing System

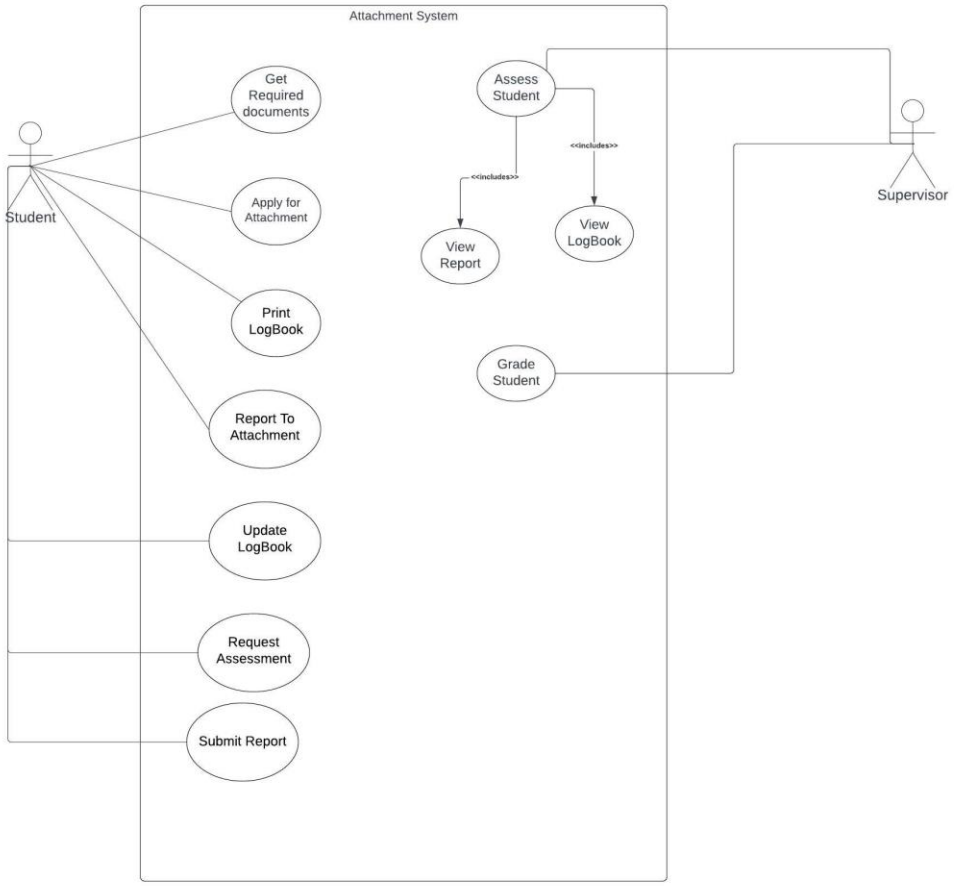


Figure 4: Current System Use Case

CHAPTER 5: SYSTEM DESIGN

5.1 Introduction to system design and nature of the system

This chapter contains the designs for the interfaces, data, modules, and components required to enable the features of the Attachment System for SCIT. The entire application includes designs for how data is be stored, how data moves within the system, how data is entered into the system, how data is displayed from the system and how users interact with the system to perform various actions.

5.2 Design Objectives

Above all other objectives the design for the attachment system was aimed at enabling the features required for the application. Therefore, the designs cover the data movement and organization that is essential to come up with the desired features. In addition, the other objective for the design for was to ensure that it was user-friendly. User friendliness ensured that the application is designed such that users perform all the actions they need easily without struggling to find icons and buttons that effect the system actions.

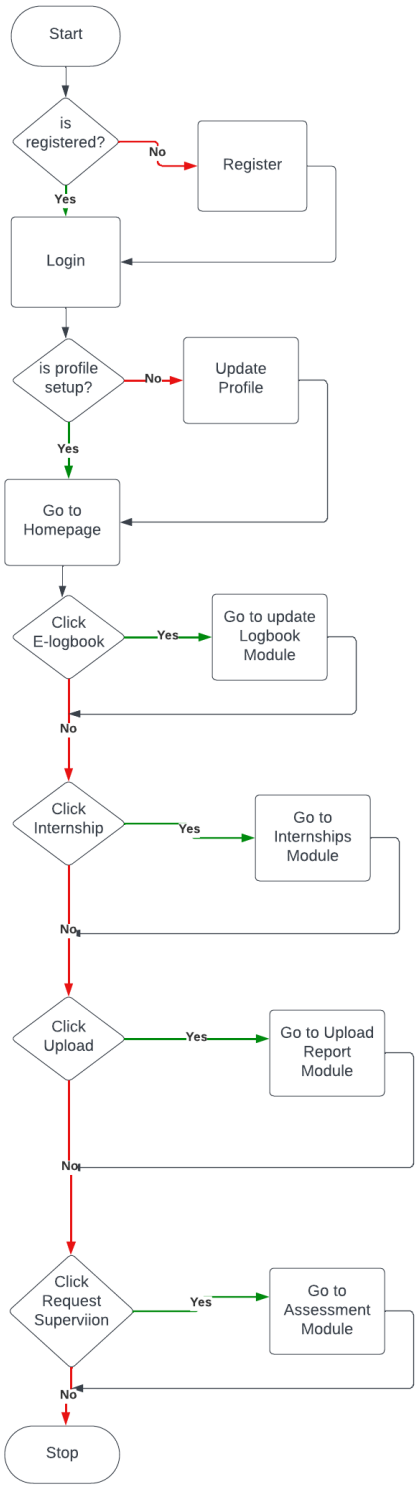
5.3 Programs Designs Tools

As noted in chapter 3, methodology, Program design tools that were used to design this project included Use Case Diagrams, Data Flow Diagrams, Entity Relationship Diagrams, and Flowcharts.

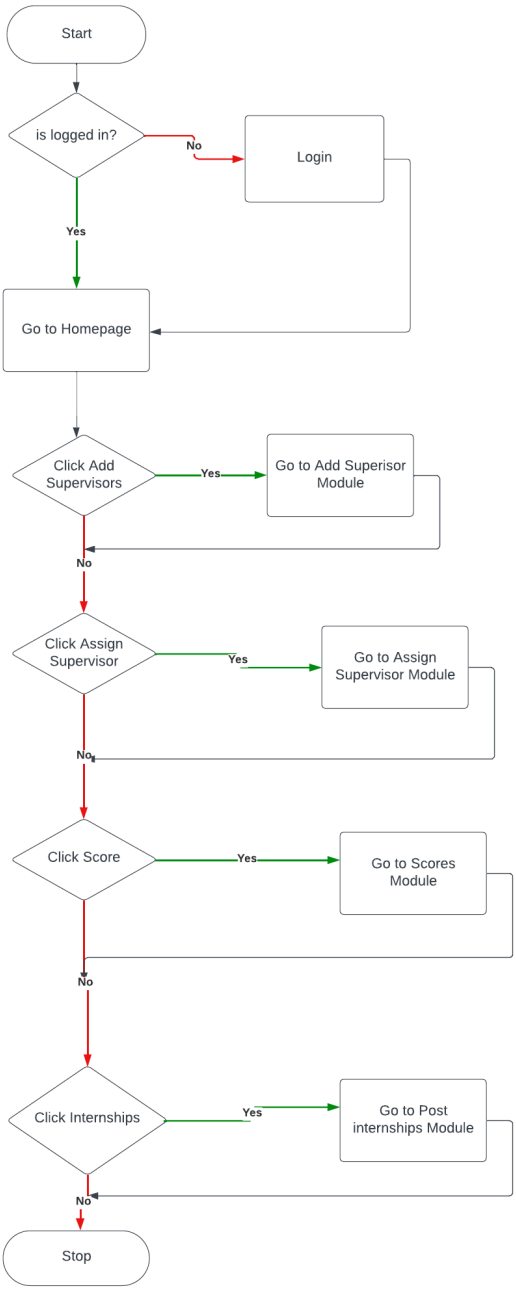
5.3.1 Flow Charts

The following are flowcharts of the system that summarizes the flow of activities of different users, illustrating what each user can do within the application.

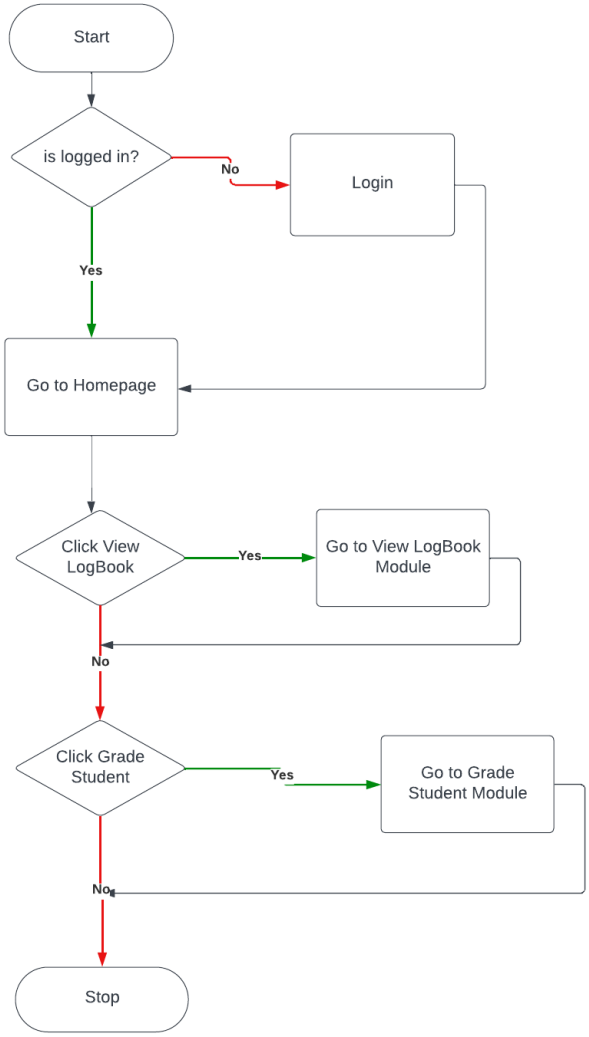
STUDENT



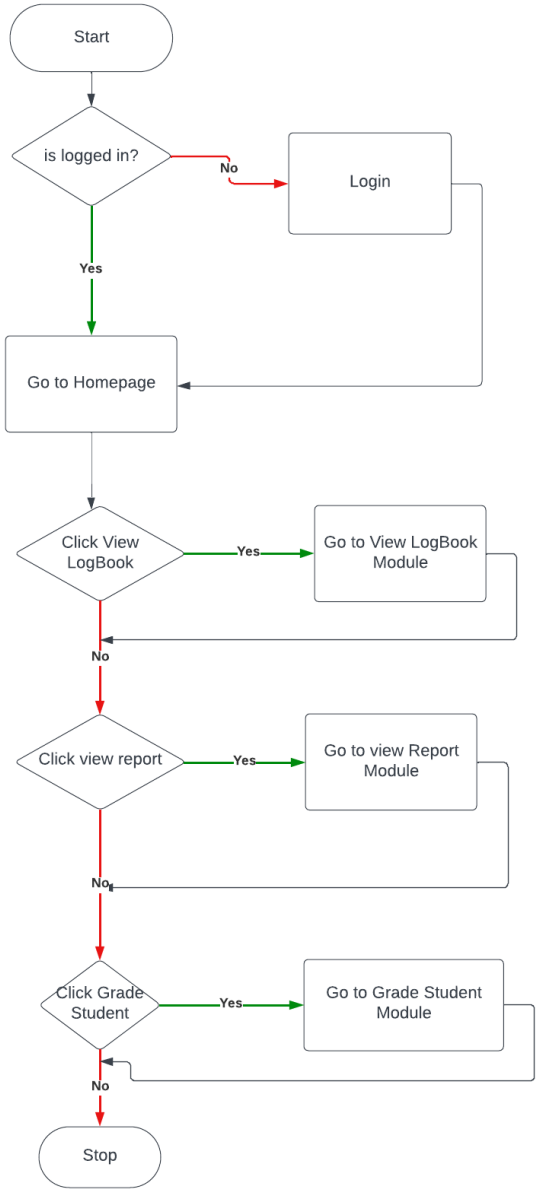
ADMIN



ORGANIZATION SUPERVISOR

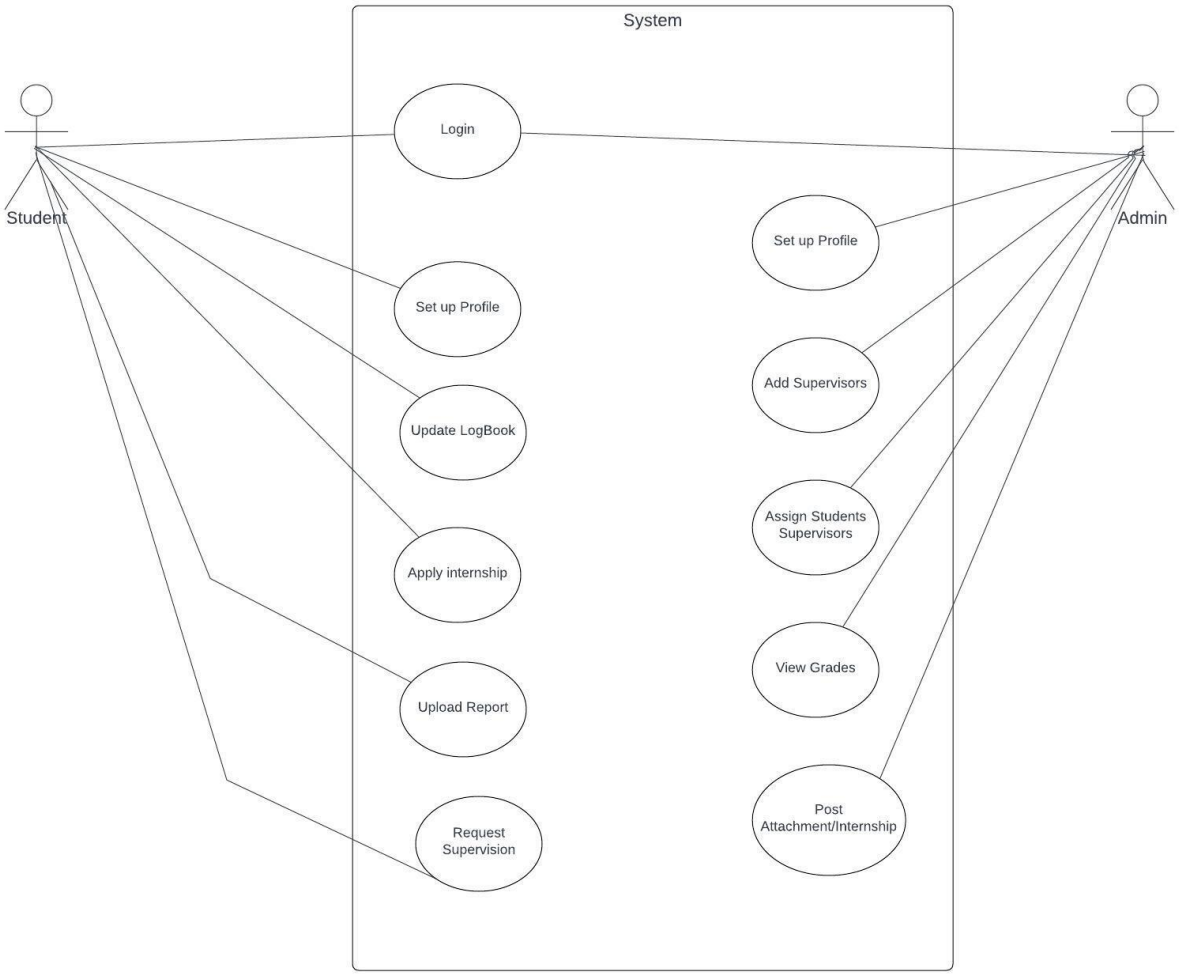


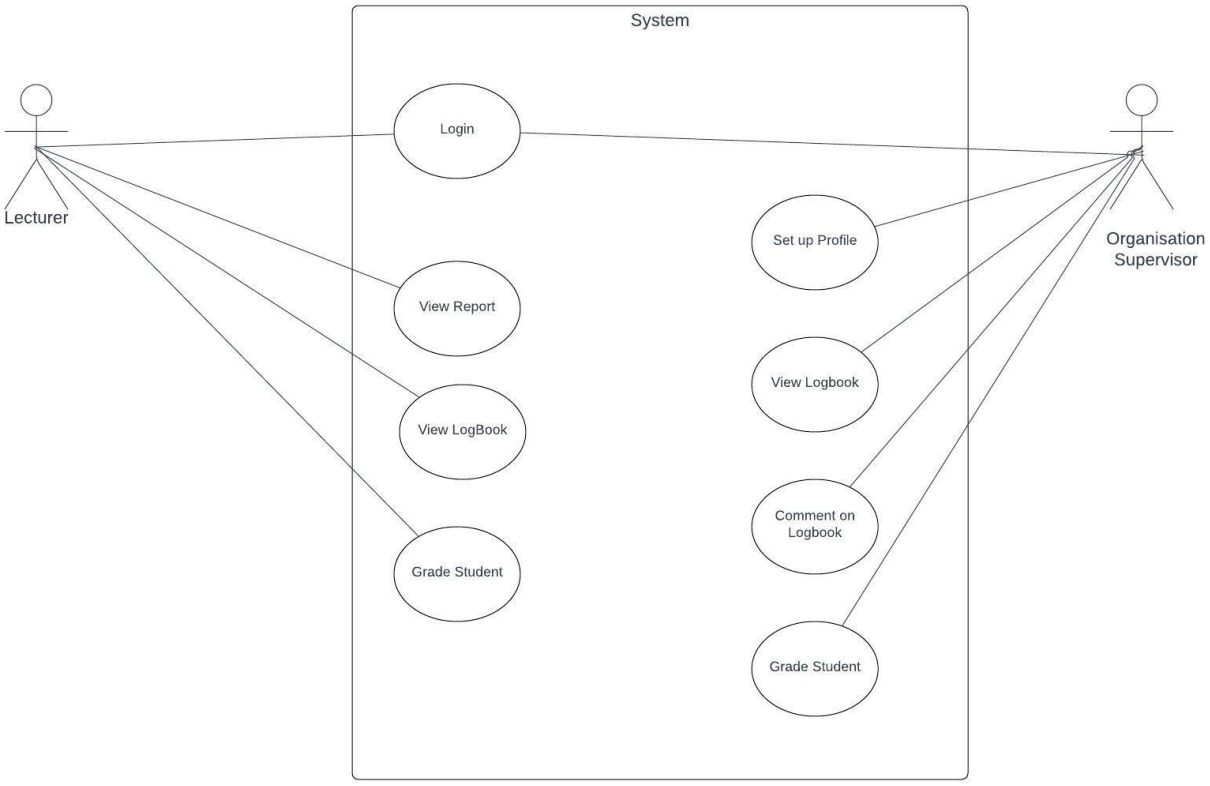
LECTURER



5.3.2 Use Case Diagram

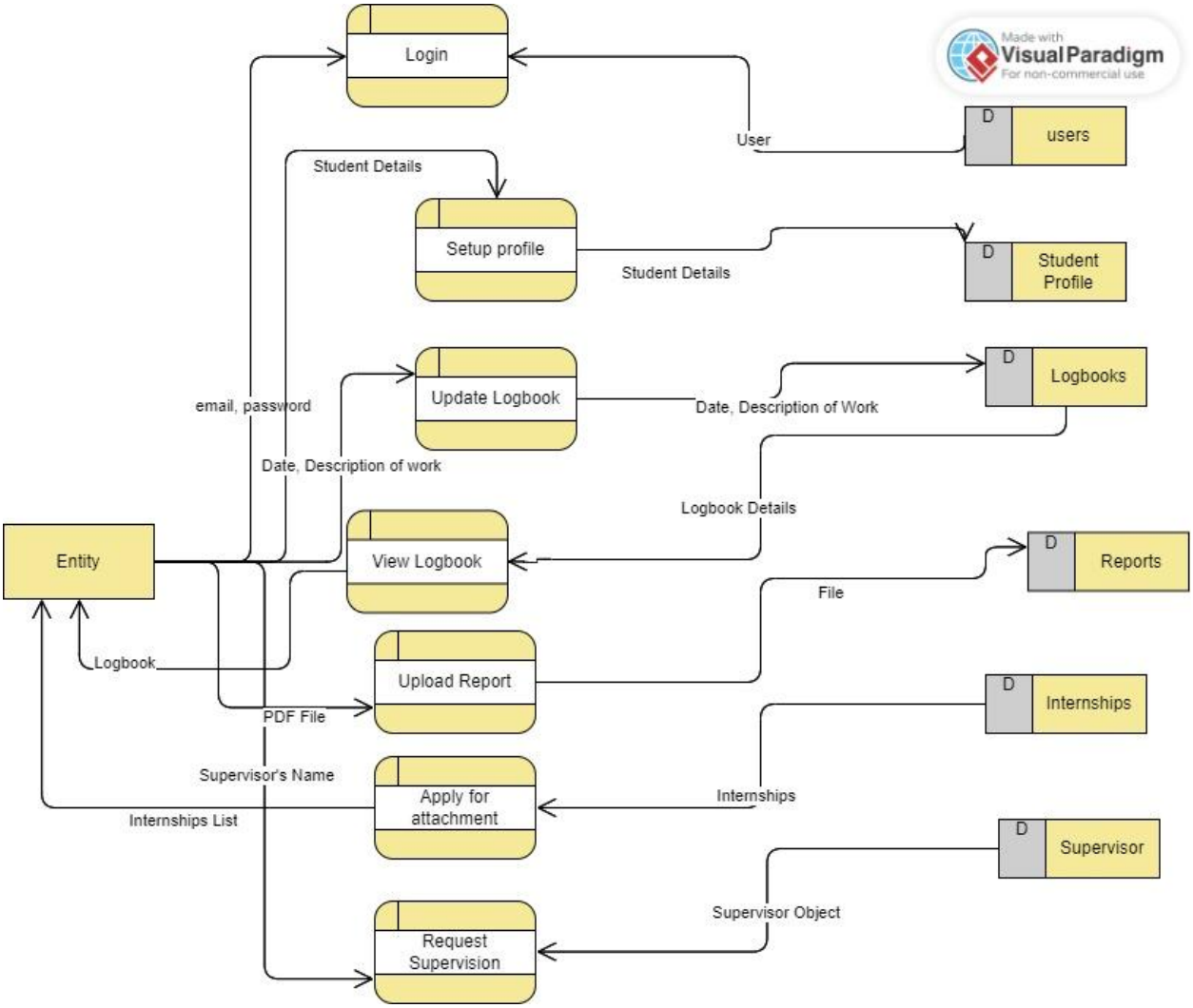
The following is a use case that illustrate the major use cases in the application that different users of the system can do within the system.

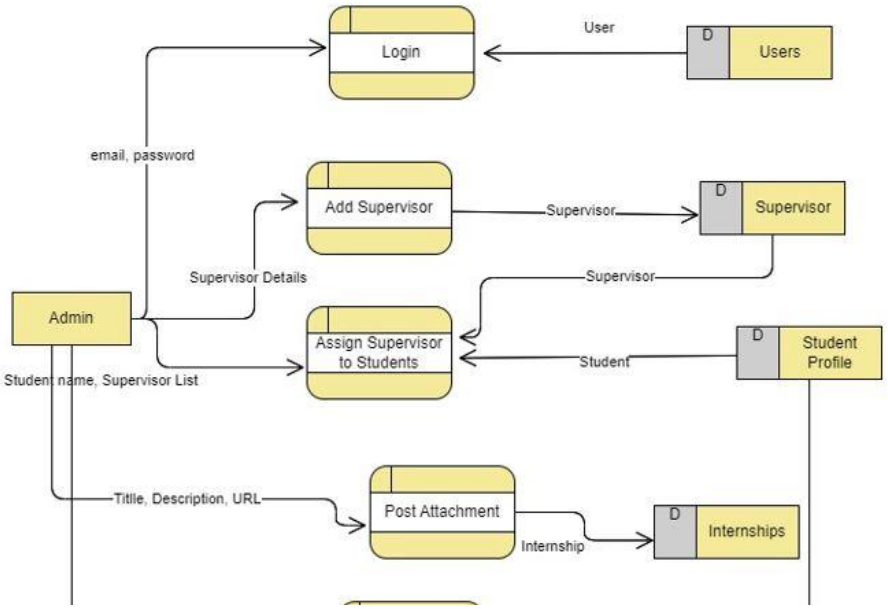


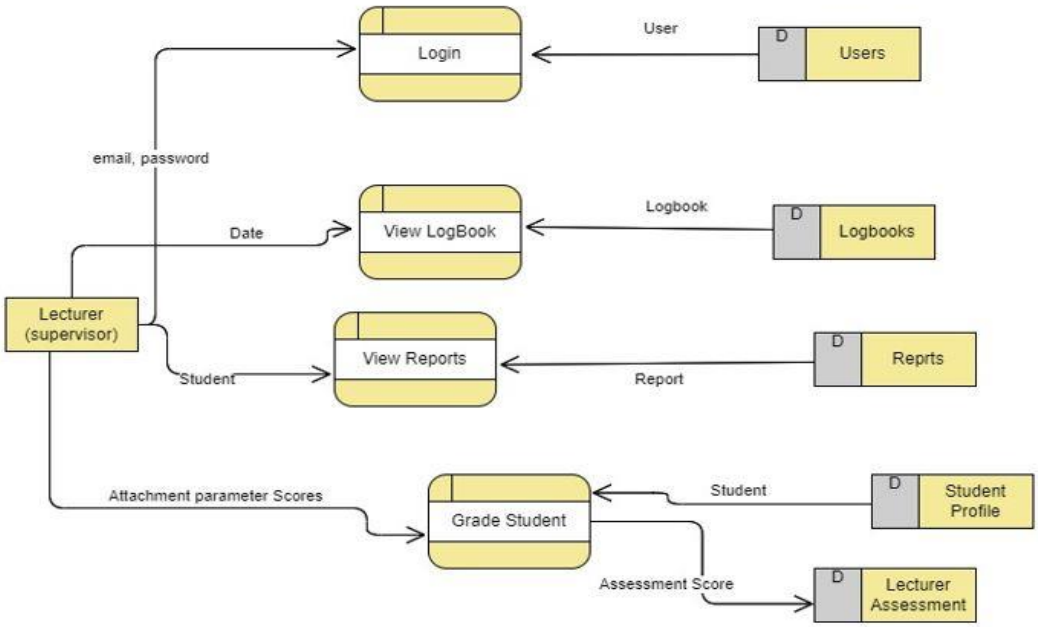


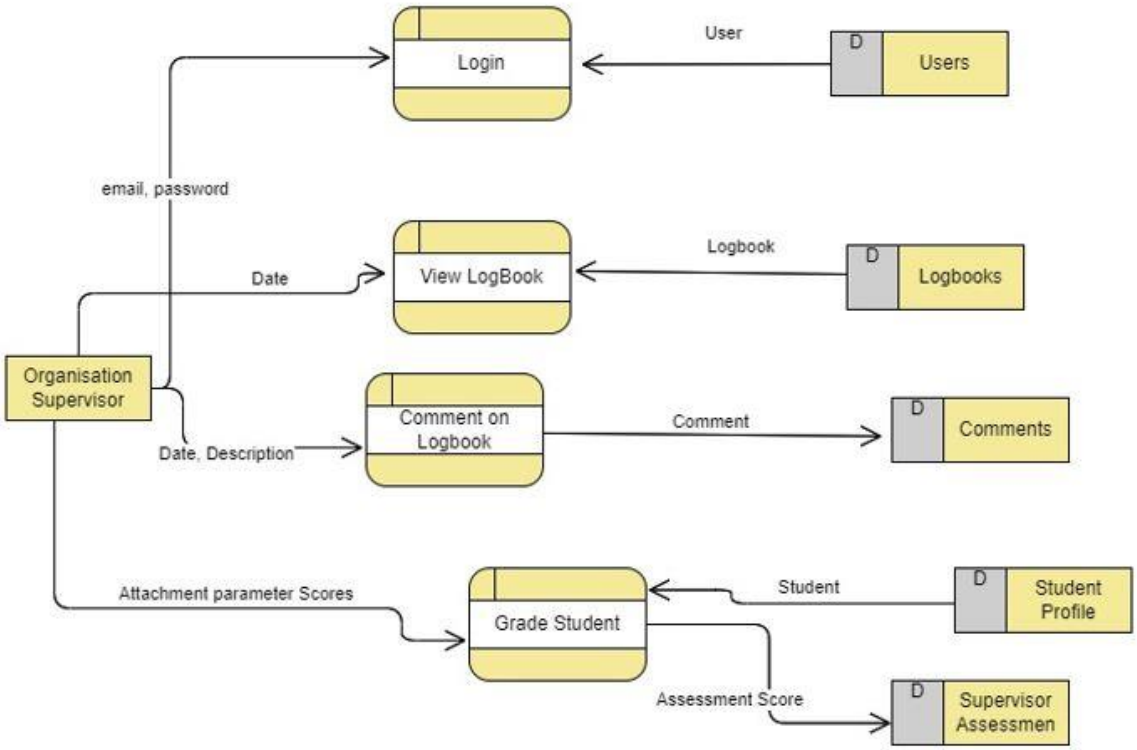
5.3.3 Data Flow Diagram

The following is a Level 1 Data Flow diagram of the attachment system that illustrates how data will flow within the System.


Login
Made with Visual Paradigm For non-commercial use
D
users
User
Student Details
Setup profile
Student Details
D
Student Profile
D
Logbooks
Update Logbook
email, password
Date, Description of Work
Date, Description of work
Logbook Details
Entity
View Logbook
D
Reports
File
Logbook
Upload Report
D
Internships
PDF File
Supervisor's Name
Apply for attachment
Internships
Internships List
D
Supervisor
Supervisor Object
Request Supervision

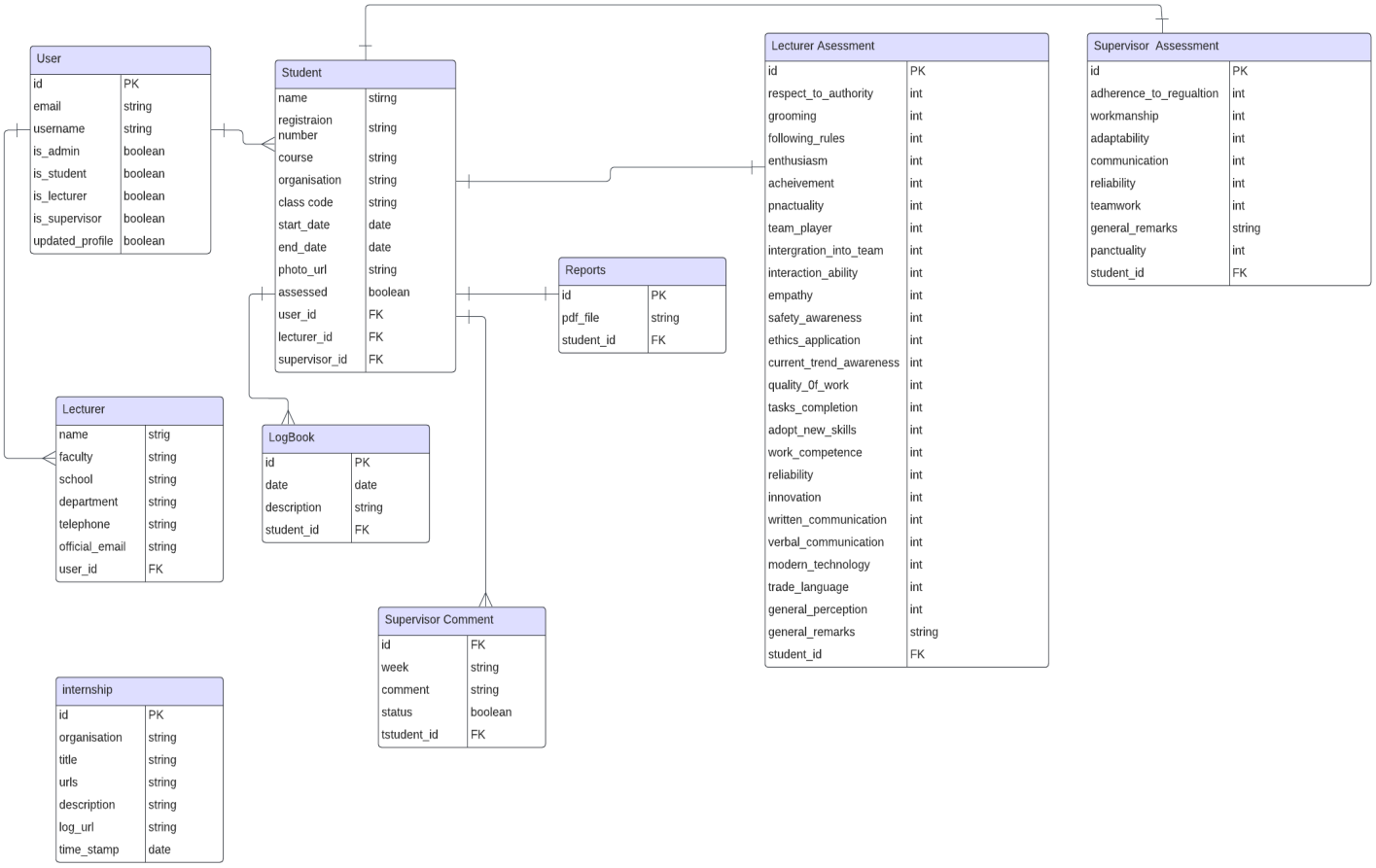

Login
User
D
Users
email, password
Add Supervisor
Supervisor
D
Supervisor
Supervisor Details
Supervisor
Admin
Assign Supervisor to Students
Student
D
Student Profile
Student name, Supervisor List
Titlie, Description, URL
Post Attachment
Internship
D
Internships


Login
User
D
Users
email, password
Date
View LogBook
Logbook
D
Logbooks
Lecturer (supervisor)
Student
View Reports
Report
D
Reprts
Attachment parameter Scores
Grade Student
Student
D
Student Profile
Assessment Score
D
Lecturer Assessment


Login
User
D
Users
email, password
View LogBook
Logbook
D
Logbooks
Date
Organisation Supervisor
Comment on Logbook
Comment
D
Comments
Date, Description
Attachment parameter Scores
Grade Student
Student
D
Student Profile
Assessment Score
D
Supervisor Assessmen

5.3.4 Entity Relation Diagram (ERD)

The following is a Entity relationship diagram that illustrates how the database for the system is structured.



5.4 Logical Design

A logical data design illustrates the conceptual model of the data for a given system as well as the relationship between the data. Unlike a physical design which illustrates exactly what would be in the data and the data types to be used, a logical design gives a summarized view of what the physical design may look like.

In this system it included the tables for the user, student profile, lecturer, logbook, reports, assessments, comments and internships, where each of these table are linked to their relevant table as depicted earlier on the ERD.

5.5 Physical Design Description

5.5.1 Data Dictionary

5.5.1.1 User Table

Table 2: User Database Table

Data Name	Data Type	Description	Allow Null Value
id	int	Id for a user	No
email	string	User's Email	No
username	string	User's Username	No
is_admin	string	Checks whether a user is an admin	No
is_student	string	Checks whether a user is a student	No

is_supervisor	boolean	Checks whether a user is a supervisor	No
is_lecturer	boolean	Checks whether a user is a lecturer	No
updated_profile	boolean	Checks whether as user has updated their profile	No

5.5.1.2 Student Table

Table 3: Student Profile Database Table

Data name	**Data Type**	**Description**	**Allow Null Value**
name	string	Student's Full name	No
registration_number	string	Student Registration number	No
course	string	Course pursuing	No
organization	string	Organization where attached	No
class_code	string	Student's class code	No
start_date	date	Start date of attachment	No
end_date	date	End date of attachment	No
photo_url	string	Link to the profile picture	No
assessed	boolean	Checks whether a student has been assessed or not	No

user_id	integer	it is foreign key of the user's table	No
supervisor_id	integer	it is foreign key of the supervisor's table	Yes
lecturer_id	integer	it is foreign key of the lecturer's table	Yes

5.5.1.3 Supervisor Table

Table 4: Supervisor Assessment Table

Data Name	**Data Type**	**Description**	**Allow Null Value**
id	int	Id for the assessment	No
adherence_to_regulation	int	Score for adherence_to_regulation	No
workmanship	int	Score for workmanship	No
adaptability	int	Score for adaptability	No
communication	int	Score for communication	No
reliability	int	Score for reliability	No
teamwork	int	Score for teamwork	No
punctuality	int	Score for punctuality	No
general_remarks	string	General remarks for the assessment	No
student_id	int	Foreign key for the student table	No

5.5.1.4 Lecturer Table

Table 5: Lecturer's Database Table

Data Name	**Data Type**	**Description**	**Allow Null Value**
name	string	Lecturer’s Name	No
faculty	string	Faculty the Lecturer belongs to	No
school	string	School the lecturer belongs to	No
department	string	Department the lecturer belongs to	No
telephone	string	Lecturer’s phone number	No
official_email	string	Lecturer’s official email	No
user_id	int	Foreign for the user table	No

5.5.1.5 Logbook Table

Table 6: Logbook Database Table

Data Name	Data Type	Description	Allow Null Value
id	int	Logbook ID	No
date	date	Date	No
description	string	Description of work done	No
student_id	int	Student id for relating to the logbook	No

5.5.1.6 Reports Table

Table 7: Reports Database Table

Data Name	Data Type	Description	Allow Null Value
id	int	Reports ID	No
pdf_file	string	Path to where the file is located	No
student_id	int	Foreign key pointing to the student's Table	No

5.5.1.7 Logbook Comment Table

Table 8: Logbook Comment Database Table

Data Name	Data Type	Description	Allow Null Value
id	int	Comments id	No
week	string	Logbook week commented on	No
comment	string	The comment	No

status	boolean	Checks whether the comment on logbook for a certain week has been done.	No
Student_id	int	Foreign key pointing to the student's Table	No

5.5.1.8 Internships Table

Table 9: Internships Database Table

Data Name	Data Type	Description	Allow Null Value
id	int	Internship ID	No
organization	string	The organization offering the internship	No
title	string	Title of the internship	No
url	string	Application URL	No
description	string	A short description of the internship	No
logo_url	string	URL to the logo of the organization	No
time_stamp	date	The date the internship was posted	No

5.6 Database Design

The SCIT attachment system was designed to use MySQL database server. The database contains 9 tables each holding the data showed in the tables above.

5.7 Input Screen

Below are the screens for inputting data that goes to the database into the system.

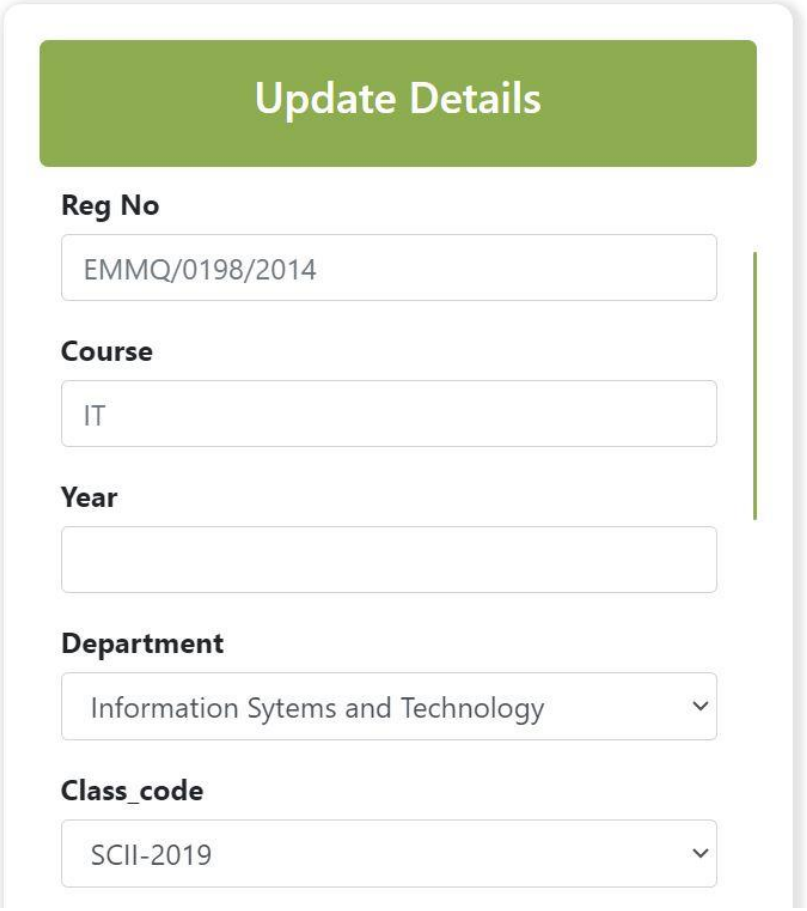


Figure 5: Student Profile Input

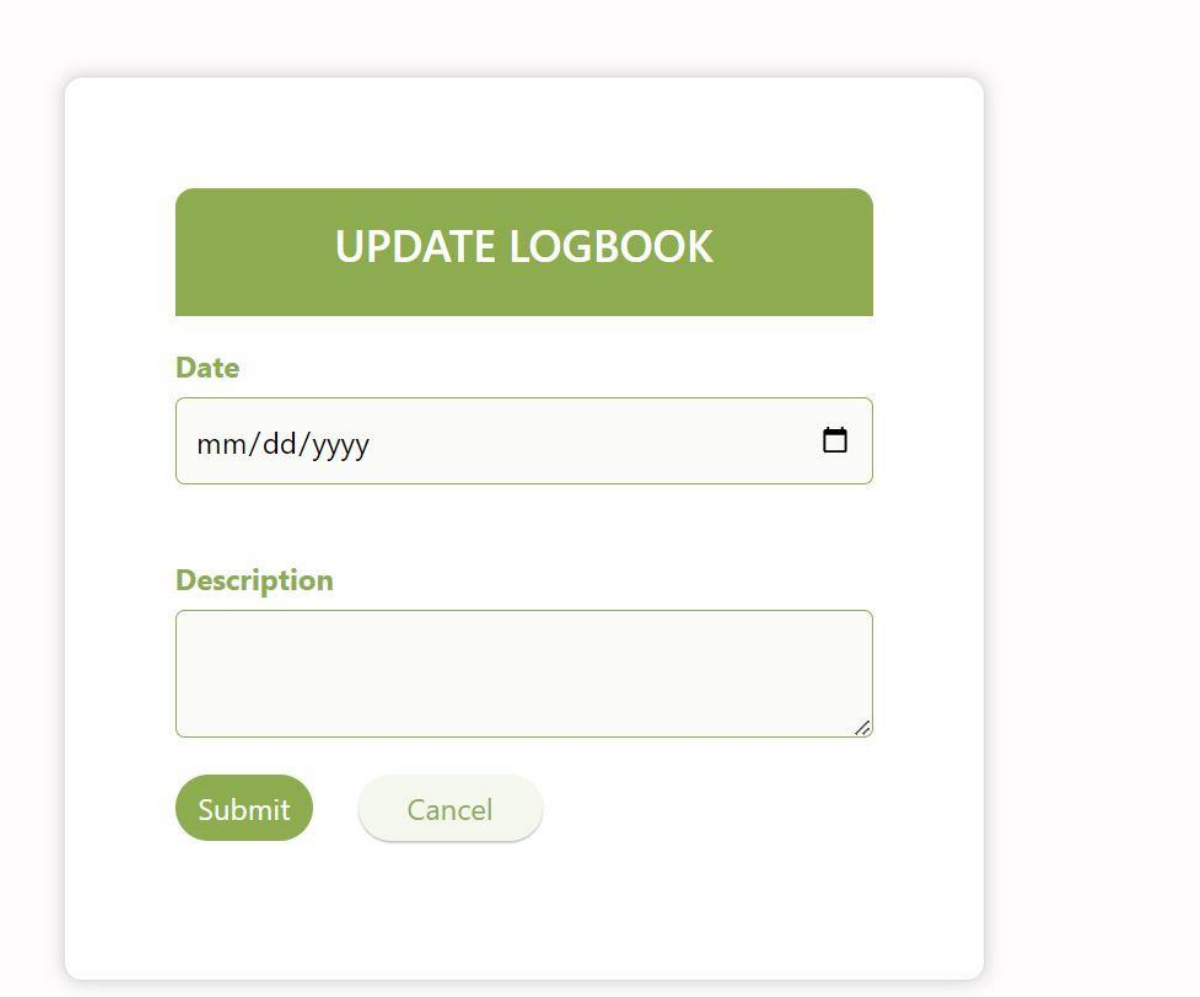


Figure 6: Logbook Input

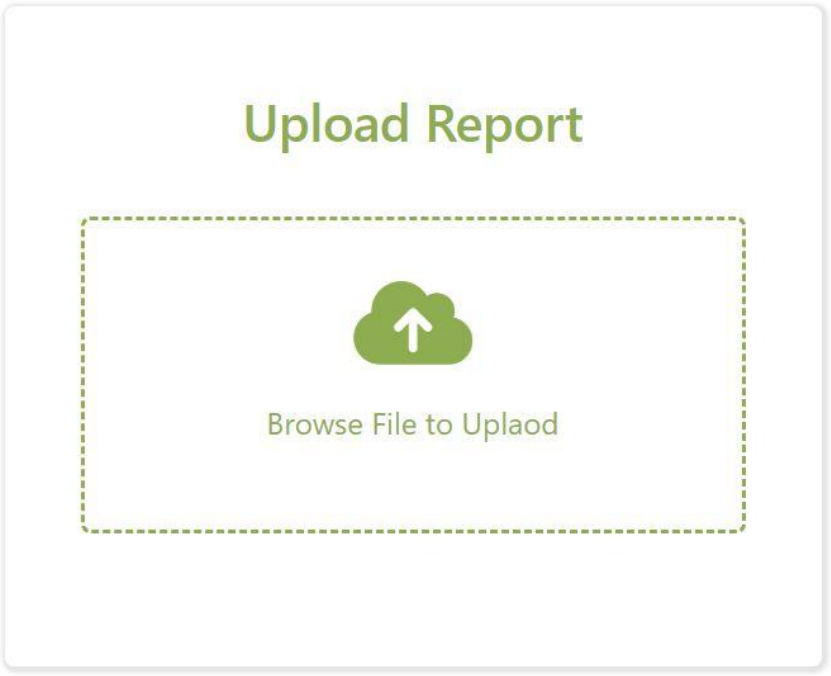


Figure 7: Report Input

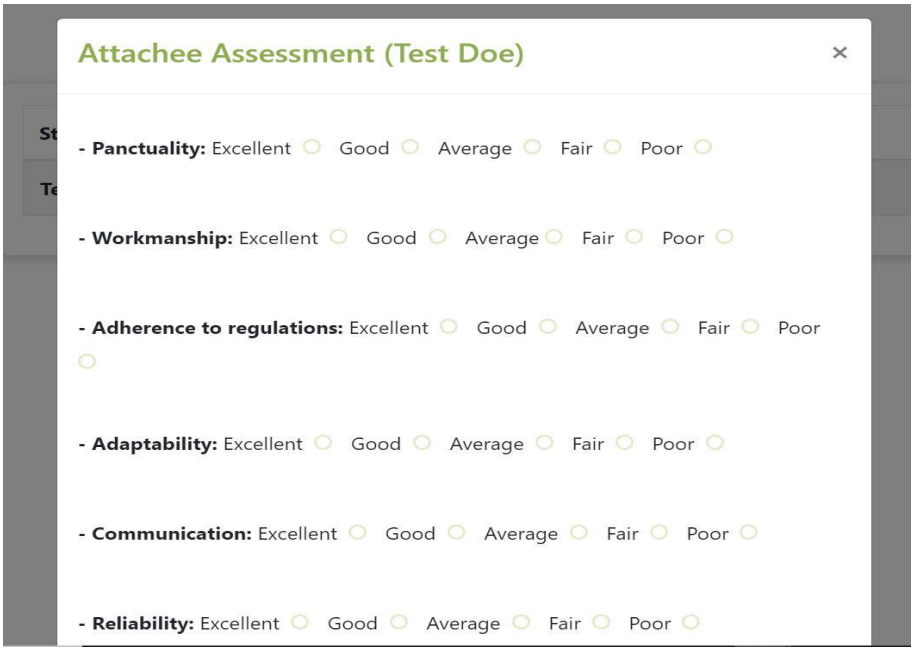


Figure 8: Assessment Input

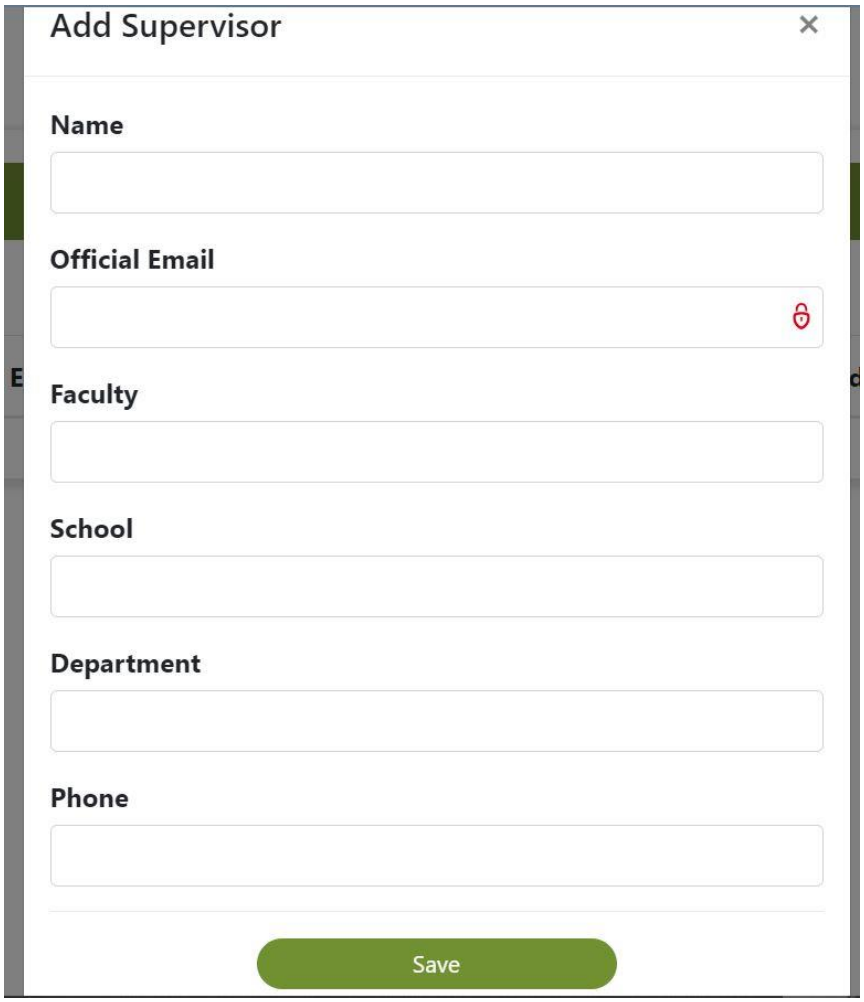


Figure 9: Add Lecturer Input

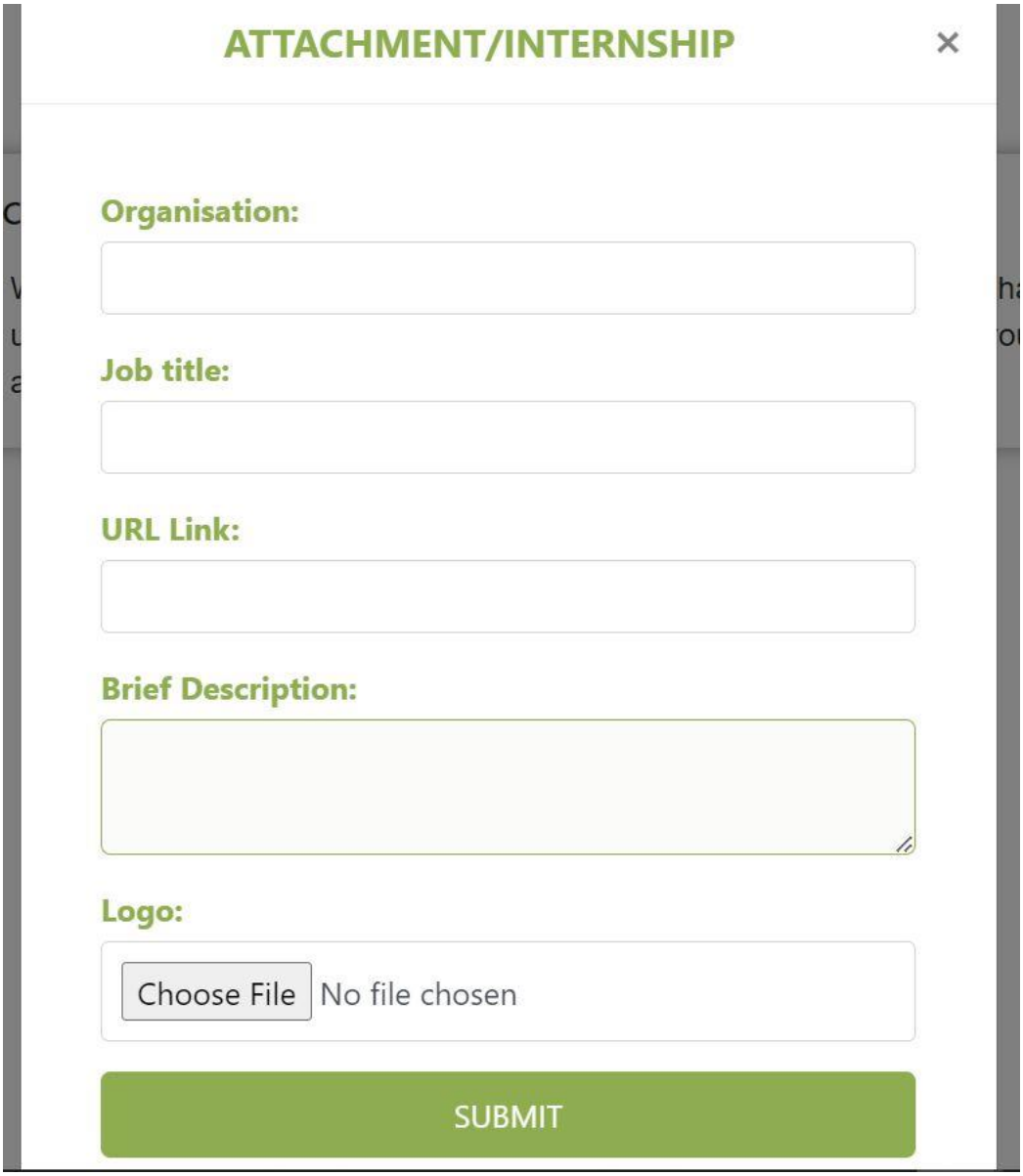


Figure 10: Internship input

5.8 Output Screen

Figure 11: Student Profile Output

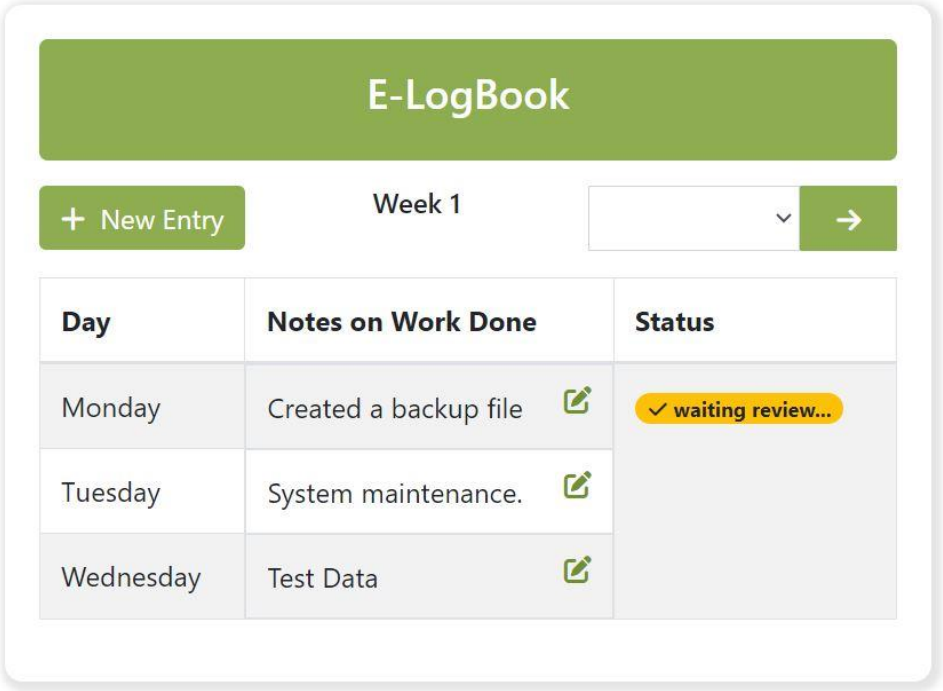


Figure 12: Logbook Output

Figure 13: Report Output

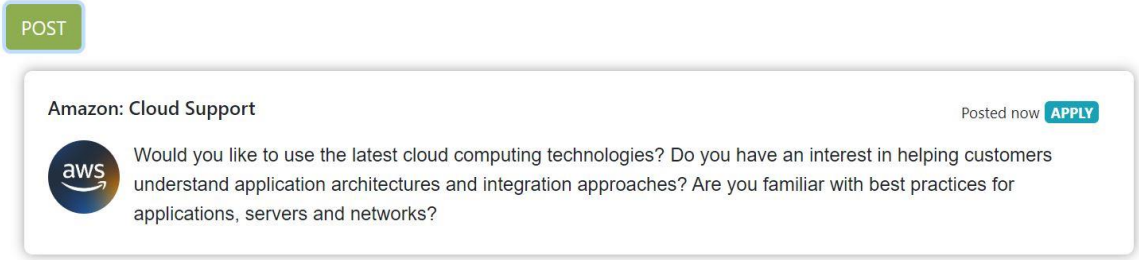


Figure 14: Internship Output

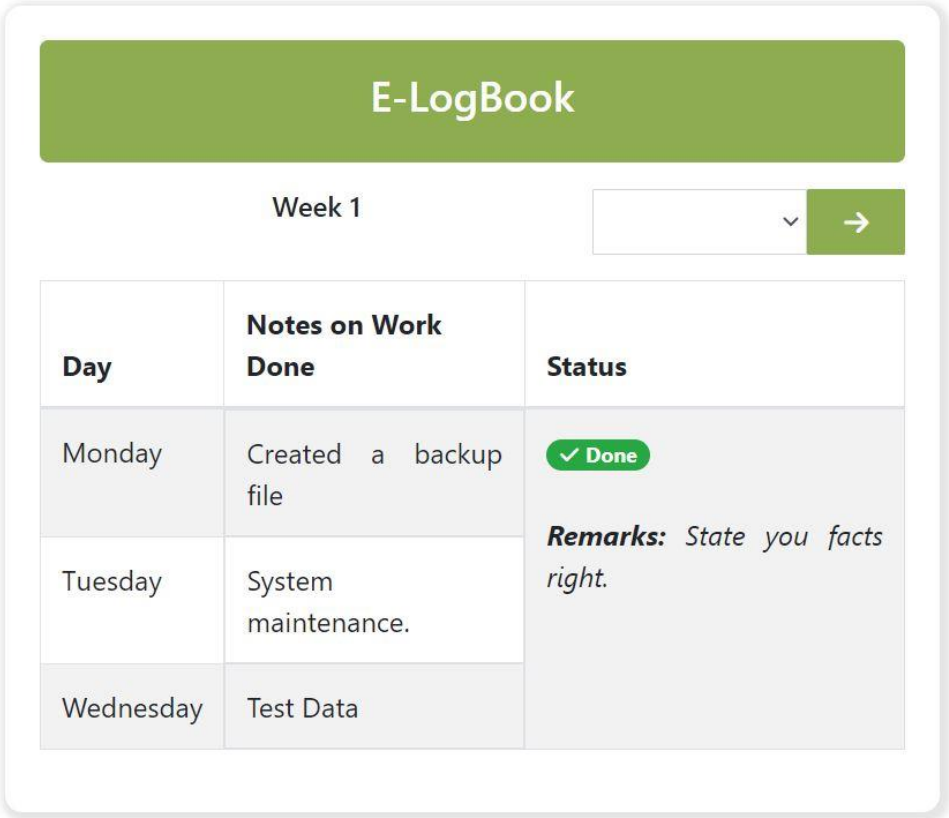


Figure 15: Logbook Comment Output

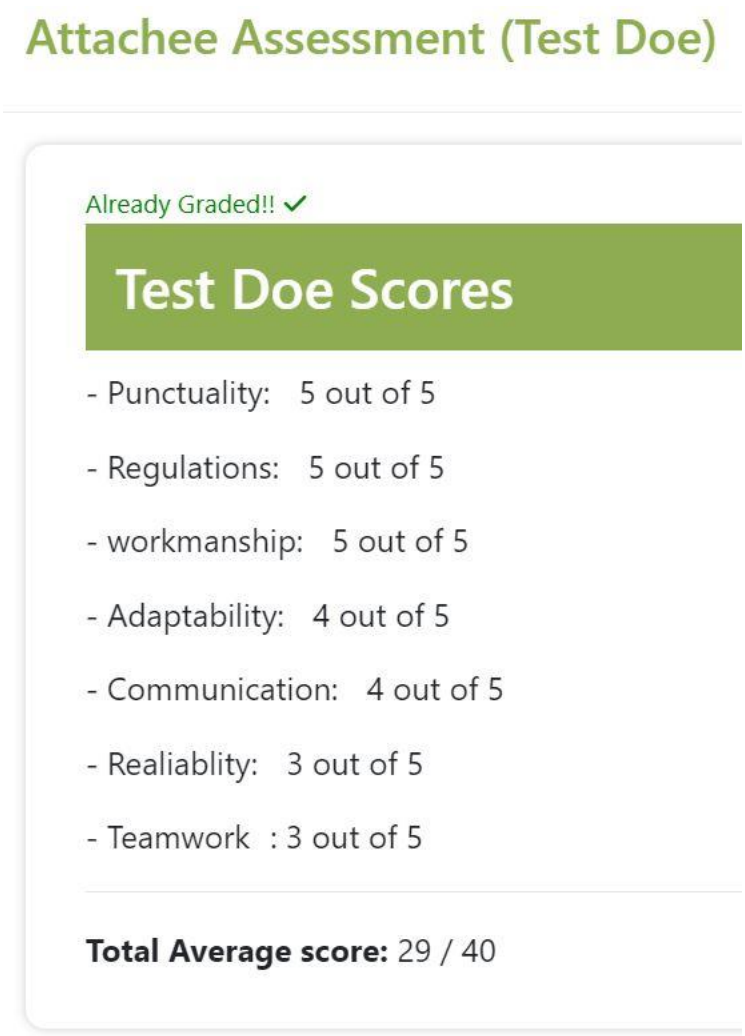


Figure 16: Assessment Output

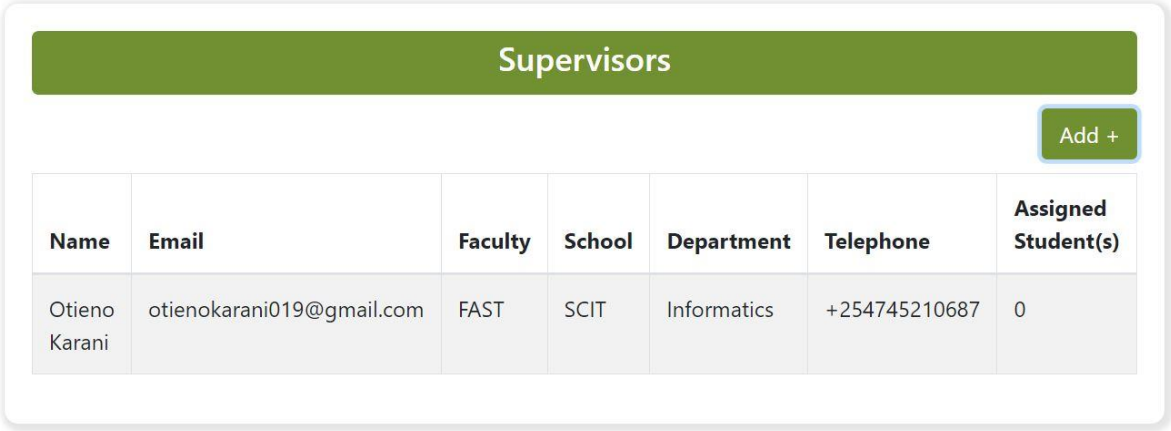


Figure 17: Add Lecturer Output

5.9 Code Design

The system was developed by Django, a Python framework. The framework has the ability to integrate HTML, CSS and JavaScript using the Jinja engine.

CHAPTER SIX: SYSTEM IMPLEMENTATION

6.0 Introduction

System Implementation refers to how the various parts of the system were developed or implemented. It includes the tools and techniques used for development, the testing process that confirmed the application had achieved its objectives as well as the changeover process.

6.1 Coding/Environment/Debugging Techniques

6.1.1 Coding tools

Therefore, the attachment system was built on top of the Pythons' Django framework. Visual Studio Code was the integrated development environment used for development, running test server, and debugging.

The interface for the application was also built using JavaScript, HTML and CSS. The backend for the application was built using Django Framework which incorporates a web server service known as web server gateway interface (WSGI) and a templating engine Jinja 2. The database used for the application was MySQL, which is an SQL based database.

6.1.2 Environment

As previously stated, the development environment used for the development, debugging and running test server for the application was Visual Studio Code.

6.1.3 Debugging Tools

Visual Studio Code, which is the development environment used for developing the application provides debugging tools that were used to identify issues such as syntax errors, and runtime error and fix them. It also allows installing syntax highlighting plugins for any given platform, which was essential in ensuring that it was possible to debug the application regardless of the unique nature of the platforms utilized for development.

6.2 Program Listing

A list of parts of the program codes is provided in the Appendix.

6.3 System/Program Testing

Testing refers to performing actions defined within the system and comparing the results the system gives with what is expected. The testing process is essential in ensuring that the system can effectively do what it was developed to do. In this case, the application provided with test inputs and evaluated to determine if it provided the expected outputs.

6.3.1 Test Case 1: User Login

Table 10: User Login Test Case

Test Case Summary	To Verify the login process using email address
Prerequisites	Have an Email
Test Procedures	Enter email address, Enter Password.
Test Data	User generated Test Data

Expected Results	Successful Login
Actual Results	Successful Login
Test Status	Pass

6.3.2 Test Case 2: Update Logbook

Table 11: Logbook Update Test Case

Test Case Summary	To Verify a student can update a logbook
Prerequisites	Be logged in
Test Procedures	Enter Date, Enter Description
Test Data	User generated Test Data
Expected Results	Logbook Successfully Updated
Actual Results	Logbook Successfully Updated
Test Status	Pass

6.3.3 Test Case 3: Student Assessment

Table 12: Student Assessment Test Case

Test Case Summary	To Verify Student Assessment Process
Prerequisites	Be logged in
Test Procedures	Enter scores of each test subject
Test Data	User generated Test Data
Expected Results	Successfully Graded
Actual Results	Successfully Graded
Test Status	Pass

6.3.4 Test Case 4: Students' Supervisor Assignment

Table 13: Student Grading Test Case

Test Case Summary	To Verify Students' Supervisor Assignment Process
Prerequisites	Be logged in
Test Procedures	Enter supervisor's name,
Test Data	User generated Test Data

Expected Results	Successfully Assigned Supervisor
Actual Results	Successfully Assigned supervisor
Test Status	Pass

6.4 Proposed Change-Over Technique

The implementation of the attachments system will be executed using the pilot change-over technique, a strategic approach that involves a small-scale introduction of the new system in a controlled environment before full deployment. A select group of students and staff will serve as the initial pilot phase, providing a focused testing ground for the attachments system. This targeted implementation allows for a thorough evaluation of the system's functionality, usability, and compatibility with existing processes. Feedback from the pilot group will be instrumental in identifying any unforeseen challenges or improvements needed before a broader rollout. The pilot change-over technique facilitates a gradual transition, minimizing potential disruptions to the entire organization and enabling a more efficient resolution of issues encountered during the initial phase. This method not only enhances the reliability of the attachments system but also ensures that the broader user community benefits from a refined and well-tested solution.

6.5 Test Data

In order to test, the database was populated with test data from the different types of users that is, the admin, student and supervisors. A sample of this test data in the tables is provided in the appendix.

6.6 Sample Run Output

The web application contains screens that display data in the system. A sample of these screens is provided in the Appendix.

CHAPTER SEVEN: USER MANUAL – DOCUMENTATION

7.1 Installation Environment

The system will be installed on a windows-based web server and users will be able to access it on the web browser by typing in the address of the of the webserver that will be able to serve the pages of the system.

7.2 Installation Requirements

To install the system on the webserver the underlying host server should have Python installed and the user accessing the system should have a modern web browser.

7.3 Installation Procedures

To set up and run the system after having installed python the following steps are followed:

1. **Clone the Project repository form github:** To clone the project you run **git clone https://github.com/danielevans-999/SCIT.git**

2. **Activate the virtual environment:** to activate the virtual environment you run virtual\Scripts\activate

3. Install all the dependencies of the application: to install all the dependencies of the application you run **pip install -r requirements.txt.**

4. **Run migration:** You run migrations to update database packages by running python manage.py migrate

5. **Run the server:** To run the application you use **python manage.py runserver**, this will open up the default home page of the system on the browser.

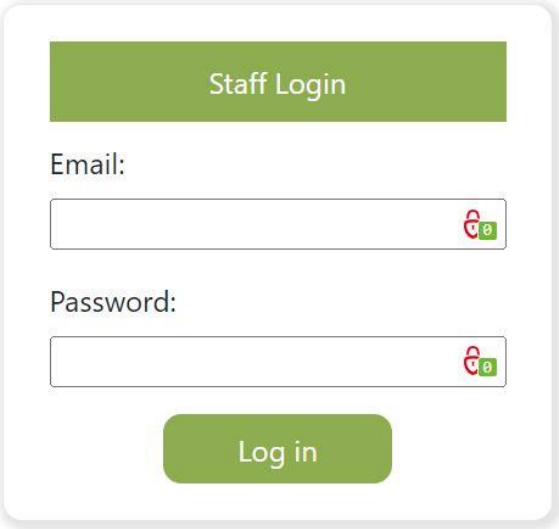
This is development environment installation procedure, typically on a production environment a more robust server setup, such as using Gunicorn or uWSGI behind a web server like Nginx or Apache.

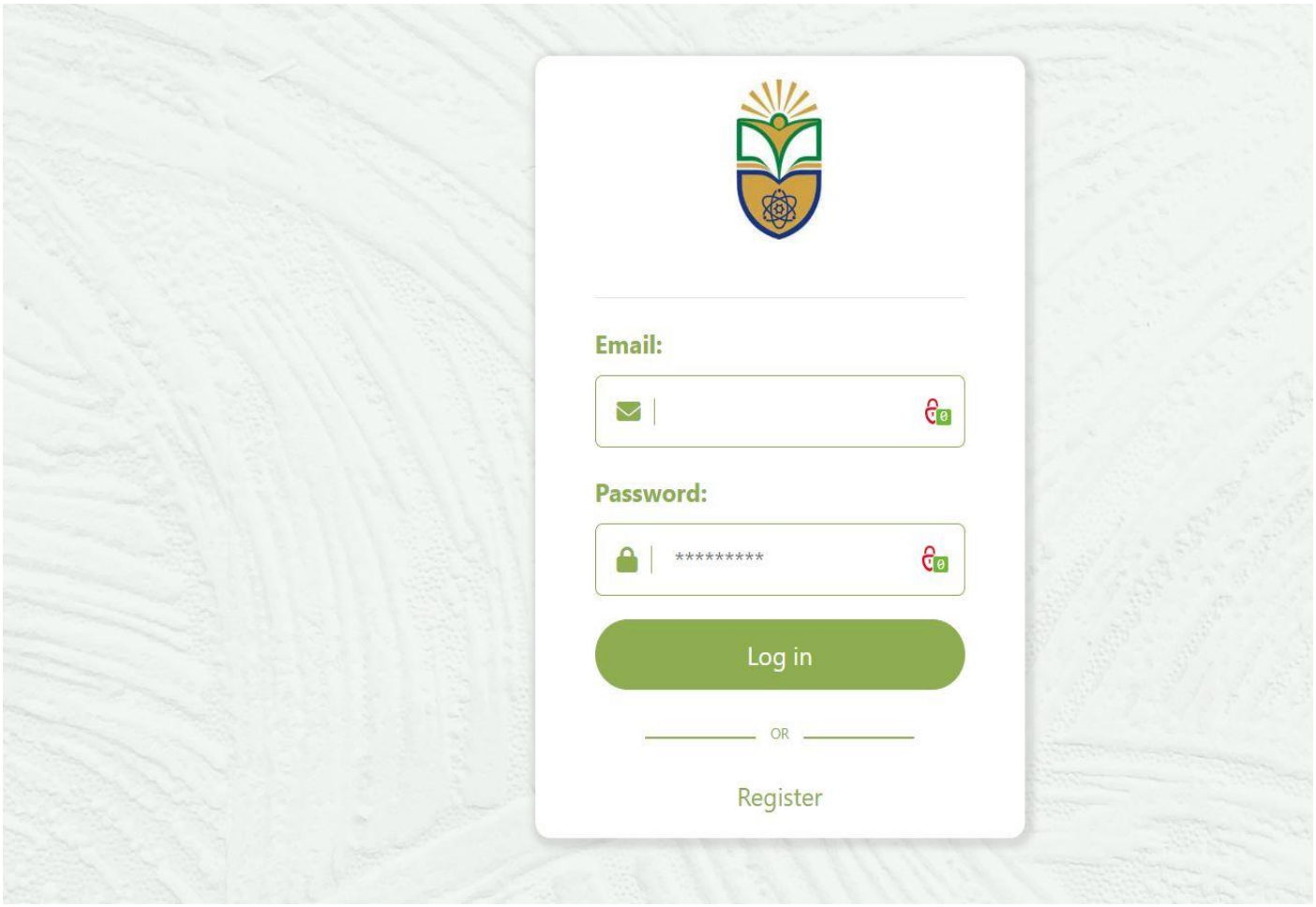
7.3 User Instructions

The following are the instructions to be followed to use the system.

7.4.1 Login

The Login has two interfaces one for the student and the other for the staff that is the admin, lecturer and organization supervisor. A user is required to input their email address and password to login. If a student logs in for the first time, he is required to update his profile with the required student details, below show the login screens.




Email:
Password:
****
Log in
OR
Register

7.4.2 Users homepage

After a user has successfully logged in they are redirected to their various homepages depend on the kind of user that is the admin, student, and the supervisors where they can navigate to different functionalities on the side navigation. The screens of each homepage is shown below:

Figure 18: Student Homepage

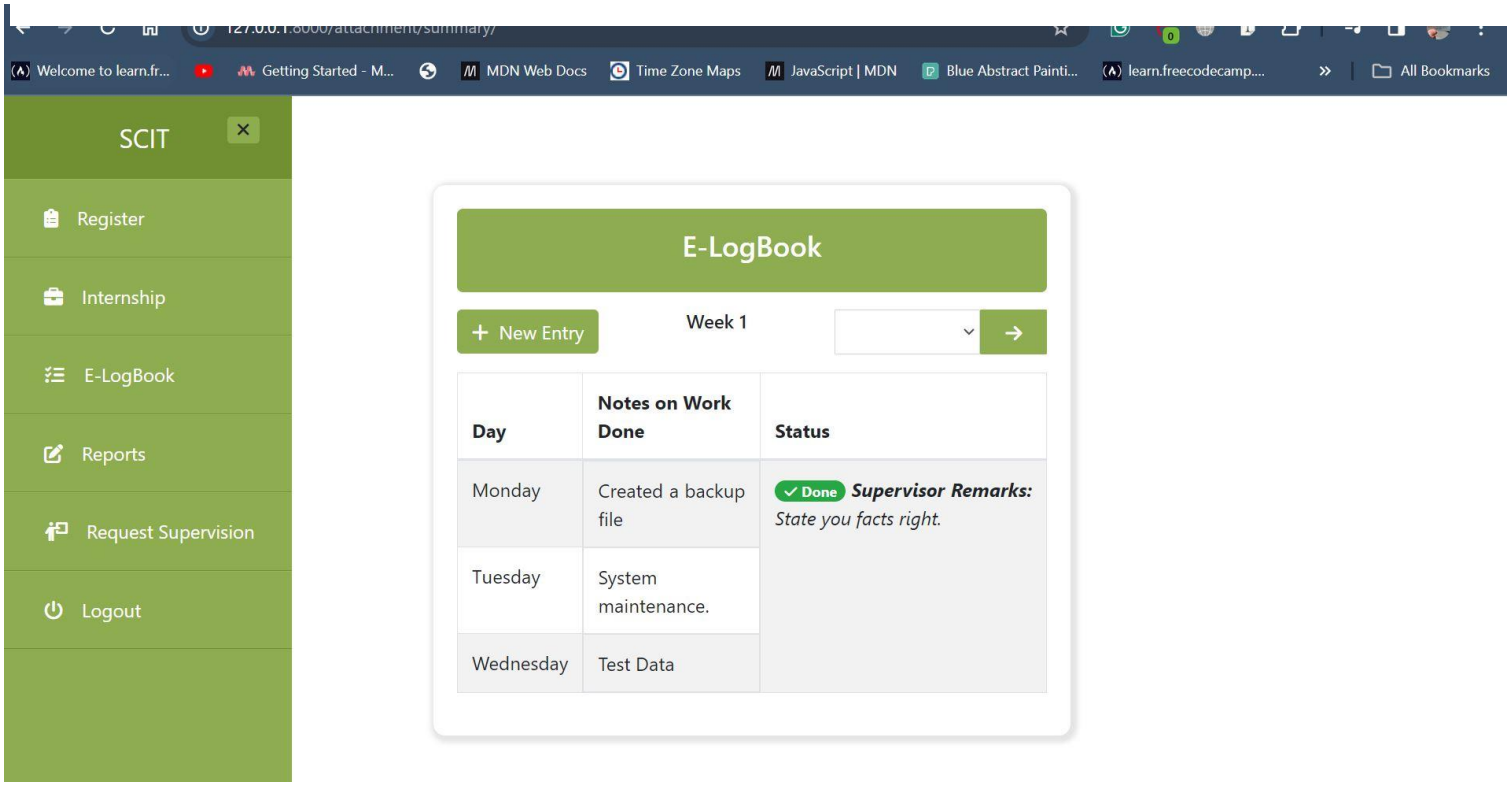


Figure 19: Admin Homepage

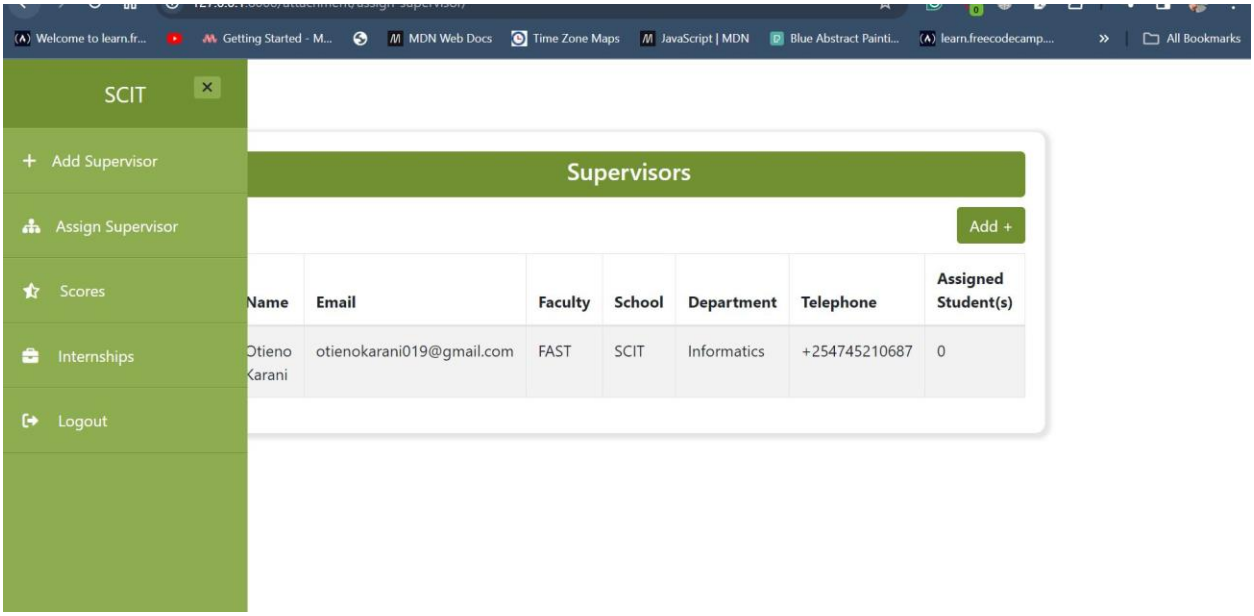


Figure 20: Supervisor's Homepage

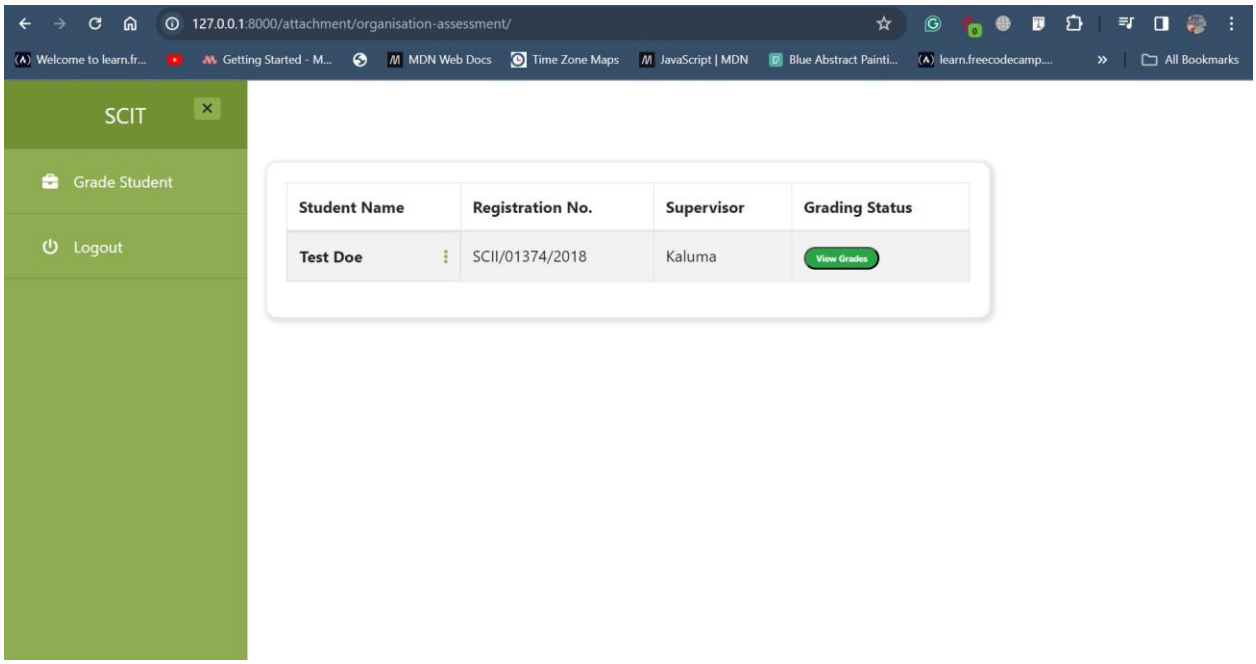
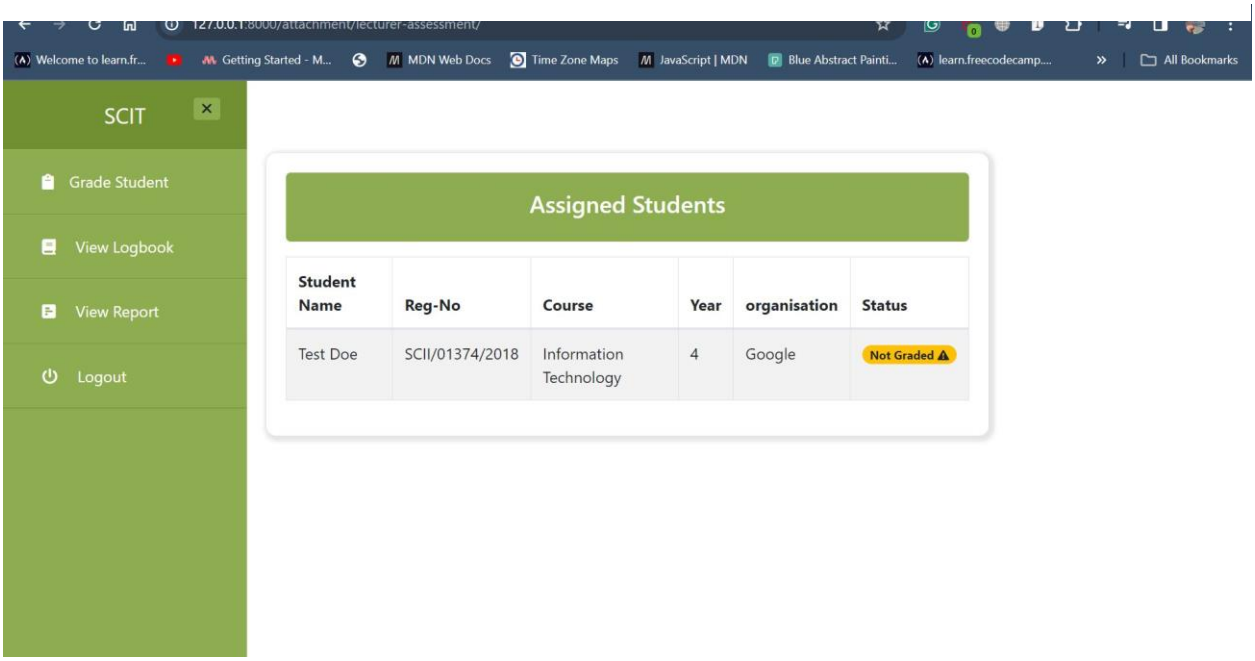


Figure 21:Lecturer Homepage



7.5 System Conversion Method

The best conversion method to this system is pilot change-over, that involves a small-scale introduction of the new system in a controlled environment before full deployment. A select group of students and staff will serve as the initial pilot phase, providing a focused testing ground for the attachments system. This targeted implementation allows for a thorough evaluation of the system's functionality, usability, and compatibility with existing processes. Feedback from the pilot group will be instrumental in identifying any unforeseen challenges or improvements needed before a broader rollout.

7.6 User Training

The system has been developed to be easy to use and it is targeted at a technically knowledgeable audience. Therefore, there will be no standard user training. However, support will be available for anyone who finds it hard to use the system.

7.7 File Conversions

All inputs in the system are obtained through forms so no file conversions will be necessary

CHAPTER EIGHT: LIMITATIONS, CHALLENGES, CONCLUSIONS AND RECOMENDATIONS

8.1 Limitations

The attachment system is no different from other web-based application it's subject to imitations.

The system is not built to accommodate huge traffic at once, so it's scalability in an event where many users are accessing the system is limited. This might cause longer response time to the end user.

Another limitation of the system is that the nature of the framework used to create the application is monolithic in nature this means that both the front-end and the back-end are served from the same point, this presents a risk of common point of failure.

8.2 Challenges

The application encountered several challenges during its development. One significant hurdle was the difficulty in finding an API that specifically catered to providing attachment opportunities. Most available APIs primarily focused on offering job and internship opportunities, lacking a dedicated feature for attachments. To address this limitation, the application initially utilized the LinkedIn Jobs API to retrieve internship opportunities. However, this approach proved problematic as the LinkedIn Jobs API experienced frequent disruptions, prompting the exploration of alternative solutions. Consequently, an alternative method was implemented, enabling the administrator to manually post opportunities, thus ensuring a more stable and reliable functionality for attachment-related features within the application.

8.4 Learning Experience

The project provided an invaluable learning experience, with a significant realization emerging during the development process. It became evident how a user's issue is translated into tangible software features that users can interact with. Many individuals grapple with the realization that coding alone is insufficient; problem-solving stands out as a crucial skill for developers. This skill involves the transformation of user-defined challenges at a high level into practical and effective software solutions.

8.5 Recommendations

While the system is functional, it needs some refinements to align with the expectations of a well-designed and implemented system. The following adjustments could enhance its performance:

1. **Decoupling the System**: It is essential to eliminate the monolithic structure of the application to avoid a single point of failure. This decoupling will enhance the system's robustness and reliability.
2. **Implementing a Stable API**: Introducing a more stable API will provide improved functionality, allowing for automatic notifications to students about available attachment opportunities. This enhancement aims to streamline communication and ensure students are promptly informed about relevant opportunities.

8.6 Conclusion

In contemporary society, technology has become an essential aspect of daily life for the majority of individuals. Over the past few years, numerous processes that were traditionally carried out using pen and paper have undergone a transformation, incorporating technology for more efficient execution. Attachment procedures at TUK are no exception to this trend. Developing a solution centered around the attachment process aligns seamlessly with the broader societal shift toward technological integration. Moreover, this proposed solution not only aligns with the growing trend

of a technologically savvy society but also accelerates certain processes that the current system tends to slow down significantly.

REFERENCES

Cham, A. T. J. W. (2008). Report on industrial attachment with CNA Group Ltd.

Haque, M. M. (2013). INDUSTRIAL ATTACHMENT (Doctoral dissertation, Daffodil International University).

Chinyemba, F., & Bvekerwa, S. T. (2012). Assessment of Industrial Attachment: Issues and Concerns of Chinhoyi University of Technology's Undergraduate Degree Programme, Zimbabwe. Online Submission.

VERA, M. C. (2020). INDUSTRIAL ATTACHMENT REPORT.

Gupta, M., & Goswami, A. (2018). Impact of LinkedIn on B2B Marketing. International Journal of Applied Management and Technology, 17(2), 1-7.

Moritz, A., Wenzel, M., & Schauwecker, M. (2020). How to Make LinkedIn Work for Your Business. Harvard Business Review Digital Articles, 1-7.

Raabe, B., & Beehr, T. A. (2018). Using LinkedIn for Job Search: What Recruiters and Job Seekers Say. Career Development International, 23(3), 280-295.

Sekhon, H. S., Chung, S., & Lee, W. N. (2017). LinkedIn Marketing: An Exploratory Study of B2B Companies in Singapore. Journal of Business and Management, 19(1), 19-33.

Mwangi, P. (2015). Industrial Training in Kenya: The Role of the National Industrial Training Authority. International Journal of Business and Social Science, 6(1), 38-45.

Okelo, J., & Owuor, J. (2021). The Effect of National Industrial Training Authority (NITA) Training Programs on the Employability and Productivity of Graduates in Kenya. Journal of Education and Practice, 12(20), 164-173.

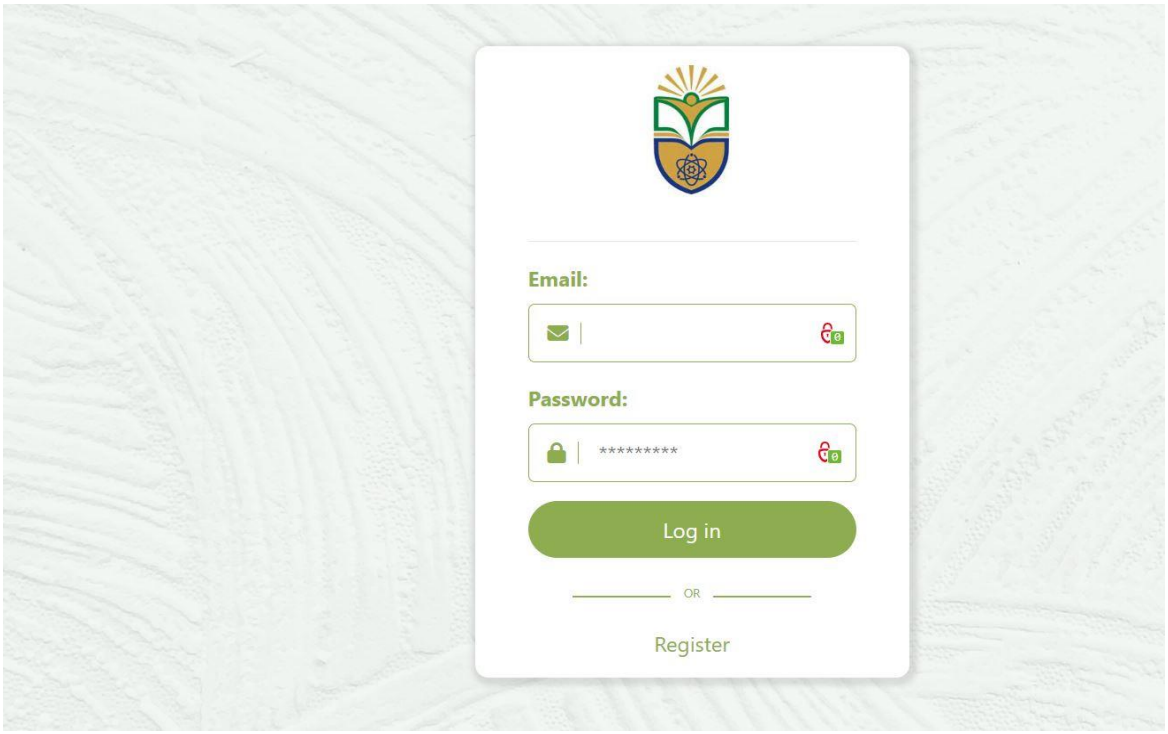
Dzorgbo, D. B., & Azorliade, J. (2021). Enhancing Students' Learning Outcomes through Industrial Attachment: The Role of a Web-Based Management System. Journal of Education and Practice, 12(9), 70-79.

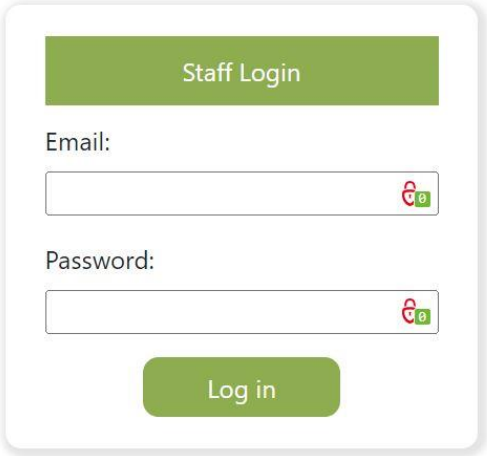
Nyame, E. K., & Agyapong, G. K. (2020). Industrial Attachment Management System: Evaluating Students' and Industry Partners' Satisfaction. Journal of Information Systems and Technology Management, 17, e2019094.

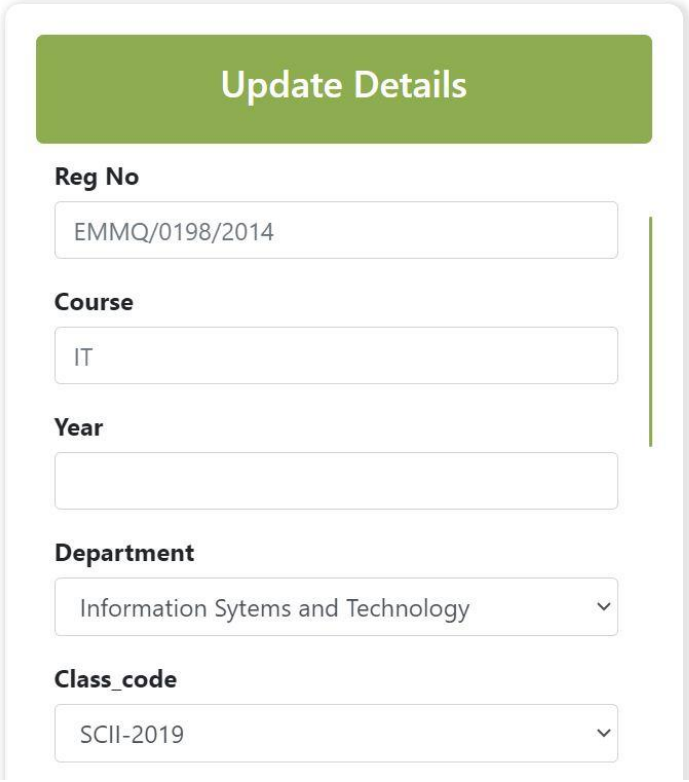
Ali, H., Khan, S. U., & Mallah, R. (2020). Agile project management: a comprehensive review. Journal of Enterprise Information Management, 33(6), 920-950

Appendix

Application Screens




Staff Login
Email:
Password:
Log in


Update Details
Reg No
EMMQ/0198/2014
Course
IT
Year
Department
Information Sytems and Technology
Class_code
SCII-2019

Registered!!

Test Doe

Registration No: SCII/01374/2018

Course: Information Technology

Department: Information Sytems and Technology

Year: 4

Attachment Organisation: Google

Start Date: Jan. 1, 2024

Supervisor: Not Assigned

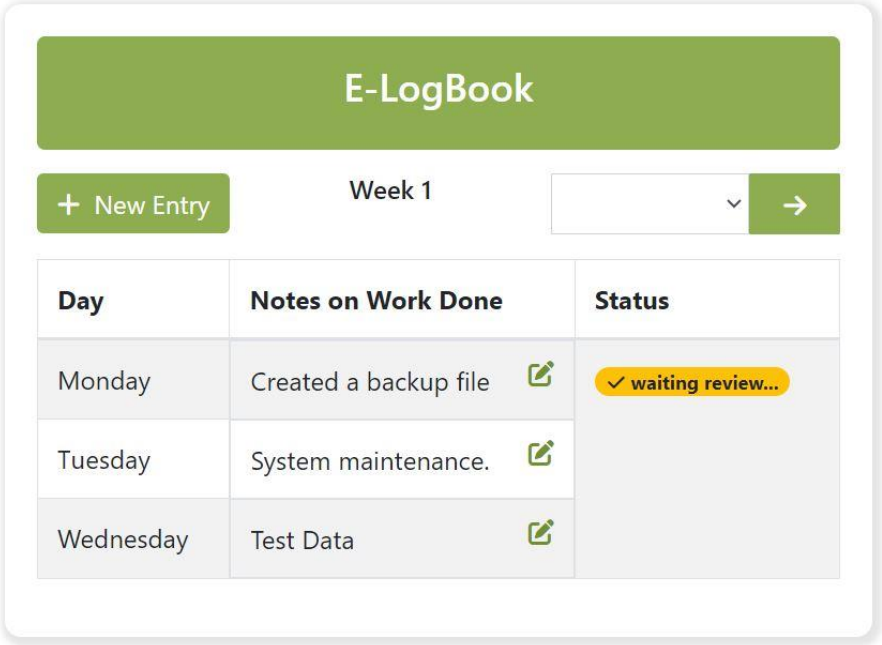
UPDATE LOGBOOK

Date

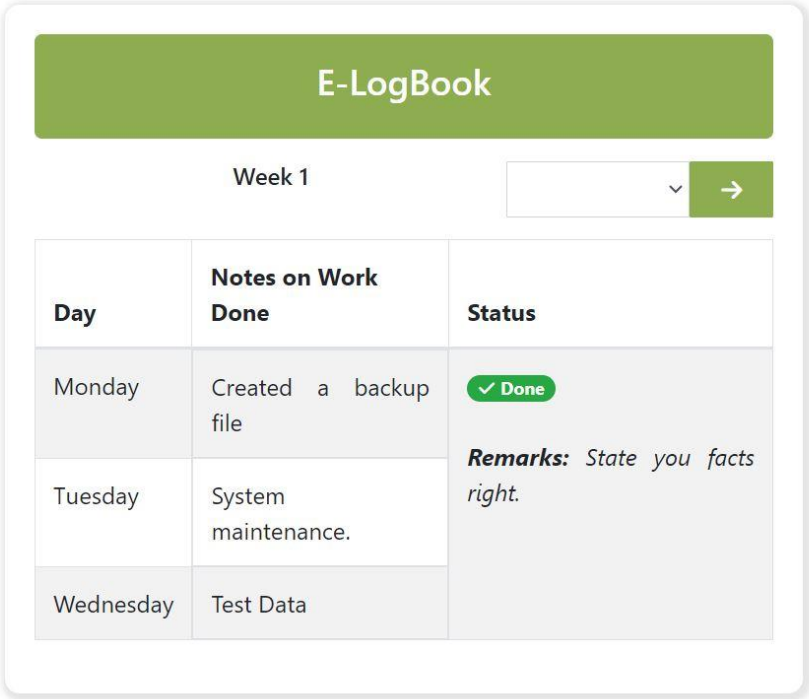
mm/dd/yyyy

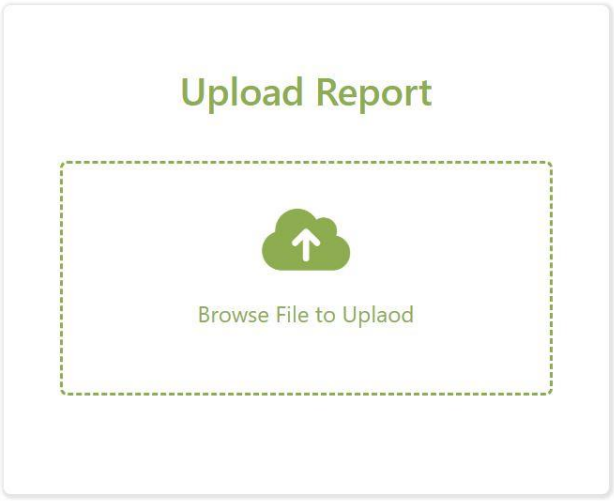
Description

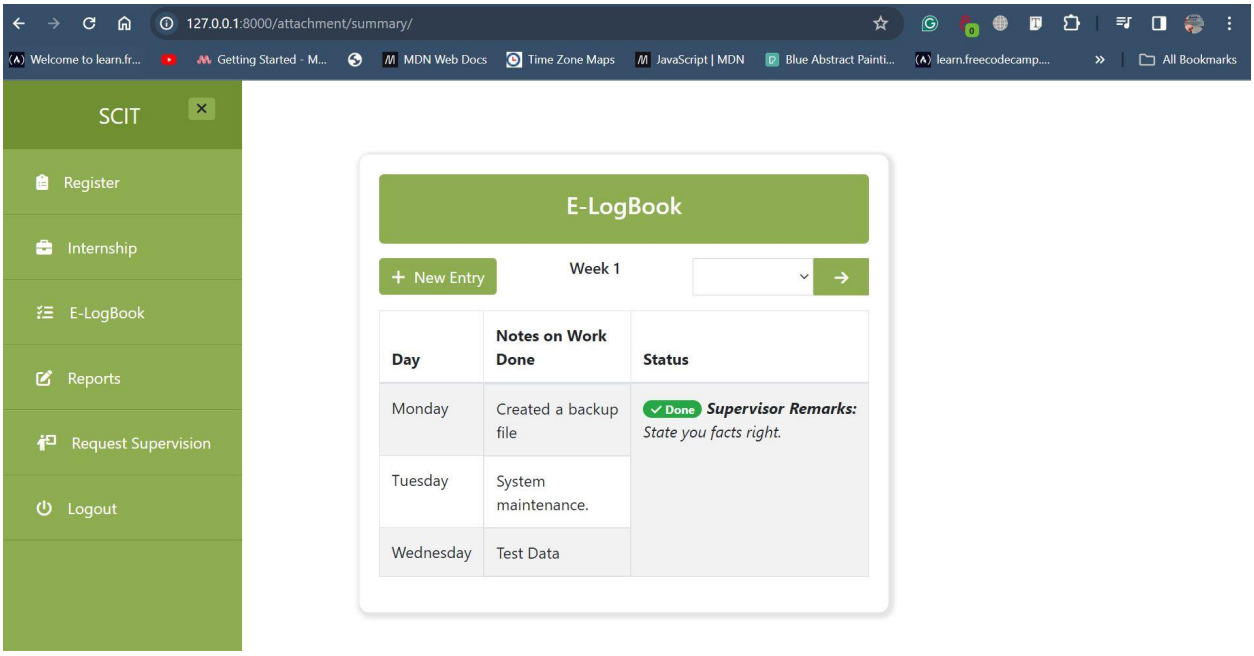
Submit Cancel

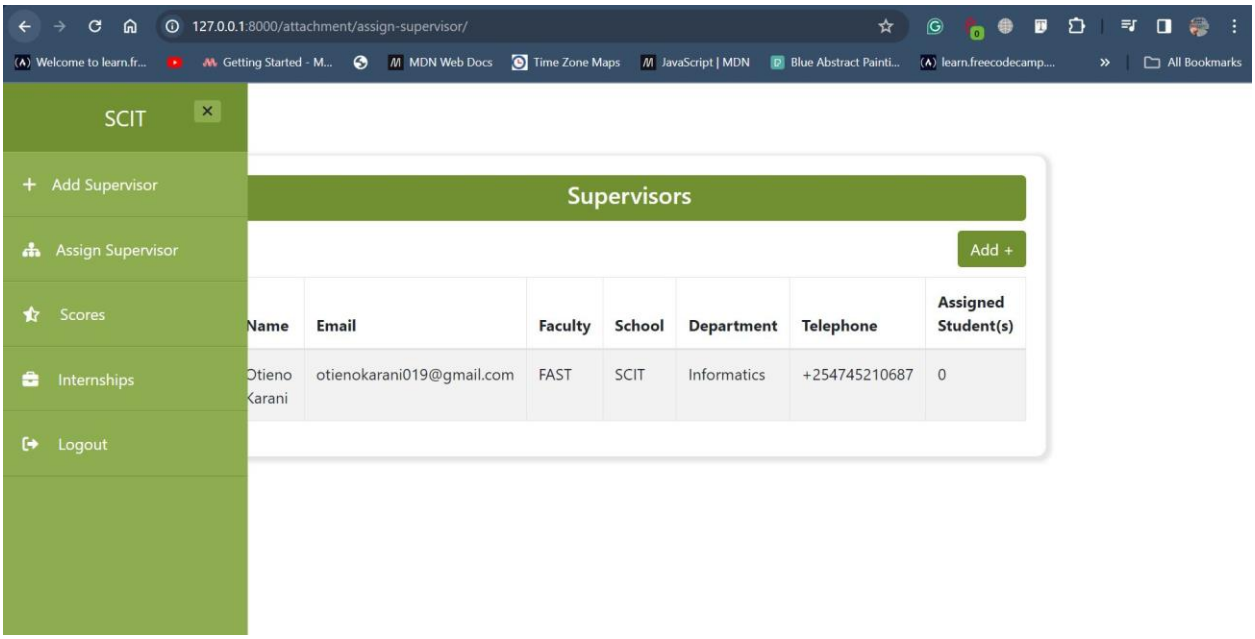

E-LogBook
+ New Entry
Week 1
Day
Notes on Work Done
Status
Monday
Created a backup file
waiting review...
Tuesday
System maintenance.
Wednesday
Test Data

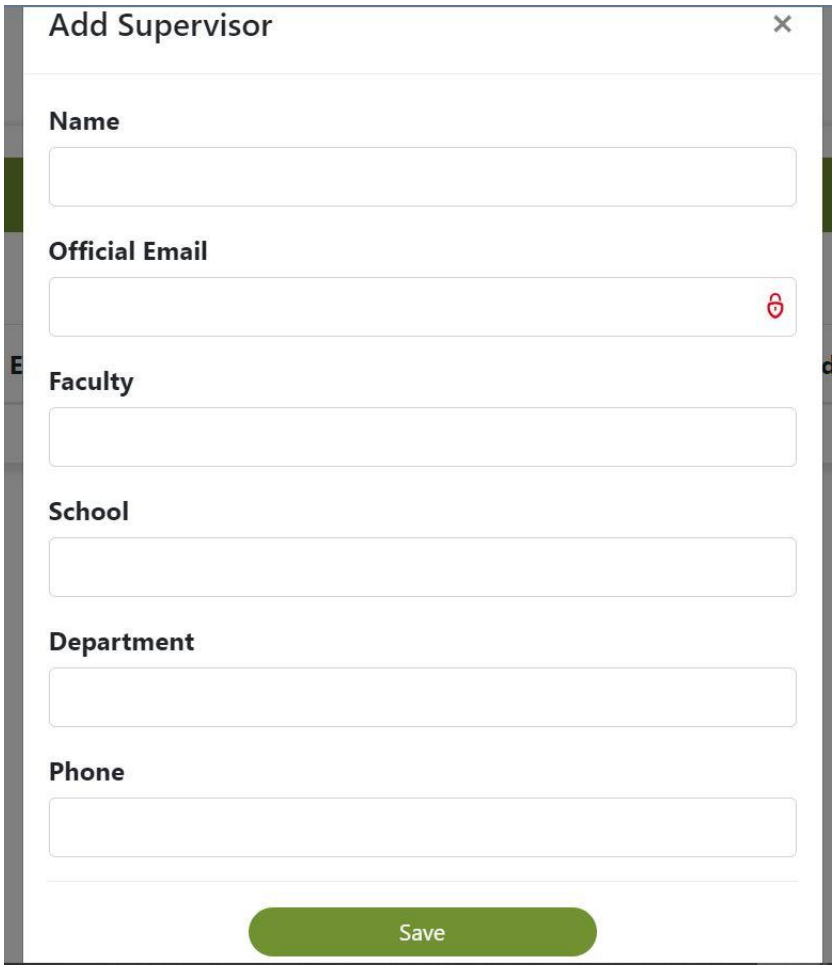

PDF
Sample Work .... .pdf . Uploaded
121 KB KB


E-LogBook
Week 1
Day
Notes on Work Done
Status
Monday
Created a backup file
Done
Remarks: State you facts right.
Tuesday
System maintenance.
Wednesday
Test Data


Upload Report
Browse File to Uplaod


127.0.0.1:8000/attachment/summary/
Welcome to learn.fr...
Getting Started - M...
MDN Web Docs
Time Zone Maps
JavaScript | MDN
Blue Abstract Painti...
learn.freecodecamp....
All Bookmarks
SCIT
Register
Internship
E-LogBook
Reports
Request Supervision
Logout
E-LogBook
+ New Entry
Week 1
Day
Notes on Work Done
Status
Monday
Created a backup file
Done
Supervisor Remarks:
State you facts right.
Tuesday
System maintenance.
Wednesday
Test Data

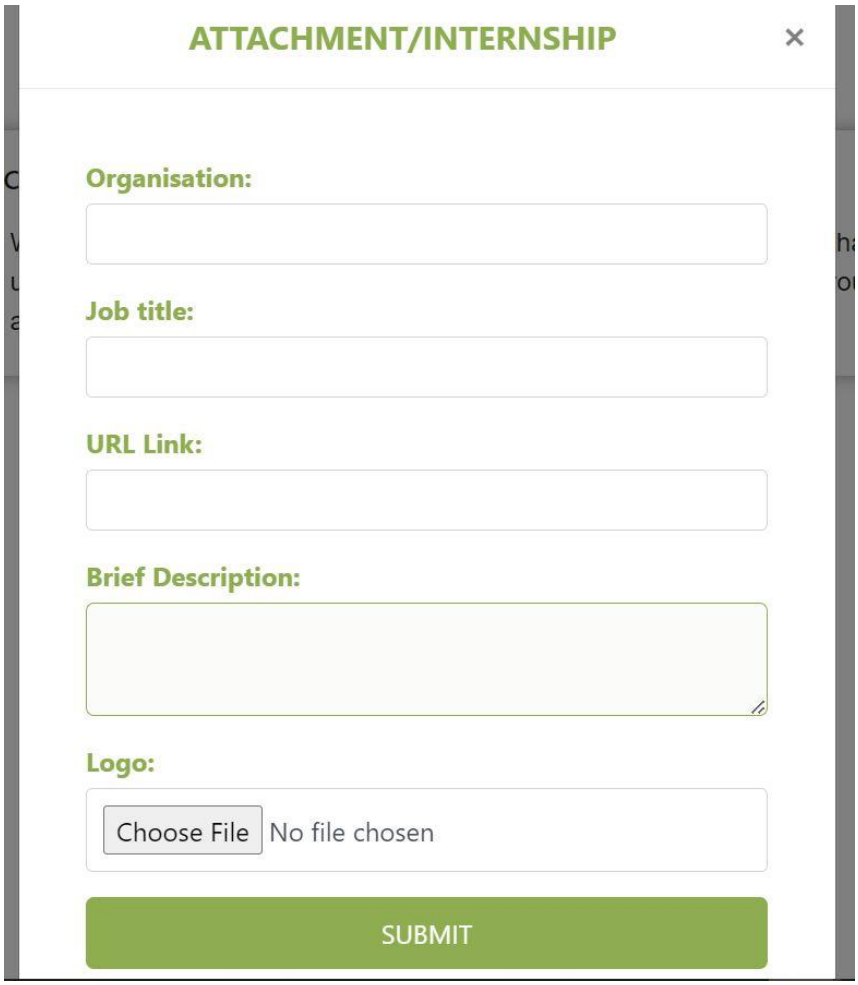

127.0.0.1:8000/attachment/assign-supervisor/
Welcome to learn.fr...
Getting Started - M...
MDN Web Docs
Time Zone Maps
JavaScript | MDN
Blue Abstract Painti...
learn.freecodecamp....
All Bookmarks
SCIT
Add Supervisor
Assign Supervisor
Scores
Internships
Logout
Supervisors
Add +
Name
Email
Faculty
School
Department
Telephone
Assigned Student(s)
Otieno Karani
otienokarani019@gmail.com
FAST
SCIT
Informatics
+254745210687
0



Supervisors

Add +

Name	Email	Faculty	School	Department	Telephone	Assigned Student(s)
Otieno Karani	otienokarani019@gmail.com	FAST	SCIT	Informatics	+254745210687	0

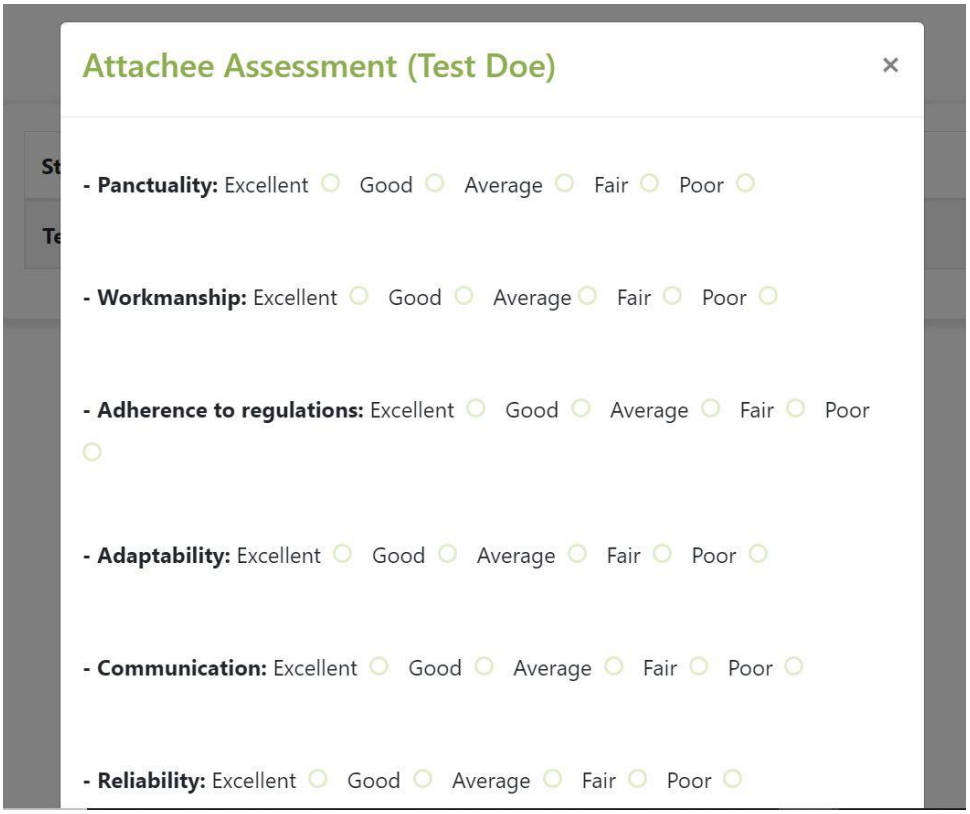


POST

Amazon: Cloud Support

Posted now APPLY

Would you like to use the latest cloud computing technologies? Do you have an interest in helping customers understand application architectures and integration approaches? Are you familiar with best practices for applications, servers and networks?



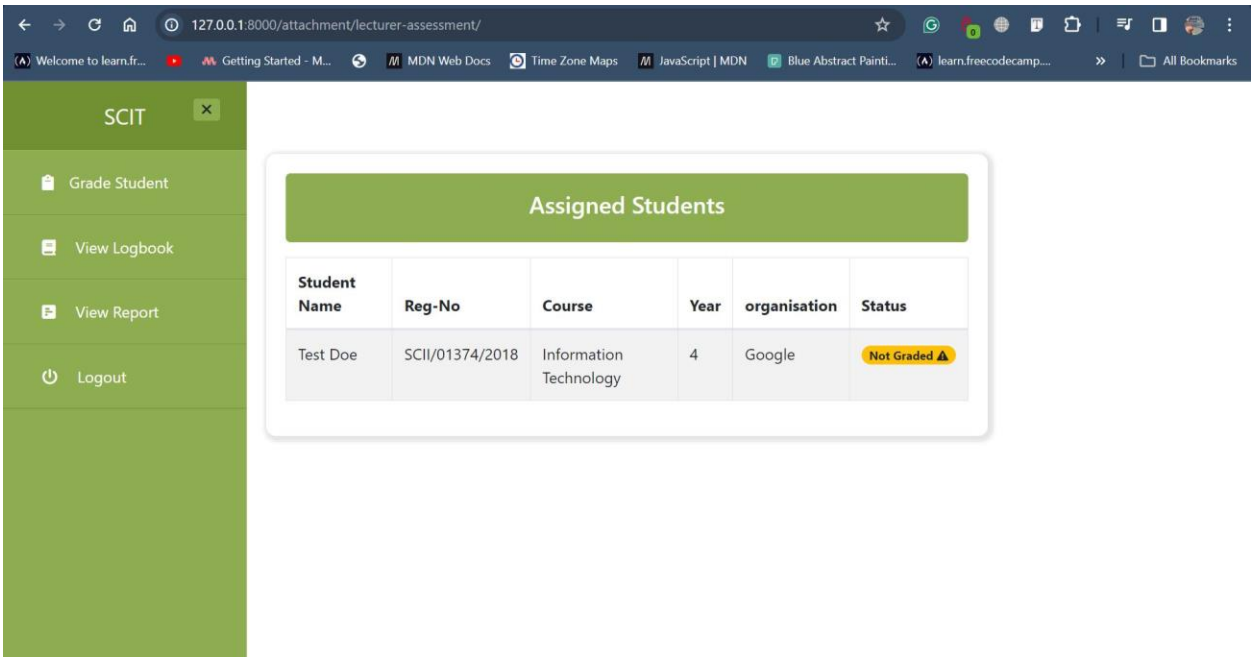
Attachee Assessment (Test Doe)

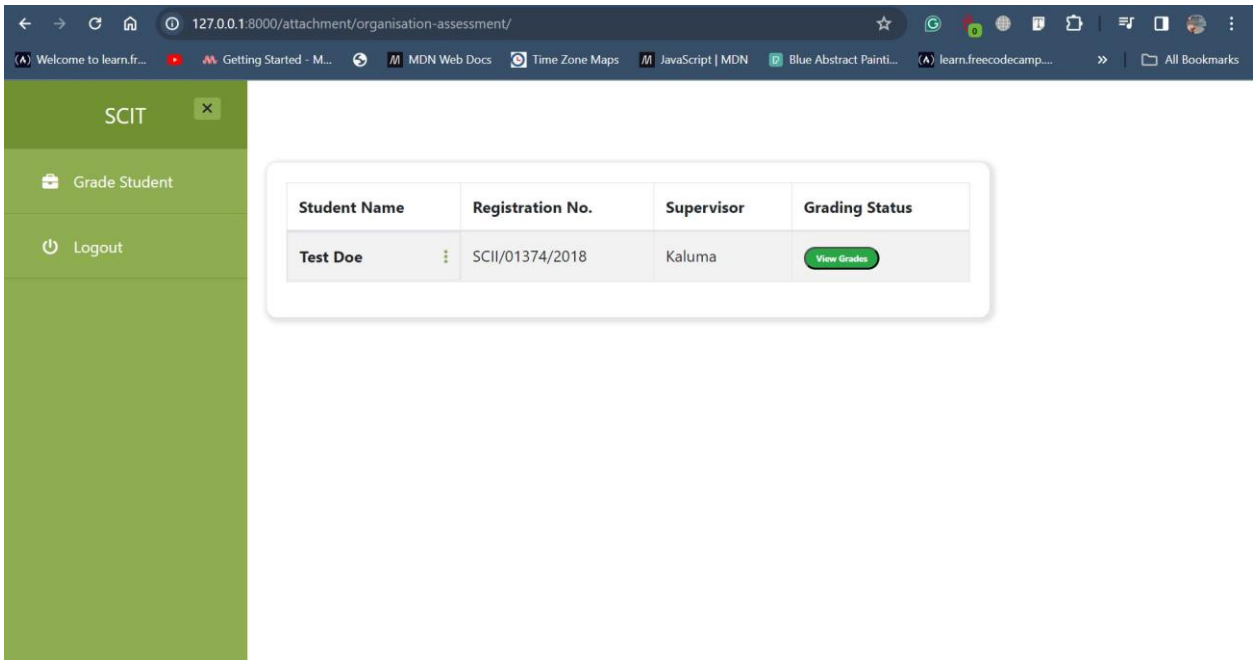
Already Graded!! ✓

Test Doe Scores

- Punctuality: 5 out of 5
- Regulations: 5 out of 5
- workmanship: 5 out of 5
- Adaptability: 4 out of 5
- Communication: 4 out of 5
- Realiablity: 3 out of 5
- Teamwork : 3 out of 5

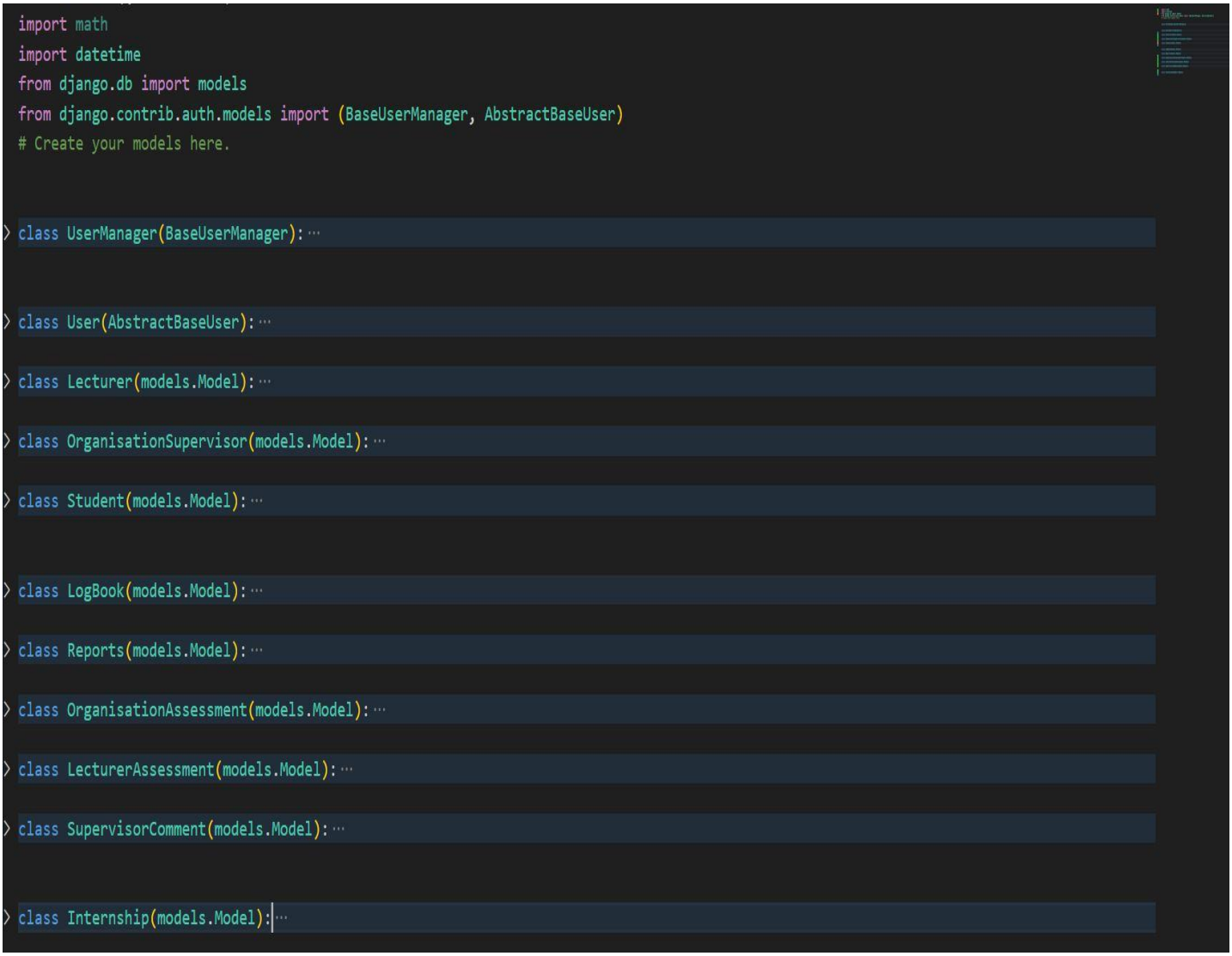
Total Average score: 29 / 40


127.0.0.1:8000/attachment/lecturer-assessment/
Welcome to learn.fr...
Getting Started - M...
MDN Web Docs
Time Zone Maps
JavaScript | MDN
Blue Abstract Painti...
learn.freecodecamp....
All Bookmarks
SCIT
Grade Student
View Logbook
View Report
Logout
Assigned Students
Student Name
Reg-No
Course
Year
organisation
Status
Test Doe
SCII/01374/2018
Information Technology
4
Google
Not Graded


127.0.0.1:8000/attachment/organisation-assessment/
Welcome to learn.fr...
Getting Started - M...
MDN Web Docs
Time Zone Maps
JavaScript | MDN
Blue Abstract Painti...
learn.freecodecamp....
All Bookmarks
SCIT
Grade Student
Logout
Student Name
Registration No.
Supervisor
Grading Status
Test Doe
SCII/01374/2018
Kaluma
View Grades

Program Listings

Models

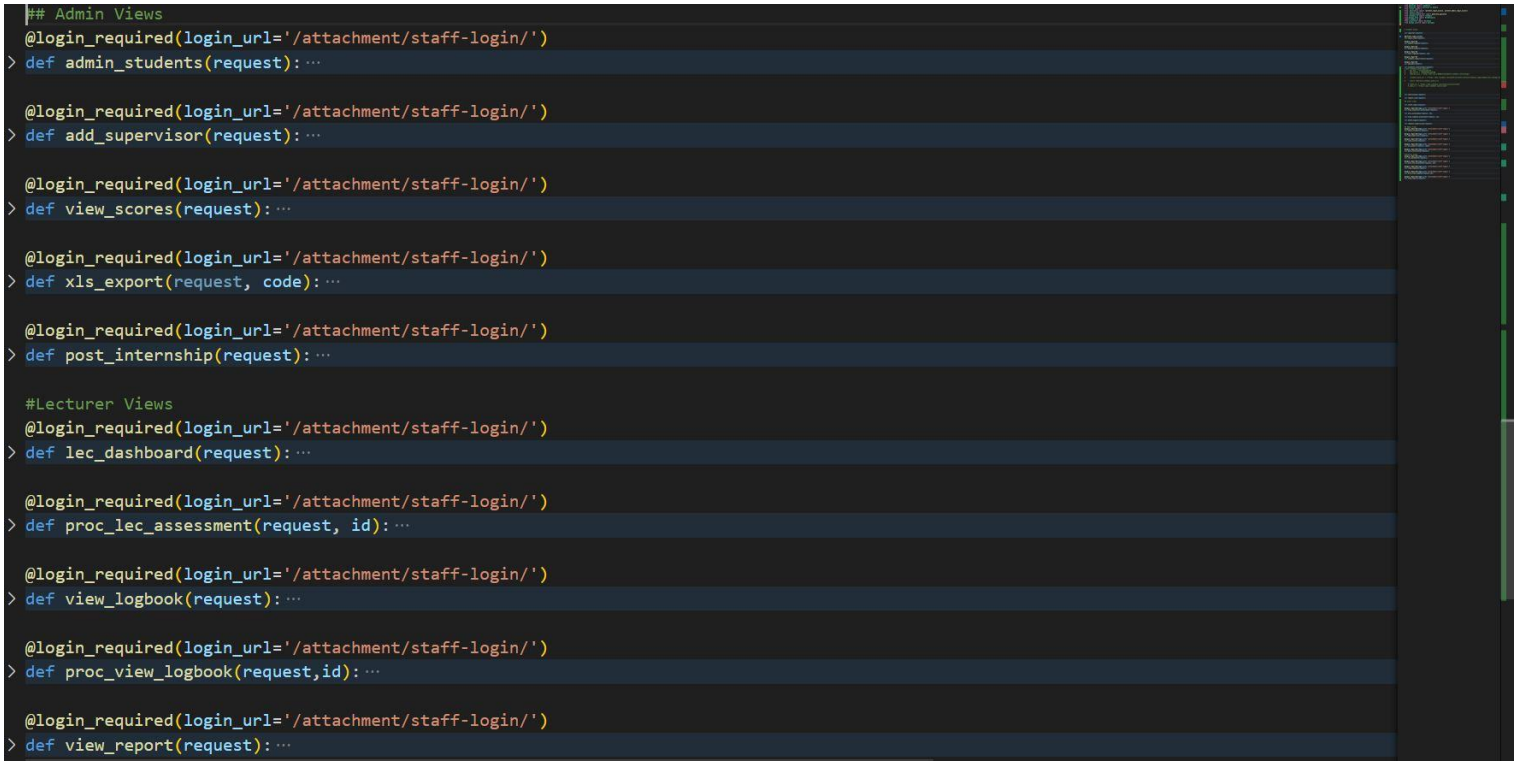


Views

```python
from django.shortcuts import render, redirect, get_object_or_404
from django.contrib.auth import login, logout, authenticate
from django.contrib.auth.decorators import login_required,  user_passes_test
from django.http import JsonResponse
from datetime import timedelta
from datetime import datetime as mydate
from .forms import *
from .decorators import (prevent_login_access, prevent_admin_login_access)
from .emails import *
from .password_generator import generate_password
from linkedin_v2 import linkedin
from django.http import HttpResponse
import pandas as pd
from xlsxwriter import Workbook
from django.contrib import messages



# Student Views.

def register(request):...

@prevent_login_access
def login_view(request):...

@login_required
def update_logbook(request):...

@login_required
def weekly_summary(request):...
```

```python
@login_required
def edit_logbook(request, id):...

@login_required
def student_registration(request):...

@login_required
def uploads(request):...

def students_internships(request):...
# def linkedin_auth(request):
#     api_key = '77jq3x3yj6br53'
#     api_secret = 'p9JQ1XyRazpZPYWg'
#     redirect_uri = 'http://127.0.0.1:8000/attachment/linkedin-internships/'

#     linkedin_auth_url = f"https://www.linkedin.com/oauth/v2/authorization?response_type=code&client_id={api_key}&redirect_uri={redirect_u

#     return redirect(linkedin_auth_url)

    # token_url = "https://www.linkedin.com/oauth/v2/accessToken"
    # jobs_rl = "https://www.linkedin.com/v2/jobs"




def internships(request):...

def logout_view(request):...
```

```
## staff views

def staff_login(request):...

@login_required(login_url='/attachment/staff-login/')
def orgs_supevisor_assessment(request):...

def proc_assessment(request, id):...

def orgs_logbook_assessment(request, id):...

def staff_logout(request):...

def request_supervision(request):...
```



```
## Admin Views
@login_required(login_url='/attachment/staff-login/')
def admin_students(request):...

@login_required(login_url='/attachment/staff-login/')
def add_supervisor(request):...

@login_required(login_url='/attachment/staff-login/')
def view_scores(request):...

@login_required(login_url='/attachment/staff-login/')
def xls_export(request, code):...

@login_required(login_url='/attachment/staff-login/')
def post_internship(request):...

#Lecturer Views
@login_required(login_url='/attachment/staff-login/')
def lec_dashboard(request):...

@login_required(login_url='/attachment/staff-login/')
def proc_lec_assessment(request, id):...

@login_required(login_url='/attachment/staff-login/')
def view_logbook(request):...

@login_required(login_url='/attachment/staff-login/')
def proc_view_logbook(request,id):...

@login_required(login_url='/attachment/staff-login/')
def view_report(request):...
```

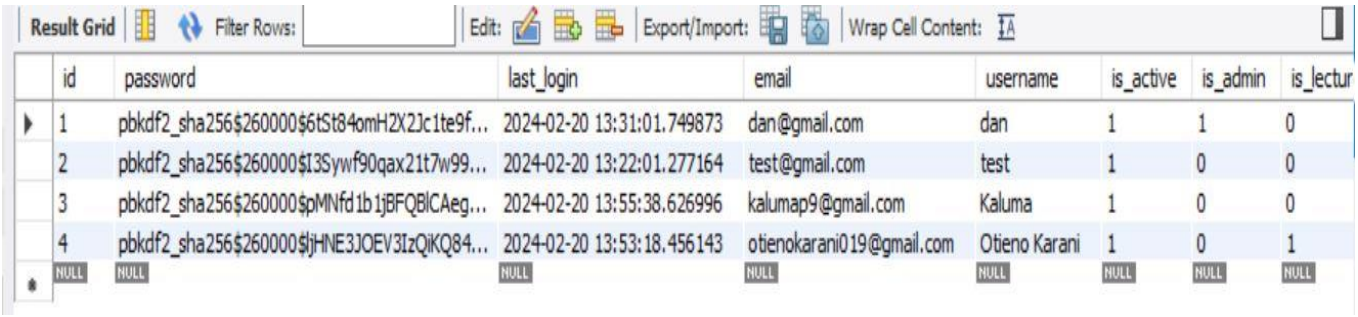
URLS

```
urlpatterns = [
      ## authentication paths
    path('register/', register, name='register'),
    path('student-login/', login_view, name='login'),
    path('logout/', logout_view, name='logout'),

    ## Student URL's
    path('logbook/', update_logbook, name = 'update_logbook'),
    path('uploads/', uploads, name='uploads'),
    path('summary/', weekly_summary, name = 'summary'),
    path('edit-logbook/<int:id>/', edit_logbook, name='edit_logbook'),
    path('student-registration/', student_registration, name = 'student_registration'),
    path('linkedin-internships/', internships, name = 'internships'),
    path('request-supervision/', request_supervision, name = 'request_supervision' ),

    ## Organisation Supervisor URL's
    path('staff-login/', staff_login, name='staff-login'),
    path('staff-logout/', staff_logout, name='staff-logout'),
    path('organisation-assessment/', orgs_supevisor_assessment,  name='orgs_supevisor_assessment' ),
    path('process-assessment/<int:id>/', proc_assessment, name = 'proc_assessment'),
    path('org-logbook-assessment/<int:id>/', orgs_logbook_assessment, name = 'orgs_logbook_assessment'),
    path('internships/', students_internships, name='students_internships'),


    ## Admin URL's
    path('', admin_students, name = "admin_students"),
    path('assign-supervisor/', add_supervisor, name='add_supervisor'),
    path('scores/', view_scores, name = 'view_scores'),
    path('export_xls/<str:code>/', xls_export,  name = 'xls_export'),
    path('post_internship/', post_internship, name='post_internship'),
```

```
    # Lectures's URL's
    path('lecturer-assessment/', lec_dashboard, name='lecturer_assessment'),
    path('process-lecturer-assessment/<int:id>/', proc_lec_assessment, name = 'proc_lec_assessment'),
    path('lecturer-view-logbooks/', view_logbook, name = 'view_logbook'),
    path('student-logbook-view/<int:id>/', proc_view_logbook, name = 'proc_view_logbook'),
    path('lecturer_view_reports/', view_report, name = 'view_report')
]

if settings.DEBUG:
    urlpatterns += static(settings.MEDIA_URL,
                          document_root=settings.MEDIA_ROOT)
```

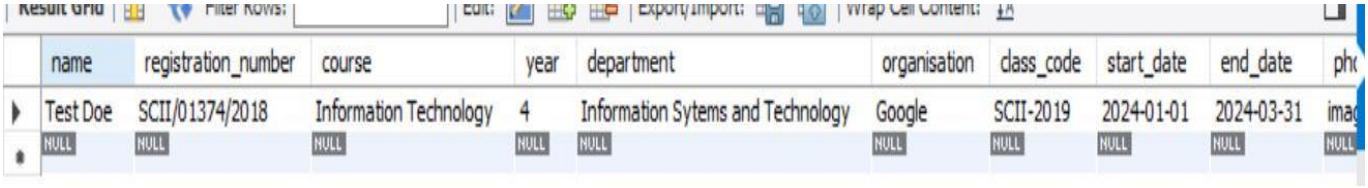
Test Data

Users



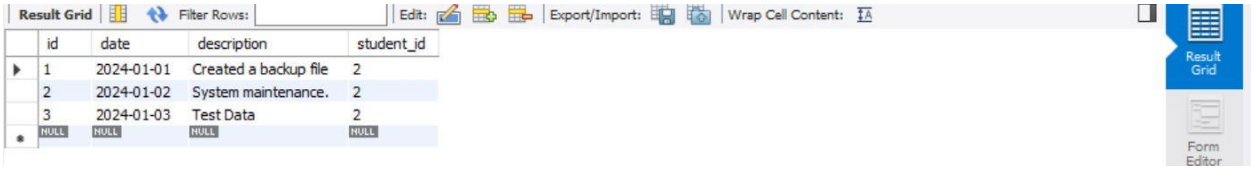
id	password	last_login	email	username	is_active	is_admin	is_lectur
1	pbkdf2_sha256$260000$6tSt84omH2X2Jc1te9f...	2024-02-20 13:31:01.749873	dan@gmail.com	dan	1	1	0
2	pbkdf2_sha256$260000$I3Sywf90qax21t7w99...	2024-02-20 13:22:01.277164	test@gmail.com	test	1	0	0
3	pbkdf2_sha256$260000$pMNfd1b1jBFQBlCAeg...	2024-02-20 13:55:38.626996	kalumap9@gmail.com	Kaluma	1	0	0
4	pbkdf2_sha256$260000$ljHNE3JOEV3IzQiKQ84...	2024-02-20 13:53:18.456143	otienokarani019@gmail.com	Otieno Karani	1	0	1
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Student



name	registration_number	course	year	department	organisation	class_code	start_date	end_date	pho
Test Doe	SCII/01374/2018	Information Technology	4	Information Sytems and Technology	Google	SCII-2019	2024-01-01	2024-03-31	imag
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Logbook



id	date	description	student_id
1	2024-01-01	Created a backup file	2
2	2024-01-02	System maintenance.	2
3	2024-01-03	Test Data	2
NULL	NULL	NULL	NULL

Internships