MAKERERE  UNIVERSITY

COLLEGE OF COMPUTING AND INFORMATION SCIENCE.

DEPARTMENT OF COMPUTER SCIENCE.

YEAR I, SEMESTER II

COURSE INSTRUCTOR : Dr. Peter Khisa Wakholi (Ph.D.)

COURSE NAME : SOFTWARE DEVELOPMENT PROJECT

COURSE CODE : CSC 1202

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PROPOSAL FOR ACADEMIC ISSUE TRACKING SYSTEM (AITS) FOR MAKERERE UNIVERSITY

Introduction

In today's academic environment at our mighty University Makerere, students often face challenges related to their academic records, including missing marks, unaddressed queries, and inadequate communication with their respective faculties. Currently, there is no centralized system for students to report these issues, leading to frustration and delays in resolution as issues will have to be resolved manually which is time consuming and at times mentally draining. The AITS addresses this gap by providing a user-friendly platform that facilitates issue reporting and tracking, ensuring that students can easily communicate their concerns and receive timely feedback. Hence, the Academic Issue Tracking System (AITS) is designed to provide a streamlined platform for students at Makerere University to report and track academic issues, course-related concerns, and other academic challenges. This system aims to enhance communication between students and their faculties, ensuring that issues are addressed promptly and effectively, ultimately improving the overall academic experience with it too being time saving and accurate.

Project Description

The AITS will be a web-based application, accessible through a web browser without the need for users to install any software on their devices. This will ensure accessibility, flexibility and ease that users can access the system from anywhere with an internet connection, making it convenient for students and faculties to report and track issues at any time. The platform will include features like; -

- **User Registration and Authentication**: Users (students, lecturers, and administrators) can create accounts and log in securely.
- **Issue Reporting**: A user-friendly interface for students to submit issues related to their academic experience, including descriptions, categories (e.g., advising, resources, workload), and any relevant attachments.
- **Issue Tracking**: Once an issue is reported, it gets a unique identifier and can be tracked through various stages (submitted, in review, resolved).

- **Notifications**: Automated notifications are sent to users about the status of their reported issues, ensuring they are kept informed throughout the process.
- **Admin Dashboard**: Administrators can view all reported issues, filter them by category, status, or department, and assign them to appropriate staff for resolution.
- **Reporting and Analytics**: The system can generate reports on common issues, response times, and resolutions, helping the university identify trends and areas for improvement.
- **Feedback Mechanism**: After resolution, users can provide feedback on how their issue was handled, which helps improve the system and processes.

Functional Requirements:

- The system must allow users to submit issues with detailed descriptions and attachments. The system should include forms that allow users to provide detailed descriptions of their issues, including relevant dates, times, and supporting documents (e.g., screenshots, emails). This ensures that all necessary information is captured for efficient issue resolution.
- The system must track the status of each issue, including its priority and assigned person. The system should have a workflow mechanism that allows users to track the progress of their issues, including when they are assigned to specific individuals, their current status, and any updates or responses. This ensures transparency and accountability in the issue resolution process.
- The system must provide notifications to users when there are updates to their issues.The system should send email or in-app notifications to users whenever there are updates to their issues, including when they are assigned, when there are new responses, or when their issues are resolved. This keeps users informed and ensures that they are promptly
- The system should allow users to categorize issues based on their nature (e.g., bug, feature request, support request). This helps with filtering, reporting, and prioritization.
- The system should provide robust search functionality to easily find specific issues based on keywords, dates, status, priority, assigned user, and category.
- The system should allow assigned individuals to mark issues as resolved, providing a brief resolution summary.

- The system should allow users to re-open resolved issues if the problem persists or if new information arises.
- The system should maintain a detailed history of all actions taken on an issue, including comments, status changes, and attachments.
- The system should provide various reports and analytics dashboards to track overall issue trends, performance metrics, and resolution times.
- The system should define different user roles (e.g., administrator, user, developer) with varying levels of access and permissions.
- The system should implement robust security measures to protect sensitive data, including authentication, authorization, and data encryption.

User stories

1. **Alex Chen** is an undergraduate, Third-year Computer Science student at Makerere University, a part-time research assistant who lives off-campus with roommates and uses university facilities regularly.

   He checks system daily during peak periods, prefers mobile-first interface, often reports issues outside regular hours and wants immediate confirmation of submissions

   He aims to use a system that provides quick resolution of academic issues, easy tracking of progress, clear communication with staff and mobile accessibility

   Alex wants to be able to submit an issue related to my coursework (e.g., missing grade, scheduling conflict) through a mobile-friendly interface so that I can quickly report it outside of regular office hours. To receive instant confirmation that his issue has been submitted and a unique tracking number so that he can easily reference it later. To be able to track the status of his issue in real-time through a dedicated dashboard, including any updates or actions taken, so that he stays informed about the progress. To receive push notifications when there are updates to my issue or when a deadline is approaching so that I don't miss important information. To be able to easily identify the appropriate contact person for my issue based on its category (e.g., course-related, technical, administrative) so that he can get help from the right person.

2. **Dr. Ssentamu Paul** is a senior Lecturer, teaches multiple courses, he is a department curriculum coordinator, a Research group leader and handles heavy administrative workload.

   He reviews the system during office hours, requires comprehensive reporting and collaborates with colleagues

   He aims for efficient issue resolution, clear documentation trail, organized workload management and student satisfaction improvement

   He wants to be able to view and manage all issues related to my courses through a centralized system so that I can efficiently track and resolve student concerns. To be able to easily filter and sort issues based on various criteria (e.g., student name, course, issue type) so that I can quickly identify and prioritize urgent matters. To be able to collaborate with other lecturers or staff members on specific issues, assigning them tasks and tracking their progress, so that I can effectively manage my workload and ensure a coordinated response. To have access to a detailed history of each issue, including all communication and actions taken, so that I can maintain a clear documentation trail and understand the context of the issue. To generate comprehensive reports on issue trends and resolution times so that I can identify areas for improvement and better understand student needs.

Objectives

- To create an efficient and accessible platform for students to report academic issues.
- To streamline communication between students and the faculties, reducing response times and improving issue resolution.
- To ensure that all reported issues are tracked and managed effectively, providing transparency to students, lecturers and administrators .
- The main goal of the system is to provide a centralized platform for reporting, tracking, and resolving academic issues.

Value proposition

- Efficiency: Streamlines the process of reporting and resolving academic issues, saving time for both students and lecturers.

- Accessibility: Provides a web-based platform that allows users to report issues anytime and anywhere, enhancing convenience.
- Transparency: Offers real-time tracking of reported issues, allowing users to stay informed about the status and resolution process.
- Improved Communication: Facilitates better communication between students, lecturers and administrators, ensuring that issues are addressed promptly and effectively.
- Data-Driven Insights: Generates reports and analytics that help institutions identify trends in academic issues, leading to informed decision-making and proactive improvements.
- User-friendly interface, that enhances the overall experience for all users, making it easy to navigate and utilize the system.

This project can significantly contribute to creating a more supportive academic environment by ensuring that issues are addressed promptly and efficiently

Methodology:

The methodology for this project includes:

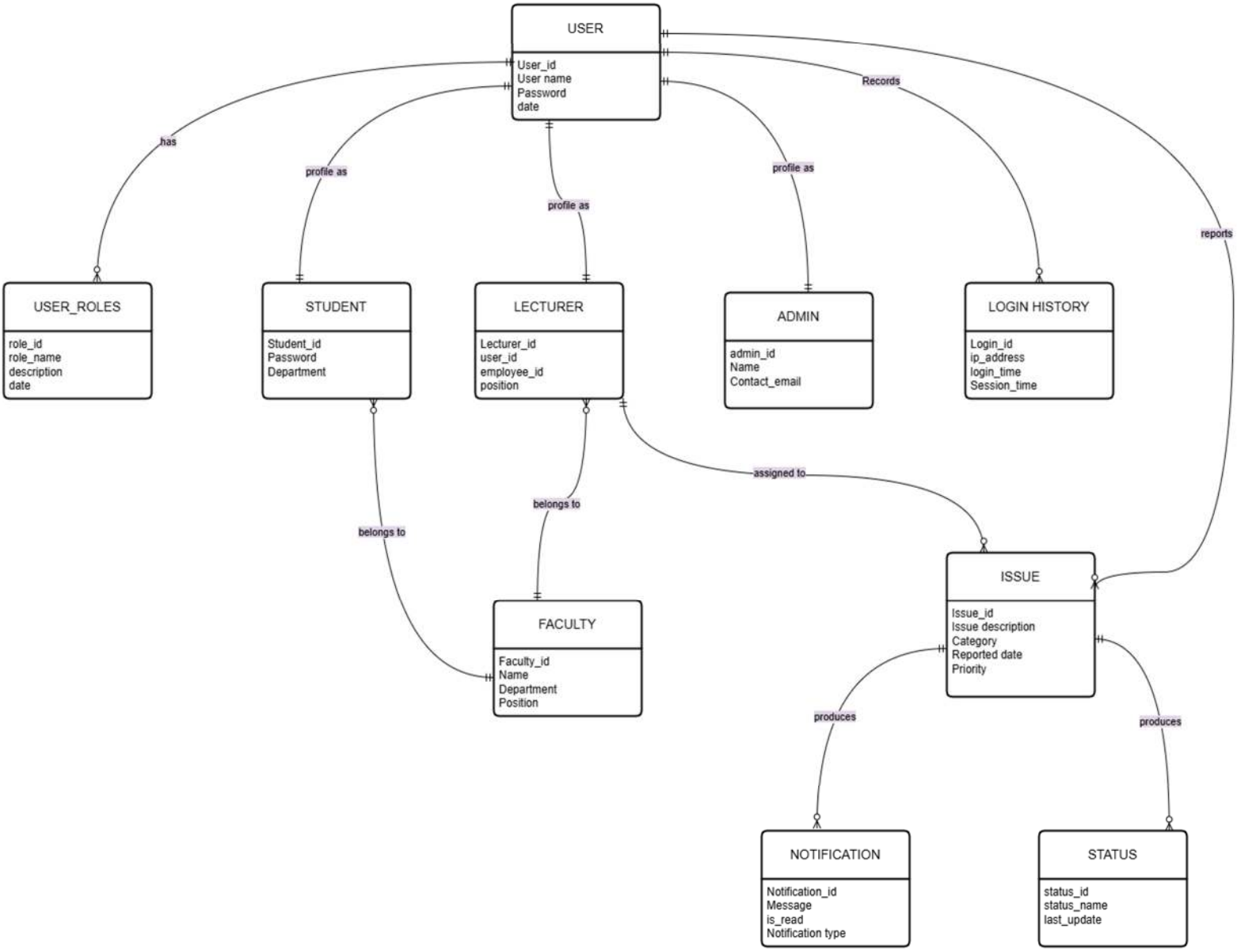
- Conducting issue assessment and requirements gathering exercises to identify the types of academic issues that affect students and lecturers at Makerere University

- Designing and prototyping the AITS using user-centered design principles and agile development methodologies

- Developing the AITS using a combination of open-source and proprietary software, including MySQL, and JavaScript

- Testing and evaluating the AITS using a combination of unit testing, integration testing, and user acceptance testing

ERD diagram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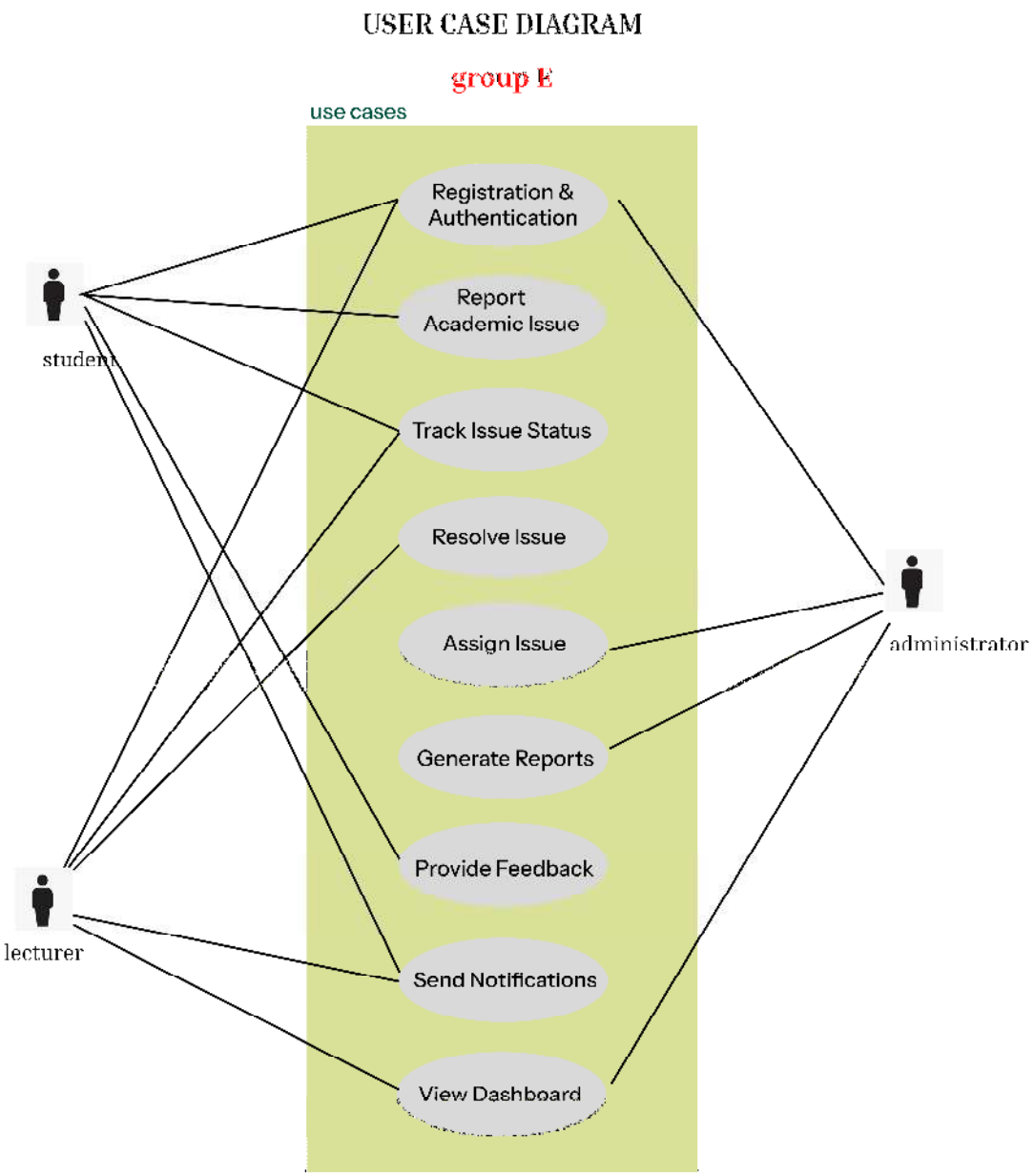
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Assign Issue
Generate Reports
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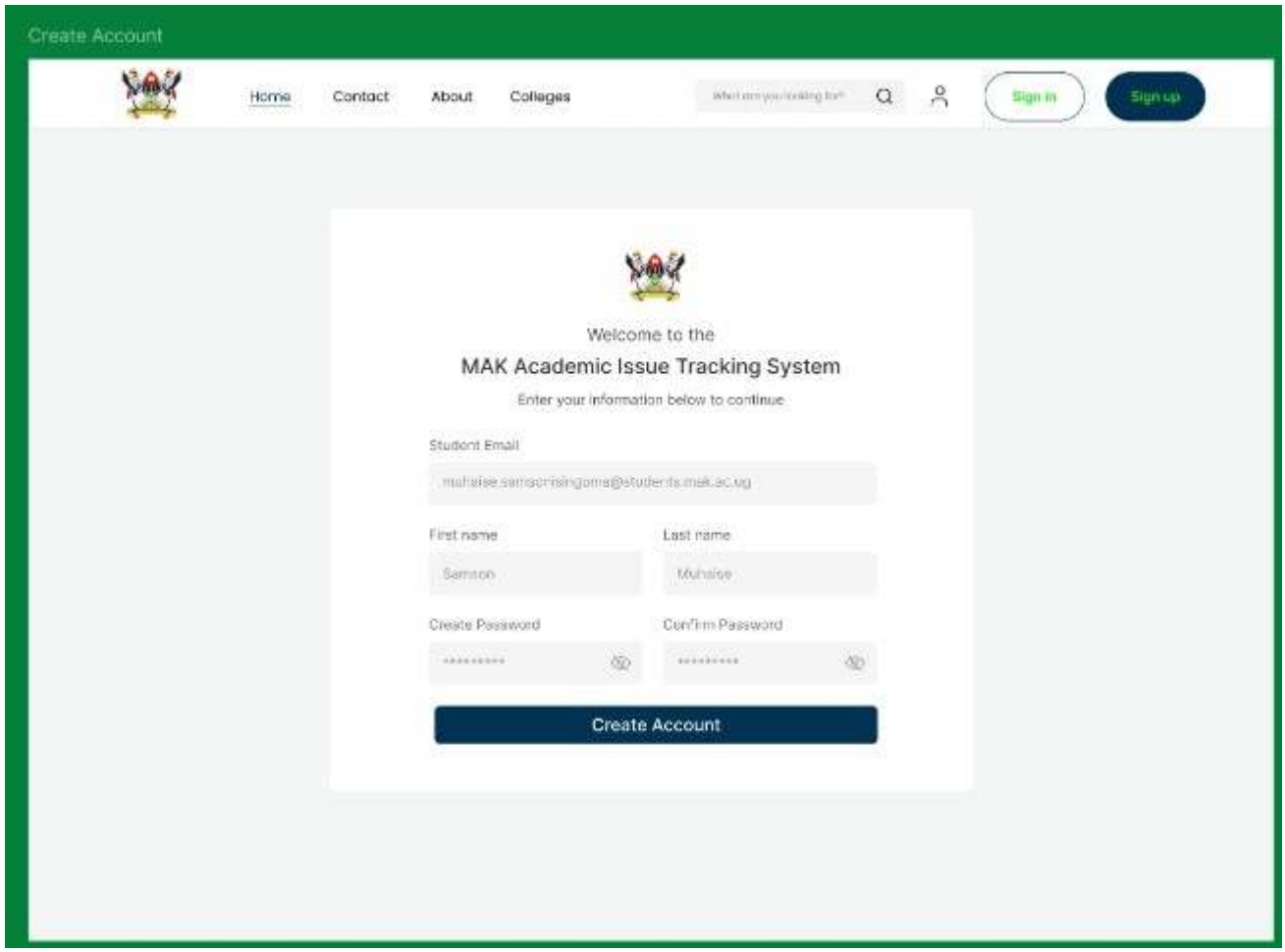
WIREFRAMES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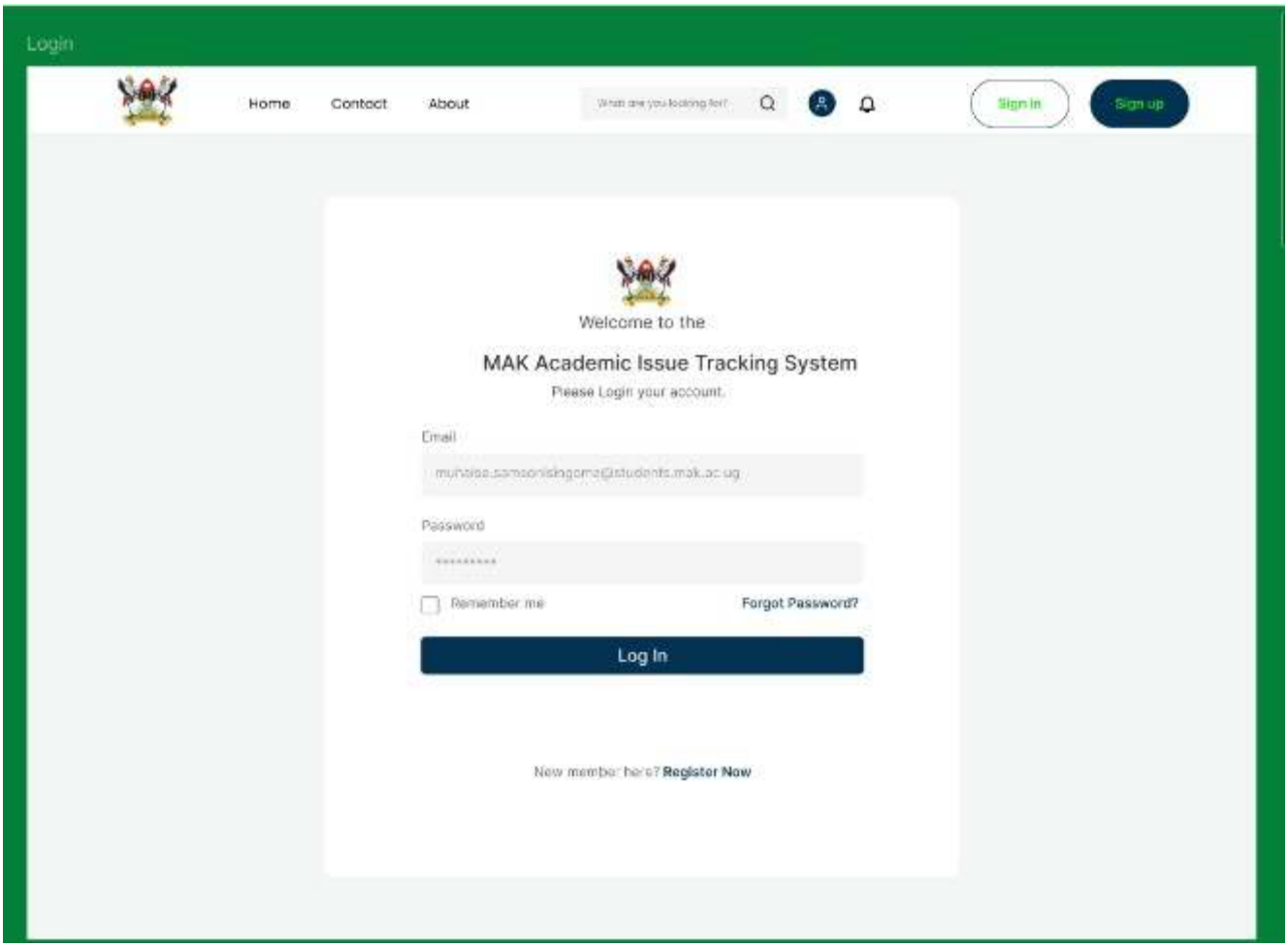
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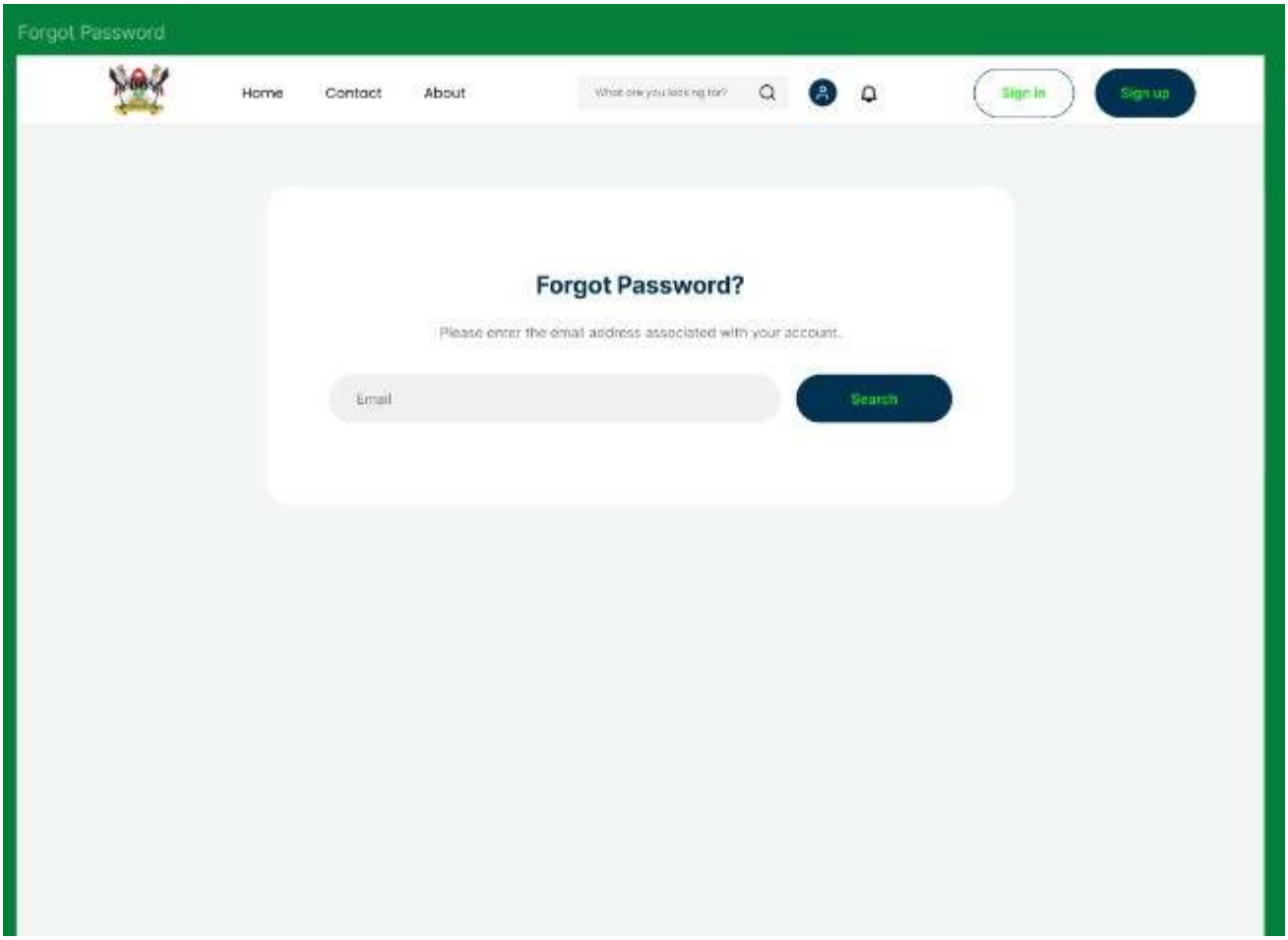
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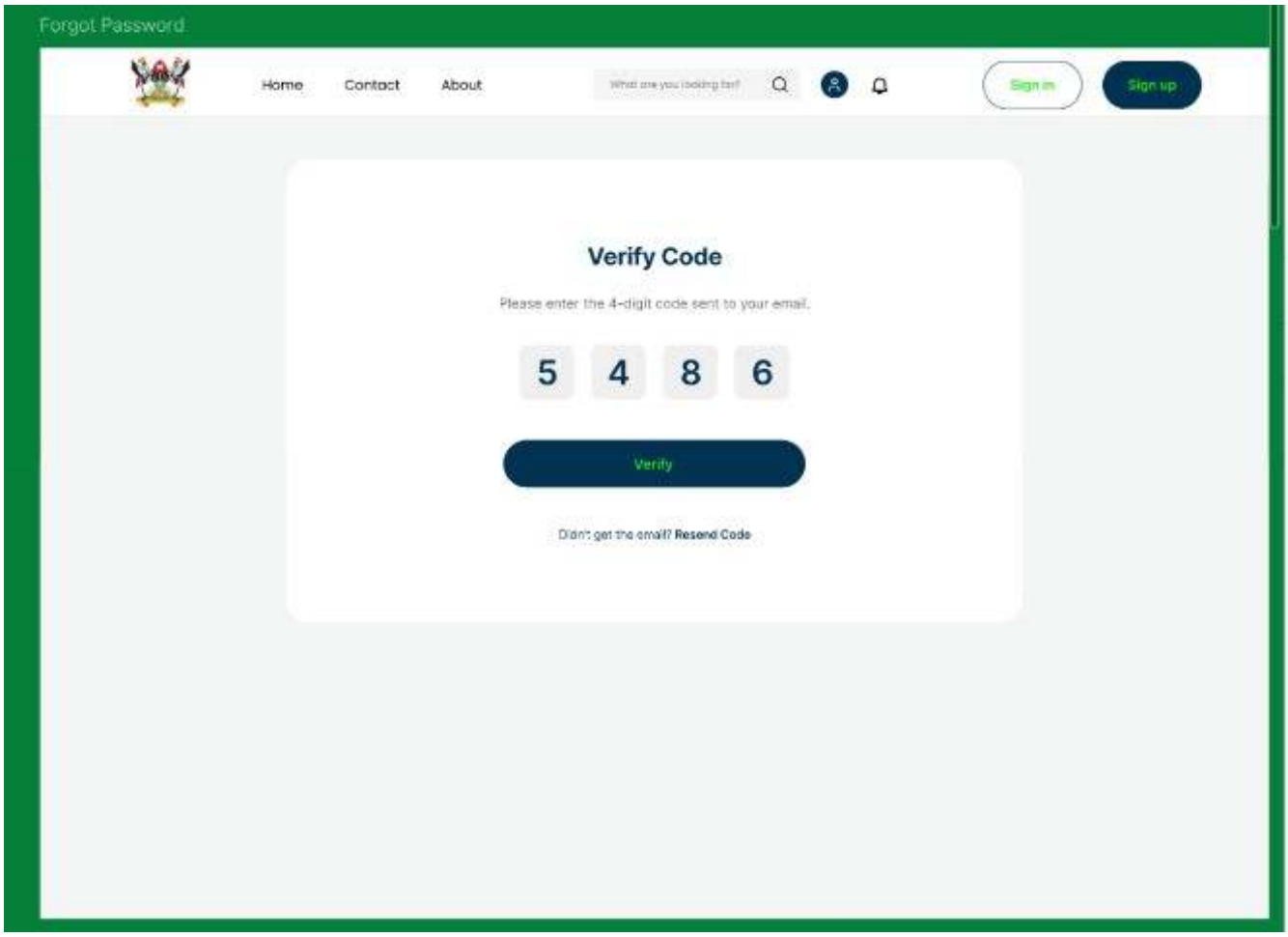
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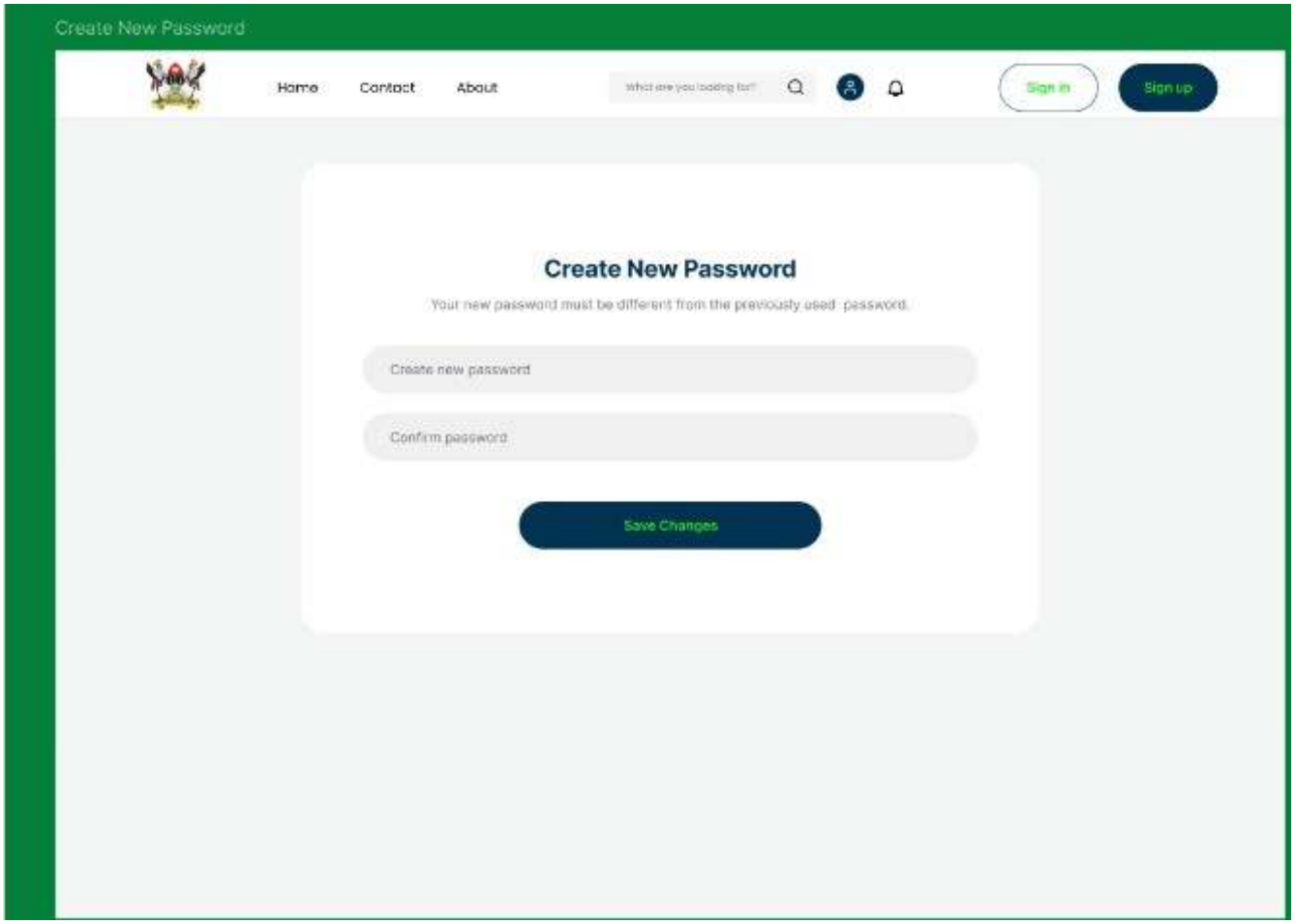
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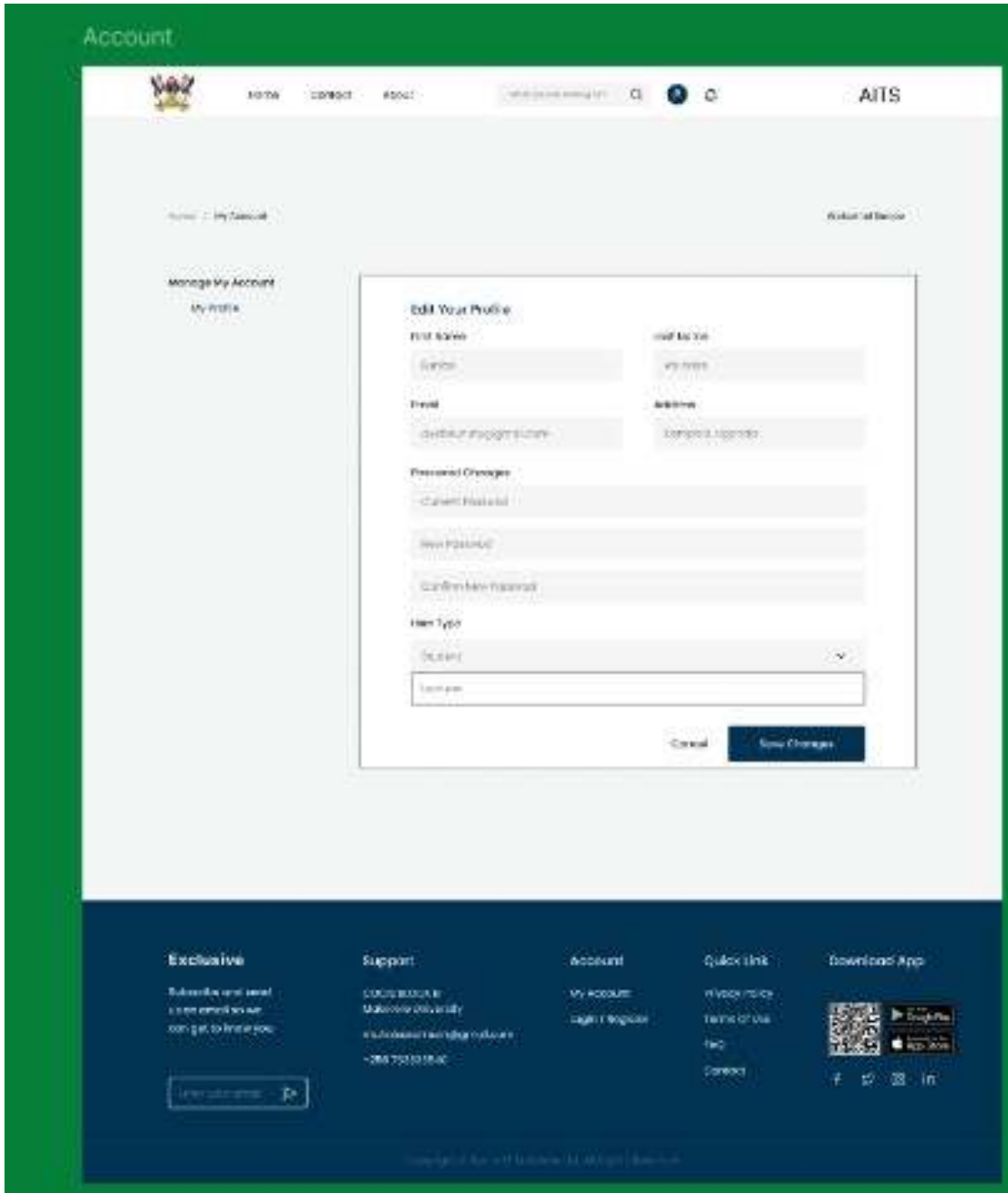
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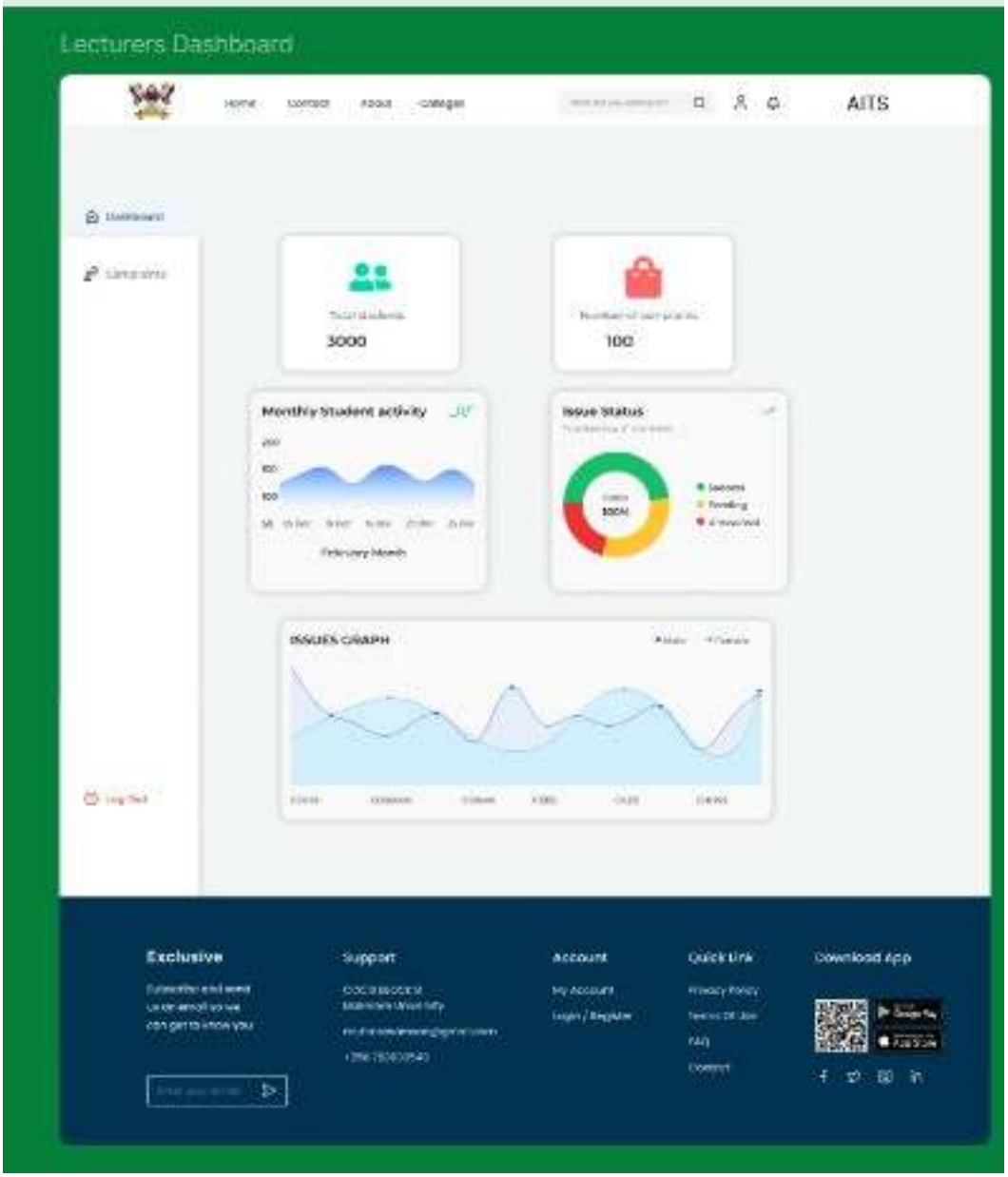
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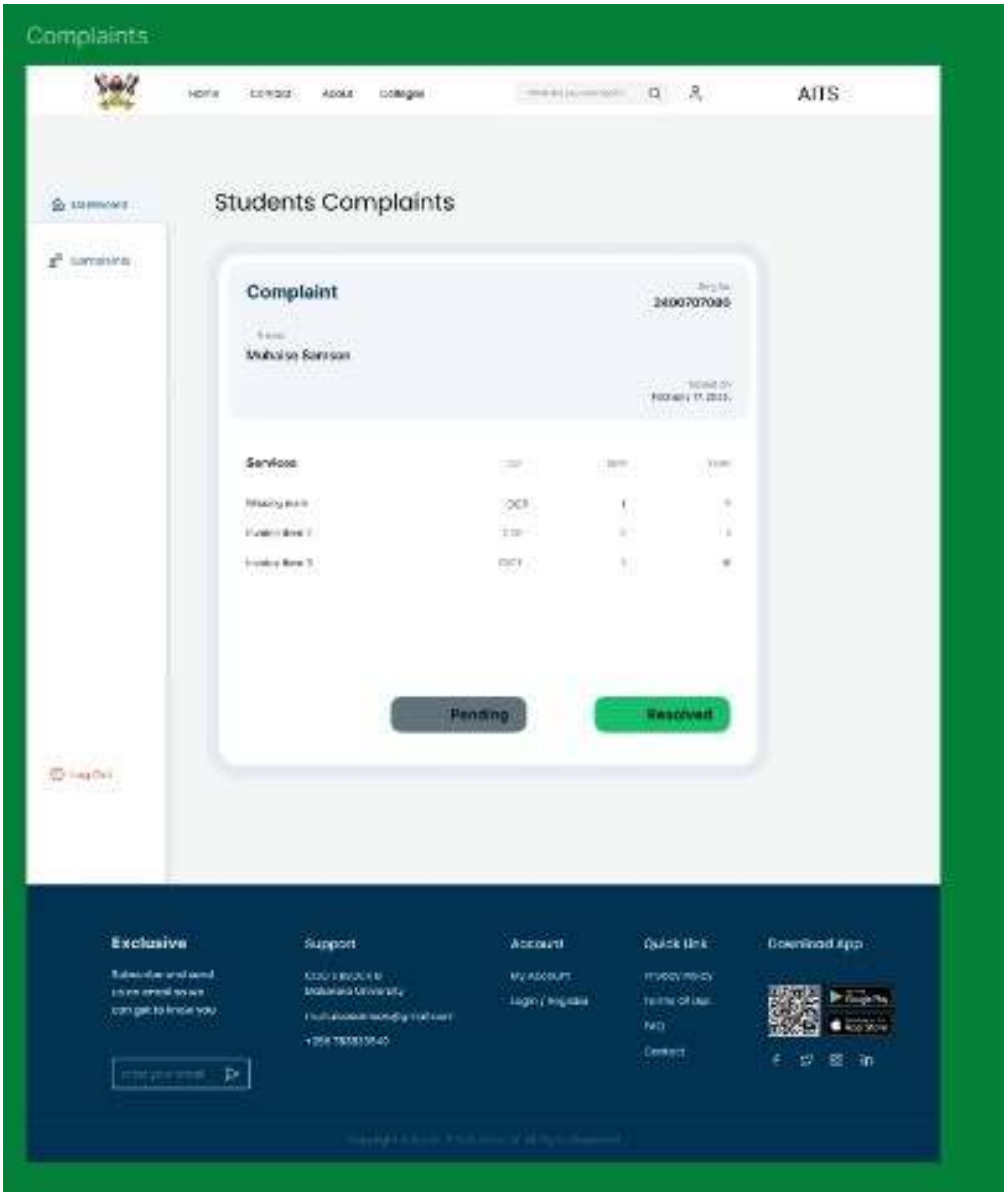
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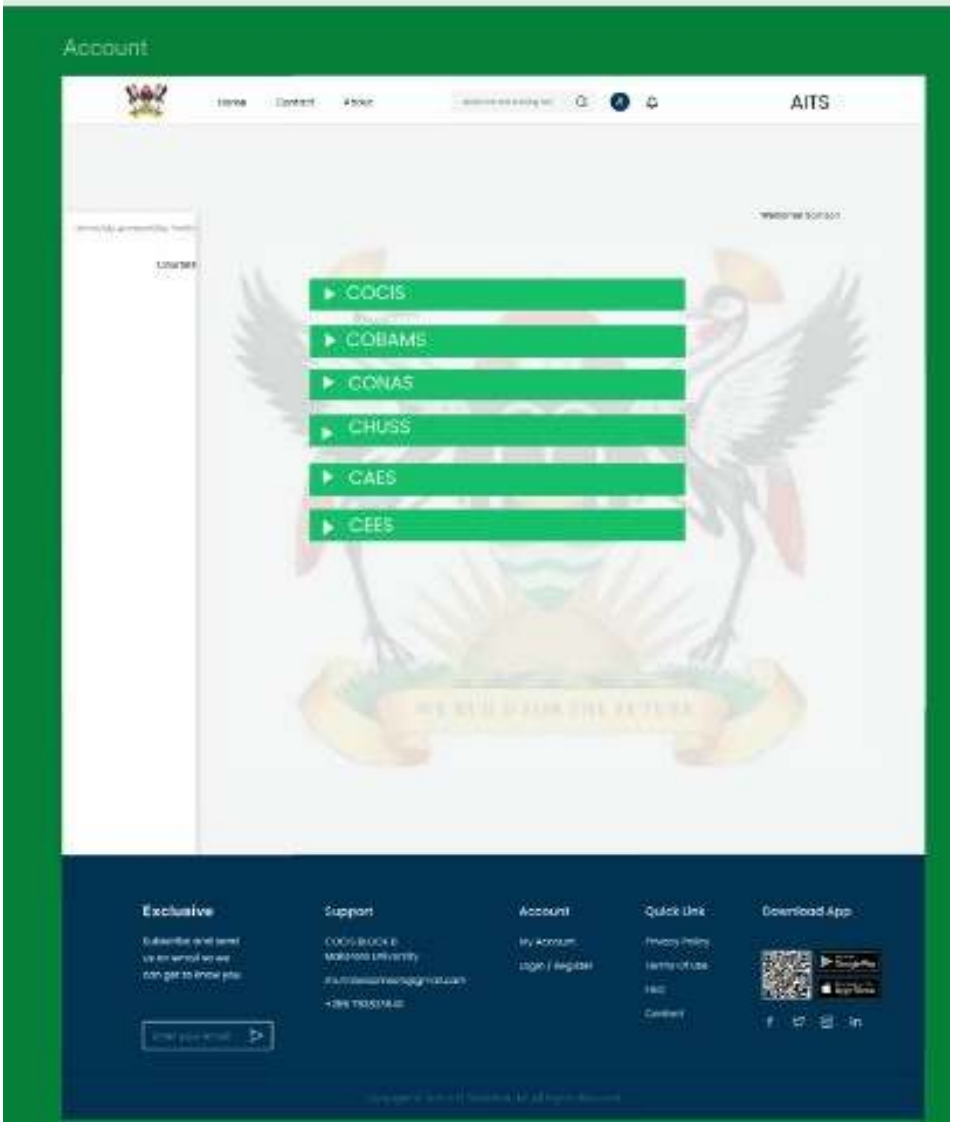
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