GROUP 1

Members

1. Angela Kinoro
2. Joy Nyayieka
3. Michelle Mokeira
4. Danielson Musa Ndung'u Mungai
5. Fadhili Gakwa
6. Samuel Theuri

REQUIREMENTS GATHERING

Data Collection from Various Users of the Currently Used System

User 1: School of Computing Sciences Administrator

- What system does the school use to manage student attendance?
  - We use Excel to update the system and an attendance sheet is printed and used by students to sign to show that they attended a class on a specific date.
- What tasks is the administrator in charge of in this system?
  - Printing the attendance sheet
  - Storing the attendance sheet
  - Updating the attendance on the Excel sheet
  - Create a final list of students eligible to sit for examinations based on attendance to each class.

User 2: Lecturer from the School of Computing Sciences

- What system does the school use to manage student attendance?
  - An Excel sheet updated by the students' signatures on the attendance sheet.
- What tasks does a lecturer have in this system?
  - Store a copy of the attendance sheets for the various classes they teach
  - Collect the attendance sheet before a class to get present students to sign
  - Return the signed attendance sheet to the administrator to update the Excel sheet of attendance

User 3: Students in the School of Computing Sciences

- What system does the school use to manage student attendance?
  - Not sure but knows that they have to sign an attendance sheet.
- What tasks does a student have in the system?
  - Sign an attendance sheet if the student is present in the classroom

NOTE: Students barely interact with the current class attendance management system.

TASK SCENARIOS

Student

Angie is being passed the signing sheet in human-computer interaction class, she signs and leaves for the next class. The lecturer, Mr Mwaniki picks the signing sheet that is admitted to Marren the school administrator who creates an Excel sheet that is presented at the exam board room meeting and the lecturer determines and compiles who's eligible to sit for their respective papers.

Admin

Marren the school administrator collects signing sheets from lecturers after all classes, which have been signed by only those who attended their respective classes and this is the data that is used when lecturers are determining who is eligible to write their exams.

Lecturer

Sir David Kirop, a school of computing science lecturer, attends classes with signing sheets for his respective units that he passes on to students present who will sign on that day's date.

USER ANALYSIS

Persona

Example of persona for Class Attendance Management System

Madam Jane: Persona from the user group "Lecturers"

- She is 30 years old
- Her role is to plan and deliver teaching on her specialist subject to university students.
- Her catchphrase is "Mentoring prolific innovators."
- Madam Jane is instrumental in the preparation of Department and Faculty development plans.
- She sets, administers and marks examinations.
- She ensures that student attendance is taken in each class by passing around the physical signing sheet.

Tasks

Detailed User Profile for class attendance management system

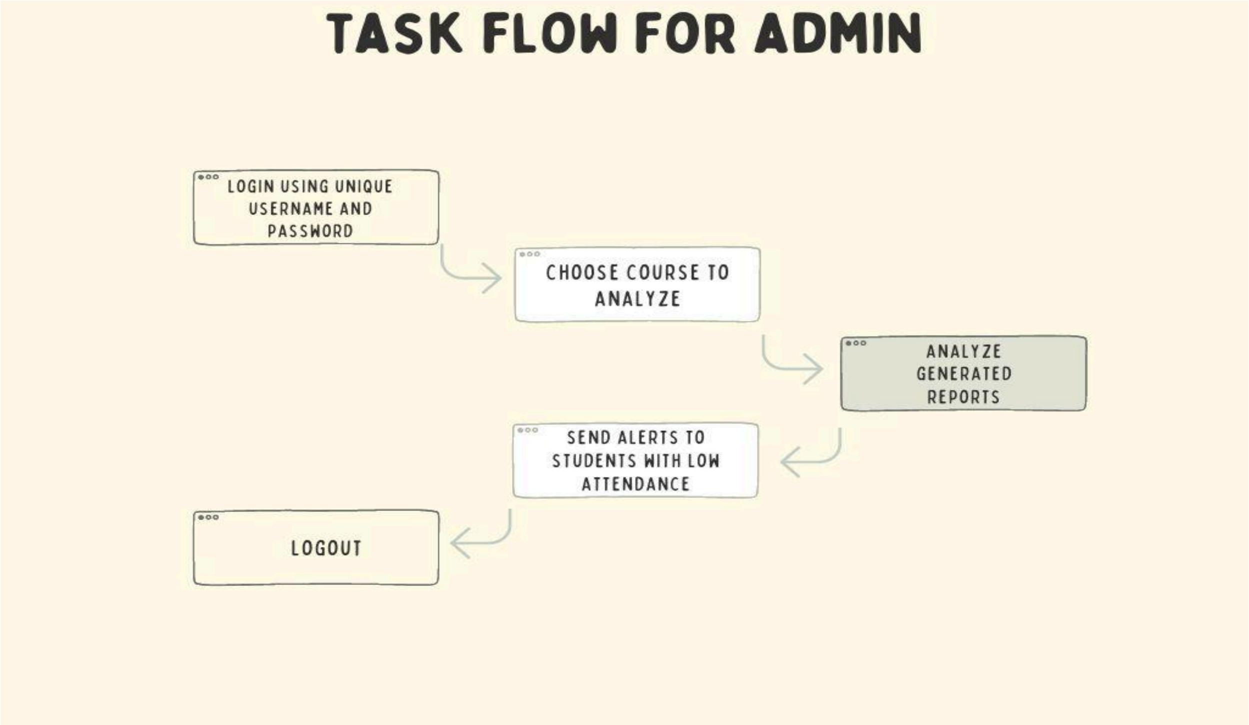
User Characteristics	**Class attendance management system**			
	Students	**Lecturers**	**ICT staff**	**School administrators**
Age	17 - 30	30 - 60	27 - 35	30 - 50
Field of expertise	Computing Sciences, Law, International Relations, Business,	Computing Sciences, Law, International Relations, Business,	Information Technology	Educational Administration

	Journalism, Education	Journalism, Education		
Information tasks	Attending classes, marking attendance	Capturing class attendance of students, viewing attendance reports, allocating grades based on the attendance, give lectures	Monitoring system performance, providing technical support, ensuring systems are secure, updating the systems	Generating class attendance reports, sends alerts to students who fail to achieve attendance requirements, forwards reports to the lecturers
Attitude	Be present for classes	Make the attendance available for the duration of the class	Work to make the system as easy to use as possible	Publish class attendance records
Motivation	Achieve minimum class attendance requirement in order to sit for examinations	Have the records of the students' attendance throughout the course duration	The system should at all times be running smoothly to avoid frustration	Provide bona fide records of each students' attendance records

Goals

- Students should be able to log in to mark their attendance, and also check their class attendance so far in the semester.
- The system should enable the lecturers to view class attendance and generate an accurate attendance report for the units they teach.
- The school administrator should be able to view the attendance of students in their particular school and send alerts to students whose attendance is low.

TASK FLOW



TASK FLOW FOR ADMIN

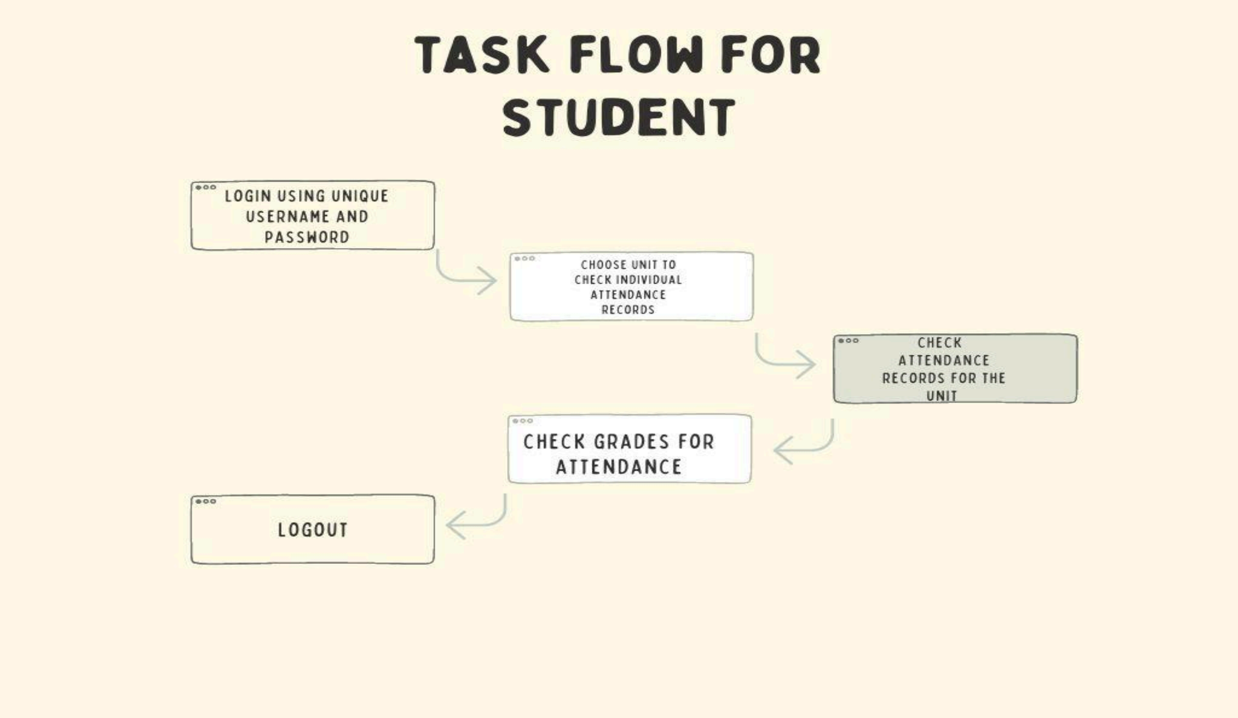
LOGIN USING UNIQUE USERNAME AND PASSWORD

CHOOSE COURSE TO ANALYZE

ANALYZE GENERATED REPORTS

SEND ALERTS TO STUDENTS WITH LOW ATTENDANCE

LOGOUT



TASK FLOW FOR STUDENT

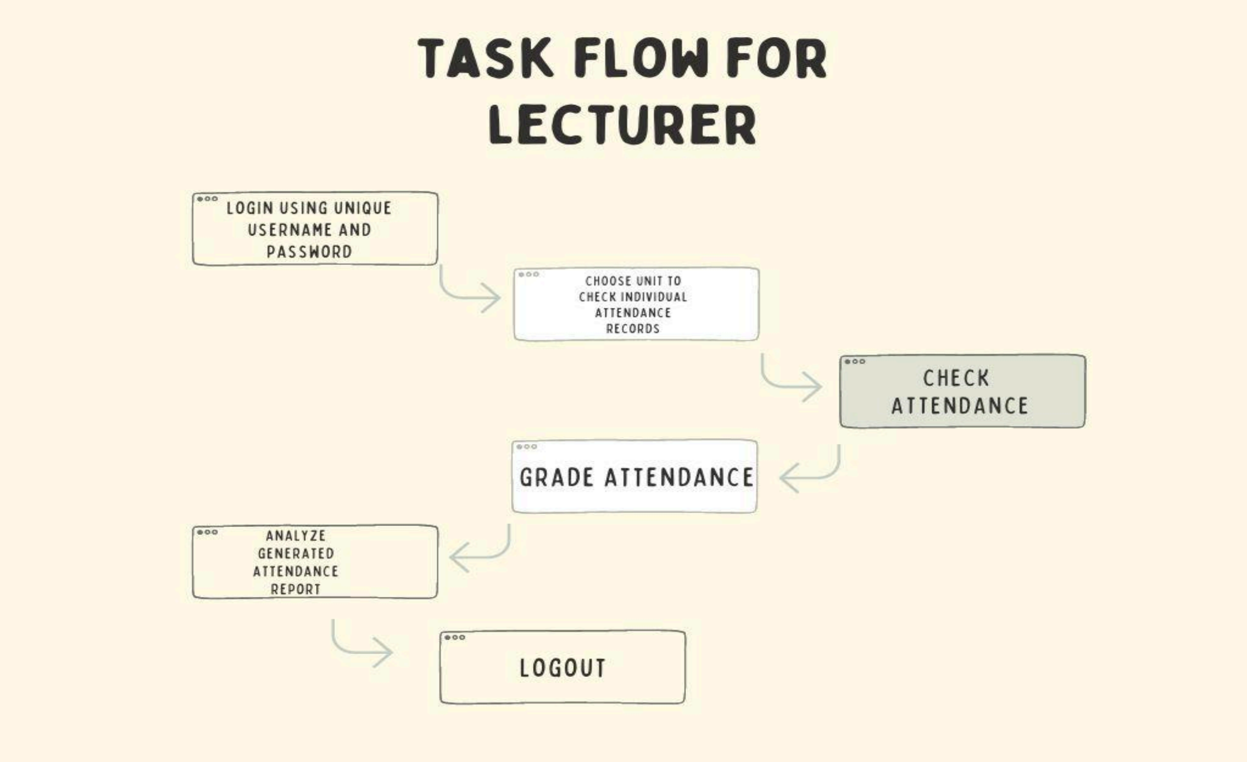
LOGIN USING UNIQUE USERNAME AND PASSWORD

CHOOSE UNIT TO CHECK INDIVIDUAL ATTENDANCE RECORDS

CHECK ATTENDANCE RECORDS FOR THE UNIT

CHECK GRADES FOR ATTENDANCE

LOGOUT



TASK FLOW FOR LECTURER

LOGIN USING UNIQUE USERNAME AND PASSWORD

CHOOSE UNIT TO CHECK INDIVIDUAL ATTENDANCE RECORDS

CHECK ATTENDANCE

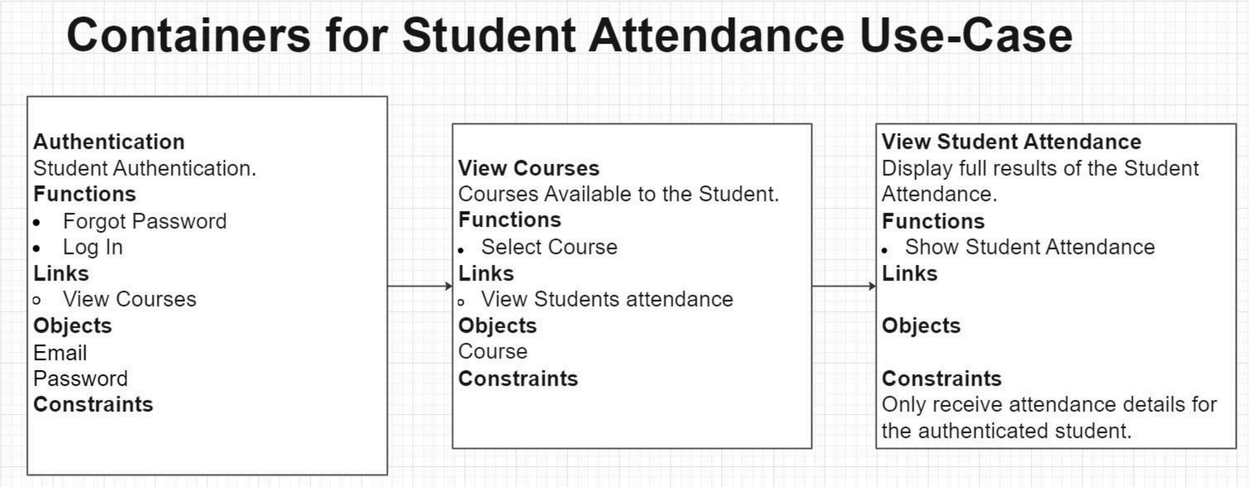
GRADE ATTENDANCE

ANALYZE GENERATED ATTENDANCE REPORT

LOGOUT

CONCEPT DIAGRAMS

Student Attendance Use Case Concept Diagrams



Containers for Student Attendance Use-Case

Authentication
Student Authentication.
Functions
- Forgot Password
- Log In

Links
- View Courses

Objects
Email
Password
Constraints

View Courses
Courses Available to the Student.
Functions
- Select Course

Links
- View Students attendance

Objects
Course
Constraints

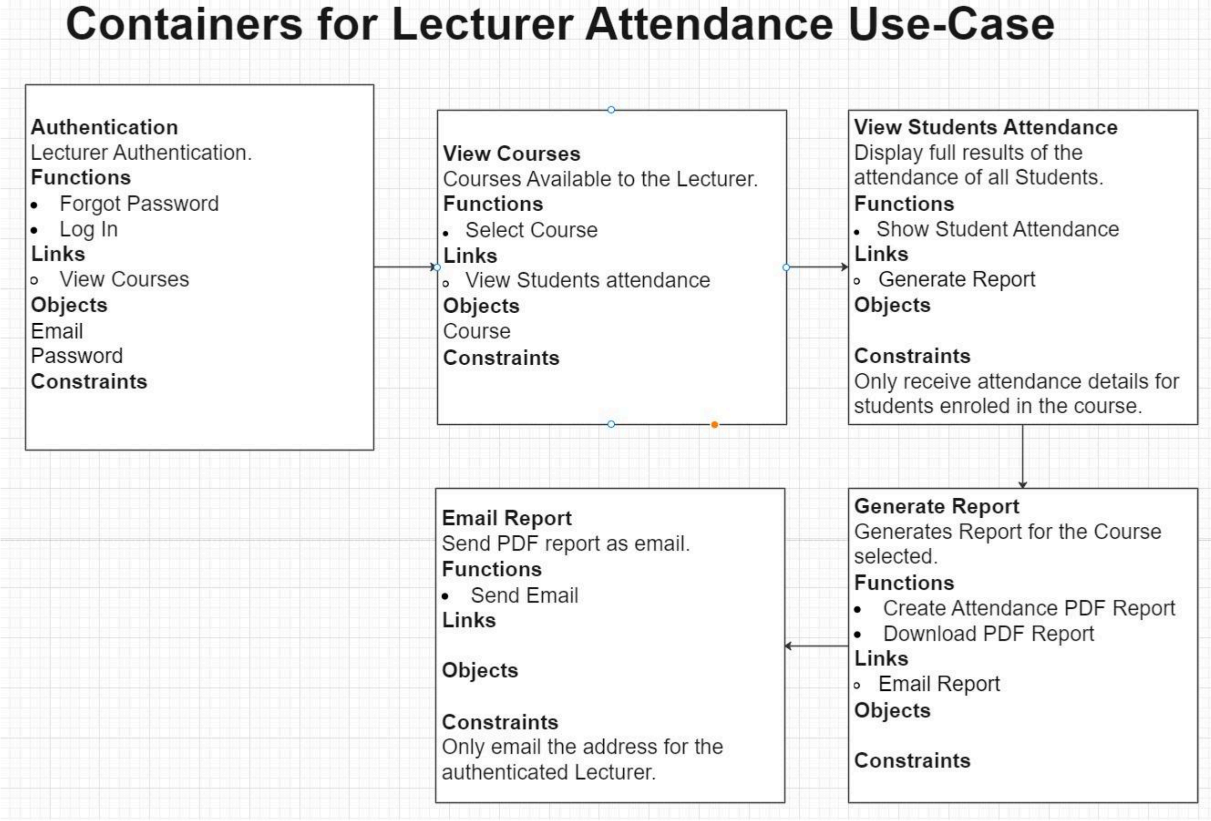
View Student Attendance
Display full results of the Student Attendance.
Functions
- Show Student Attendance

Links

Objects

Constraints
Only receive attendance details for the authenticated student.

Lecturer Attendance Use Case Concept Diagrams



Containers for Lecturer Attendance Use-Case

Authentication
Lecturer Authentication.
Functions
- Forgot Password
- Log In

Links
- View Courses

Objects
Email
Password
Constraints

View Courses
Courses Available to the Lecturer.
Functions
- Select Course

Links
- View Students attendance

Objects
Course
Constraints

View Students Attendance
Display full results of the attendance of all Students.
Functions
- Show Student Attendance

Links
- Generate Report

Objects

Constraints
Only receive attendance details for students enroled in the course.

Generate Report
Generates Report for the Course selected.
Functions
- Create Attendance PDF Report
- Download PDF Report

Links
- Email Report

Objects

Constraints

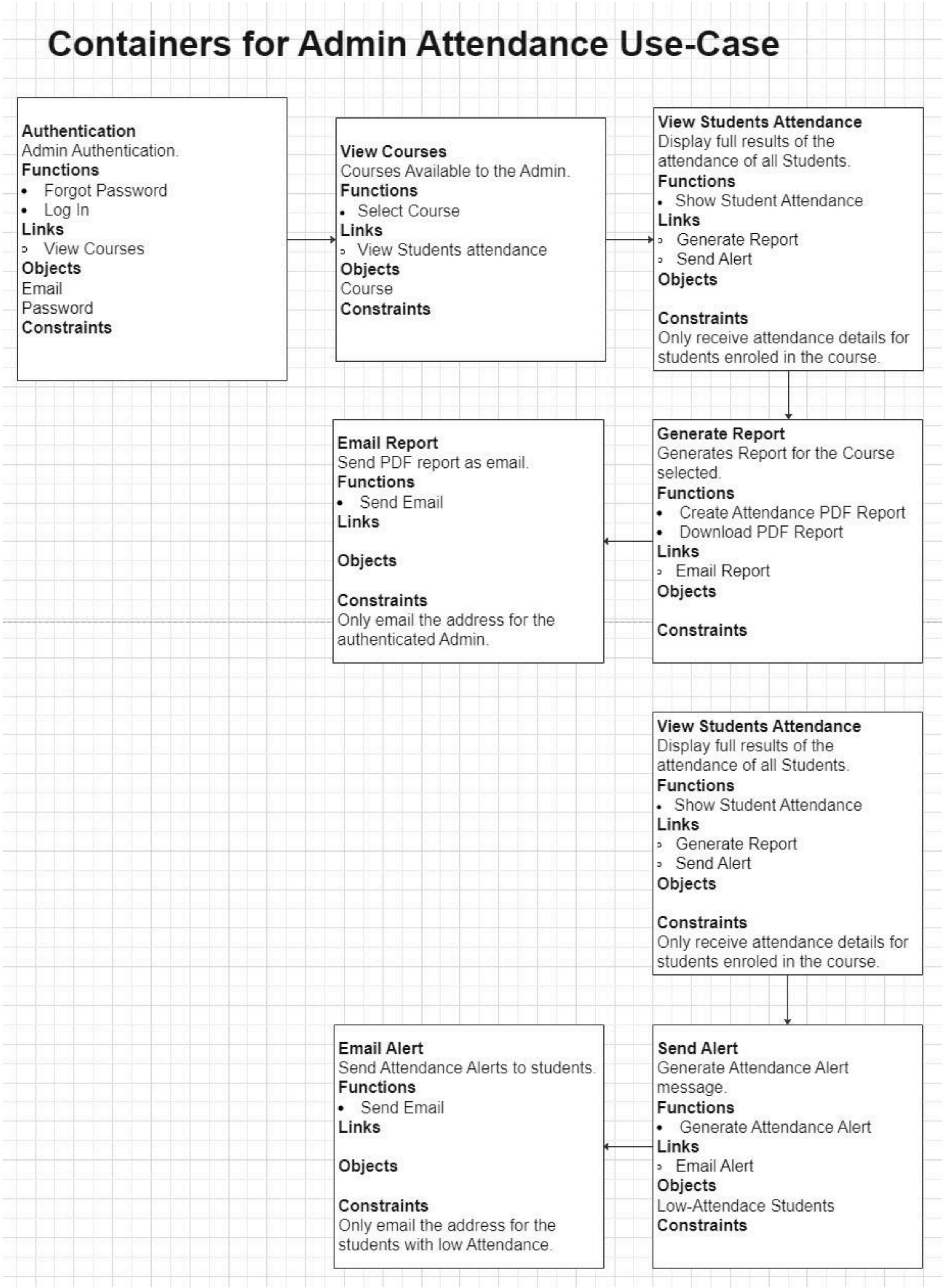
Email Report
Send PDF report as email.
Functions
- Send Email

Links

Objects

Constraints
Only email the address for the authenticated Lecturer.

Admin Attendance Use Case Concept Diagrams



Containers for Admin Attendance Use-Case

Authentication
Admin Authentication.
Functions
- Forgot Password
- Log In

Links
- View Courses

Objects
Email
Password
Constraints

View Courses
Courses Available to the Admin.
Functions
- Select Course

Links
- View Students attendance

Objects
Course
Constraints

View Students Attendance
Display full results of the attendance of all Students.
Functions
- Show Student Attendance

Links
- Generate Report
- Send Alert

Objects

Constraints
Only receive attendance details for students enroled in the course.

Generate Report
Generates Report for the Course selected.
Functions
- Create Attendance PDF Report
- Download PDF Report

Links
- Email Report

Objects

Constraints

Email Report
Send PDF report as email.
Functions
- Send Email

Links

Objects

Constraints
Only email the address for the authenticated Admin.

View Students Attendance
Display full results of the attendance of all Students.
Functions
- Show Student Attendance

Links
- Generate Report
- Send Alert

Objects

Constraints
Only receive attendance details for students enroled in the course.

Send Alert
Generate Attendance Alert message.
Functions
- Generate Attendance Alert

Links
- Email Alert

Objects
Low-Attendace Students
Constraints

Email Alert
Send Attendance Alerts to students.
Functions
- Send Email

Links

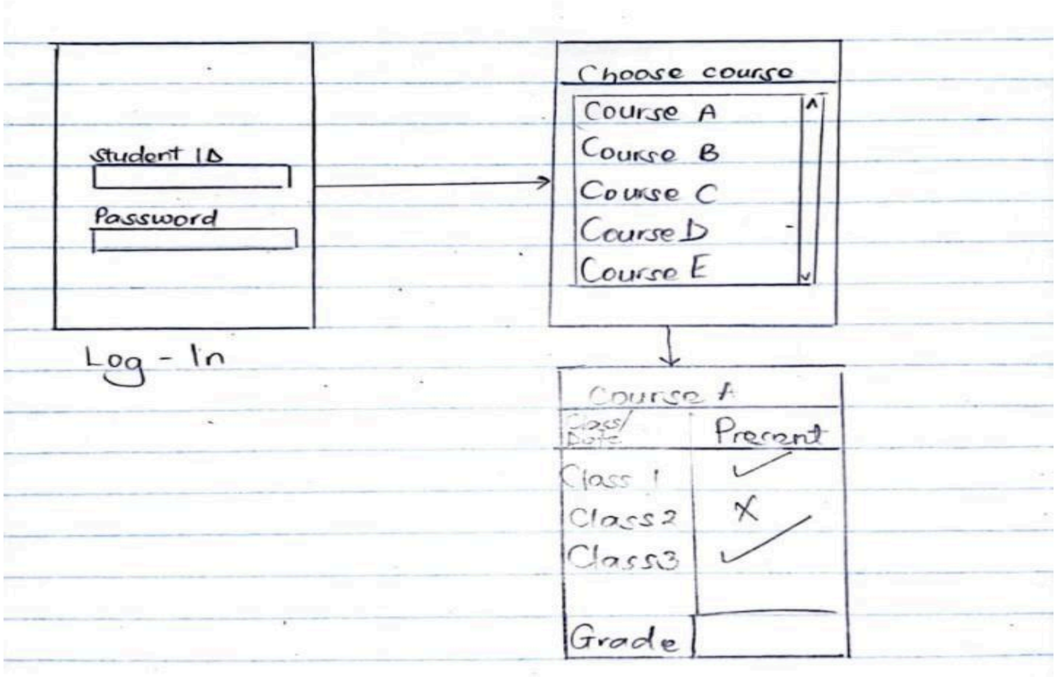
Objects

Constraints
Only email the address for the students with low Attendance.

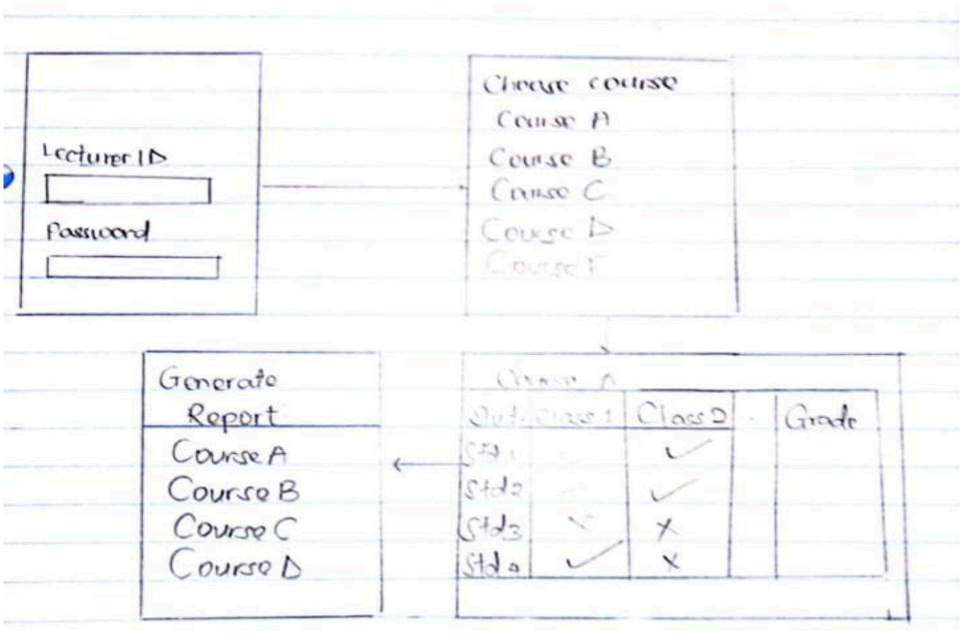
WIREFRAMES

Hand-drawn wireframes

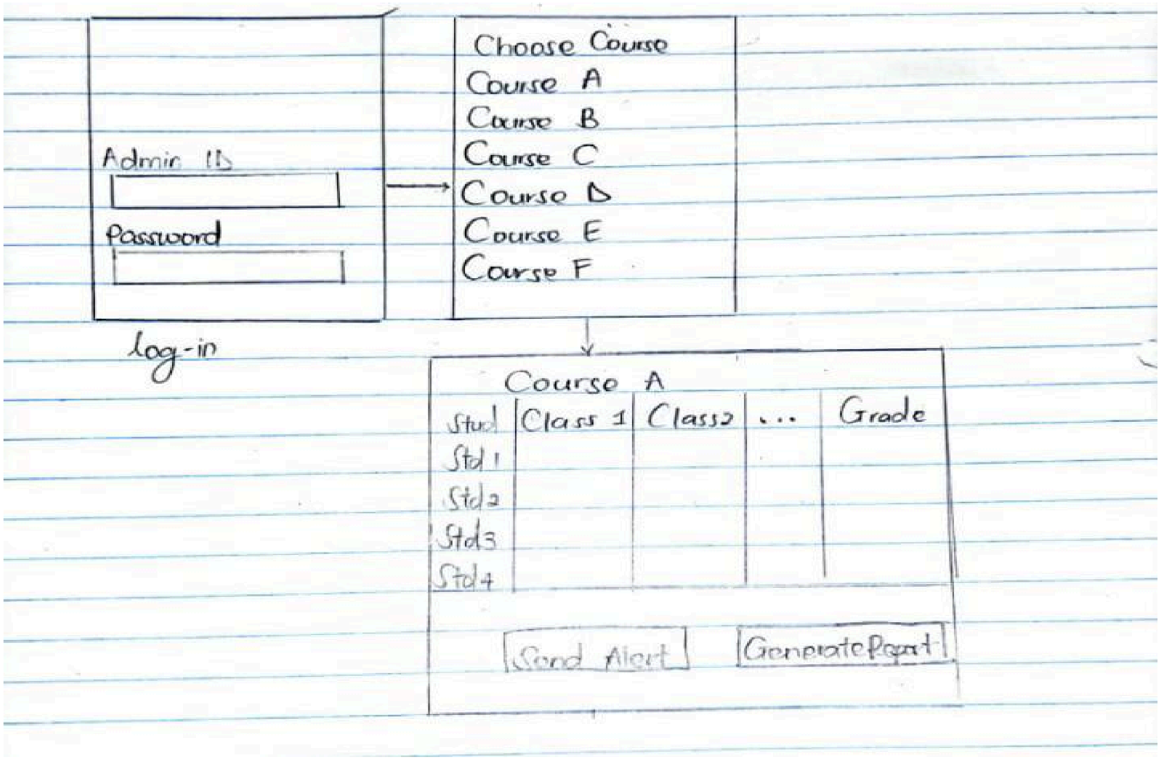
Student low-fidelity diagram



Lecturer low fidelity diagram



Admin low fidelity diagram



Stud	Class 1	Class2	...	Grade
Std 1				
Std2				
Std3				
Std4				

Mid-level fidelity wireframe

The following link contains the mid-level fidelity wireframe for the class attendance management system.

https://balsamiq.cloud/swxep2z/ptojksx

Guidelines of HCI principles that we applied

Using Ben Shneiderman's concept, we came up with a system design that followed the following guidelines:

- Familiarity - we made sure that the interface was consistent and familiar by sticking to known UI elements.

- Reducing short-term memory load - we ensured that the content on each container was simple, short and to the point by avoiding cluttering the interface with too much information. We applied Miller's law of seven plus or minus two in our interfaces to help users process and understand content more easily.

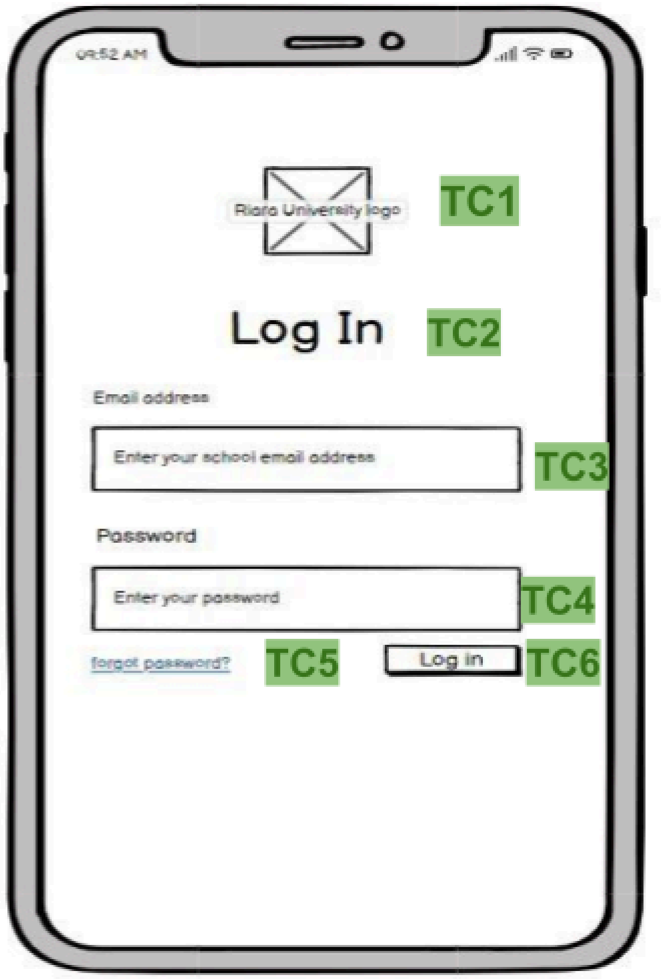
- Prevent errors - We also ensured that many errors were prevented by having error messages that guided the user as they used the site

- Gestalt principles - we used principles like the law of similarity to group items with similar characteristics to make it easier for users to understand ie for the admin's interface, the send alerts button and the reports button are at the bottom of the site with similar characteristics.

- Mental Models - We incorporated existing mental models in our user interfaces that most users share from interactions with previous systems. The system is built with the principle of creating a very intuitive interface that the user will easily create a mental model of if they do not find it as familiar.

- User-centered design: The design process begins with an understanding of the users' needs, goals, and behaviors. This involves involving users in the design process, conducting user research, and testing the system with users.

TESTING SCENARIOS
Testing scenario 1



Test Cases

TC1

-Check the position of the logo
-Check the image quality

TC2

-Validate whether the page heading is correct
-Check the font used

TC3

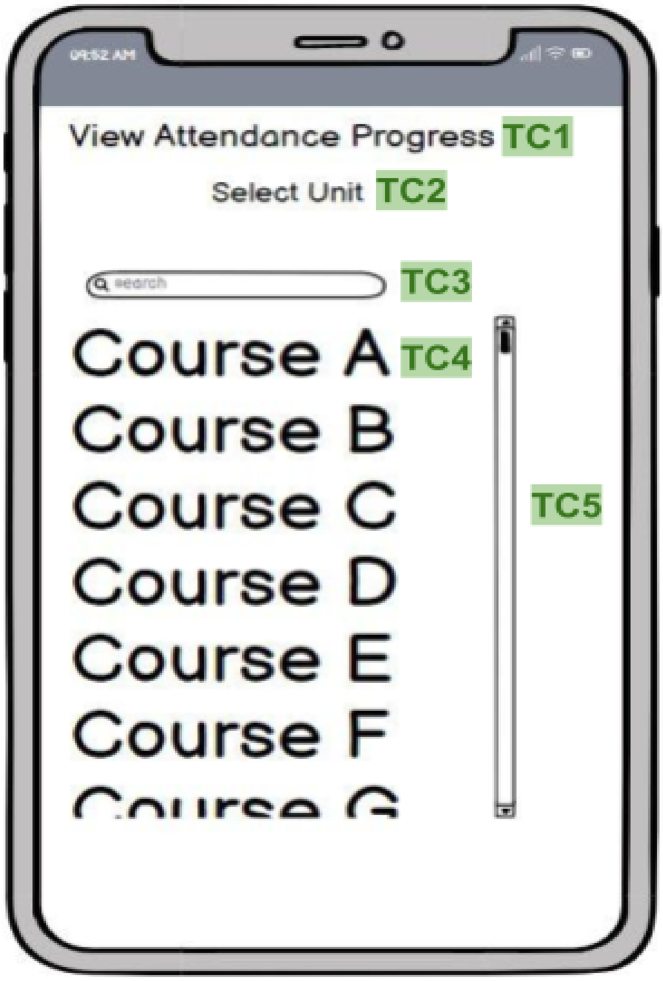
-Check the position and the alignment of the field label and the text box
-Check the placeholders(spelling,size,font)
-Validate the acceptance of both valid and invalid email addresses
-Test the error message by submitting an invalid email address
-Verify error message correctness

TC4
-Check the position and the alignment of the field label and the text box
-Check the placeholders

TC5
-Test pop-ups and hyperlinks

TC6
-Check whether the page redirects to the valid page when the user submits credentials
-Check button position and clarity
-Test the error message by submitting prohibited credentials
-Verify error message correctness

Testing scenario 2



Test cases

TC1

-Validate whether the page heading is correct
-Check font used

TC2

-Validate whether the title is correct
-Check font used

TC3

-Check the position and alignment of the search box
-Check the placeholder (spelling, font, size)

-Verify search is working by typing a valid course name and pressing the Enter key from the keyboard
-Verify that an error message should display for blank input.

TC4
-Check whether the title is correct
-Check font used
-Check whether the course name is clickable or not by clicking on the course name
-Check whether the page redirects to the valid page when the user clicks on the course name

TC5
-Verify that you can use the arrow keys to scroll to courses within the Web page not currently visible within the browser window.