# Project Documentation

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**Change Management Plan**

| Description | Date | Owner | Version | pages |
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| Evaluation and analysis | 10/05/2023 | Brian AREK | Version 1 | 1 - 6 |
| | | | | |

# 1. Introduction

This introduction provides an overview of the System Architecture Document for Class Rep, lecturer Time tabular Application. It includes the purpose, scope, target audience, design approach, main component design and high-level system design considerations of the system.

## 1.1 Problem Statements

Currently, our university communication structure or flow among the lectures, students and time table master is not computerized as far as class attendance, attendance sheet marking and timetable scheduling is concerned. The time table master design the timetable and then send it to the class representatives and lectures, after which the class representatives send it to the students. Several limitations are as a result of this process, the limitations are as follows;

> ➢ **Scheduling conflicts**: Avoiding overlapping classes for students and faculty can be tricky, especially
> ➢ when there are limited classrooms and resources.
> ➢ **Faculty availability**: Coordinating the schedules of lecturers to match their expertise with courses can be challenging.
> ➢ **Room allocation**: Assigning appropriate classrooms that accommodate class size, equipment, and accessibility needs can be a logistical challenge.
> ➢ **Resource constraints**: Dealing with limited resources such as classrooms, time slots, and faculty can lead to compromises and constraints in scheduling.
> ➢ **Special requirements**: Incorporating labs, seminars, and other specialized classes with unique scheduling needs can complicate the timetable.
> ➢ **Balancing workload**: Ensuring that faculty members' workloads are distributed evenly across days and weeks can be a juggling act.
> ➢ **Timetable changes**: Adapting to last-minute changes in faculty availability, student enrollments, or unexpected events can disrupt the timetable.

## 1.2 Problem solution

- Considering the problems above, solving the coordination of schedules to lectures expertise can be done by analyzing the lecturers experience by considering the key performance indicators such us the student's performance, and attending lectures assessments.

- The timetable changes with affects the whole timetable operation should be the timetable to move as a whole so that if a change is made, the timetable adjust programmatically and alerting the lecturers of the changes made instantly.
- Sessions like lab schedules should not interrupt the timetable by simply making the lab schedules solved by having specific days for different classes to attend the labs.

Therefore, considering the problems above, I made a decision of coming up with a mobile application which will enable the lectures, students and time table master to communicate in a real time within the application. Solution to every challenge will be as follows;

- ➢ **Conflict Resolution Logic** design a conflict resolution logic to solve the interference.
- ➢ **Coordinating the schedules of lecturers to match their expertise with courses can be challenging**
  - ❖ create a database for lecturer expertise which contains information which contains information about each lecturer's expertise,
  - ❖ create a database for courses and form a matching algorithm that can analyze the lectures expertise and course requirements to identify suitable lecturer.
- ➢ Room allocation and resource constraints… ensure time slots provide goes with available allocated rooms.
- ➢ Special sessions such as lab meeting >>>>create a database for lab sessions where each lecturer should request the number of lab session, he/she requires and from that the database is able to do the scheduling.

## 1.3 Document Scope and Purpose
This document's primary purpose is to describe the technical vision for how the communication among the Users will be computerized and effective. This document provides an architectural overview of the system to depict the flow and the planning of the system. This document also functions as a foundational reference point for developers.

### 1.3.1 Target Audience
- Lecturers
- Time tabular
- Class Representatives

### 1.3.2 Scope and purpose
- ❖ Improvement of the communication among the target audience.
- ❖ Instant messaging or real time messaging among the target audience.
- ❖ Immediate alert and notification in case of time table update by timetable master.

  **N/B\* the class representative and lecturer should be able to receive automated notification on a daily basis when they have a session, if there is no session no notification.**

## 1.4 Users and roles

**Lecturer:** should be able to view the timetable in his or her profile and confirm to the time table master if the update is okay. The lecturer should be able to mark attendance for the students using a checkbox. In any case the lecturer is not available, he or she should privately chat class representative.

**Class representative:** class rep should be able to mark attendance for the lecturers and ensure each lecturer has attained the 75% of the classes.

**Time table master:** should be able to update timetable in his or her profile. Send general notifications to the lecturers and students.

# 2 Requirement analysis

A software requirement is necessary in that the user requires to solve an issue or achieve a goal. In other words, a requirement is a software capability that a system or system module must meet or possess to satisfy a contract, standard, or specification. Ultimately, we want to provide high-quality software that matches scope and goals considering actual by the target audience. In the requirement analysis stage, we are going to consider the following;

## 2.1 Problem Recognition

Considerably, the problem statement in the introduction is worth solving by considering the solution idea stated before. The main objective of the project proposal is to enable communication among the target audience which include, lecturers, class representative and time table master.

### 2.2 Evaluation and synthesis

#### 2.2.1 Software functions
- ✓ User authentication

The class representatives, timetable master and the lecturer should be able to login securely.

- ✓ Messaging and communication

Real time chat between users should be a key function in the application.

- ✓ User profiles

The users should be able to update their profiles after logging into the system.
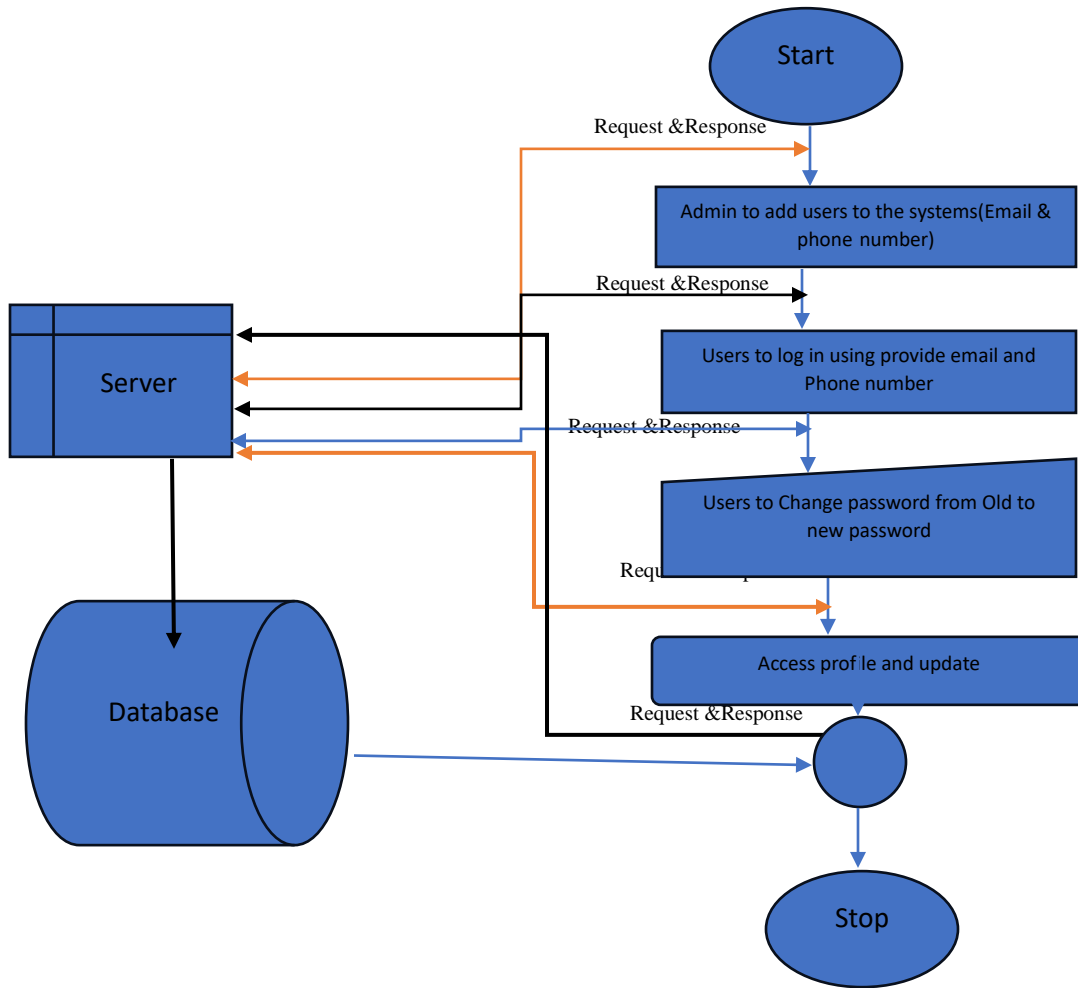
**The class representatives and the lecturers will be registered by the timetable master (Admin) into the system, they will receive their username and password credentials from the time table master, after which they will be able to log in and update profiles.**

- ✓ Security and privacy

The users should be able to change password given by the admin for privacy purposes.

The user should be able to **logout** from the profile

## 2.2.2 Authorization procedure

Start

Request &Response

Admin to add users to the systems(Email & phone number)

Request &Response

Users to log in using provide email and Phone number

Server

Request &Response

Users to Change password from Old to new password

Requ

Access prof le and update

Database

Request &Response

Stop

**Database operations flowchart**

**w**

## 2.3 System environment

- ✓ Development: android studio latest version
- ✓ Unit Test: Junit
- ✓ Database management: MYSQL workbench
- ✓ Database MSQL latest version
- ✓ Server: Apache tomcat

## 2.4 Data flow Design

The data flow of the application is Internet-based. Hibernate technologies will be utilized to retrieve and cache data from MySQL database to be displayed by the mobile portal user interface. Hibernate would also allow updating the data where applicable.

## 2.5 UI Design

Wire Frames are used for UI design. Wire frames are an effective tool for collecting and presenting functionality, navigation, and content of an application or web site. Annotations or notes attached to elements or widgets on the wire frame help to communicate specific functions.

# 3 System requirements

## 3.1 System Requirements for Lectures page

### 3.1.1 Profile details

Profile should have lectures image and name at the bottom of the image (Mr., Dr., Prof.,>>> accordance to the details updated in the profiles).

- Edit profile
- Change password
- Log out

### 3.1.2 Menu details

- Chat

### 3.1.3 Notification symbol

Should appear in orange color

### 3.1.4 Reminder message

Sent to phone number registered in the app.

Reply with 1 to confirm class, if no reply, generates warning message (**3.1.5**)

### 3.1.5 Warning Alert

Should appear 10 minutes late from the start. Warning symbol.

### 3.2 System Requirements for timetable master page

## 3.2.1 Profile details

- Edit profile
- Change password
- Log out

## 3.2.2 Menu details

- Timetable (uploading to the database) (Ensure system is reading the timetable and sending notification to the lectures and class rep)
- Chat

### 3.3 System Requirements for timetable master page

## 3.3.1 Profile details

- Edit profile
- Change password
- Log out

## 3.3.2 Menu details

- Chat

4 Implementation/Coding}

5 Testing (QA, Production}