Software Design Document for Exam Seating Arrangement

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1.Introduction

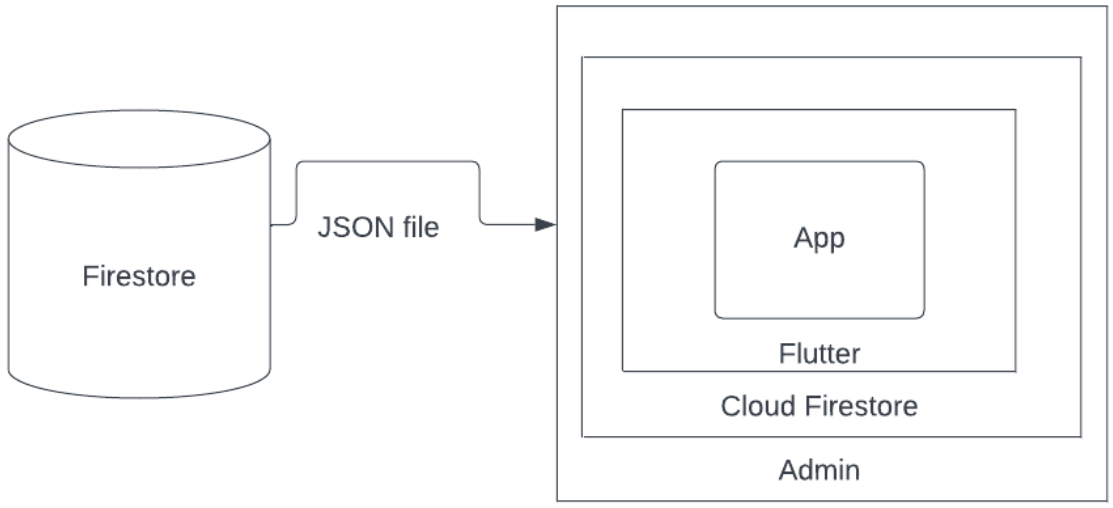
1.1 Purpose

This Software Design Description (SDD) document describes the architecture and system design for developing a system that automates the process of assigning seats to students during examinations. The system is designed to eliminate manual errors and optimise the allocation of seats based on a set of predefined rules such as student's course, class, and seating capacity. This document is intended for Project Managers, Software Engineers, and anyone else who will be involved in the implementation of the system.

1.2 Scope

This document describes the implementation details of the Exam seating arrangement Application. This will consist of six major components: Seating arrangement, Database, Pattern finding, Assigning classrooms and admin Authentication. Each of the components will be explained in detail in this Software Design Document.

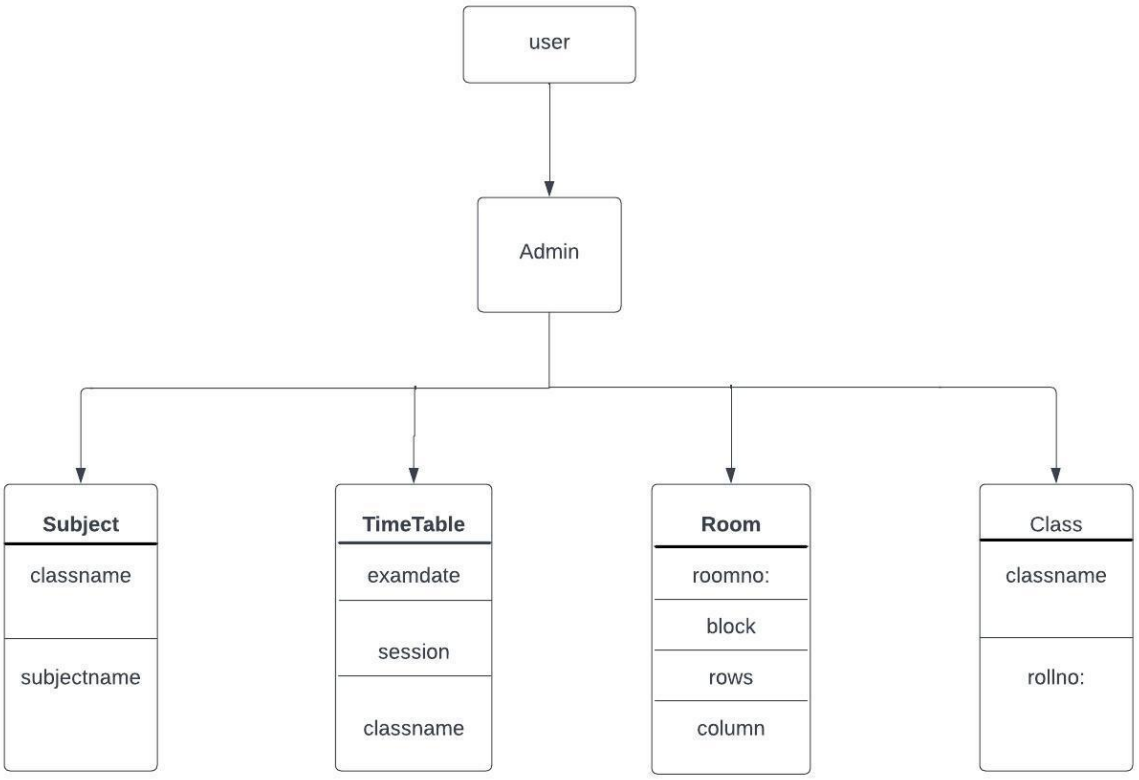
2.System Overview



The above figure represents the architectural structure we have chosen for the development of the app. The backend will be incharge of communicating and pulling information from the cloud datastore ,which the system is dependent on.Our front end is done using Flutter,which is highly scalable which will allow the system to grow further and accommodate a wider range of customers. The system will also be storing information about its admins as well as classroom details including patterns,capacity etc-. Storing these details will enable our system to be more efficient in the long run as we can visit the database for the same classroom arrangement and just make real time updates on the time of exams. Additionally, by following this architecture and structure, we can further extend,if we wish, the exam seating arrangement to classroom and hall allotment for the college classes.

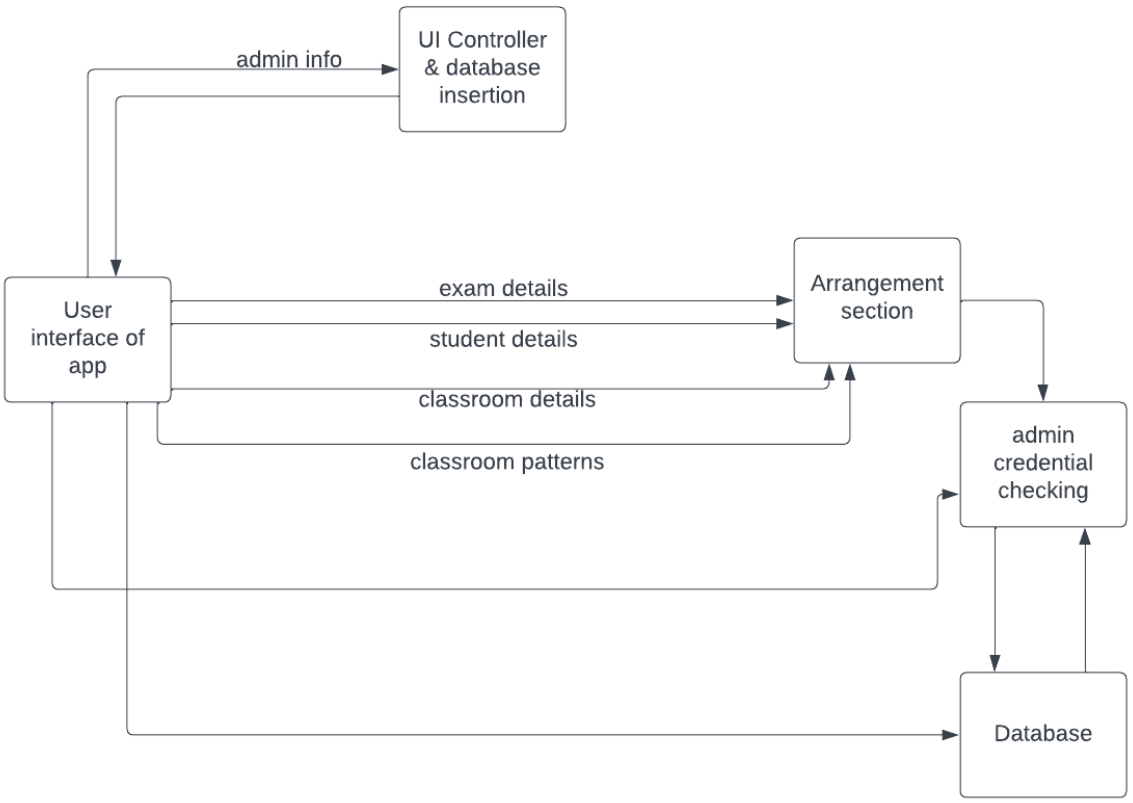
3.System Components

3.1 Activity Diagram



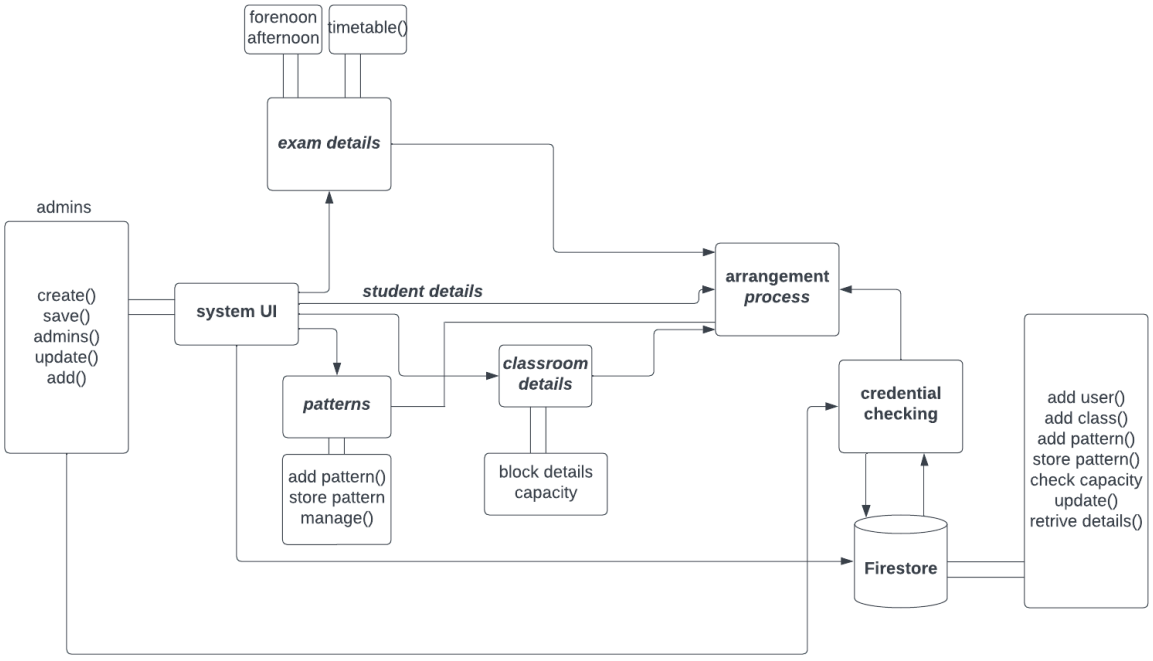
3.2 Decomposition Description

Top-down design



The above figure shows a top down description of how the mobile application is expected to work and how components will interact with one another. The arrangement section can save and recall the details from the database manager. The user interface is for logging in, logging out, and authenticating users. This can get and update classroom ,students ,patterns and timetables that are saved with the database manager. This will produce the best seating arrangement based on the details provided.Finally, the UI controller shows how the admin interacts with this application.

3.3 Dependency Description



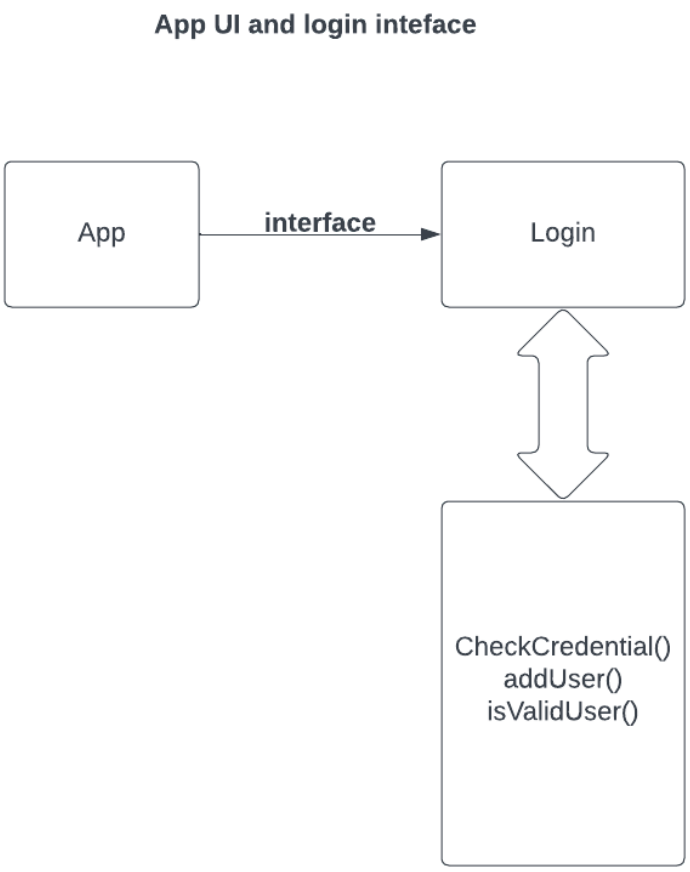
The above figure represents the component diagram of the exam seating app and how each module is dependent on another for its functionality. Double lines are used to show functions that are attached to modules. Via the system UI, the admin is expected to enter details about the exam such as classroom details,patterns and timetable that flow into our first module.

After being authenticated, the admin can retrieve the details. Since admin is part of the system, he can retrieve their saved classroom details and patterns. If the admin is not a member, they will be prompted to enter the page.

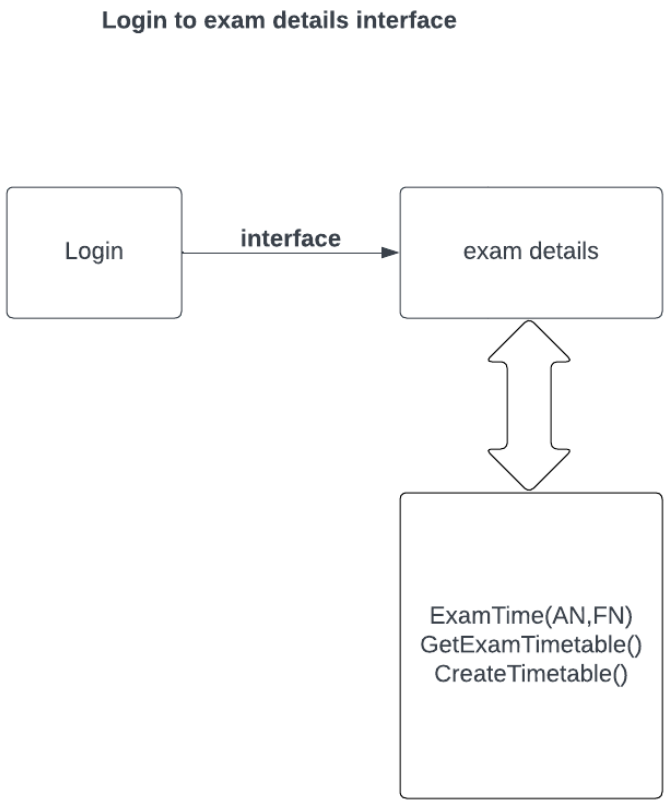
The details are stored within the database manager. On collecting all the desired details, the seating arrangement is made based on the input.It will display the arrangement in the output. The first module will also handle features like updating the details as admin changes the details of a particular exam .

3.4 Interface description

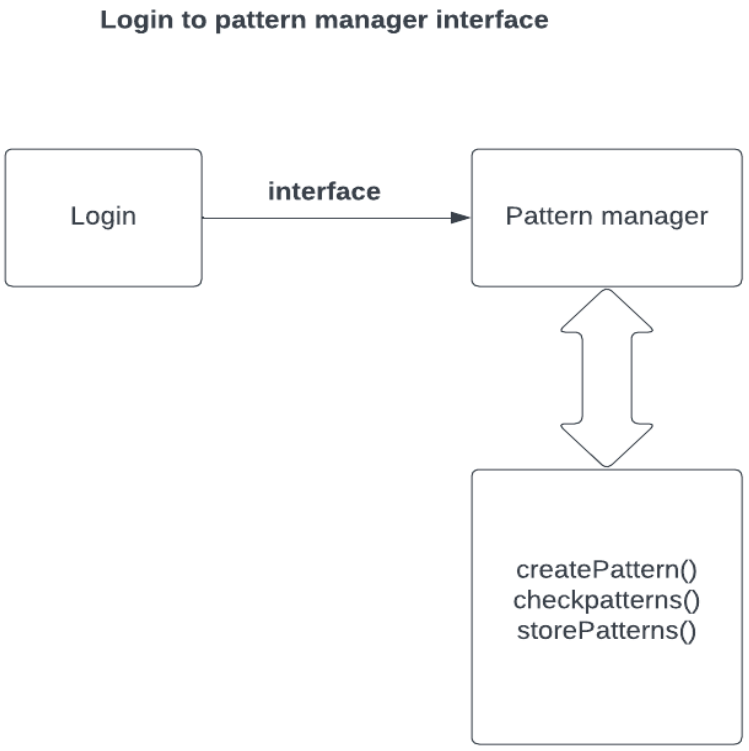
3.4.1 Application and admin login interface



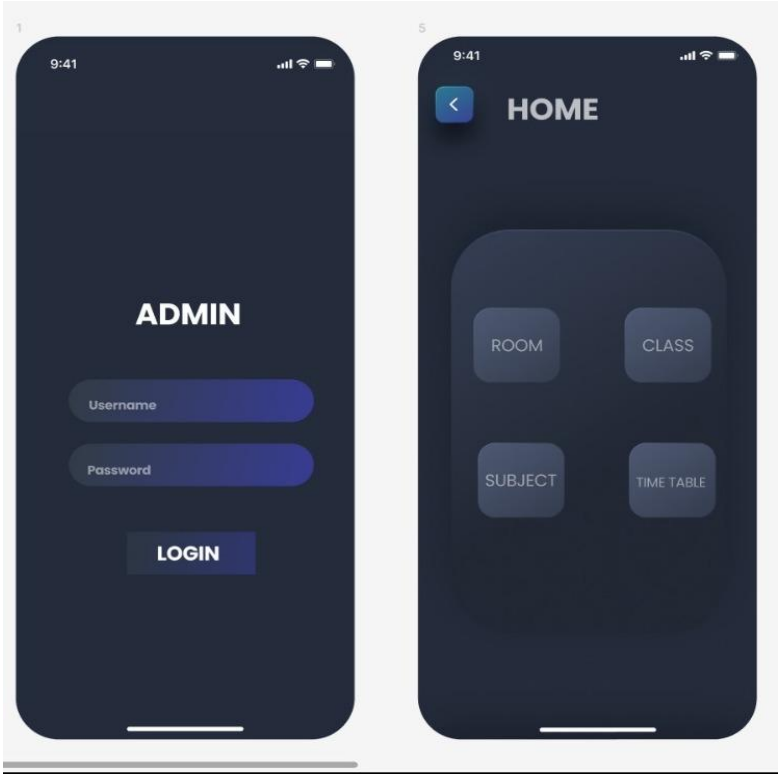
3.4.2 Login- Exam details interface

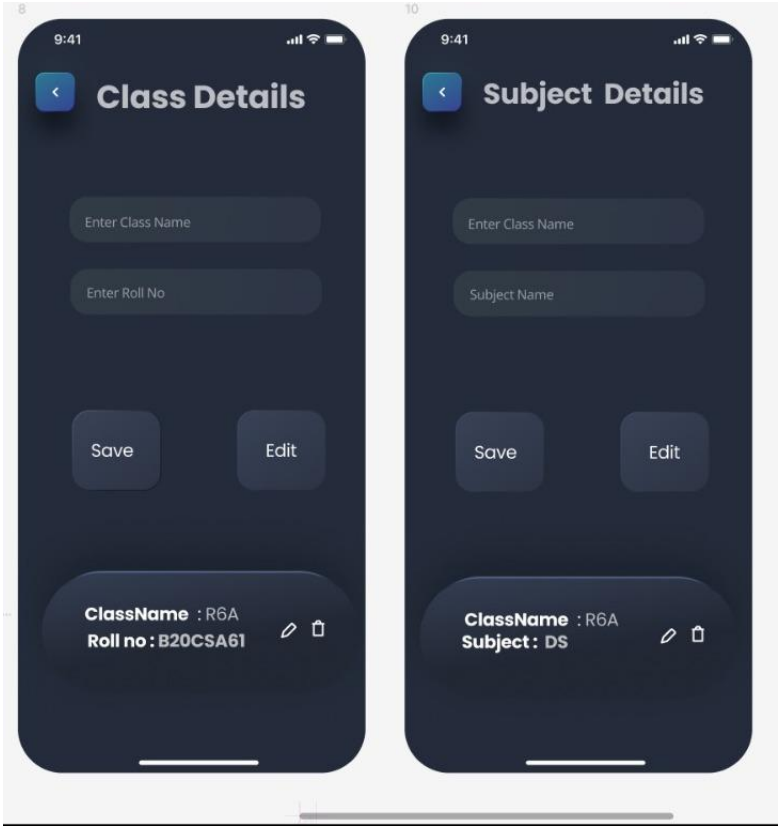


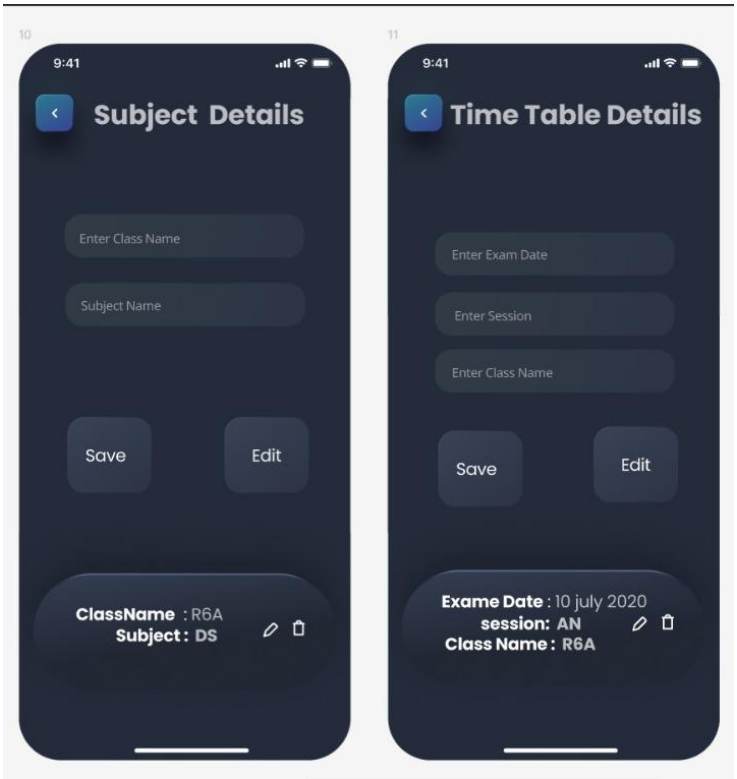
3.4.3 Login-Pattern manager interface



3.5 User Interfaces.


9:41
ADMIN
Username
Password
LOGIN
9:41
HOME
ROOM
CLASS
SUBJECT
TIME TABLE


9:41
Class Details
Enter Class Name
Enter Roll No
Save
Edit
ClassName : R6A
Roll no : B20CSA61
9:41
Subject Details
Enter Class Name
Subject Name
Save
Edit
ClassName : R6A
Subject : DS



4. Detailed Design

4.1 Module Detailed Design

Module detailed design