

Systems Analysis and Design

Assignment 2

Task 1:

1. Requirements document

1.1 Purpose

An application system that can record all required information such as attendance, completed activities, achievement badges, student information, etc. Moreover, it needs to have the ability to update all records as required.

1.2 Background

Currently, a new cyber education start-up is using a notebook to record attendance each week after which they will then mark down which activities are completed by each student. The achievements will then be updated first and then the leader board from those students who have the highest number of credentials.

1.3 Assumptions

- SQLite will be the main database platform to store and update all information
- The SQLite databases can retrieve with correct information from a each specific database
- Teachers can store and update details from the application which can provide the correct interface.
- The application can provide security to the database protecting it from SQL injection attacks

1.4 Constraints (restriction problem about this project)

- Staff requirement
 - There is no maintenance team to fix flaws and bugs from the application once the application is deployed.

1.5 Functional requirements

- Teachers can see all information that is updated in real-time such as student information, course schedule, topics taken by students, attendance, and achievement details.
- Teachers can input and delete specific details as required from the database.
- Teachers can mark attendance categorized by week, weekend, or their time attendance.
- The application will update the leaderboard, and credentials based on students that achieve their specific tests containing varying topics with dates.
- The application can store and update with massive information.
- The application can provide accuracy when retrieving information from the database.

- The application can provide the interface (GUI) to teachers and transfer input information to the database with accuracy.
- The interface from this application needs to be easy to use and less complicated to navigate.
- The application should operate with an active and quick response when inputting and retrieving information from the database.

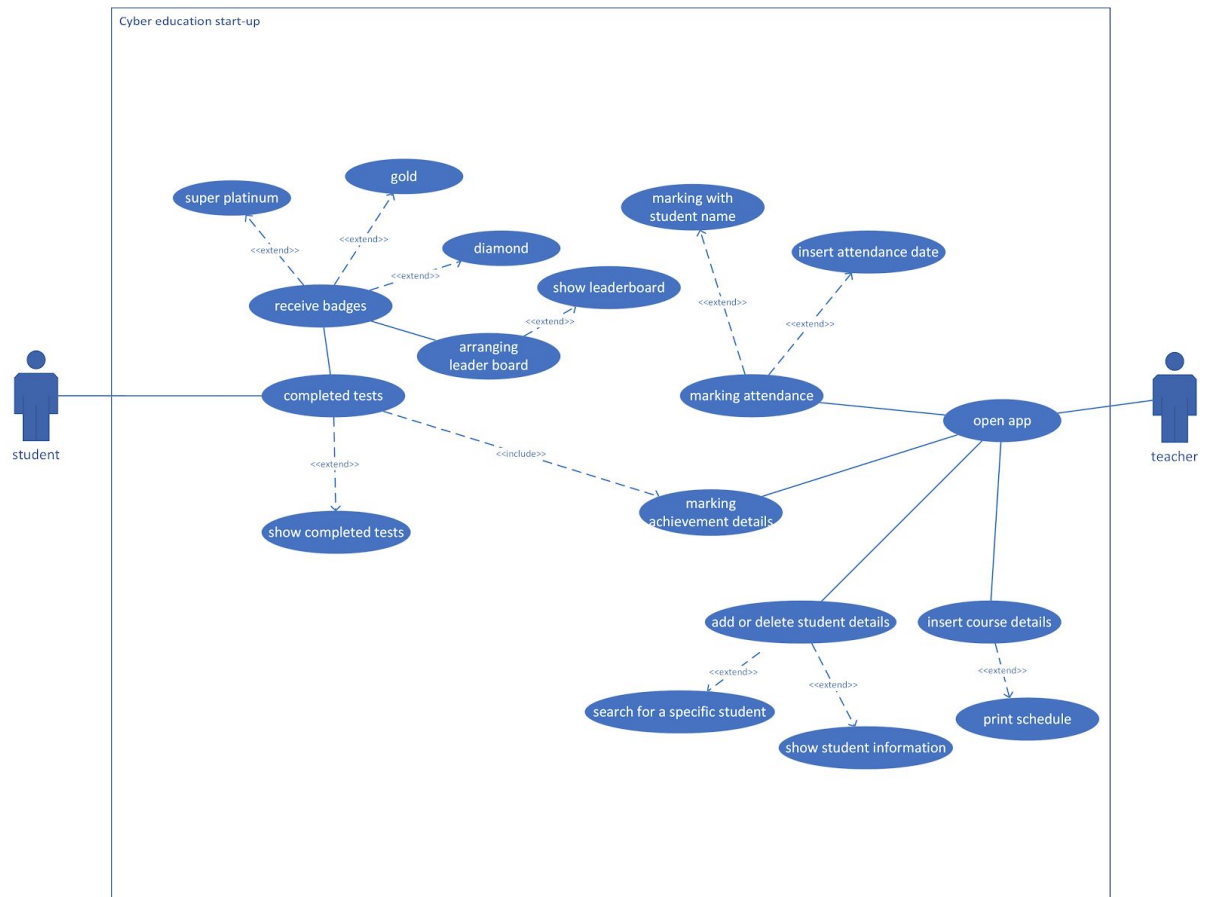
1.6 Non-functional requirements

- **Access security**
 - The users (teachers) might need to identify their authenticity to access the database such as usernames and passwords.
- **Accessibility**
 - The application would be accessible by both teachers and students. However, only teachers can update details in the database and students will only be allowed to view its contents.
- **Availability**
 - The application would be available online 24/7 for updating (used by teachers) and for viewing (used by students).
- **Confidentiality**
 - Only high privileges can have access to create and change the database (developers), and teacher privileges can have access to update the database such as input and delete specific information. And student privileges can have access only to look at their information.
- **Maintainability**
 - In terms of upgrade where a new database is added to expand storage, there would be an announcement from staff warning an application system update which should not exceed 5 hours.

Task 2:

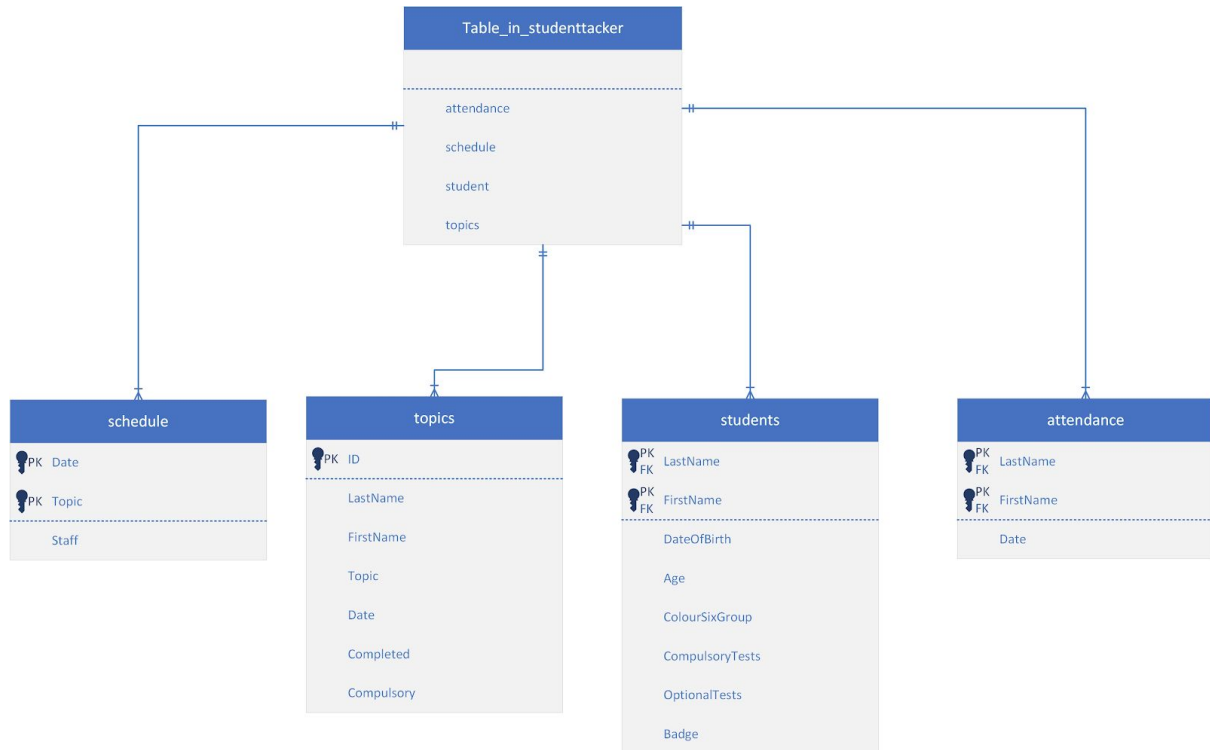
The source files of these diagrams will also be attached to the submission as well as be available on github at: <https://github.com/c-cada/sad>

Use Case Diagram

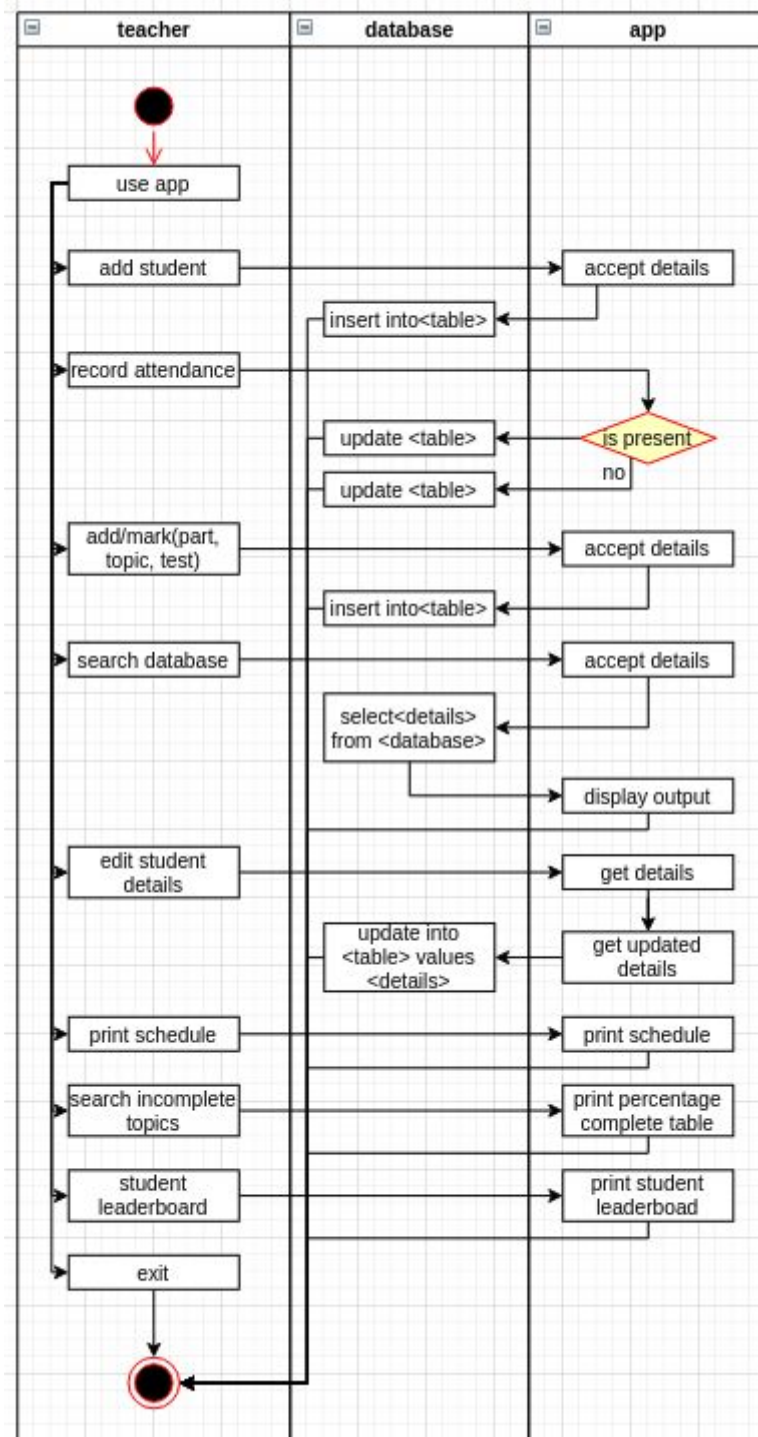


Relational Database Schema

- Table_in_studenttacker (attendance, schedule, student, topics)
- attendance (LastName, FirstName, Date)
- schedule (Date, Topic, Staff)
- students (LastName, FirstName, DateOfBirth, Age, ColourSixGroup, CompulsoryTests, OptionalTests, Badge)
- topics (ID, LastName, FirstName, Topic, Date, Completed, Compulsory)



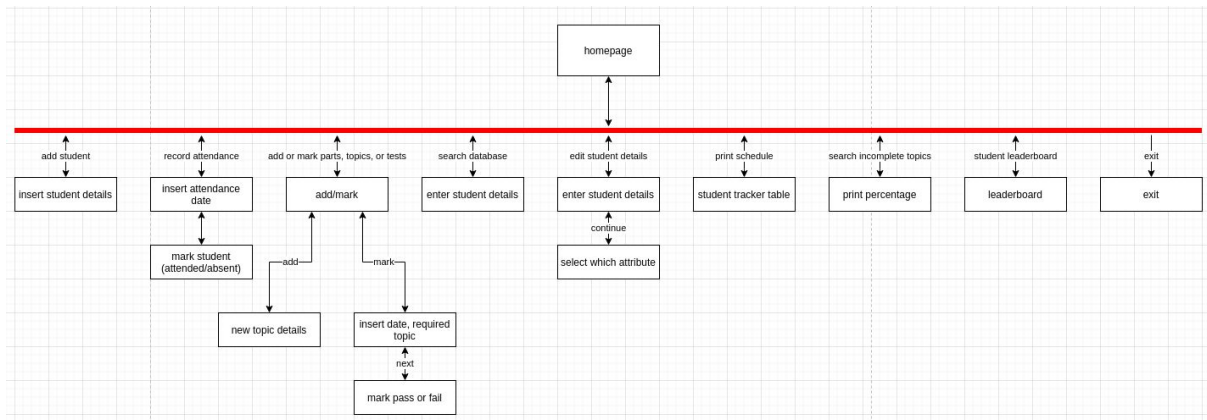
Activity Diagram



Class Diagram



Window Navigation Diagram



Task 3

The entire source code will be attached to this submission. It will also be available on github at: <https://github.com/c-cada/sad> which can be cloned using the command “git clone https://github.com/c-cada/sad.git”