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Class-Management

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- **TA. Dina Ezzat**

Whose contributions, suggestions and encouragement helped us in project development phases

Table of Contents

Chapter 1 Introduction

- 1.1 Project Description -----8
- 1.2 Problem Statement and Motivation-----8
- 1.3 Proposed Solution -----9
- 1.4 Project Objectives-----9
- 1.5 Project Scope-----10
- 1.6 Application constraints-----10
- 1.7 Methodology-----10
- 1.8 Similar Applications-----12
- 1.9 project plan-----13

Chapter 2 project analysis

- 2.1 Stakeholders-----14
- 2.2 Main User Groups-----14
- 2.3 Functional requirements-----15
 - 2.3.1 End User-----15
 - 2.3.2 General Functions-----16

Chapter 3 Requirements Modeling

- 3.1 Use Case Diagram----- 17
- 3.2 Use Case tables-----18
- 3.3 Sequence Diagram-----28
- 3.4 Class Diagram-----34
- 3.5 Entity Relationship Diagram-----35

Chapter 4 Implementation

- 4.1 Tools & Technologies-----36
- 4.2 GUI-----36
 - 4.2.1 Android-----37
 - 4.2.2 Website-----48

Chapter 5 System Testing and Evaluation

- **5.1 System Testing-----56**
 - **5.1.1 Application testing-----56**
 - **5.1.2 Website testing-----60**

- **5.2 System Evaluation-----66**
 - **5.2.1 Project overview -----66**
 - **5.2.2 Conclusion -----66**
 - **5.33 Future work-----66**

List of tables

Table 1: Similar application	12
Table 2: Project time plan	13
Table 3: Main user groups	14
Table 4: Use cases	
4.1: Sign up	18
4.2: Login	19
4.3: Logout	20
4.4: Create course	20
4.5: Join course	21
4.6: Create new session	23
4.7: Attend session	23
4.8: Create quiz	23
4.9: Submit quiz	25
4.10: Create announcement	25
4.11: Edit announcement	26
4.12: Delete announcement	27
Table 5: Testing	
5.1: Application testing	
5.1.1: sign up	57
5.1.2: login	58
5.1.3: Join course	58
5.1.5: Scan QR Code	59
5.1.6: Submit quiz	59

5.2: Website testing

5.2.1: Sign up	-----60
5.2.2: Login	-----61
5.2.3: Logout	-----61
5.2.4: Join course	-----62
5.2.5: Create session	-----63
5.2.6: Create announcement	-----64
5.2.7: Create quiz	-----65

List of figures

Figure 1: Iterative life cycle model	11
Figure 2: Time plan	13
Figure 3: Use case diagram	17
Figure 4: Sequence diagram	
4.1: Sign up	28
4.2: Login	28
4.3: Create session	29
4.4: Attend session	29
4.5: Create quiz	30
4.6: Submit quiz	30
4.7: Create announcement	31
4.8: Edit announcement	31
4.9: Delete announcement	32
4.10: Create course	32
4.11: Join course	33
4.12: Logout	33
Figure 4: Class diagram	34
Figure 5: Entity relationship diagram	35
Figure 6:	
6.1: Application	
6.1.1: Login screen	37
6.1.2: Sign up screen	38
6.1.3: Courses screen	39
6.1.4: Join course screen	40

6.1.5: Scan QR Code screen -----	41
6.1.6: Course home screen -----	42
6.1.7: Attendance screen -----	43
6.1.8: Quiz topics -----	44
6.1.9: Quiz screen -----	45
6.1.10: Grade's screen -----	46
6.1.11: Predict final grades screen-----	47
6.2: Website	
6.2.1: Home page -----	48
6.2.2: Login -----	48
6.2.3: Sign up -----	49
6.2.4: Courses -----	49
6.2.5: Create course -----	50
6.2.6: Join course-----	50
6.2.7: Sessions -----	51
6.2.7: Create session -----	51
6.2.8: Scan QR Code -----	52
6.2.9: Attendance -----	52
6.2.10: Quizzes -----	53
6.2.11: Create quiz -----	53
6.2.12: Announcements -----	54
6.2.13: Quiz chart-----	54
6.2.14: Quiz report -----	55
6.2.15: Attendance chart -----	55
6.2.16: Attendance report -----	56

Chapter 1 : Introduction

1.1 Project Description

Our idea is a mobile application and website that facilitates the connection between instructor and students and through this application, there is some functionality to the instructor and student, where the instructor can create and join courses , Generate QR code for each lecture to take the attendance, make a quiz, make the announcement , make attendance analysis , make quiz analysis and , also student can enroll in the course then can record attendance by scanning a QR code displayed on the screen for lectures of this course, get notification about any announcement , take a quiz, view grades , view attendance , get performance indicator .

1.2 Problem Statement and Motivation

Most of the educational institutions in Egypt struggle to record the attendance of the students since they record the attendance using a paper which wastes the time of the lecture, it is also insecure and unreliable and it can be lost.

Some institutions use the name and the ID of the students in taking the attendance while this will be difficult for instructors to keep track of the large number of students, also the student can write the name of his classmate who come late or be absent in the paper of the attendance, so it is not reliable and it also wastes the time of the instructors since they must record the attendance on the system of the university again after it is written on a paper.

When the instructor needs to know if the students understood the lecture properly or not, he makes paper quiz inside the lecture but this will be waste the time of lecture.

When the instructor needs to make an announcement minutes before the lecture, for example, by changing the date, time, or place of the lecture, many students do not know this change, and thus the lecture is lost on them.

1.3 Proposed Solution

Considering the given inputs and real-life problems we have discussed earlier in problem statement, we thought it is better to implement a system which helps both the student and the instructor.

Our app aims to solve the attendance issue by making "attendance recording" easier for students by requiring them to scan a QR code created by the instructor on the projector with their mobile phones, and after each student scans the QR code, it should appear to the instructor students who scanned the QR code with their name and ID, saving lecture time and saving the effort of students and instructors.

Our app makes it easier for instructors to create an online quiz (MCQ or T/F) at the end of each lecture to ensure that students have fully comprehended the material.

The instructor will get report about regular and hardworking students and will get charts show him the flow of students' performance in the quizzes and flow of students in lectures

Based on several techniques students struggling academically will get mails for enhance their study and will know the chapter that they have to focus on at each course

1.4 Project Objectives

- Enhance the way of recording attendance
- Enhance the way of managing quizzes
- Motivate the students to study hard
- Decrease wasted time on routine work
- Current and back-dated analysis can be available instantly
- Student be able to know his performance

1.5 Project Scope

- Developing a website for the instructor to:
 - Create a new session (generate QR code)
 - Create course
 - Join course
 - Create quiz
 - Get attendance
 - Get attendance report
 - Get quiz report
 - Get attendance chart
 - Get quiz chart
 - Make announcement
- Mobile application for student to:
 - Attend session (scan QR code)
 - Join class
 - Submit quiz
 - Get notification
 - View attendance
 - Get quiz mark

1.6 Application constraints

- User should have smart phone with
 - Working camera
 - Internet connection

1.7 Methodology

The iterative model is a particular implementation of a software development life cycle (SDLC) that focuses on an initial, simplified implementation, which then progressively gains more complexity and a broader feature set until the final system is complete.

As a result, we use the iterative model as our life cycle; we used it in the early stages of our project to enable us to identify functional or design flaws as quickly as possible, allowing us to take corrective measures on a limited budget.

Iterative life cycle model:

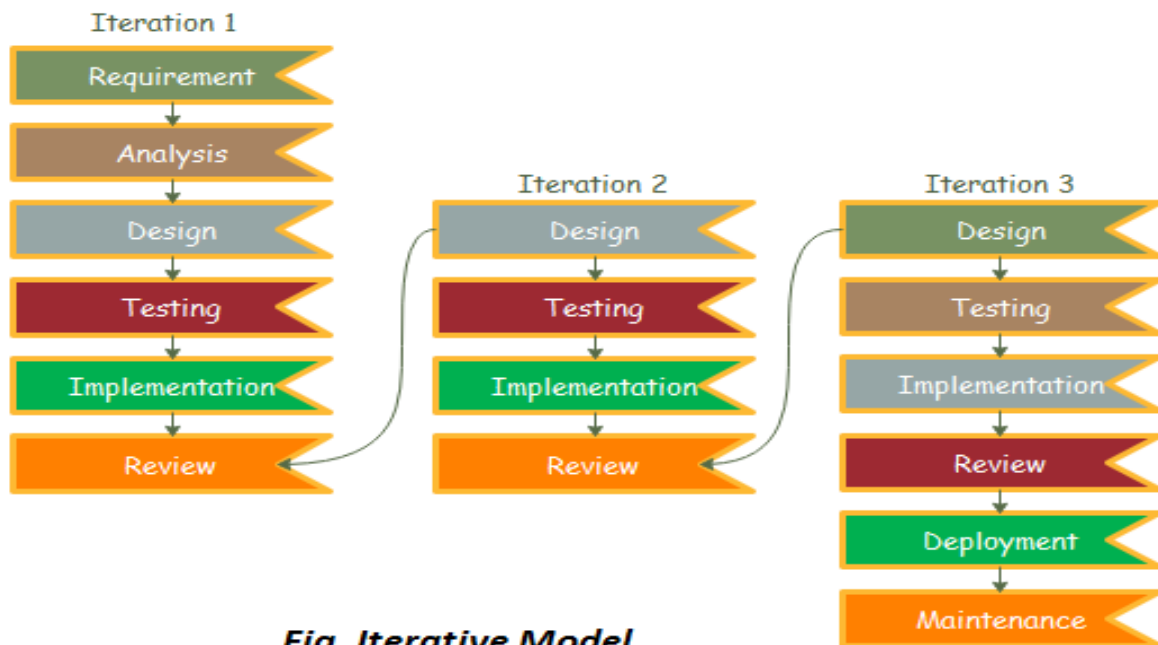


Fig. Iterative Model

The phases of the iterative model are described below:

- 1. Planning Phase:** proper planning is done by the team
- 2. Analysis and Design Phase:** Once the planning is complete for the cycle, an analysis is performed to point out the appropriate business logic, database models and to know any other requirements of this particular stage. Moreover, the design stage also occurs in this phase of iterative model, where the technical requirements are established that will be utilized in order to meet the need of analysis stage.

- 3. Implementation Phase:** Here, the actual implementation and coding process is executed.
- 4. Testing Phase:** testing is initiated in the cycle to identify and locate any potential bugs or issues that may have been in the software.
- 5. Evaluation Phase:** the entire team along with the client, examine the status of the project and validate whether it is as per the suggested requirements

From : <https://www.javatpoint.com/software-engineering-iterative-model>

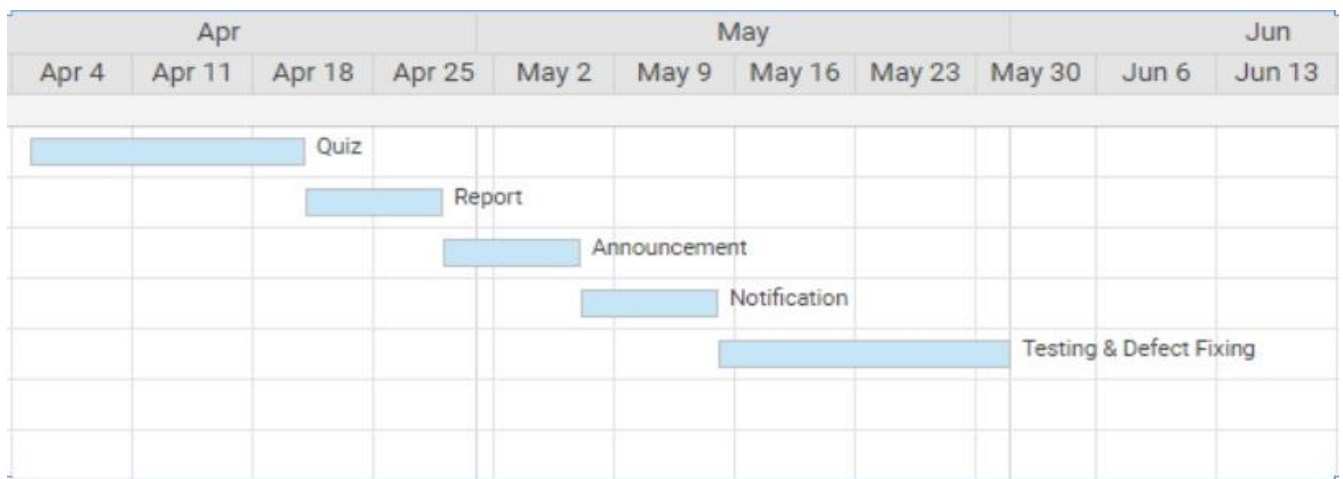
1.8 Similar Applications

	Our application	Attendance register pro	Attendance taker
View enrolled courses	√	√	-
Record attendance using QR code	√	-	-
Record attendance	√	√	√
View attendance of each lecture	√	√	√
Take quiz	√	-	-
View grades	√	-	-
View announcements	√	-	-
Notifications	√	√	-
Predict final grade	√	-	-
Send mail for weak students	√	-	-
Attendance analysis	√	-	-
Quiz Analysis	√	-	-
get reminded on Schedules	-	√	

1.9 project time plan

Task name	Planned start date	Planned finish
Find a real problem	17/10/2020	17/11/2020
Learn new technology	18/11/2020	5/12/2020
Analysis	18/12/2020	1/1/2021
Model requirements	2/1/2021	16/1/2021
QR code	17/1/2021	1/2/2021
Testing & Defect fixing	2/2/2021	17/2/2021
Review on analysis	19/3/2021	29/3/2021
Quiz	5/4/2021	20/4/2021
Report	21/4/2021	28/4/2021
Announcement	29/4/2021	6/5/2021
Notification	7/5/2021	14/5/2021
Testing & Defect fixing	15/5/2021	31/5/2021

- Time plan figure



Chapter 2: project analysis

2.1 Stakeholders

- Professors
- Teacher assistants
- Students

2.2 Main User Groups

- Professors
- Teacher assistants
- Students

Characteristics	Student	Professor	Teacher assistant
Language	English/ Arabic	English/ Arabic	English/ Arabic
Technology	med	High	High
Education	med	High	High
Computer experience	High	High	High
Domain expertise	med	High	High
Age	17-30	40-65	25-40

2.3 Functional requirements

2.3.1 End User

- **Attendance**
 - Instructor generate QR code using the App and show it using the projector then the students scan it and it will be registered in the attendance then the instructor can get report about session attendance
 - Students can check the attendance to see missed lectures
- **Online Quiz**
 - **True or False**
 - **Multiple choice**
 - instructor can publish quiz after he finishes his session then students solve it in specific time and submit it and finally the result will appear to them and based on these results, the instructor can evaluate the students
- **Grades**
 - students can enter to it to see the grade of any quiz
- **Notifications**
 - When the instructor make announcement student can get notification about it
- **Attendance analysis**
 - The instructor will get chart about attendance in all lectures
 - The instructor will get report about students attends the lectures frequently
- **Quiz analysis**
 - The instructor will get report about students have full marks in quizzes frequently
 - The instructor will get chart about students' performance in all quizzes

- **Performance indicator**

- The instructor will get prediction report about students' performance
- The student will get email if the system indicate that he will fail in this course
- The student will get the chapters that he should to improve his performance in

2.3.2 General Functions

- **Sign Up**

- User can sign up to the system by entering his\her data like name, email, password, address, age, gender

- **Login**

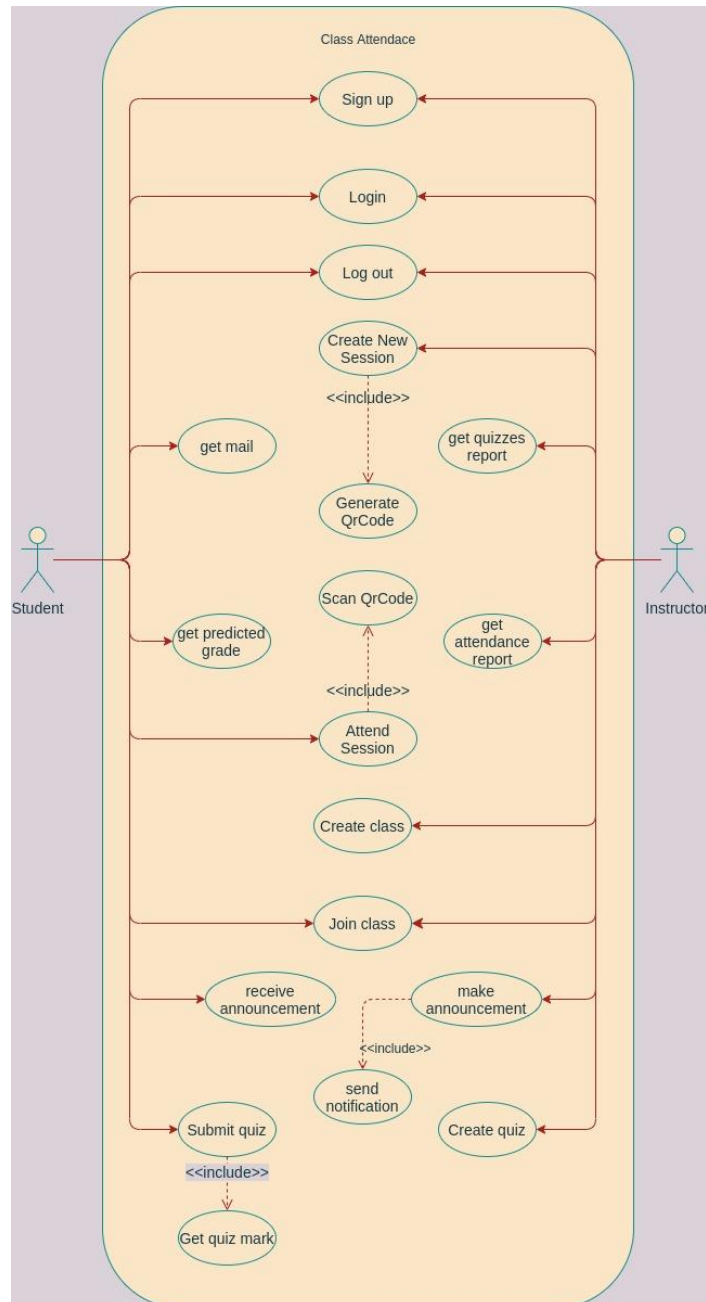
- User can login to the system by entering his\her Id and password.

- **Logout**

- User can logout from the system

Chapter 3: Requirements Modeling

3.1 use case diagram



3.2 Use case Tables

3.2.1 sign up

Use Case ID:	1	
Use Case Name:	Sign Up	
Actors:	Instructor, Student	
Pre-conditions:		
Post-conditions:	Account is created and data saved User can use the system	
Flow of events:	User Action	System Action
	1-User Enters personal information (Fname, Lname,email,password,ID)	
		2- App Verify user data
		3-App send an email contain a security code for the user to use it in verification the email.
	4-User Enter the verification code	
		5-then the email is verified
		6- then the user is logged in the App
Exceptions:	1-User Enter invalid Data	
		2-App display error message
	3- There is an Existing Account with the same username	
		4-App will say “this email already exit”

	5- the user forgot to fill some any attribute/s.	
		6-App will remember it that he should fill all fields
Includes:	Log in	
Notes and Issues:	User should make sure that the Data he enters is Valid . user should not leave any empty attribute unless it is optional.	

3.2.2 log in

Use Case ID:	2	
Use Case Name:	Log in	
Actors:	Instructor , Student	
Pre-conditions:	Instructor or Student must have an account	
Post-conditions:	Instructor or student is logged in and can use the system functionality	
Flow of events:	User Action	System Action
	1- User Enters his ID and Password	
		2- App check the validity of this data
		3-then the user is logged in the App
Exceptions:	1-Users Enter invalid Data	
		2-App display error message
	3-- the user forgot to fill some any attribute/s.	
		4- App will remember it that he should fill all fields
Includes:		

Notes and Issues:	Make sure that you Enters the Right data to log in or your account will be blocked until you answer several questions
-------------------	---

3.2.3 logout

Use Case ID:	3	
Use Case Name:	Log out	
Actors:	Instructor , Student	
Pre-conditions:	Instructor or Student must have an account	
Post-conditions:	Instructor or student is logged in and can use the system functionality	
Flow of events:	User Action	System Action
	1- User click on log out button	
		2- App make log out to the user
		3-then the app return the user to login page
Exceptions:		
Includes:		
Notes and Issues:		

3.2.4 Create Course

Use Case ID:	4
Use Case Name:	Create course
Actors:	Instructor
Pre-conditions:	Logged in Instructor
Post-conditions:	Course created

Flow of events:	User Action	System Action
	1- Instructor send request to create new course from home page	
		2- Ask the course name and course id
	3-Instructor enter the class name and course id	
		4- System create course in the data base. add the course in the home page
Exceptions:		

3.2.5 Join Course

Use case ID	5	
Use case name	Join course	
Actors	Student , instructor	
Pre-conditions	Logged in student or instructor	
Post-conditions	<p>Students can see all the notifications about this course and also can get at the end of the course predicted final grade and the topics he should focus on and will get an email if where an indicator that he will fail at this course</p> <p>The instructor can get the predicted final grades of students</p>	
Flew of events	User action	System action
	1- Student or instructor enter the code of that course	
		2-System verify the written code of the course
		3- the system register the student on that course

Exceptions:	User action	System action
	1-Student enter course code	
	2-Invalid course code	

3.2.6 Create new Session

Use case ID	6	
Use case name	Create new session	
Actors	Instructor	
Pre-conditions	Logged in Must have at least one course	
Post conditions	QR code will be generated and display it for the students Instructor can get attendance analysis	
Flow of events	User action	system action
	1-Instructor will press new session button	
		2-then the app will generate the QR code and display it to the instructor
	3-then instructor display it to the students to scan it	
Exceptions		

3.2.7 Attend Session

Use case ID	7	
Use case name	Attend session	
actors	Student	
Pre-conditions	Joined in course	
Post-conditions	Attended session	
Flow of event	User action	System action
	1- student scan the QR code of this session	
		2-system verify QR code of the session
		3- the system registers the student on that session
Exception	User action	System action
	1-student scan unknown QR code	
		2-invalid QR code

3.2.8 Create Quiz

Use Case ID	8	
Use Case Name	Create quiz	
Actors	Instructor	
Pre-conditions	Logged in Instructor Instructor have at least one course	

Post-conditions	Quiz created Instructor can get quiz analysis	
Flow of event	User Action	System Action
	1- Instructor send request to create new quiz from course page	
		2- Ask the quiz topic
	3- Instructor enter the quiz topic	
		4-System ask the question
	5- Instructor enter the question	
		6- System ask the answers
	7- Instructor enter the answers	
		8- System ask the correct answer of the question
	9- Instructor enter the correct answer.	
		10- Repeat from 4 to 9
		11-System ask the time of the quiz
	12-Instructor enter the time	

		13- System store the quiz in data base

3.2.9 Submit Quiz

Use case ID	9	
Use case name	Submit quiz	
actors	Student	
Pre-conditions	Joined in course	
Post-conditions	Get the mark	
Flew of events	User action	System action
	1-student answer the quiz	
		2-system correct the quiz and show the mark to the student

3.2.10 Create announcement

Use Case ID	10	
Use Case Name	Create announcement	
Actors	Instructor	
Pre-conditions	Logged in Instructor Instructor have at least one course	
Post-conditions	Post created and other users receive notification	
Flow of event	User Action	System Action

	1- Instructor send request to create post	
		2-System ask the content of the post
	3- Instructor enter the post content	
		4-Post is saved in the database and available in the posts section
Exceptions		

3.2.11 Edit announcement

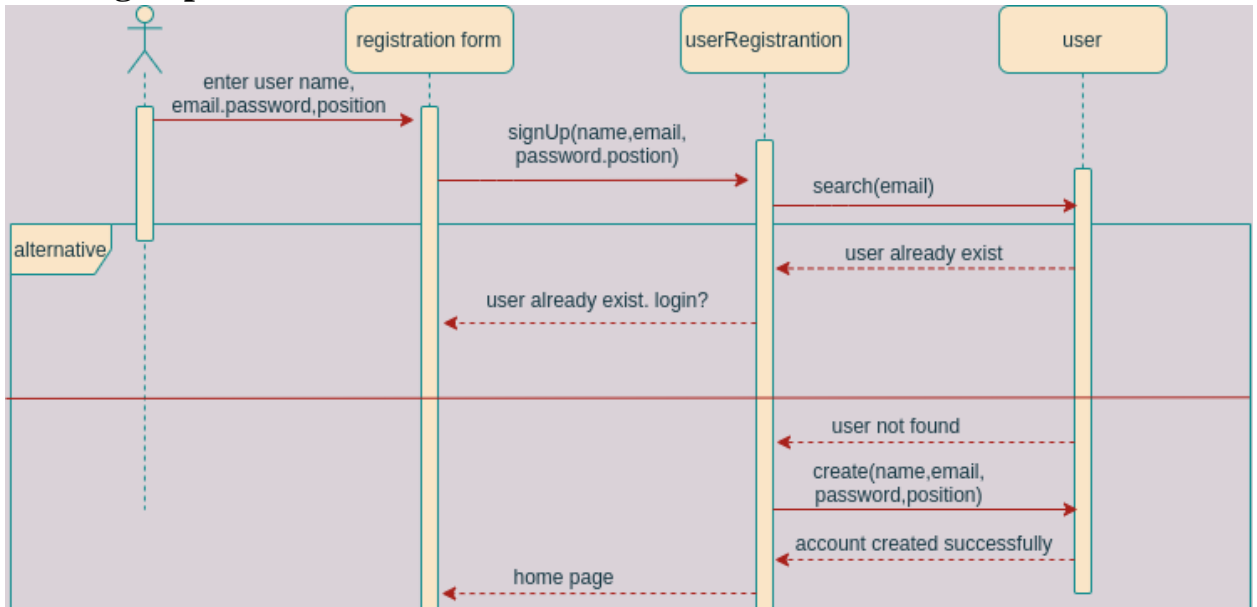
Use Case ID	11	
Use Case Name	Edit announcement	
Actors	Instructor	
Pre-conditions	Logged in Instructor Instructor have at least one course and have a post	
Post-conditions	Post updated and other users receive notification	
Flow of event	User Action	System Action
	1- Instructor send request to edit post	
		2-System ask the new content of the post
	3- Instructor enter the new post content	
		4-Post is updated in the database and changed in the posts section
Exceptions		

3.2.12 Delete announcement

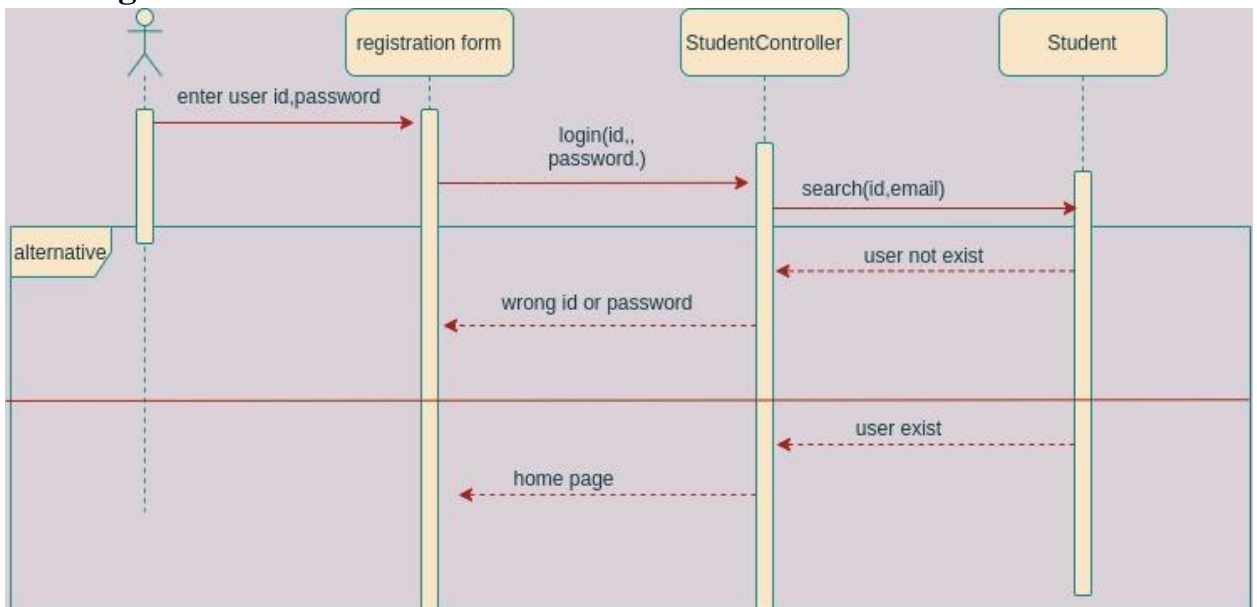
Use Case ID	12	
Use Case Name	Delete announcement	
Actors	Instructor	
Pre-conditions	Logged in Instructor Instructor have at least one course and have a post	
Post-conditions	Post is deleted	
Flow of event	User Action	System Action
	1- Instructor send request to delete post	
		2-Post is deleted from database and from the section of the posts

3.3 sequence diagram

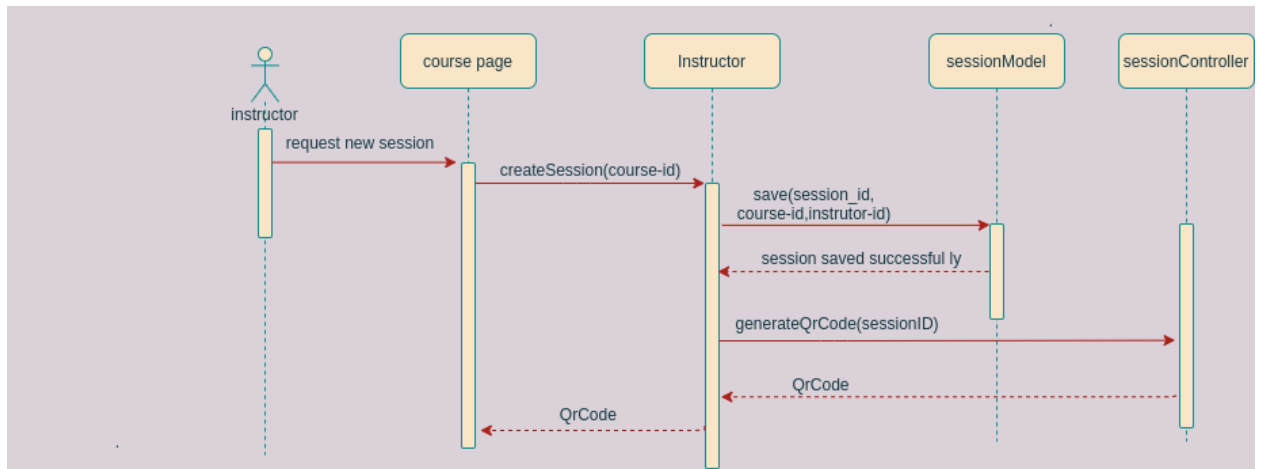
3.3.1 sign up



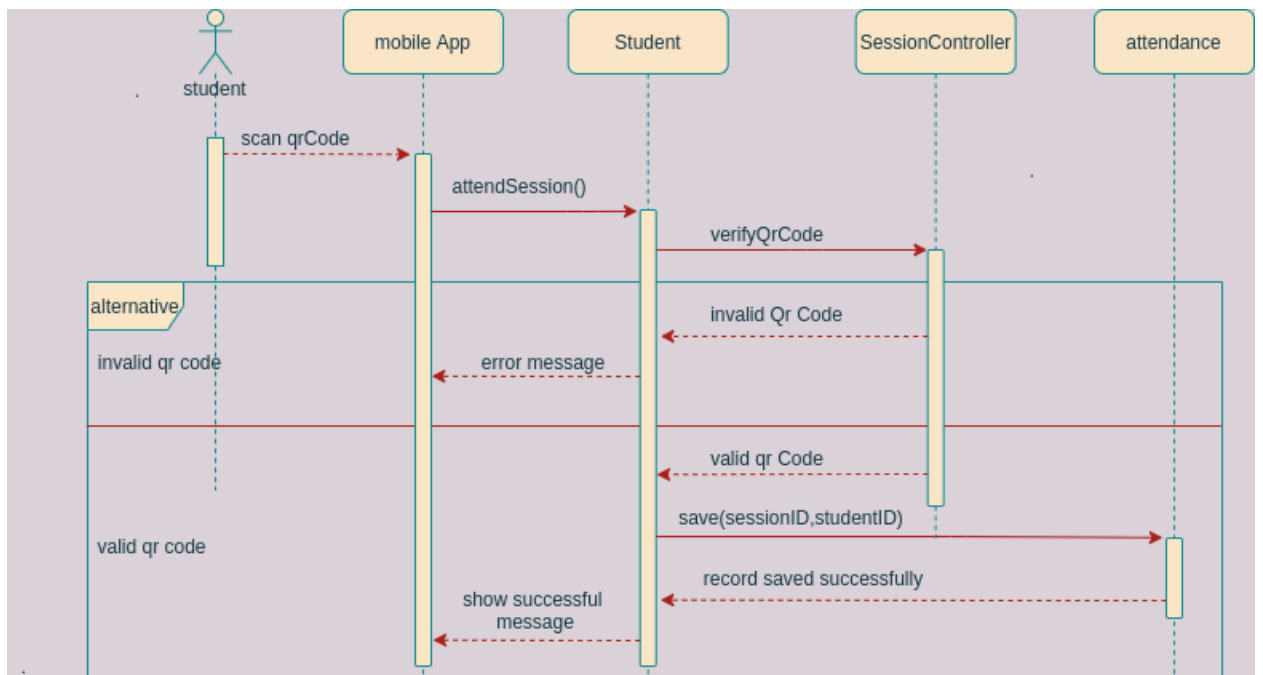
3.3.2 login



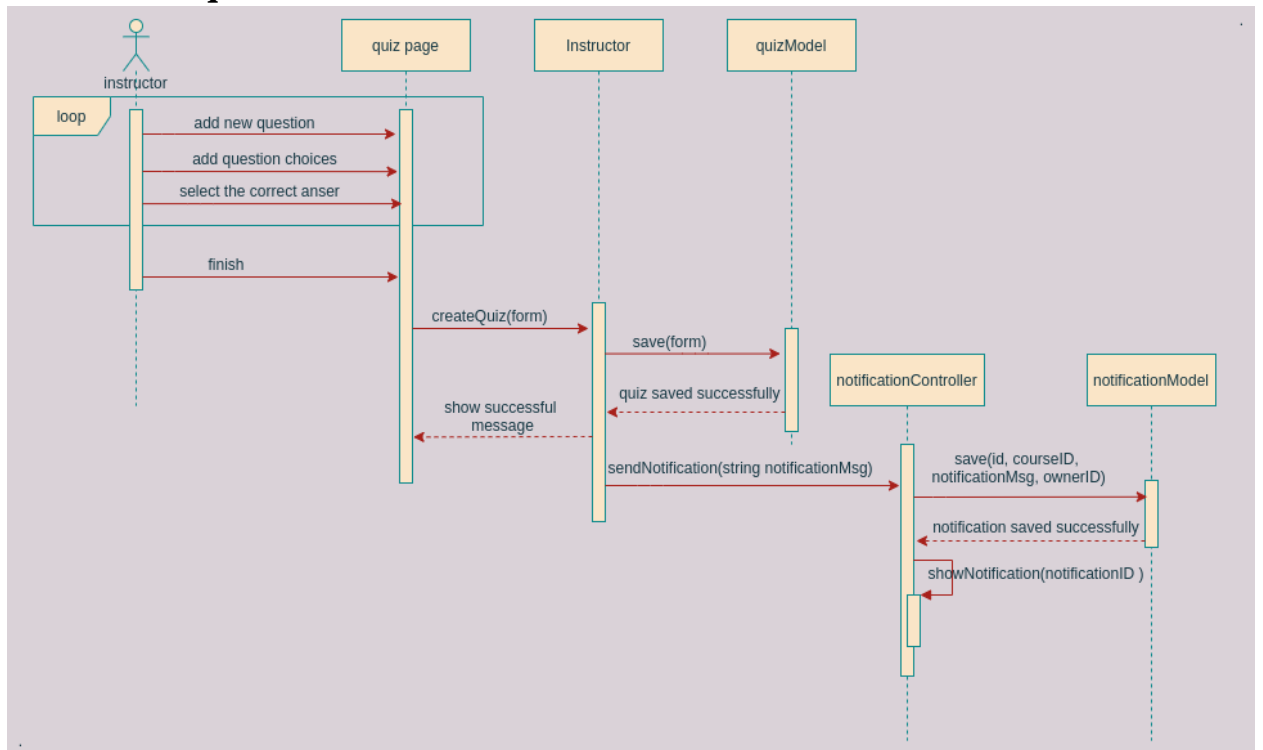
3.3.3 create session



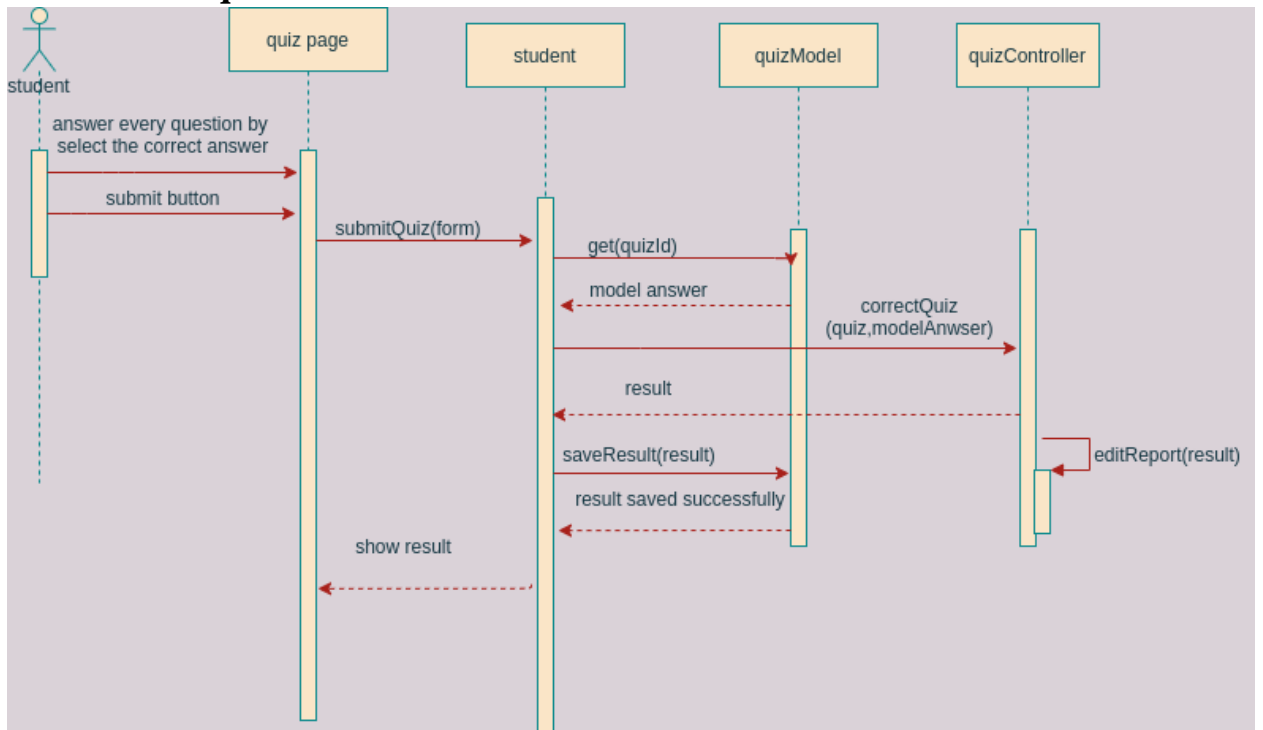
3.3.4 attend session



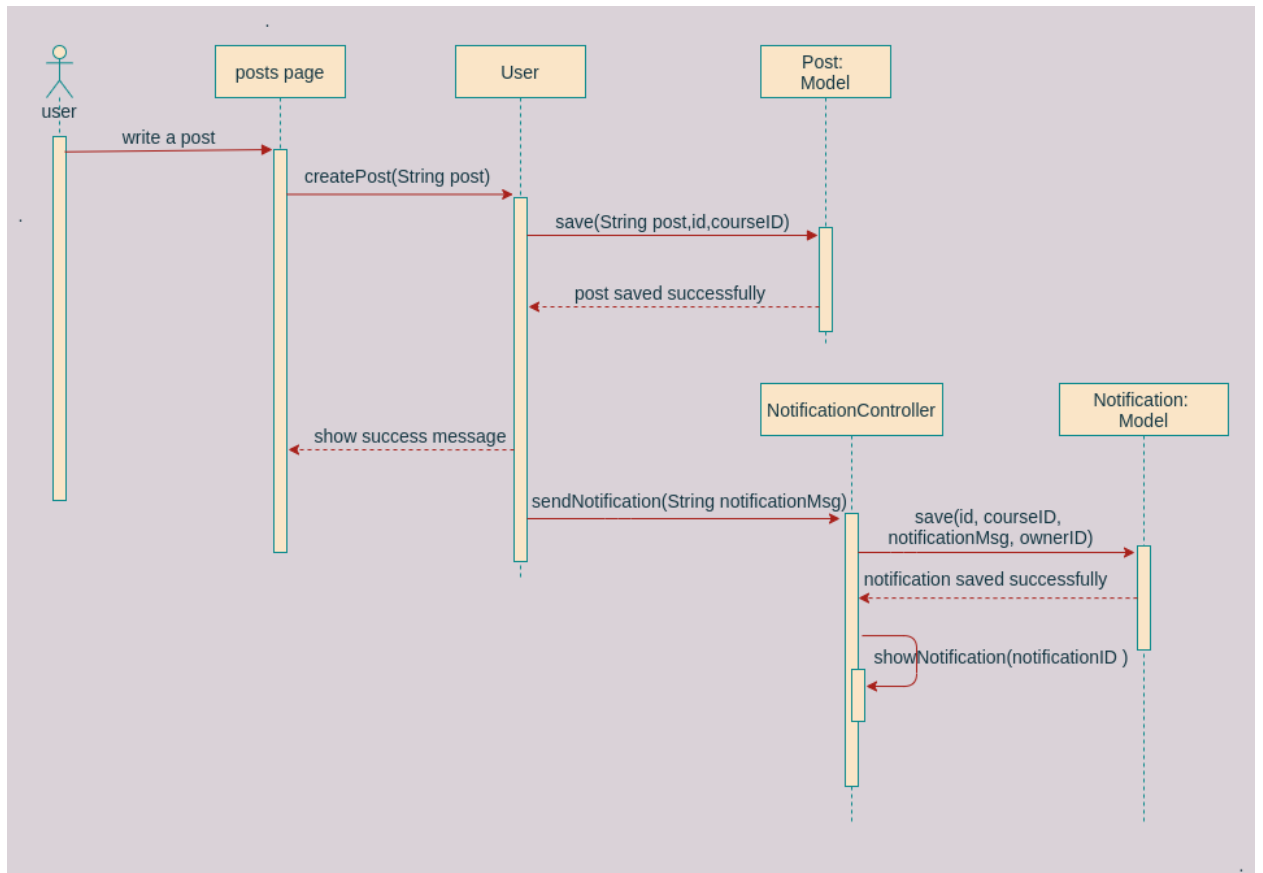
3.3.5 create quiz



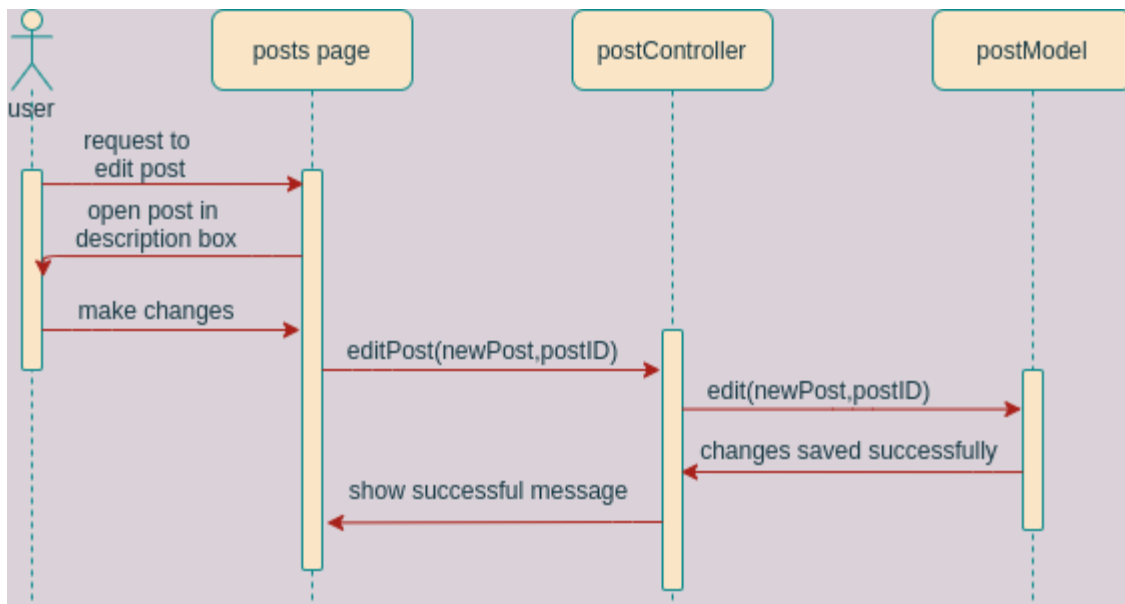
3.3.6 submit quiz



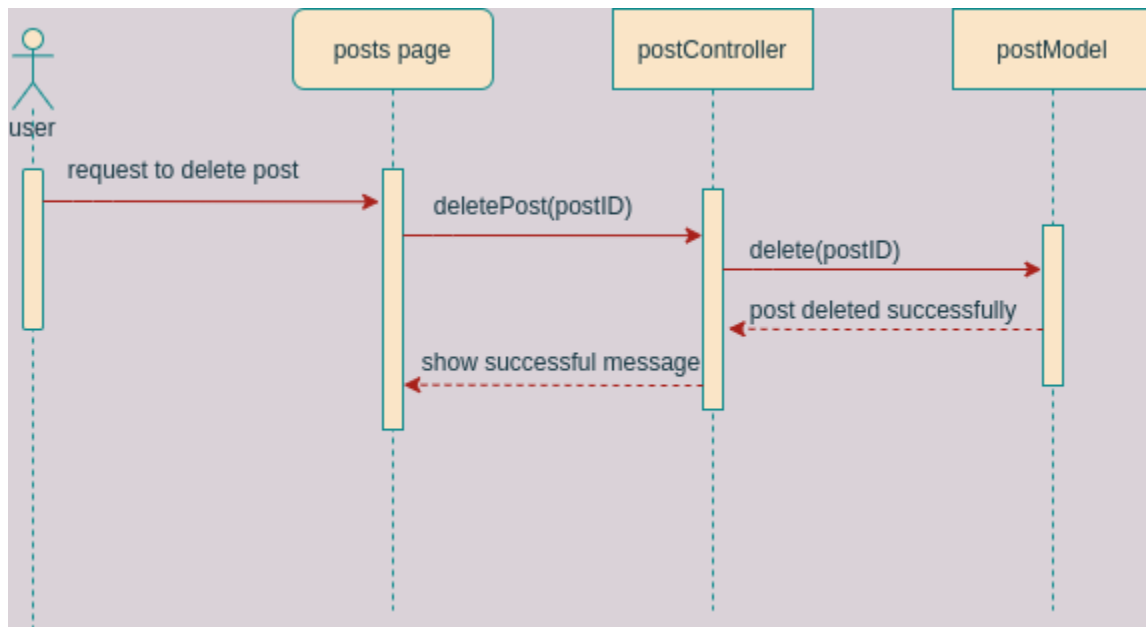
3.3.7 create announcement



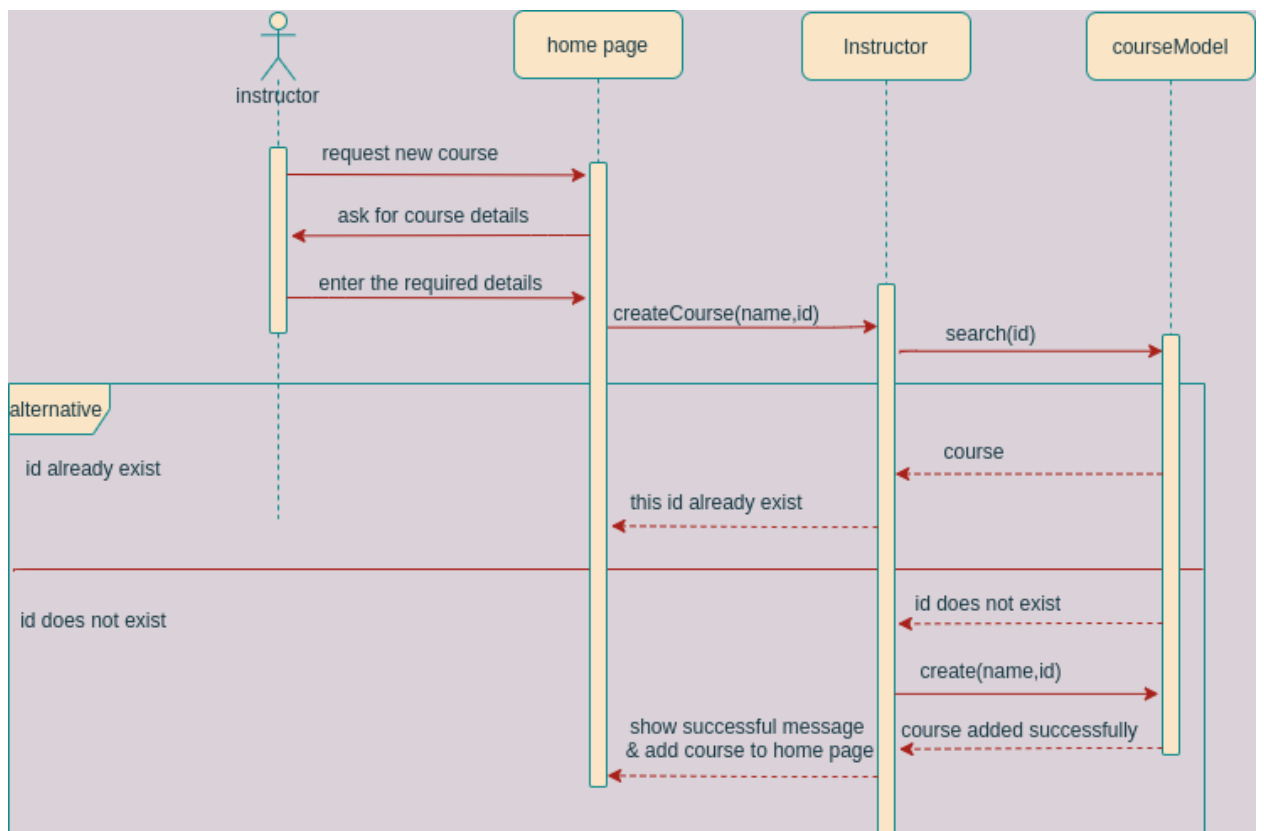
3.3.8 Edit announcement



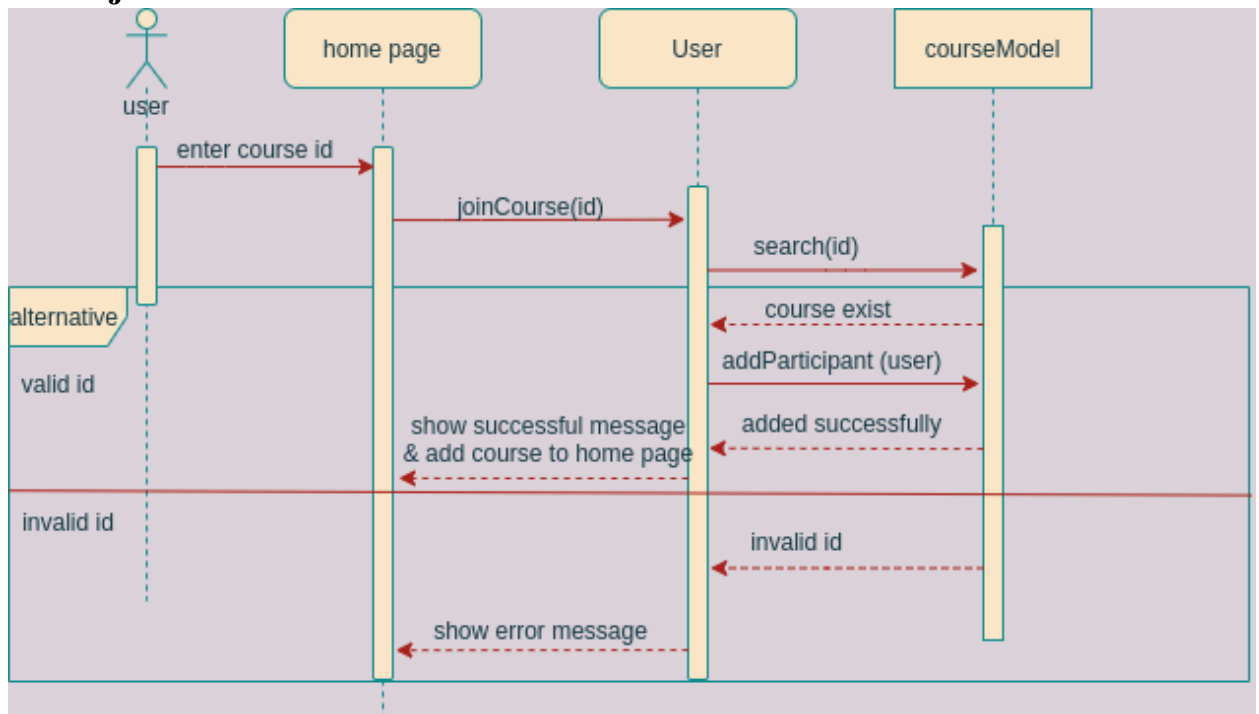
3.3.9 delete announcement



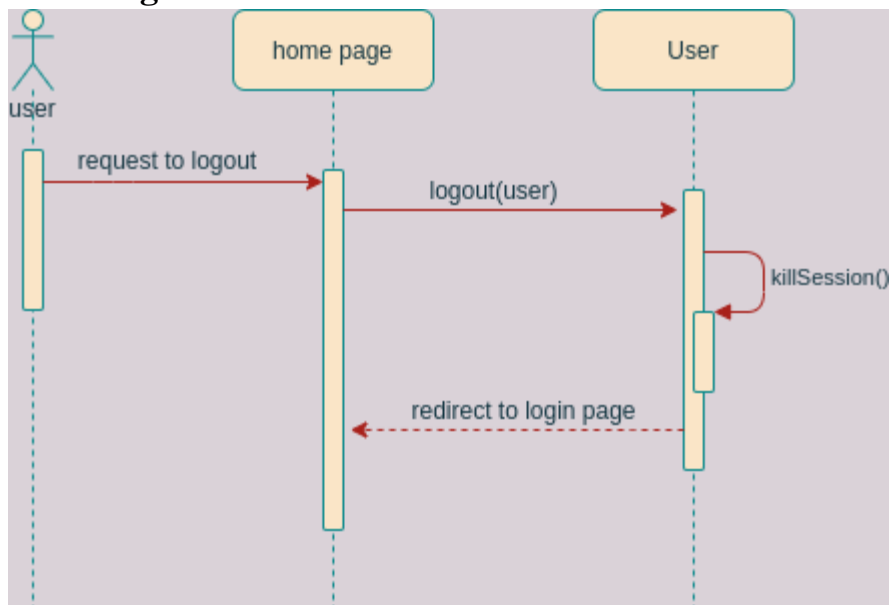
3.3.10 create course



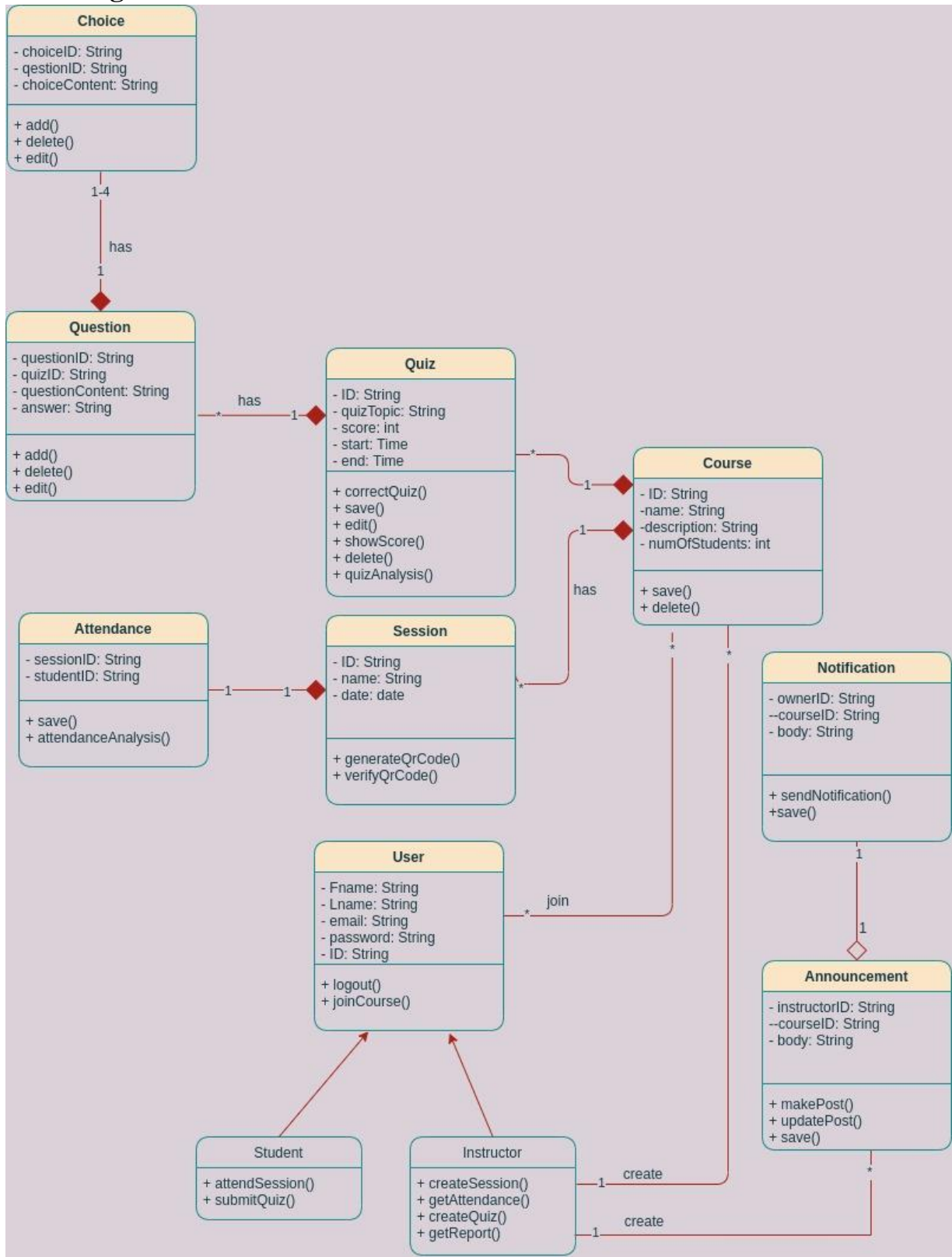
3.3.11 join course



3.3.12 logout



3.4 class diagram



The ER diagram illustrates the relationships between various entities in a course management system. The entities and their attributes are as follows:

- instructor**: Attributes include ID, email, password, and Fname.
- Student**: Attributes include ID, email, password, and Fname.
- course**: Attributes include ID, name, and Lname.
- quiz**: Attributes include ID, courseID, quizID, duration, publishedTime, total_grade, topic, status, and date.
- session**: Attributes include ID, date, courseID, and isAvailable.
- attendance**: Attributes include ID, studentID, sessionID, and courseID.
- quiz questions**: Attributes include ID, quizID, content, answer_id, and grade.

The relationships between these entities are defined by the following connections:

- instructor** (1) is associated with **course** (n) via the relationship **instructor courses**.
- Student** (1) is associated with **course** (n) via the relationship **student courses**.
- instructor** (1) is associated with **quiz** (n) via the relationship **create**.
- Student** (m) is associated with **quiz** (n) via the relationship **answer**.
- Student** (m) is associated with **session** (n) via the relationship **attend**.
- course** (n) is associated with **quiz** (n) via the relationship **Has**.
- quiz** (n) is associated with **session** (n) via the relationship **create**.
- session** (1) is associated with **attendance** (1) via the relationship **Has**.
- attendance** (1) is associated with **quiz questions** (1) via the relationship **Has**.

chapter 4: implementation

4.1 Tools & Technologies

Development

- Laravel: an ORM Framework for building back-end based on PHP
- MySQL: Database management system to manipulate and manage system object.
- Android: Will be used in student part
- Firebase: For sharing and sync announcement data between Android and web

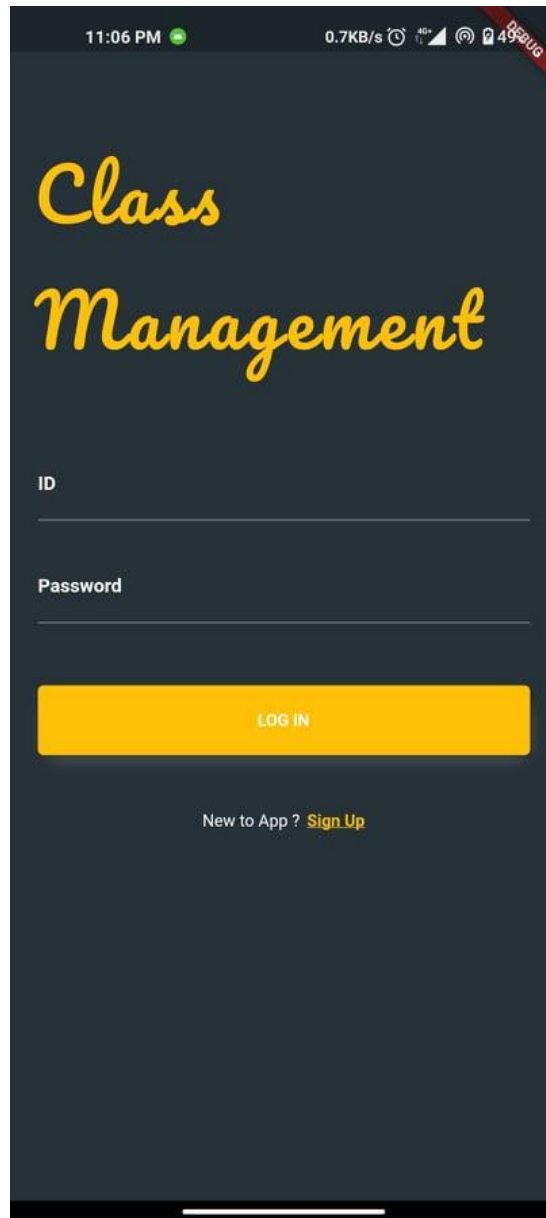
Design

- Flutter (Dart)
- HTML
- CSS
- Bootstrap

4.2 GUI

4.2.1: Android

1. Login



2. Sign up

A mobile application sign-up screen with a dark blue background. At the top, the status bar shows the time 4:22 PM, battery level, and network speed 1.3KB/s. The title "Sign Up" is displayed in a large, yellow, cursive font. Below the title, there are four input fields: "First Name", "Last Name", "ID", and "Email". Each field has a label and a hint text below it. The "First Name" and "Last Name" fields have a hint "Should include at least 1 capital letter". The "ID" field has a hint "Numeric (minimum 8 digits)". The "Email" field has a hint "Should be valid and not used". Below the input fields, there is a yellow "SIGN UP" button and a white "Go Back" button. A red banner in the top right corner says "beta".

4:22 PM 1.3KB/s

Sign Up

First Name

Should include at least 1 capital letter

Last Name

Should include at least 1 capital letter

ID

Numeric (minimum 8 digits)

Email

Should be valid and not used

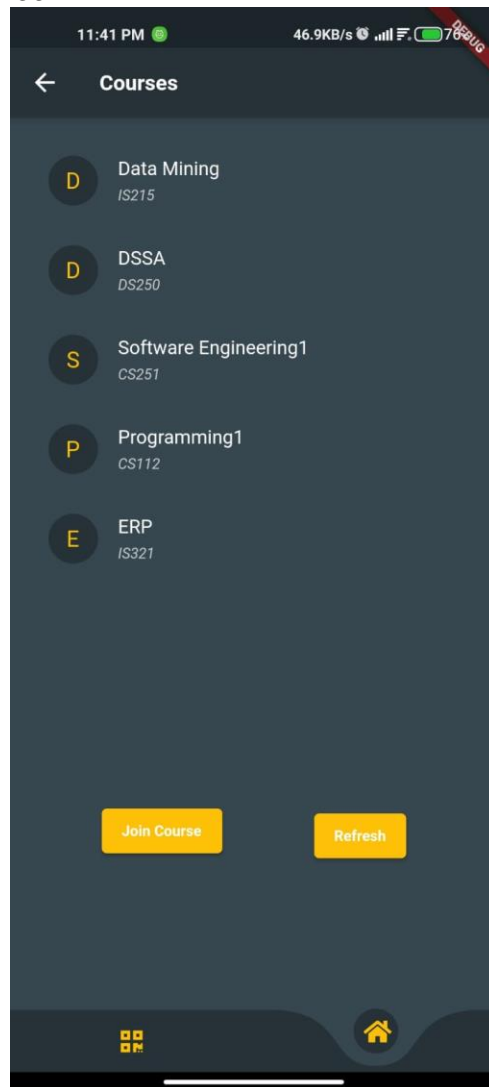
Password

Should include letters and numbers (minimum 8 digits)

SIGN UP

Go Back

3. Courses Screen



4. Join course

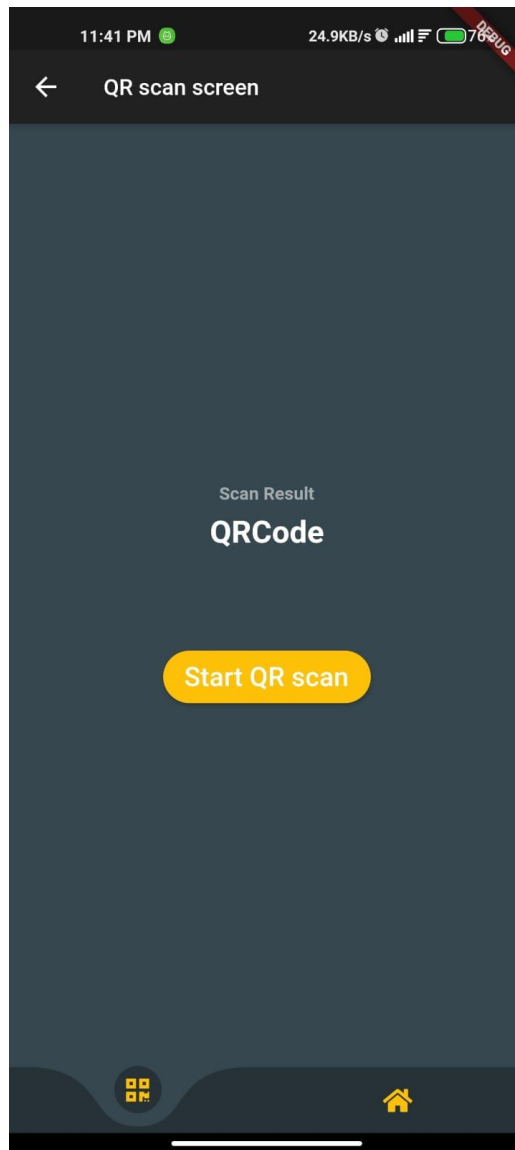
11:41 PM 27.6KB/s 76%

Join Course

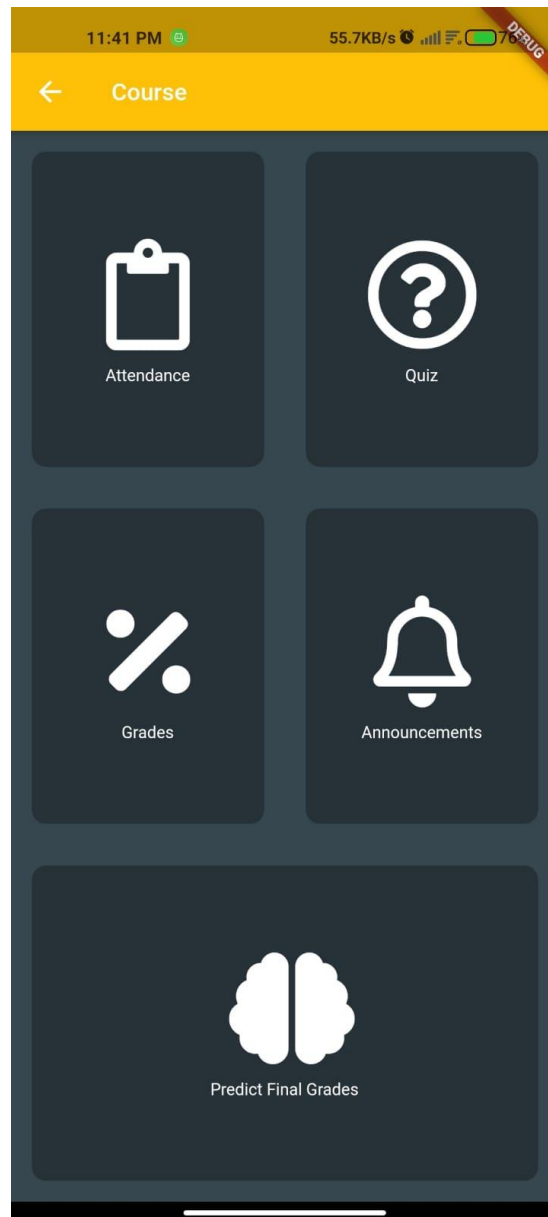
Course ID

Join Course

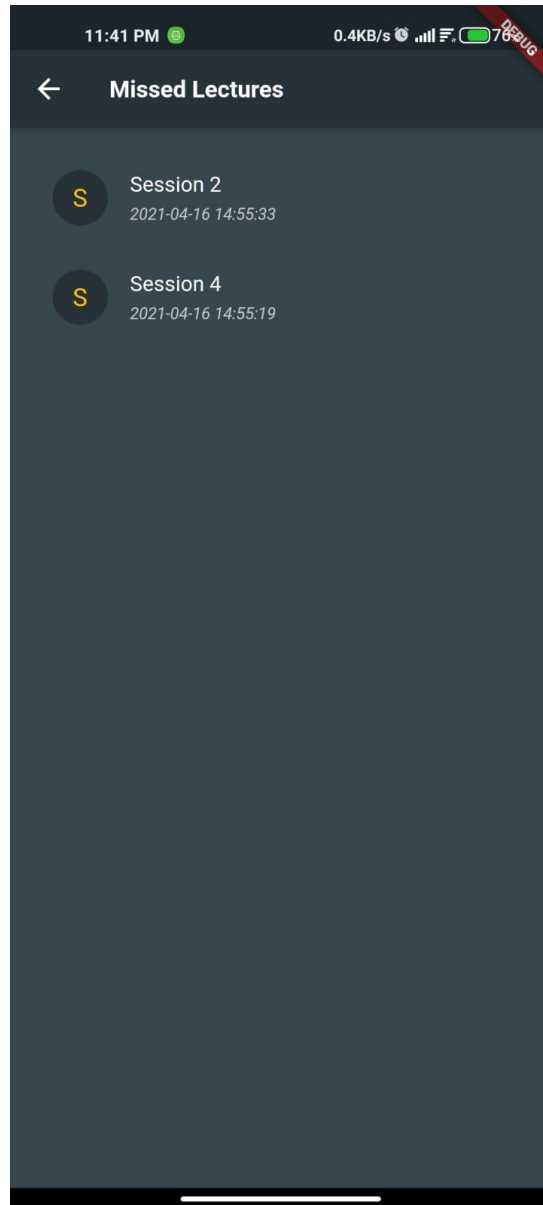
5. Scan QR code screen



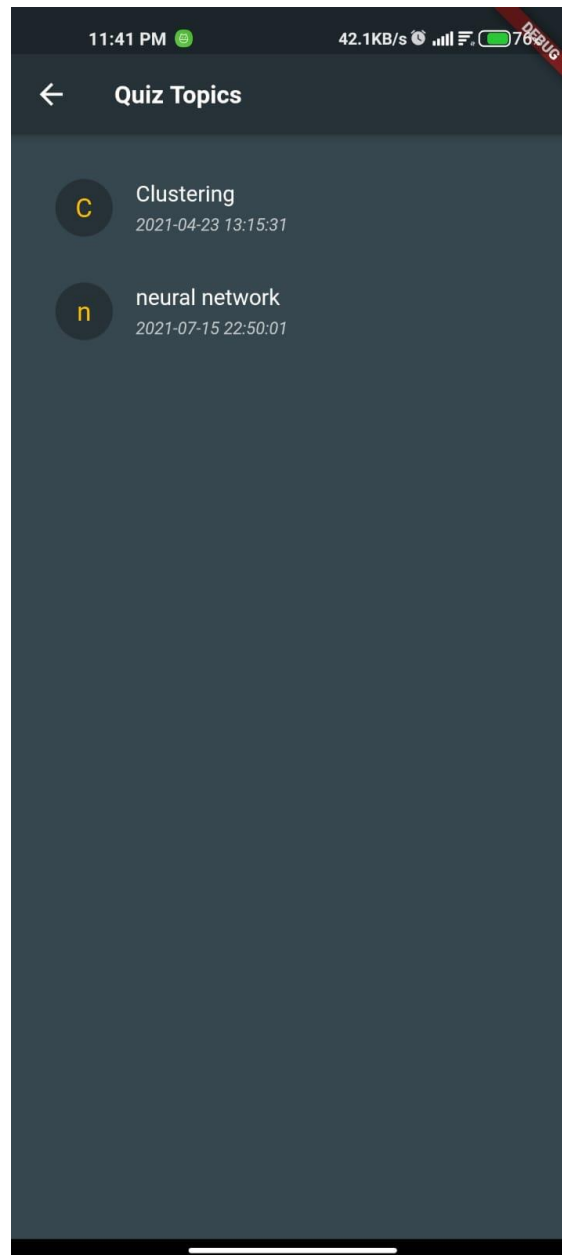
6. Course home



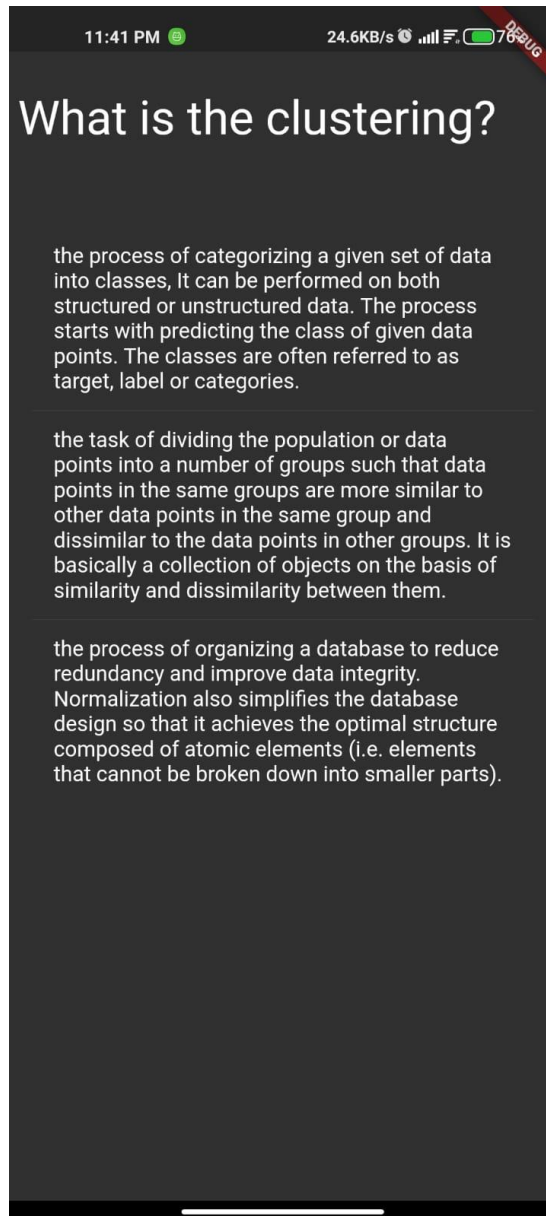
7. Attendance screen



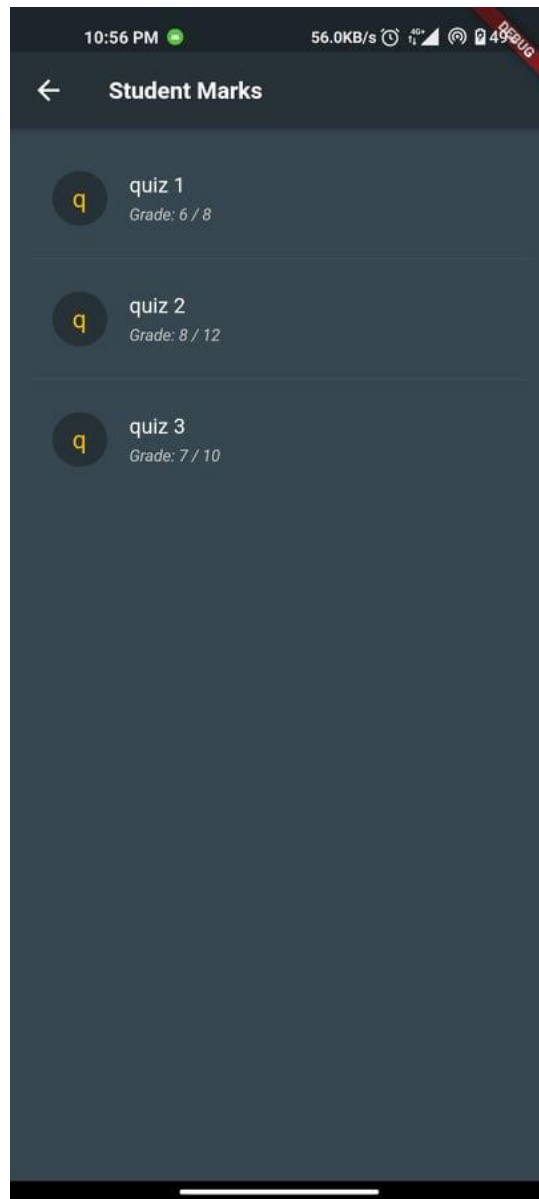
8. Quiz topics



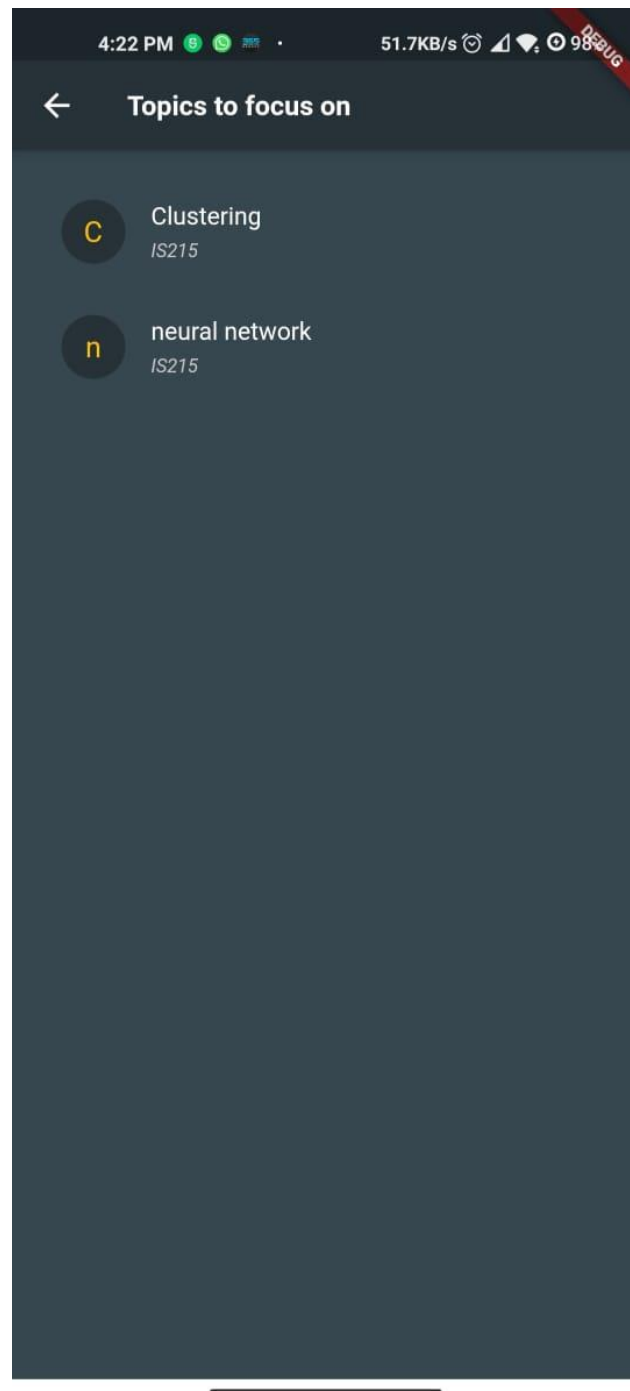
9. Quiz screen



10. Grade's screen

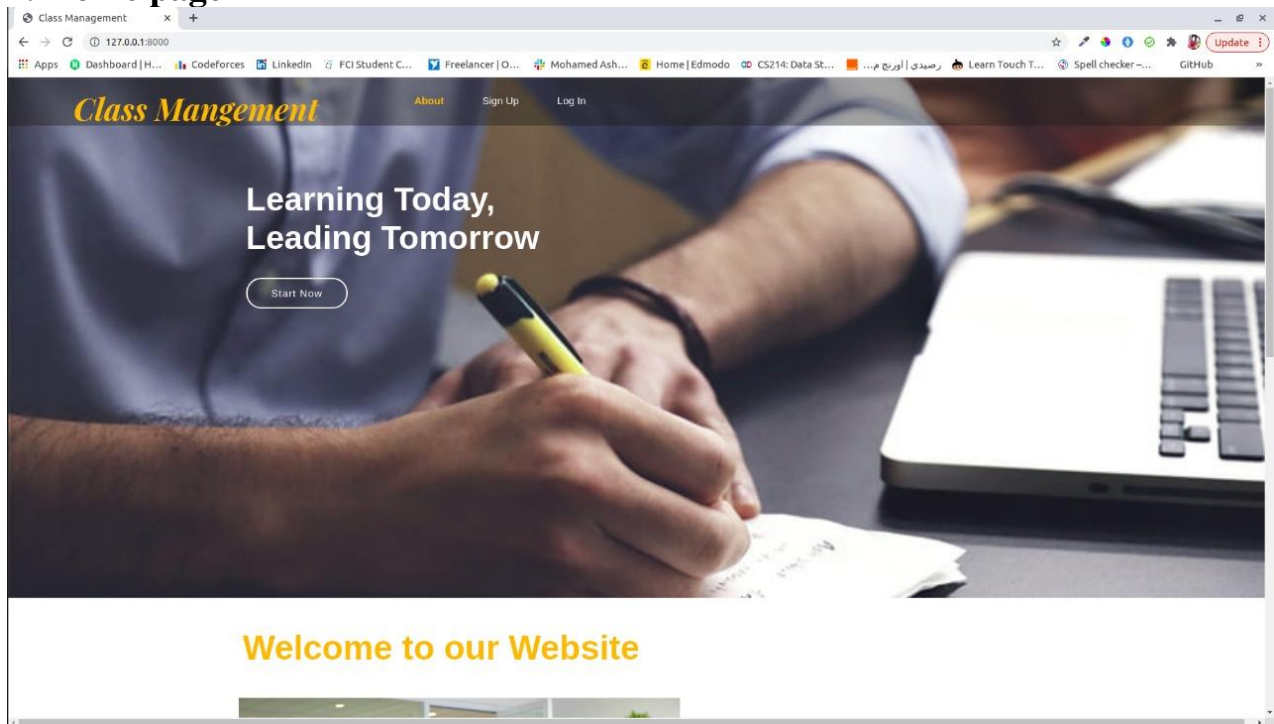


10. Predict final grade

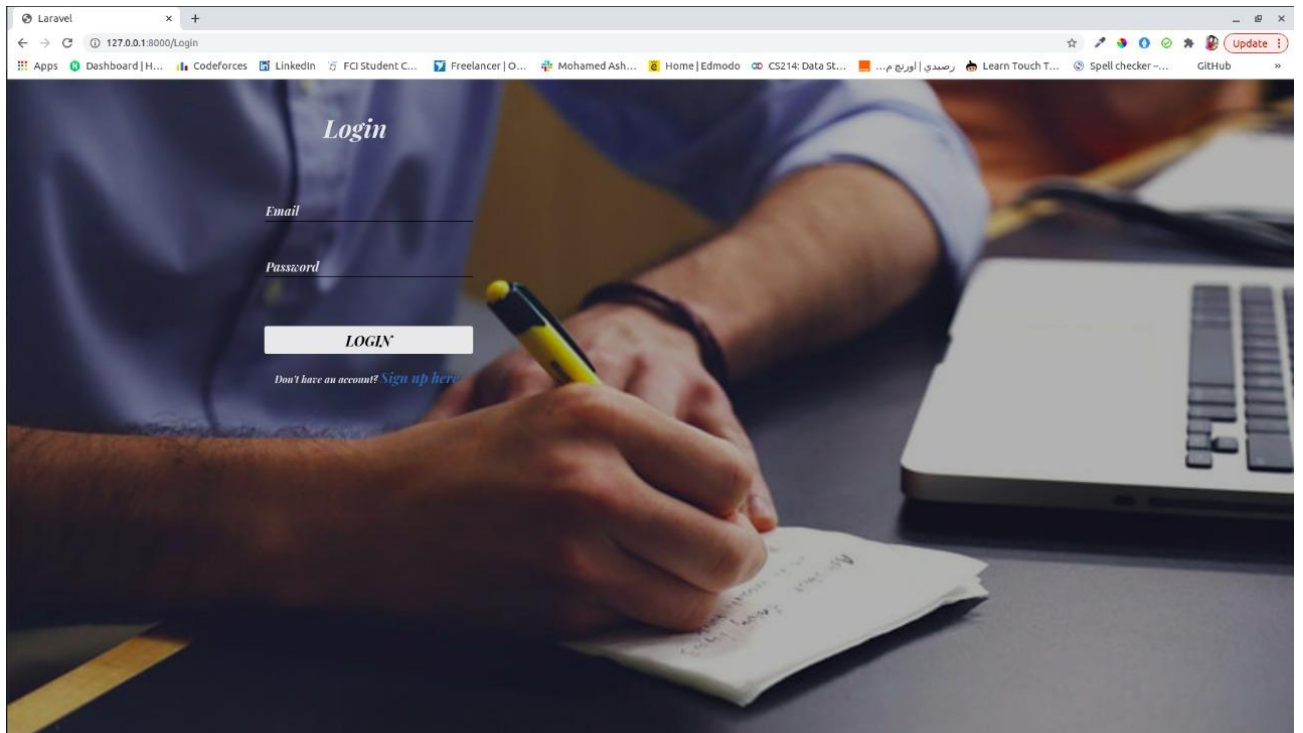


4.2.2 Website

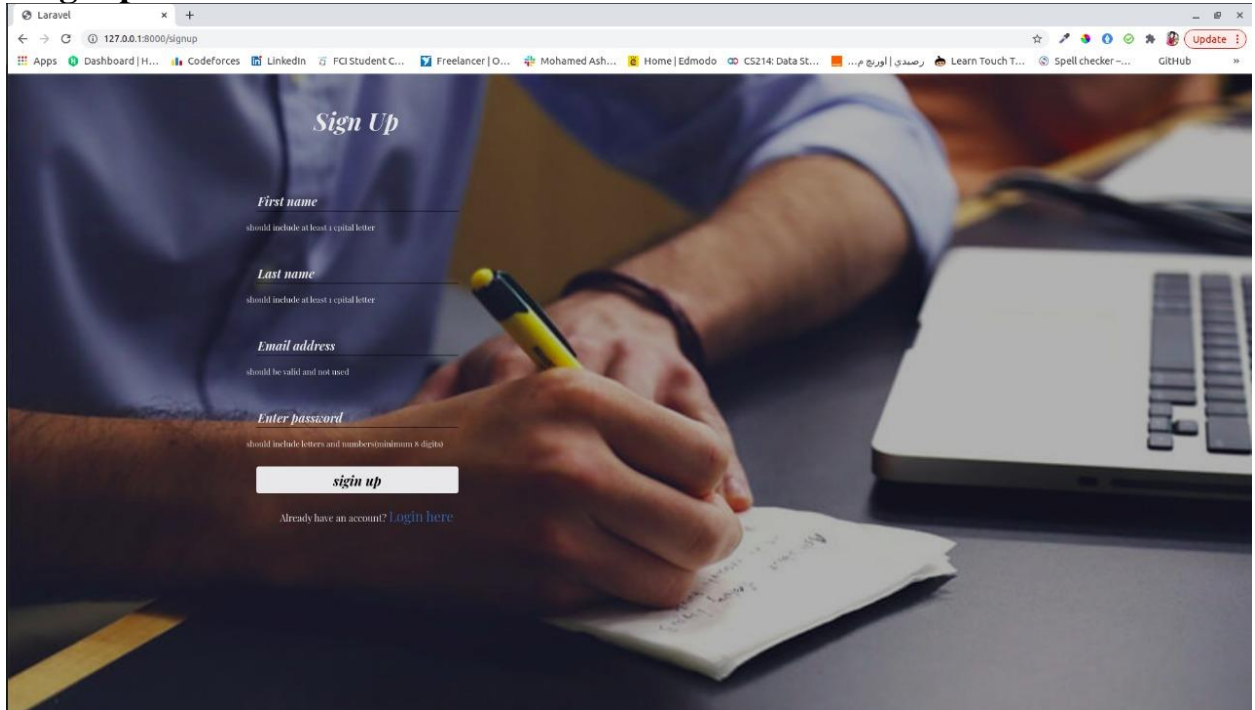
1. Home page



2. login



3.signup



Sign Up

First name
should include at least 1 capital letter

Last name
should include at least 1 capital letter

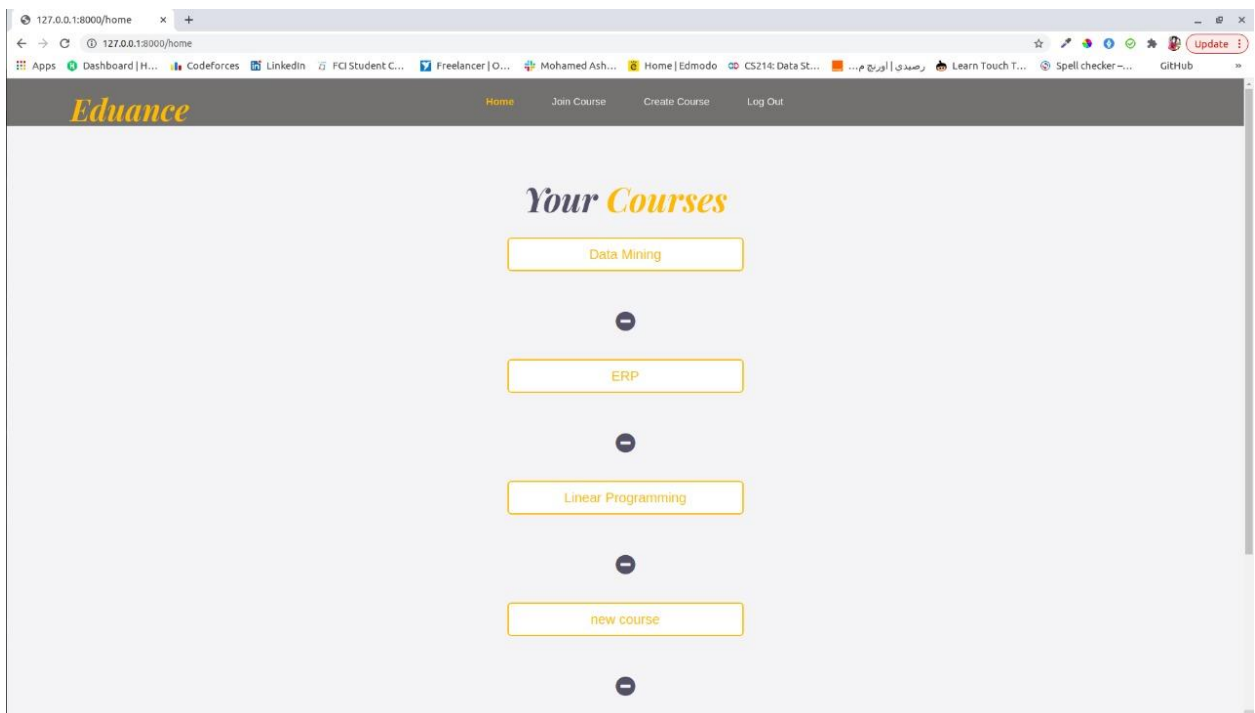
Email address
should be valid and not used

Enter password
should include letters and numbers (minimum 8 digits)

sign up

Already have an account? [Login here](#)

4. Courses



Eduance Home Join Course Create Course Log Out

Your Courses

Data Mining

—

ERP

—

Linear Programming

—

new course

—

5. create course

Course *Name*

Course *Code*

Create

6. join course

Class *Management*

Home Join Course Create Course Log out

Course *Code*

Join

7. sessions

Class Mangement

Sessions

Quizzes

Announcements

Quiz Analysis

Attendance Analysis

Join Course

Create Course

Log Out

Create New Session

Your Sessions

Session Name	Session Date	Session Attendance
clustering part 2	2021-04-16 14:55:02	Attendance
data preprocessing	2021-05-18 23:33:32	Attendance
Clustering	2021-04-01 23:06:48	Attendance
Regression part 2	2021-05-04 21:14:10	Attendance
Prediction	2021-04-02 08:00:39	Attendance
Regression	2021-05-03 22:02:28	Attendance

8. create session

Class Mangement

Sessions

Quizzes

Announcements

Quiz Analysis

Attendance Analysis

Join Course

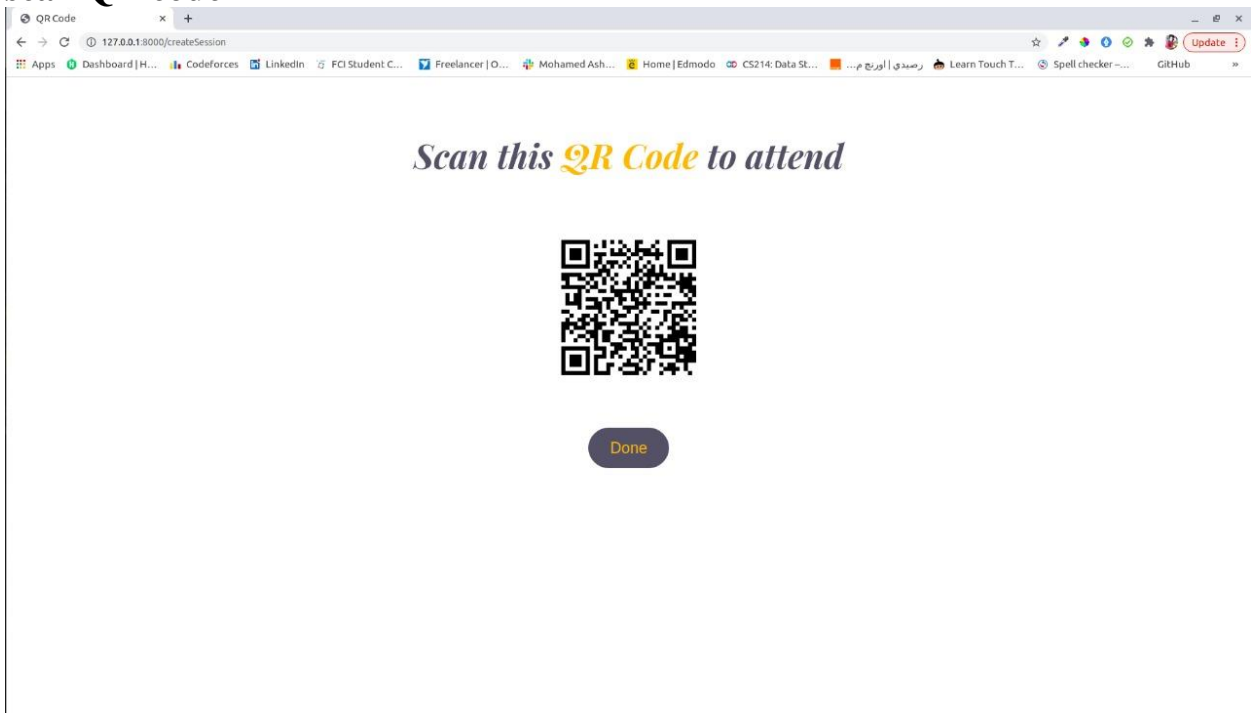
Create Course

Log Out

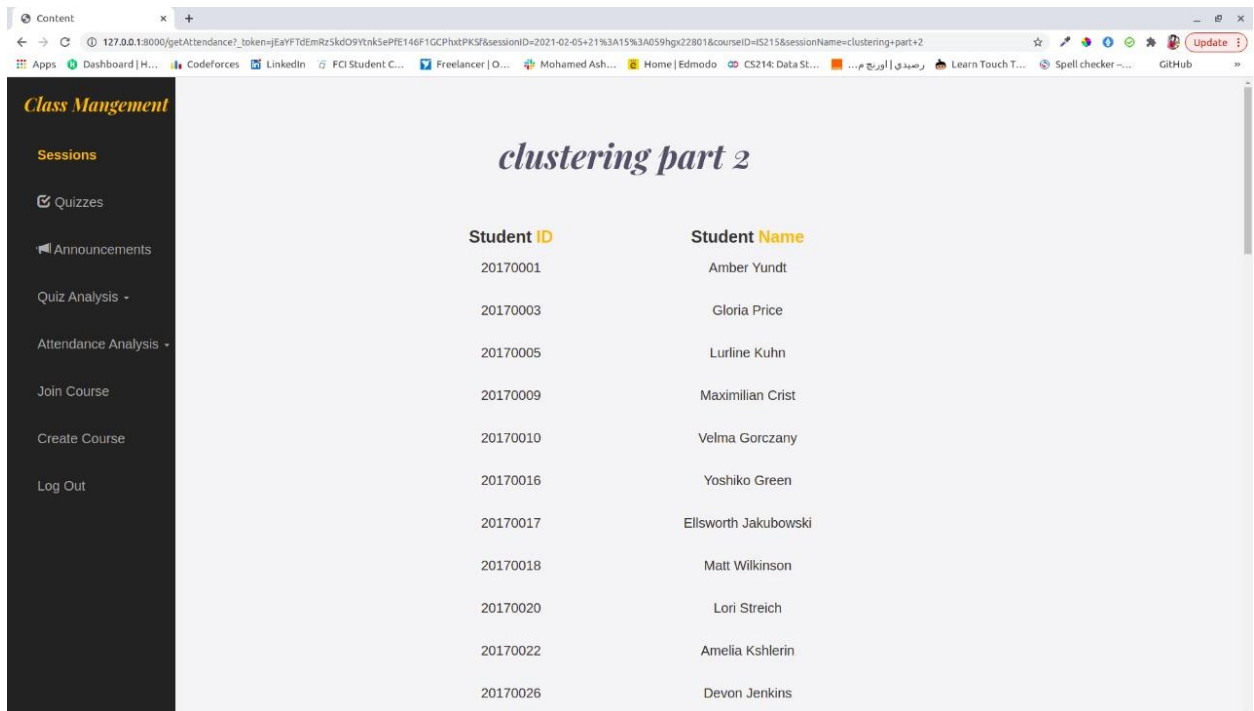
Session Name

Create

9. scan QR code



10. attendance



11. quizzes

The screenshot shows a web application interface for managing quizzes. On the left is a dark sidebar with the title 'Class management' and a list of navigation items: Sessions, Quizzes, Announcements, Quiz Analysis, Attendance Analysis, Join Course, Create Course, and Log Out. The main content area is titled 'Your Quizzes' and displays a table of existing quizzes:

Quiz Name	Timestamp	Action
chapter1	2021-07-16 09:51:39	publish
chapter2	2021-07-16 09:51:41	publish
chapter3	2021-07-16 09:51:56	publish

At the bottom of the main area is a 'create quiz' button with a plus icon.

12. create quiz

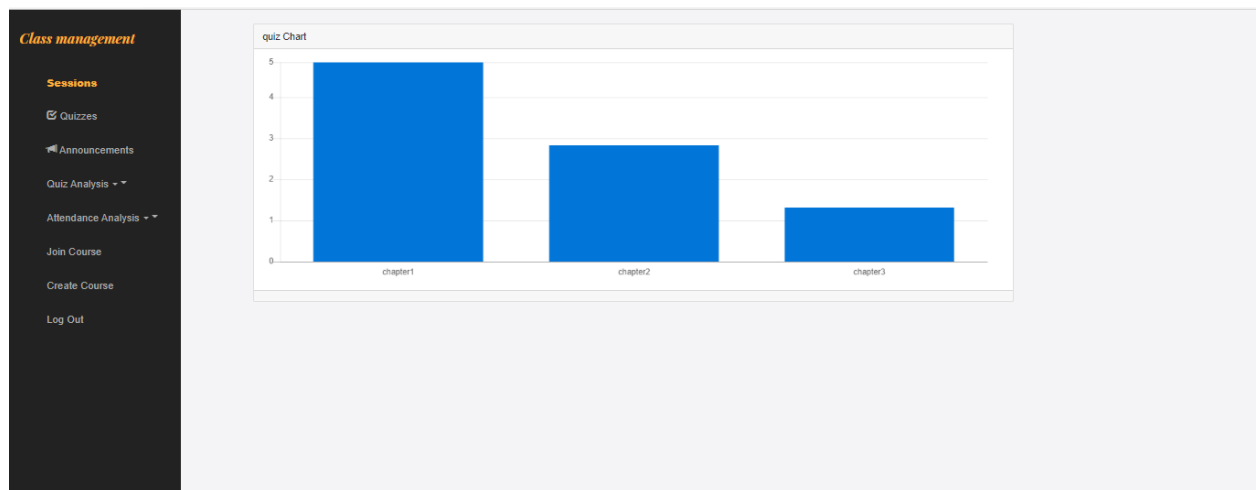
The screenshot shows the 'Create Quiz' form in the same web application. The sidebar is identical to the previous screenshot. The main content area is titled 'Create Quiz' and contains the following form elements:

- quiz topic**: A text input field.
- time duration in minutes**: A text input field.
- Write your question here**: A text input field with a lightbulb icon.
- question body**: A text input field.
- Correct Answer is :** A dropdown menu with 'a' selected.
- Question Mark**: A radio button.
- Your Answers**: A section with two multiple-choice options, each with a radio button and a text input field for 'Answer content'.
- Add Answer**: A button to add more answers.
- save quiz**: A button to save the quiz.

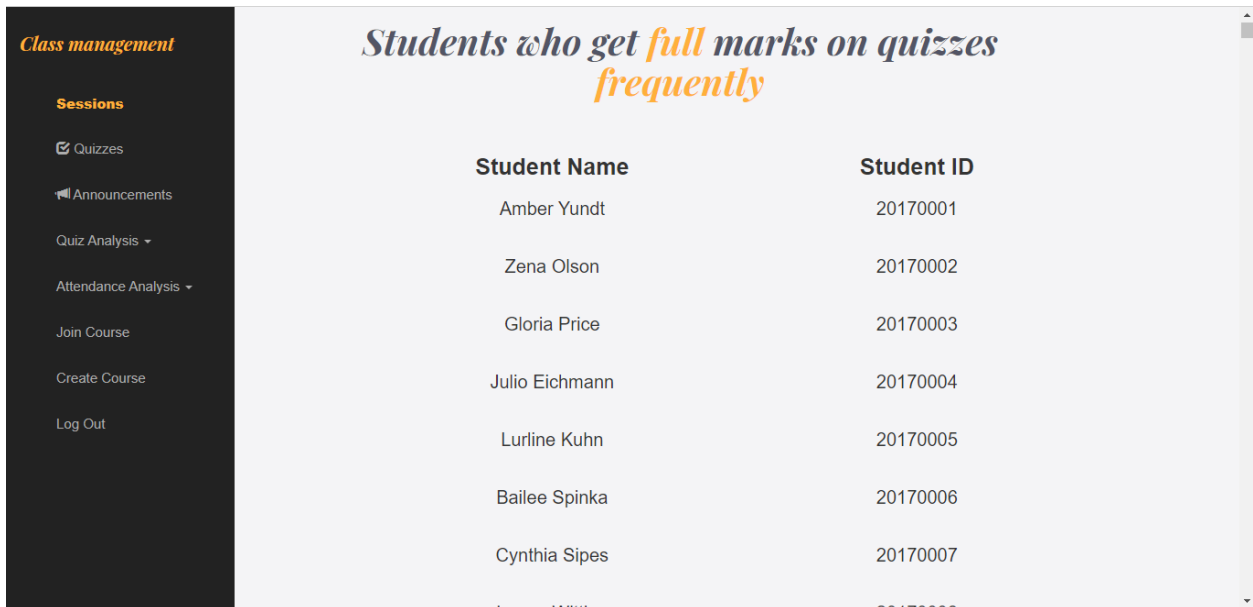
13. announcements

The screenshot shows a web application interface for 'IS215'. On the left is a dark sidebar with the title 'Class Mangement' and a list of navigation items: Sessions, Quizzes, Announcements, Quiz Analysis, Attendance Analysis, Join Course, Create Course, and Log Out. The main content area has a light gray background. At the top center, it says 'IS215' in a large, stylized orange font, followed by 'Your Announcement' in a smaller black font. Below this is a large, empty rectangular box for writing an announcement. Underneath the box is a yellow button labeled 'post'. Below the button are three example announcements, each in a yellow-bordered box with a trash icon to its left. The first announcement says: 'Dear students, For students who have lab tomorrow, be informed that last week lab was the last lab for data mining. And for the third quiz I will send you another announcement with details. Thanks'. The second announcement says: 'Dears, Let's start the quiz. It's became available to you. You will have 60 minutes to complete the quiz once you start your attempt.'. The third announcement says: 'Dear students, As I recieved many inquiries about the topics that will be included in the first quiz that will be held next Monday.'.

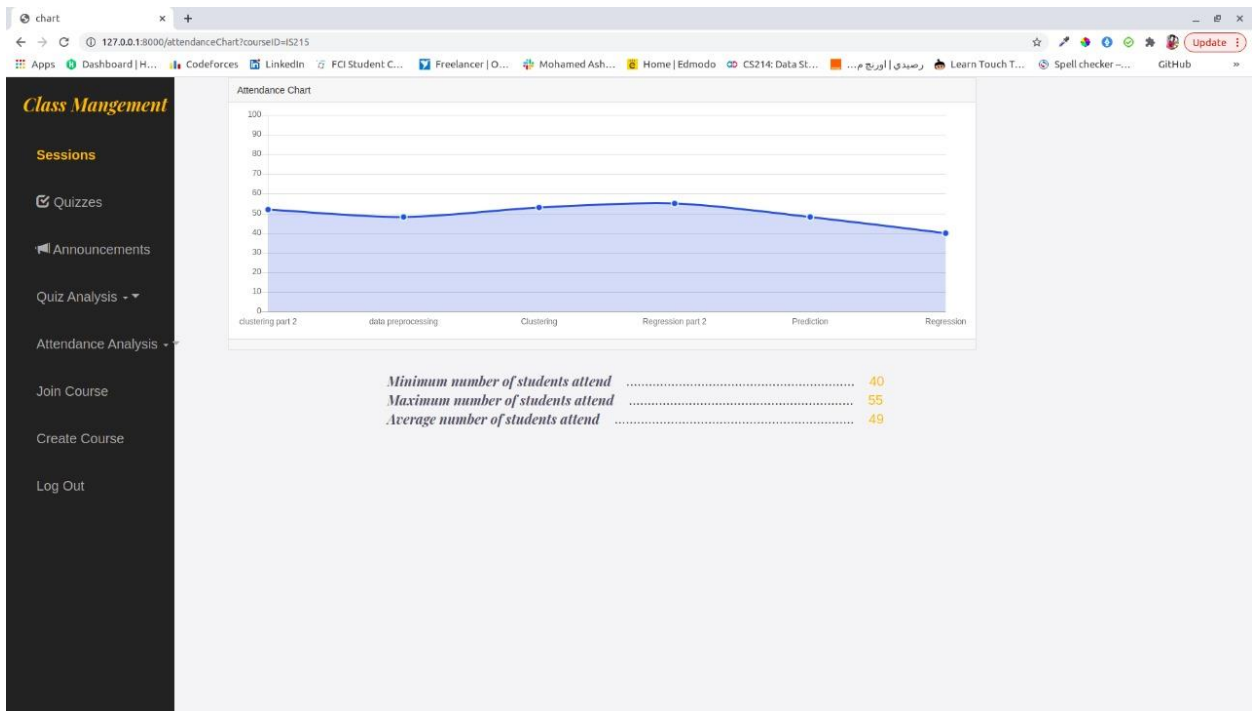
14. quiz chart



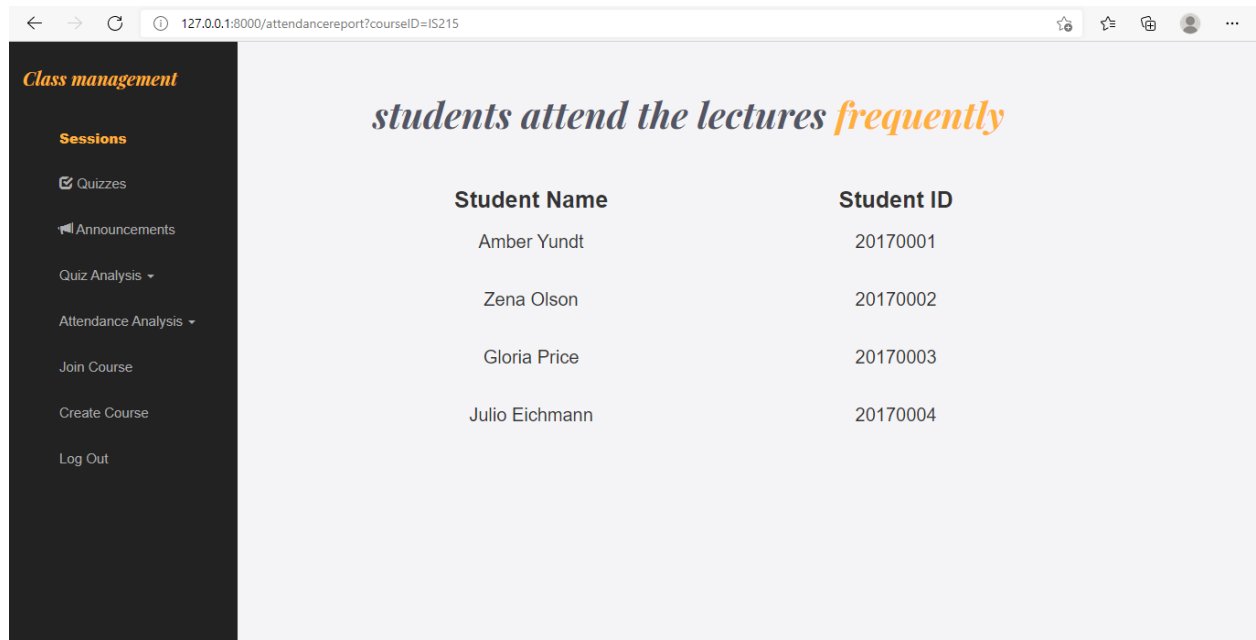
15. quiz report



16. attendance chart



17. attendance report



Chapter 5: System Testing and Evaluation

5.1 system Testing

5.1.1 application testing

- Sign up

Test Case ID	TC01
Test Scenario	If student ID already exists
Test Steps	1)Student enter the data of the sign up 2)Student press sign up button
Expected Results	Message : “Check your email , ID or password again ”
Actual Results	Message : “Check your email , ID or password again ”
Pass/Fail	Pass

Test Case ID	TC02
Test Scenario	If email already exists
Test Steps	1)Student enter the data of the sign up 2)Student press sign up button
Expected Results	Message “ User already exists “
Actual Results	Message “ User already exists “
Pass/Fail	Pass

Test Case ID	TC03
Test Scenario	Successful
Test Steps	1)Student enter the data of the sign up 2)Student press sign up button
Expected Results	Message “ Sign up successful “
Actual Results	Message “ Sign up successful “
Pass/Fail	Pass

- **Login**

Test Case ID	TC04
Test Scenario	If wrong email or password
Test Steps	User enter ID and password
Expected Results	Message “ Invalid ID or password “
Actual Results	Message “ Invalid ID or password “
Pass/Fail	Pass

Test Case ID	TC05
Test Scenario	Successful
Test Steps	User enter ID and password
Expected Results	Message “ Login Successful “
Actual Results	Message “ Login Successful “
Pass/Fail	Pass

- **Join course**

Test Case ID	TC06
Test Scenario	Wrong course ID
Test Steps	Student enter course ID
Expected Results	Message “ Course not found “
Actual Results	Message “ Course not found “
Pass/Fail	Pass

Test Case ID	TC07
Test Scenario	Joining a course already joined
Test Steps	Student enter course ID
Expected Results	Message “ Error, already joined course “
Actual Results	Message “ Error, already joined course “
Pass/Fail	Pass

Test Case ID	TC08
Test Scenario	Successful

Test Steps	Student enter course ID
Expected Results	Message “ course joined successfully “
Actual Results	Message “ course joined successfully “
Pass/Fail	Pass

- **Scan QR code**

Test Case ID	TC09
Test Scenario	If a session ended
Test Steps	Student scan QR code
Expected Results	Message: "Error recording the attendance"
Actual Results	Message: "Error recording the attendance"
Pass/Fail	Pass

Test Case ID	TC10
Test Scenario	If session is still available
Test Steps	Student scan QR code
Expected Results	Message: “Attendance recorded successfully”
Actual Results	Message: “Attendance recorded successfully”
Pass/Fail	Pass

- **Submit quiz**

Test Case ID	TC11
Test Scenario	If duration of quiz if finished
Test Steps	1)Student solves the quiz 2)Student submit quiz
Expected Results	Message= “Late submission”
Actual Results	Message= “Late submission”
Pass/Fail	Pass

Test Case ID	TC12
Test Scenario	If duration of quiz didn’t finish
Test Steps	1)Student solves the quiz 2)Student submit quiz
Expected Results	Message= ”Quiz submitted successfully”
Actual Results	Message= ”Quiz submitted successfully”
Pass/Fail	Pass

Test Case ID	TC13
Test Scenario	If sessions of a subject are less than 10 sessions
Test Steps	Student press of “predict final grades” button
Expected Results	Message = “Prediction is done after midterm”
Actual Results	Message = “Prediction is done after midterm”
Pass/Fail	Pass

Test Case ID	TC14
Test Scenario	sessions of a subject are above 10 sessions
Test Steps	Student press of “predict final grades” button
Expected Results	Display a list of quizzes that the student should focus on
Actual Results	Display a list of quizzes that the student should focus on
Pass/Fail	Pass

5.1.2 website testing

TC1: Test Instructor Sign up Page – Valid Data

Test Case ID	TC01
Test Scenario	Check instructor sign up with valid data
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click sign up3. Enter First name and Last name4. Enter Email Address5. Enter password6. Click sign up
Test Data	First name=Hanan , Last name=Mousa , Email=h.mousa1234@gmail.com , Password=hanan12345
Expected Results	Sign up successfully and got to home page.
Actual Results	Sign up successfully and got to home page.
Pass/Fail	Pass

TC2: Test Instructor Sign up Page – Invalid Data

Test Case ID	TC02
Test Scenario	Check instructor sign up with invalid data
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click sign up3. Enter First name and Last name4. Enter Email Address5. Enter password6. Click sign up
Test Data	First name=Hanan , Last name=Mousa , Email=h.mousa1234gmailcom , Password=hanan
Expected Results	Instructor can't sign up with this invalid data.
Actual Results	Instructor can't sign up.
Pass/Fail	Pass

TC3: Test instructor Login Page – Valid Data

Test Case ID	TC03
Test Scenario	Check instructor login with valid data
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click log in3. Enter Email Address4. Enter password5. Click login
Test Data	Email=h.mousa1234@gmail.com,password=hanan12345
Expected Results	Login to home page
Actual Results	Login to home page
Pass/Fail	pass

TC4: Test instructor Login Page – invalid Data

Test Case ID	TC04
Test Scenario	Check instructor login with invalid data
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click log in3. Enter Email Address4. Enter password5. Click login
Test Data	Email=h.mousa1234@gmail.com,password=hanan54321
Expected Results	Instructor can't login to home page with this wrong password
Actual Results	Instructor can't login
Pass/Fail	pass

TC5: Test Logout Page - Valid Security

Test Case ID	TC05
Test Scenario	Check Instructor Can Invoke Page After Logout
Test Steps	<ol style="list-style-type: none">1. Go to Link http://localhost:8000/home after Login2. Click Logout3. 3. Go to Link http://localhost:8000/home
Test Data	Email address=h.mousa1234@gmail.com ,password=hanan12345
Expected Results	Instructor should not Visit http://localhost:8000/home after Logout
Actual Results	User do not Visit http://localhost:8000/home after Logout and visit the login page
Pass/Fail	Pass

TC6: Test join course – Valid Data

Test Case ID	TC06
Test Scenario	Check instructor can join course with valid course id
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click log in3. Enter Email Address4. Enter Password5. Click Login6. Click Join course7. Enter Course ID8. Click join
Test Data	Email address=h.mousa1234@gmail.com ,password=hanan12345 Course id=DS331
Expected Results	Instructor get message joined course successfully
Actual Results	Instructor get message joined course successfully
Pass/Fail	Pass

TC7: Test join course – invalid Data

Test Case ID	TC07
Test Scenario	Check instructor can join course with invalid course id
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click log in3. Enter Email Address4. Enter Password5. Click Login6. Click Join course7. Enter Course ID8. Click join
Test Data	Email address=h.mousa1234@gmail.com ,password=hanan12345 Course id=DS331
Expected Results	Instructor get message course not found
Actual Results	Instructor get message course not found
Pass/Fail	Pass

TC8: Test create session– Valid Data

Test Case ID	TC08
Test Scenario	Check create new session with valid data
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click log in3. Enter Email Address4. Enter Password5. Click Login6. Choose course7. Click create new session8. Enter session name9. Click create
Test Data	Email address=h.mousa1234@gmail.com ,password=hanan12345 Session name=Lecture1
Expected Results	Instructor get QR Code
Actual Results	Instructor get QR Code
Pass/Fail	Pass

TC9: Test create session– invalid Data

Test Case ID	TC09
Test Scenario	Check create new session with invalid data
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click log in3. Enter Email Address4. Enter Password5. Click Login6. Choose course7. Click create new session8. Enter empty session name9. Click create
Test Data	Email address=h.mousa1234@gmail.com ,password=hanan12345 Session name=Lecture1
Expected Results	Instructor get message session name is empty, please try again.
Actual Results	Instructor get message session name is empty, please try again.
Pass/Fail	Pass

TC10: Test create new announcements – Valid Data

Test Case ID	TC10
Test Scenario	Check create new announcement with valid post
Test Steps	10. Go to site http://localhost:8000/ 11. Click log in 12. Enter Email Address 13. Enter Password 14. Click Login 15. Choose course 16. Click announcements 17. Enter announcement body 18. Click post
Test Data	Email address=h.mousa1234@gmail.com ,password=hanan12345 Announcement=next lecture will be canceled.
Expected Results	Announcement is posted
Actual Results	Announcement is posted
Pass/Fail	Pass

TC11: Test create new announcements – invalid Data

Test Case ID	TC11
Test Scenario	Check create new announcement with invalid post
Test Steps	1. Go to site http://localhost:8000/ 2. Click log in 3. Enter Email Address 4. Enter Password 5. Click Login 6. Choose course 7. Click announcements 8. Enter empty announcement 9. Click post
Test Data	Email address=h.mousa1234@gmail.com ,password=hanan12345 Announcement=' '.
Expected Results	Instructor get message “announcement is required”
Actual Results	Instructor get message “announcement is required”
Pass/Fail	Pass

TC12: Test create quiz – Valid Data

Test Case ID	TC12
Test Scenario	Check create quiz valid data
Test Steps	<ol style="list-style-type: none">1. Go to site http://localhost:8000/2. Click log in3. Enter Email Address4. Enter Password5. Click Login6. Choose course7. Go to quizzes8. Click create quiz9. Enter quiz topic10. Enter question body11. Enter answers12. Click save
Test Data	Quiz topic=clustering, question body =what is clustering Answer1=dividing data into groups each group have similar objects Answer2=is a statement about an event.
Expected Results	Go to quizzes page
Actual Results	Go to quizzes page
Pass/Fail	Pass

TC13: Test create quiz- invalid data

Test Case ID	TC13
Test Scenario	Check create quiz invalid data
Test Steps	<ol style="list-style-type: none">13. Go to site http://localhost:8000/14. Click log in15. Enter Email Address16. Enter Password17. Click Login18. Choose course19. Go to quizzes20. Click create quiz21. Enter quiz topic22. Enter question body23. Enter answers24. Click save
Test Data	Quiz topic=' ', question body = ' ' Answer=' '
Expected Results	Quiz topic, question body, answer body are required

Actual Results	Quiz topic, question body, answer body are required
Pass/Fail	Pass

5.2 System Evaluation

5.2.1 Project overview

The project is done with all functionalities given and wanted to do we had the working roles as following

Name	Role	Work
Amr Alaa	Team Leader	Front-end (app)
Eman Ayman	Team Member	Back-end
Manar Tarek	Team Member	Front-end(website)
Mohamed Ashour	Team Member	Back-end
Alaa ibrahem	Team Member	Back-end

5.2.2 Conclusion

- We did a website and mobile app which solved the attendance problem and manage quizzes easier.
- Now with Data mining algorithms each student can know his performance during the semester and get predicted final grade

5.2.3 Future work

- Increase the accuracy of predicting final grades by increase the number of attributes
- Apply more techniques to know the relation between these attributes