

**Team:** Bader Alshemaimri, Catherine Dewerd, Yenteh Liu

**Title:** Quiz App

## Project Summary:

We want to build a platform to allow teachers to post a quiz for a class, and students in the class can take quiz online. Each quiz will be limited to true/false and multiple choice answer types. Each question will also have the correct answer recorded, so that the quiz is taken it can be graded. The student can add/drop a class, take posted quizzes associated with their classes, get their own score report and message the teacher for questions. The teacher will have the ability to make a quiz, add/delete questions, post a quiz, view all students' score and the overall quiz statistics (mean, variance, how many students failed, ...etc) to check if the quiz is too hard or too easy. Also the teacher can send public message to a single student or to all the students (maybe answer a question or clarify mistakes during the quiz).

## Project Requirements:

### Business Requirements:

This project has no business requirements.

\*User is defined as Administrator, Teacher or Student.

User Requirements		
Req ID:	Description	Priority
UR-01	As a *User I need to be able to create an account so that I can log in.	High
UR-02	As a *User I need to be able to login so that I can access my quizzes.	High
UR-03	As an Administrator I need to be able to create a course so that I can add courses to the site.	Medium
UR-04	As an Administrator I need to be able to delete a course so that I can correct mistakes and clean up.	Low
UR-05	As a Teacher I need to be able to register for a course so that I can teach it.	High
UR-06	As a Student I need to be able to register for a course so that I have access to the quizzes.	High

UR-07	As a Teacher I need to be able to make a quiz so that I can customize the questions I need to ask.	High
UR-08	As a Teacher I need to be able to add question to the quiz so that the quiz have questions.	High
UR-09	As a Teacher I need to be able to set a deadline on the quiz so that the system can grade the quizzes after a set time, and so that the students must take the test before a certain time.	Low
UR-10	As a Teacher I need to be able to view the quiz grades so that I can correctly log them.	Low
UR-11	As a Teacher I need to be able to send and receive messages from an individual student so that I can correct issues found with the quiz.	Medium
UR-12	As a Teacher I need to be able to broadcast a message to the entire class so that I can address issues that require an announcement to the entire class.	Medium
UR-13	As a Student I need to be able to take a quiz so that I can get a grade.	High
UR-14	As a Student I need to be able to save my answers so that I don't loose my current progress.	High
UR-15	As a Student I need to be able to submit my quiz so that I can get it graded.	High
UR-16	As a Student I need to be able to send a message to the Teacher so that I can get clarification on a quiz question.	Medium
UR-17	As a Student I need to be able to receive messages from the Teacher so that I can be aware of announcements.	Medium

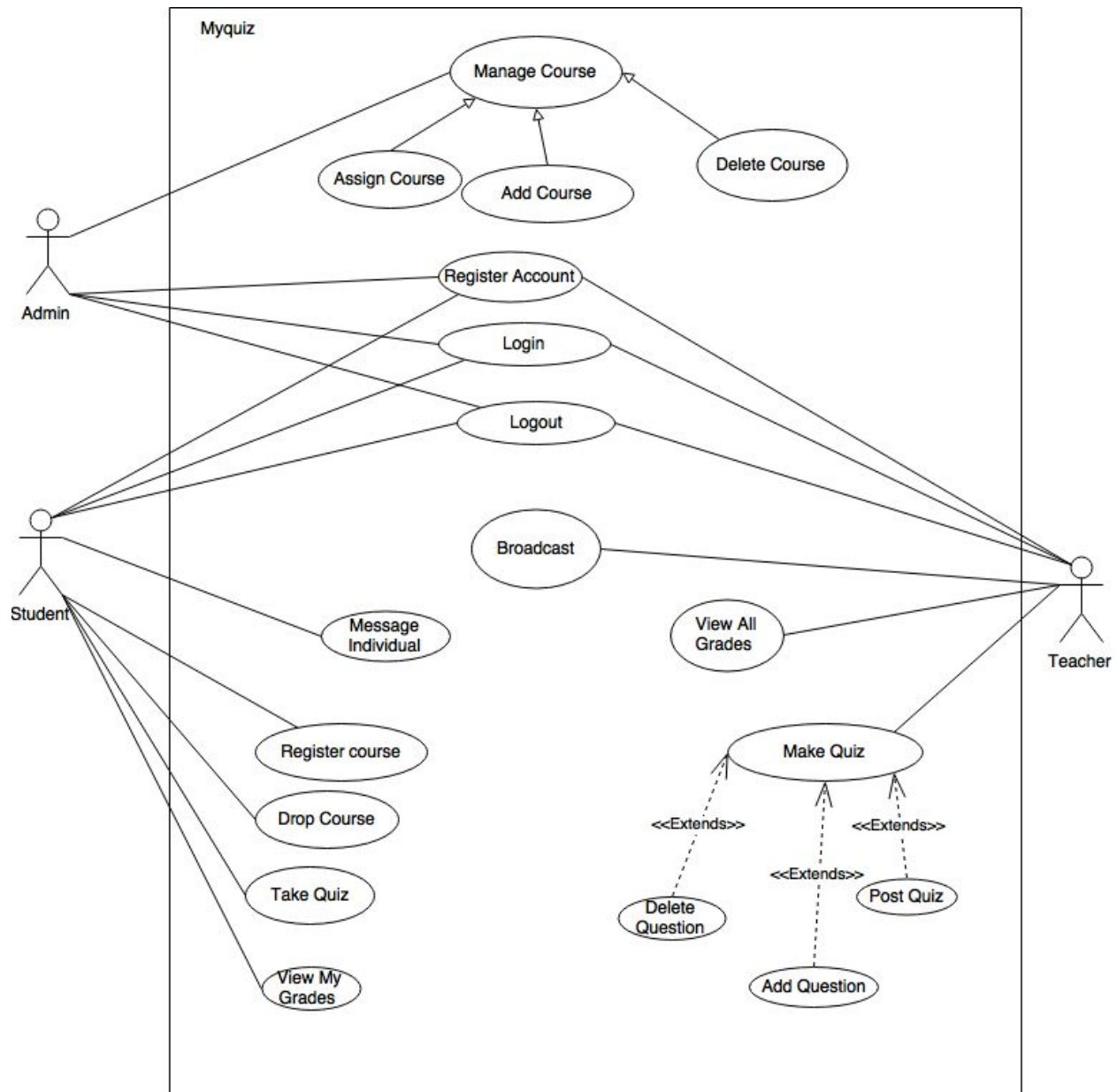
Functional Requirements		
ID	Description	Priority
FR-01	When a user creates an account their information is stored in a database	High
FR-02	Once deadline has passed, system will automatically compare student tests to the test key	High
FR-03	The grade will be automatically updated in each student database.	High
FR-04	Total time for each quiz is recorded, and made available to the teacher.	Low

Non-Functional Requirements		
ID	Description	Priority
NFR-01	<u>Performance:</u> Upon providing correct credentials, User shall be directed to the main page within 10 seconds max.	Medium
NFR-02	<u>Platform constraints:</u> Login functionality shall behave the same on different platforms (Linux/Windows/Mac/IOS/Mobile).	Medium
NFR-03	<u>Reliability:</u> The system shall enforce access control mechanisms by allowing authorized users to access the app.	High
NFR-04	<u>Performance:</u> The system shall handle over 100 students per quiz concurrently	Medium
NFR-05	<u>Implementation:</u> The system shall be developed before the semester ends.	High
NFR-06	<u>Legal:</u> The app shall be licensed as free and open source software.	Low

## Use Cases:

**Actors:** Administrator, Teachers, Students

**Use Case Overview:**



**Sub Diagrams** (any necessary): **None**

## Use Case Documents(4 per person at least):

Use Case Writer: Catherine Dewerd		
Use Case ID:		1
Use Case Name:		Register Account
Description:		An account can be created.
User Information		
Actor:		Admin, Student, Teacher
Pre Conditions:		Site is online
Post Conditions:		User is registered on site, as either Teacher, Administrator or Student.
Frequency:		Initial time site is accessed.
Step	Actor Action	System Response
1	User creates account for admin level	System prompts for valid email address, username, and new password
2	User receives confirmation email	
3	User clicks validate account link	Account is validated
Variations:		Create account for Student level, and for Teacher level
Notes and Issues:		
Developer Notes:		

Use Case Writer: Catherine Dewerd		
Use Case ID:		2
Use Case Name:		Login
Description:		User can login
User Information		
Actor:		Teacher, Student, Administrator
Pre Conditions:		Account is created
Post Conditions:		User is logged in.
Frequency:		Each time user goes to site.
Step	Actor Action	System Response
1	Administrator logs in with correct username and	Administrator is recognized by system as such and logged in to their account
Variations:		Repeat with Student, Teacher credentials
Notes and Issues:		If wrong credentials are provided then an error message will show
Developer Notes:		

Use Case Writer: Catherine Dewerd		
Use Case ID:		3
Use Case Name:		Logout
Description:		User can logout sucessfully
User Information		
Actor:		Student, Teacher, or Admin
Pre Conditions:		User is logged in
Post Conditions:		User is logged out sucessfully
Frequency:		Each time site is left
Step	Actor Action	System Response
1	Student clicks logout button	Student is logged out sucessfully, access to user specific items is denied
Variations:		Replace Student with Teacher, or Admin
Notes and Issues:		
Developer Notes:		

Use Case Writer: Yen-Teh Liu		
Use Case ID:	4	
Use Case Name:	Add Course	
Description:	Admin can add course	
User Information		
Actor:	Admin	
Pre Conditions:	Admin is logged in	
Post Conditions:	Admin has created a course called Test 101	
Frequency:	Each time a course is created.	
Step	Actor Action	System Response
1	Admin selects add course	System prompts for Admin to type course name
2	Admin names course Test 101, clicks enter button	System creates a new course called Test 101
Variations:		
Notes and Issues:		
Course name does not need to be Test 101		
Developer Notes:		

Use Case Writer: Catherine Dewerd		
Use Case ID:		5
Use Case Name:		Register Course
Description:		Student can register for a course to have access to the quizzes
User Information		
Actor:		Student
Pre Conditions:		The course must exist, student must be logged in.
Post Conditions:		The course will appear on the students list of courses
Frequency:		Whenever a student wishes to sign up for a new course
Step	Actor Action	System Response
1	Student selects register for course	System provides a list of courses that have been made
2	Student selects which course they wish to register for	System adds that course to the students list of courses and grants them student access to the course
Variations:		
Notes and Issues:		
Developer Notes:		

Use Case Writer: Bader Alshemaimri		
Use Case ID:		7
Use Case Name:		Delete Course
Description:		The administrator can delete a course if it is no longer offered
User Information		
Actor:		Administrator
Pre Conditions:		The course has to be created
Post Conditions:		
Frequency:		Whenever there is a change of the curriculum and the course has to be discontinued
Step	Actor Action	System Response
1	Enter course id	
2	Click on submit button	The course is removed from the system
Variations:		2. The admin has entered incorrect course id
Notes and Issues:		
Developer Notes:		

Use Case Writer: Catherine Dewerd		
Use Case ID:		6
Use Case Name:		Assign Course
Description:		Once a course is created, it needs to have a teacher assigned to teach it for a certain
User Information		
Actor:		Administrator
Pre Conditions:		Course exist, administrator is logged in, teacher account exists
Post Conditions:		Teacher is assigned to a course for a semester, and has make quiz abilities
Frequency:		Each time a course is taught, each semester and needs a new teacher assigned to it
Step	Actor Action	System Response
1	Administrator chooses assign teacher	System prompts administrator to input the teacher name
2	Administrator types the teacher name, the semester they will be teaching the course and presses submit	System assigns the course for the assigned semester to the teacher. Teacher can now make quizzes for the class and access the grades for everyone
Variations:		
Notes and Issues:		
Developer Notes:		

Use Case Writer: Bader Alshemaimri		
Use Case ID:	8	
Use Case Name:	Drop course	
Description:	The student can drop a given course within a given deadline	
User Information		
Actor:	Student	
Pre Conditions:	The student is already registered	
Post Conditions:	He/she is no longer has access to the course	
Frequency:	Whenever the student decides to delete a course within a given deadline	
Step	Actor Action	System Response
1	Click on schedule	System redirects the page to student's schedule
2	Choose a course from the schedule	System redirects the page to the course info
3	Click on drop button	The course is deleted from your schedule
Variations:	3. You cannot drop a course after the deadline has passed	
Notes and Issues:		
Developer Notes:		

Use Case Writer:Bader Alshemaimri		
Use Case ID:	9	
Use Case Name:	Take Quiz	
Description:	The student can take the quiz to recieve a grade for it	
User Information		
Actor:	Student	
Pre Conditions:	The quiz has to be posted	
Post Conditions:	Once the deadline has been passed, a grade will be received	
Frequency:	Everytime the student has been assigned a Quiz by a teacher	
Step	Actor Action	System Response
1	Click on attempt Quiz	Redirects to Quiz page
2	Answer a question	
3	Click on next	Save answer and redirect to the next question
4	Click on finish attempt	Save quiz attempt
Variations:	3. The system redirects to submit page when there is no question left	
Notes and Issues:		
Developer Notes:		

Use Case Writer: Yen-Teh Liu		
Use Case ID:	10	
Use Case Name:	ViewGrades	
Description:	The teacher can view the grades of the whole class and the student can view his grade history of the class	
User Information		
Actor:	Teacher, student	
Pre Conditions:	The teacher, student should be logged in	
Post Conditions:	Grades have been viewed.	
Frequency:	Whenever the person wants to view grades	
Ste	Actor Action	System Response
1	Teacher presses "view grades"	Redirects to view grades page
2	Choose which quiz to view	Redirects to that quiz. Teacher will see the statistic view and each students' grades, and answers to the problems.
3	Click "return"	Return to the grades page
Variations:	With student instead of teacher, will view only his grade and quiz answers/solutions.	
Notes and Issues:	The content of the teacher and student page will load from different database location	
Developer Notes:		

Use Case Writer: Yen-Teh Liu		
Use Case ID:		11
Use Case Name:		Message individual
Description:		The student can send individual message to the teacher
User Information		
Actor:		Student
Pre Conditions:		The student must be in the course page already
Post Conditions:		The message system get teacher status changed and the teacher receive message
Frequency:		Whenever the student have question to ask teacher
Step	Actor Action	System Response
1	The student type message at the message box	
2	The student click send	The system send the message
3	The teacher get message	
Variations:		
Notes and Issues:		
Developer Notes:		

Use Case Writer: Yen-Teh Liu		
Use Case ID:		12
Use Case Name:		Broadcast
Description:		The teacher can broadcast a message to all the students
User Information		
Actor:		Teacher
Pre Conditions:		The teacher should in the course page
Post Conditions:		All the student in the course will get the message
Frequency:		Whenever the teacher wants to message to all students for clarifications
Step	Actor Action	System Response
1	The teacher type the message in the message box.	
2	The teacher presses "Broadcast"	student status in Message system get changed because of new message
3	The message system discover the students status	The message system update the message
4	The students(observer) update	New message apend to the student's mailbox
Variations:		
Notes and Issues:		
Developer Notes:		

Use Case Writer: Yen-Teh Liu		
Use Case ID:		13
Use Case Name:		Add Multiple Choice Question
Description:		The teacher can add a Multiple Choice question in the quiz
User Information		
Actor:		Teacher
Pre Conditions:		The teacher must have already created a quiz
Post Conditions:		The Quiz has been made on the website
Frequency:		Whenever the teacher adds problems to the quiz
Step	Actor Action	System Response
1	The teacher press add Multiple Choice Question	System will popout a question fill-in form
2	The teacher fills in the question title, the choices and	
3	The teacher press push	The system will check if anything miss in title, choices and keyanswer. If not,
Variations:		
Notes and Issues:		All the fields have to be filled in, or the error message will appear
Developer Notes:		

Use Case Writer: Yen-Teh Liu		
Use Case ID:		14
Use Case Name:		Add T/F Question
Description:		The teacher can add a T/F question and its corresponding answer in the quiz
User Information		
Actor:		Teacher
Pre Conditions:		The teacher must have already created a quiz
Post Conditions:		The Quiz has been made on the website
Frequency:		Whenever the teacher adds problems to the quiz
Step	Actor Action	System Response
1	The teacher press add T/F Question	System will popout a question fill-in form
2	The teacher fills in the question title, and key answer	
3	The teacher press push	The system will check if anything miss in title and keyanswer. If not, System pushes question to Quiz object and saves the correct answer. System displays the confirmed question.
Variations:		
Notes and Issues:		All the fields have to be filled in, or the error message will appear
Developer Notes:		



Use Case Writer: Bader Alshemaimri		
Use Case ID:	15	
Use Case Name:	Delete Question	
Description:	The teacher can delete a question and its corresponding answer in the quiz	
User Information		
Actor:	Teacher	
Pre Conditions:	The teacher must have already created a quiz, and added at least one question	
Post Conditions:	The quiz has been made, the teacher is logged in.	
Frequency:	Whenever the teacher deletes problems from the quiz	
Step	Actor Action	System Response
1	The teacher selects course	Redirects to course page
2	The teacher selects Quiz	Redirects to quiz info
3	The teacher press "-"(delete problem)	System will popup a "are you sure you wish to delete this question"
4	The teacher chooses "yes"	Question is deleted
Variations:	Teacher chooses "no" and question is not deleted	
Notes and Issues:		
Developer Notes:		

Use Case Writer: Bader Alshemaimri		
Use Case ID:		16
Use Case Name:		Post Quiz
Description:		In order to the quiz be visible, the teacher needs to post it to students
User Information		
Actor:		Teacher
Pre Conditions:		The quiz must be created
Post Conditions:		The quiz is visible to students
Frequency:		Whenever the teacher decides to make a quiz
Step	Actor Action	System Response
1	Select course	Redirects to course page
2	Select quiz	Redirects to quiz information
3	Select students	
4	Click on Post button	Quiz is posted
Variations:		
Notes and Issues:		The teacher may decide to post a makeup quiz for a given number of students
Developer Notes:		

Use Case Writer: Yen-Teh Liu		
Use Case ID:		17
Use Case Name:		Make Quiz
Description:		The teacher can make a quiz
User Information		
Actor:		Teacher
Pre Conditions:		The teacher must be registered to the class
Post Conditions:		The quiz object is created and redirect to make quiz page
Frequency:		Whenever the teacher wants to make a quiz
Step	Actor Action	System Response
1	The teacher press "make Quiz"	A popout form for teacher to fiil (with quiz name, quiz description, quiz time)
2	The teacher fill in quiz name, description and sets deadline.	System sets the quiz to be taken only in allowed range of time, creates a quiz, and
Variations:		
Notes and Issues:		All the fields have to be filled in, or the error message will appear. The deadline will have a default of 60 min.
Developer Notes:		

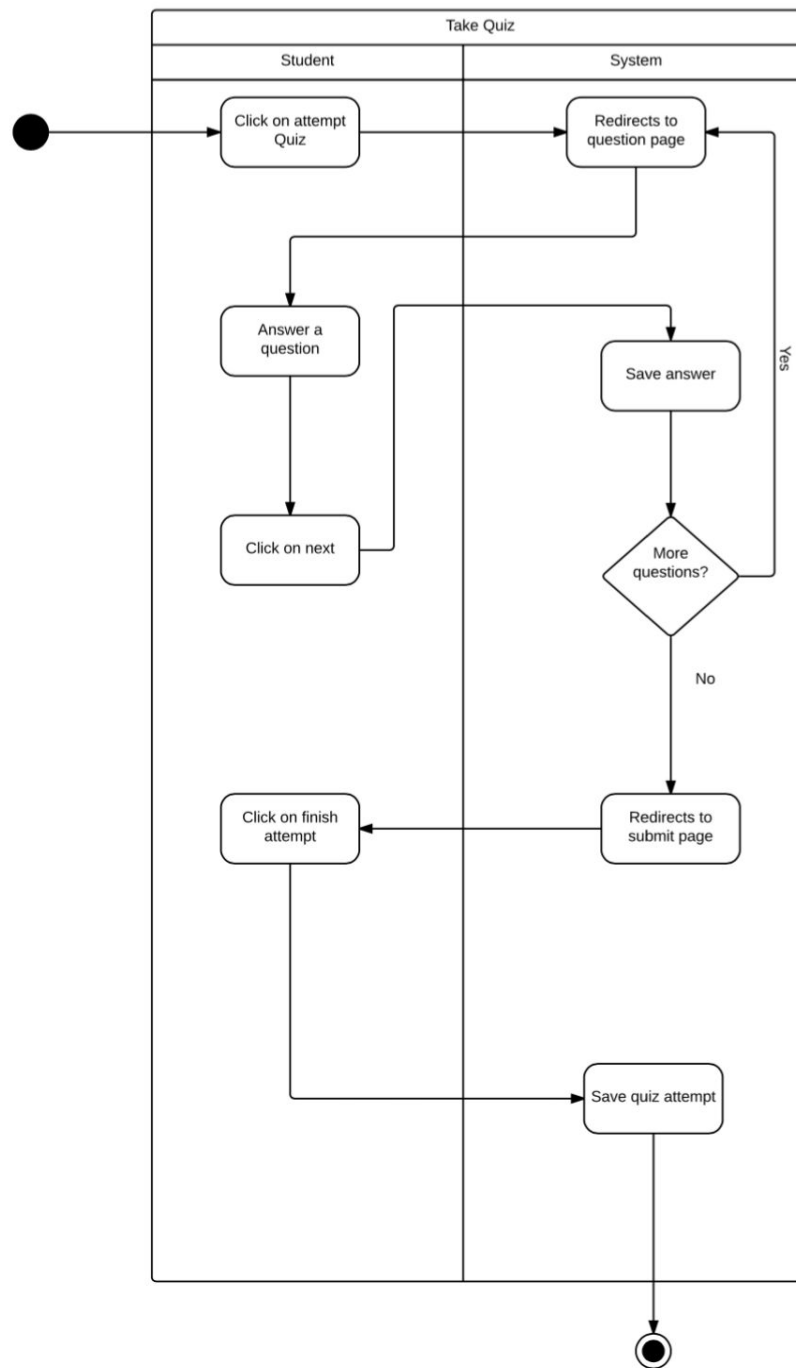
## Activity Diagrams:

Name: Bader Alshemaimri

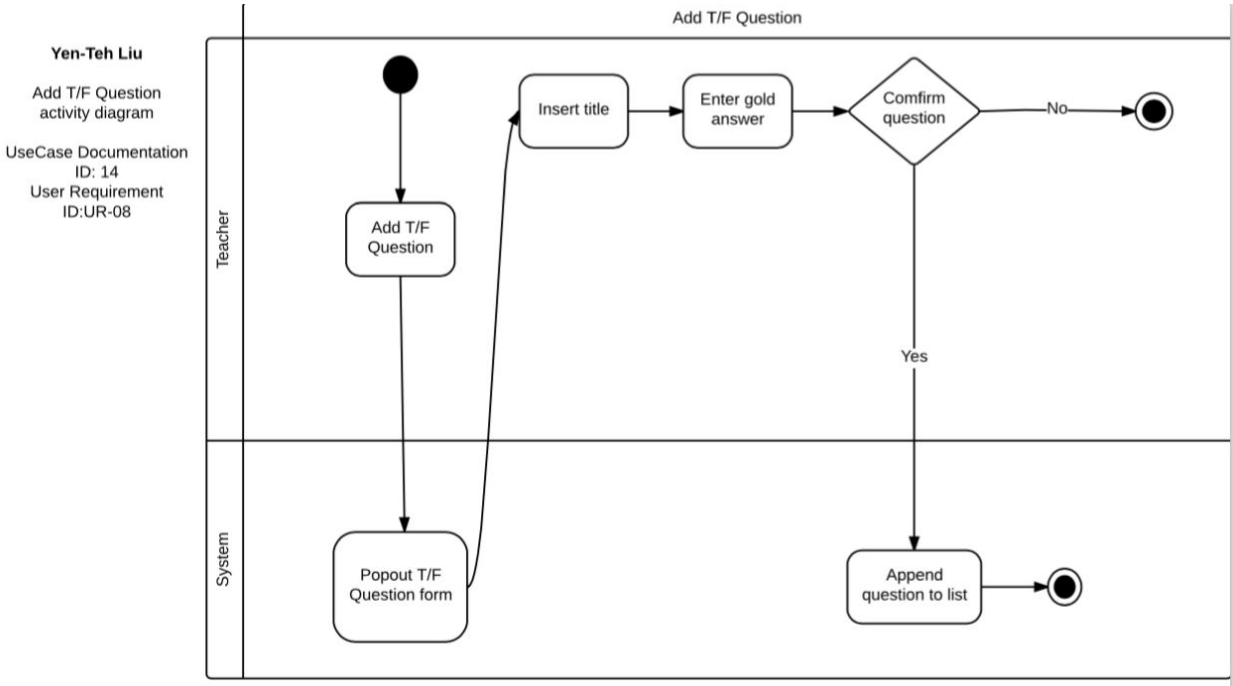
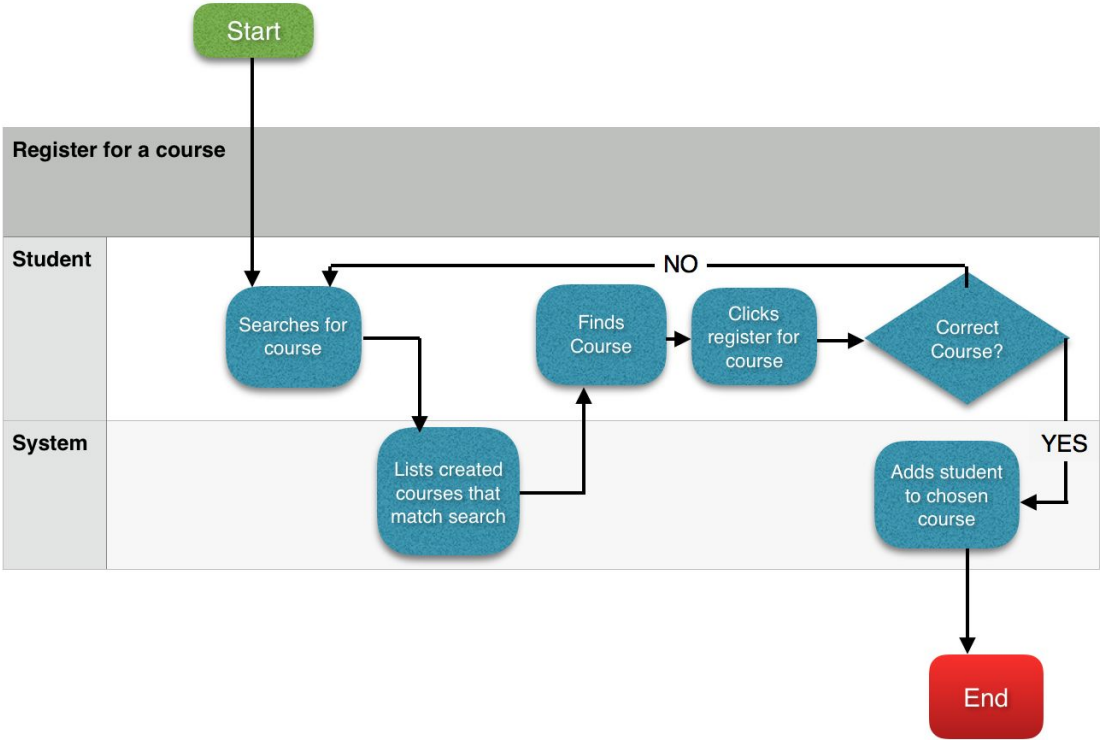
Requirement ID: UR-13

Use case ID: 9

Use case name: Take Quiz



Written by: Catherine Dewerd  
Use Case: Register Course (ID: 5)  
Requirement ID: UR-06



## Data Storage:

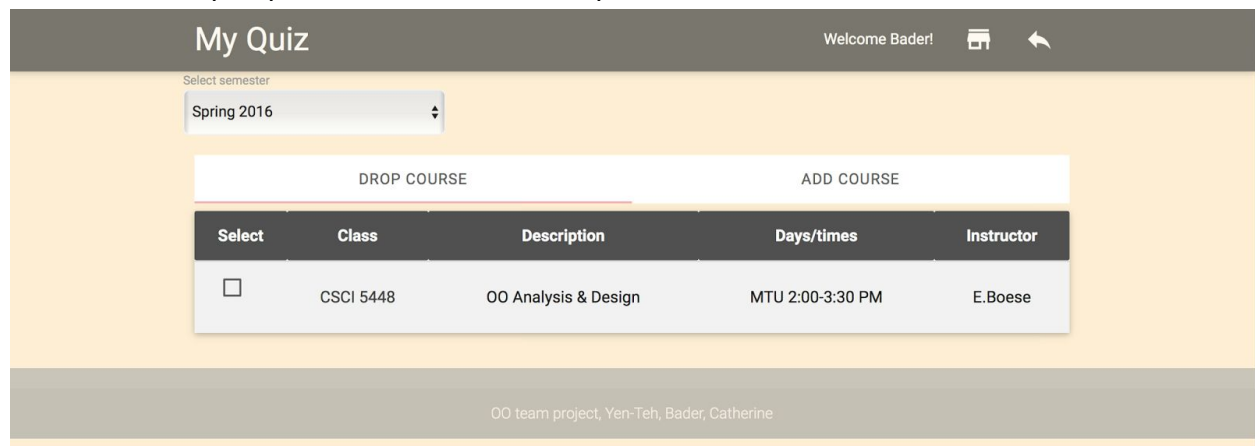
**Data Storage:** MySQL in the xampp environment

**Classes:**

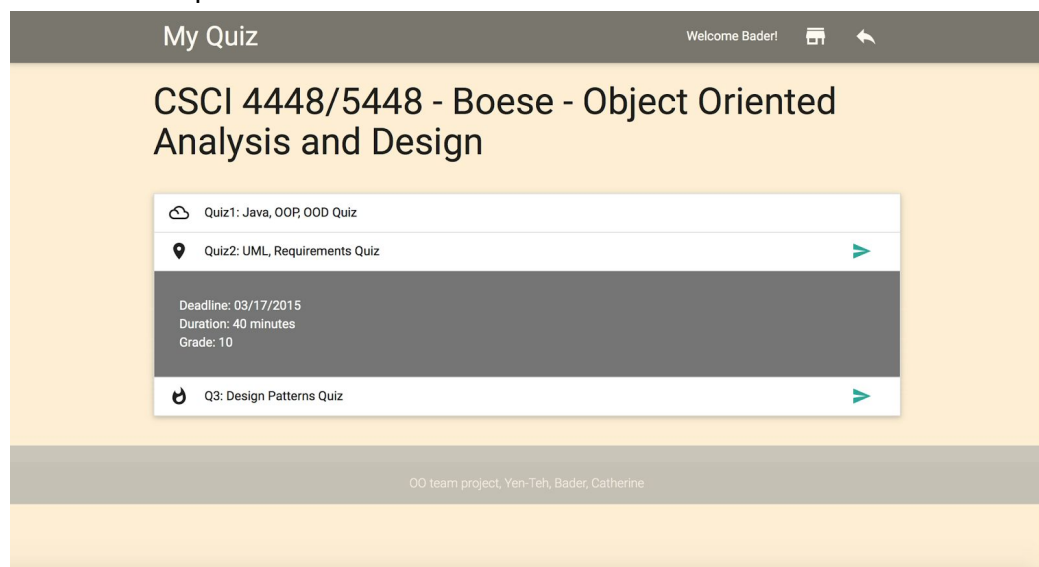
- **Quiz** stores quiz questions and answers from individual students.
- **Course** stores class information including general quiz information, including quiz name, times to start and finish, and answer key
- **User** stores individual student information, including which classes student is registered for
- **Message** stores messages from students to teacher and from teacher to students

## UI Mockups:

From a student perspective, student adds/drops courses:



Student sees quizzes for one course



Student taking a quiz:

My Quiz

Welcome Bader!

## CSCI 4448/5448 - Boese - Object Oriented Analysis and Design

Quiz2: UML, Requirements Quiz

UML is a graphical notation used to depict object-oriented designs.

Select one:

☐ True

☐ False

NEXT ➤

OO team project, Yen-Teh, Bader, Catherine

From a teacher perspective:

My Quiz

## Hello Professor Elizabeth Boese!

### Object-Oriented Analysis and Design

The best Course ever!!! An applied analysis and design class addressing the use of object-oriented techniques. Topics include domain modeling, use cases, architectural design, and modeling notations. Students apply the techniques in analysis and design projects. Prereq., CSCI 3155 or expertise in one or more object-oriented programming languages

COURSE WEBSITE

### Operating Systems.

Examines software comprising computing systems as it builds upon hardware to provide a programming environment. Looks at structure and function of editors, compilers/assemblers, linkers, etc. Basic operating systems concepts and systems programming in high-level languages. Prereqs., CSCI 2700 and 2400 or ECEN 3350. Prerequisites: Requires pre-requisite courses of CSCI 2270

THIS DOESN'T WORK

### Computer Graphics

Studies design, analysis, and implementation of computer graphics techniques. Topics include interactive techniques, 2D and 3D viewing, clipping, segmentation, translation, rotation, and projection. Also involves removal of hidden edges, shading, and color. Prereqs., knowledge of basic linear algebra and CSCI 2270. Same as CSCI 5229.

### Data Mining

Introduces basic data mining concepts and techniques for discovering interesting patterns hidden in large-scale data sets, focusing on issues relating to scalability and efficiency. Topics covered include data preprocessing, data warehouse, association, classification, clustering, and mining specific data types such as time-series, social networks, multimedia, and Web data.

For each course taught:

The screenshot shows a web application titled "My Quiz" for the course "Object-Oriented Analysis and Design". On the left, a vertical list of student names is shown: Tommy, Bader, Catherine, David, John, Kobe, Lizzy, Dazzy, Jason, Jason, Jason, Jason, Jason, Jason, and Jason. An arrow points from the text "Click student name to view student grade" to the name "Lizzy". To the right, a section titled "Quizes" (sic) lists three quizzes: "Q1-Makeup", "Q2-UML", and "Q3-Design Patterns". An arrow points from the text "Click here to enter quiz" to the first quiz, "Q1-Makeup". Below the quiz title, it says "Info: Brushup your skill" and "Deadline: 3/20 3:15pm". The top right of the interface has a navigation bar with a home icon, a back arrow, and the text "Add Quiz".

Adding questions:

This screenshot shows the "Add Question" dialog box. It has a title bar "Add Question" and a main area with two text input fields: "Add Question Title" and "Gold Answer". Below the "Gold Answer" field is a dropdown arrow. At the bottom of the dialog are two buttons: "CANCEL" and "PUSH". In the background, a list of questions is visible, including "1.The 'M' in UML", "2.Polymorphic n", and "3.Which of the f".

This screenshot shows the "Add Question" dialog box, similar to the previous one, but with additional input fields for multiple choice options. Below the "Gold Answer" field, there are two text input fields labeled "Choice A" and "Choice B". The "CANCEL" and "PUSH" buttons are still at the bottom. The background shows the same list of questions as the previous screenshot.

## Making a quiz:

My Quiz

Add T/F Question

Add Multiple Choice Question

### Q1-Makeup

1.The 'M' in UML stands for 'Management'

☐ true

☐ false

2.Polymorphic references are designated in class diagrams using italics.

☐ true

☐ false

3.Which of the following are true with regards to Sequence diagrams? Select the best answer.

☐ a. none of these

☐ b. depicts all of the attributes and methods of objects

☐ c. shows the collaborations between objects in the system Correct

☐ d. demonstrate concurrency and multi-threaded issues

☐ e. all right

OO team project, Yen-Teh, Bader, Catherine

## From an administrator's perspective:

Quiz App

Add Course

Semester

beginning of time

Today


End of Time

Bad Future

### Courses

🕒 📖 Cooking 101

Description: How not to burn down a building

Teacher: To Be Assigned  Click this icon to (re)assign a teacher

T/Th 10am-11am, Lunchroom

🕒 📖 Pleasantly Plotting Perfection 101

OO team project, Yen-Teh, Bader, Catherine

## Making a new course:

Quiz App

Add Course

Semester

beginning of time

Today

End of Time

Bad Future

Course Name

Description

Time, Location

MAKE COURSE

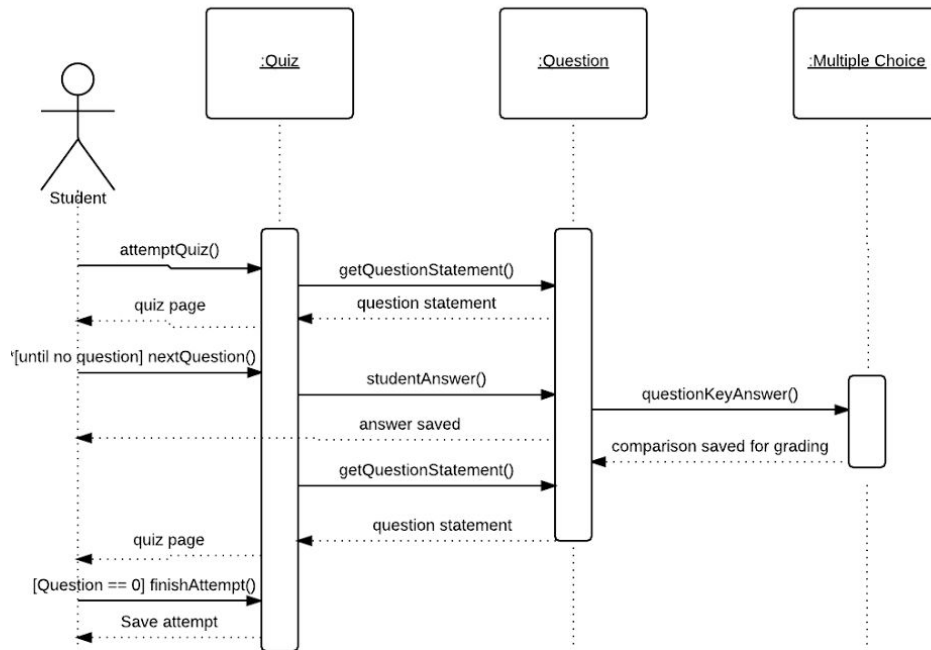
## User Interactions:

Name: Bader Alshemaimri

Requirement ID: UR-13

Use case ID: 9

Use case description: The student can take the quiz to receive a grade for it

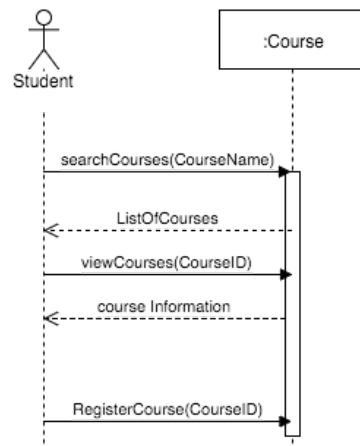


Name: Catherine Dewerd

Requirement ID: UR-06

Use case ID: 5

Use case description: The student signs up for a course

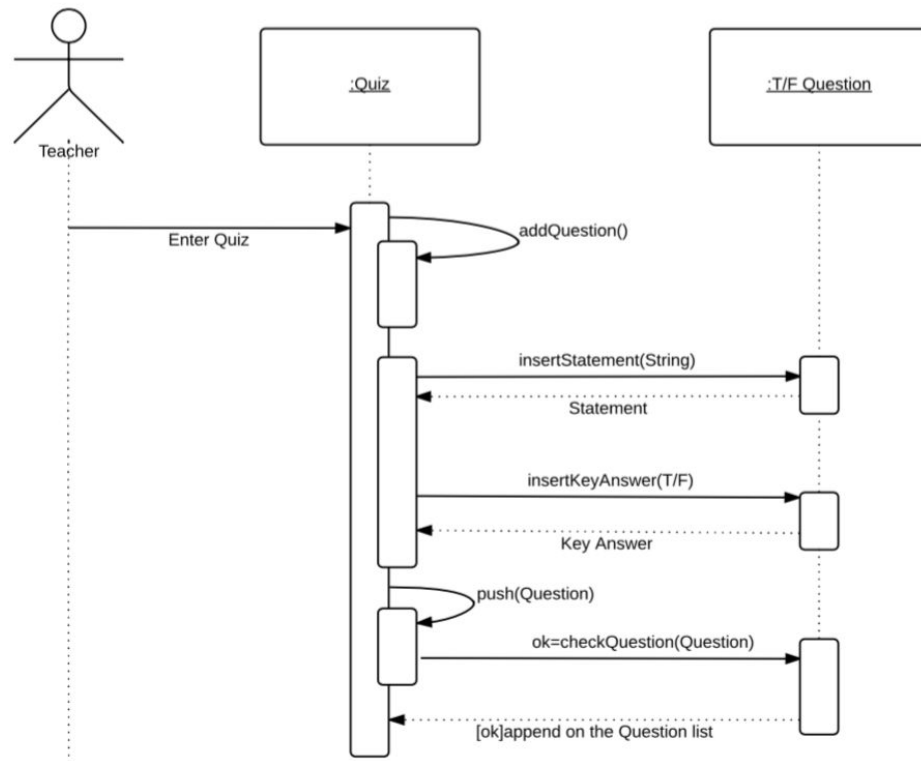




Yen-Teh Liu

Add T/F Question  
sequence diagram

UseCase Documentation  
ID: 14  
User Requirement  
ID:UR-08



## Class Diagram:

