QUIZ GO

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1. Introduction

QuizGo is smartly designed to help facilitate online MCQ quizzes for users in the education environment in a more manageable, accessible, and user-friendly fashion. The application includes three users which are Students, Lecturers and Advisors; each comes with functionalities that enable and empower their respective role. Students will be able to attend quizzes, view their results, and comment in announcements. Lecturers will be able to set up and manage the quiz, post announcements, and view the quiz results. Finally, Advisors will be able to view the results of the students under their advisory.

2. Solution

2.1 Analysis

2.1.1 Use-case diagram

Lecturer:

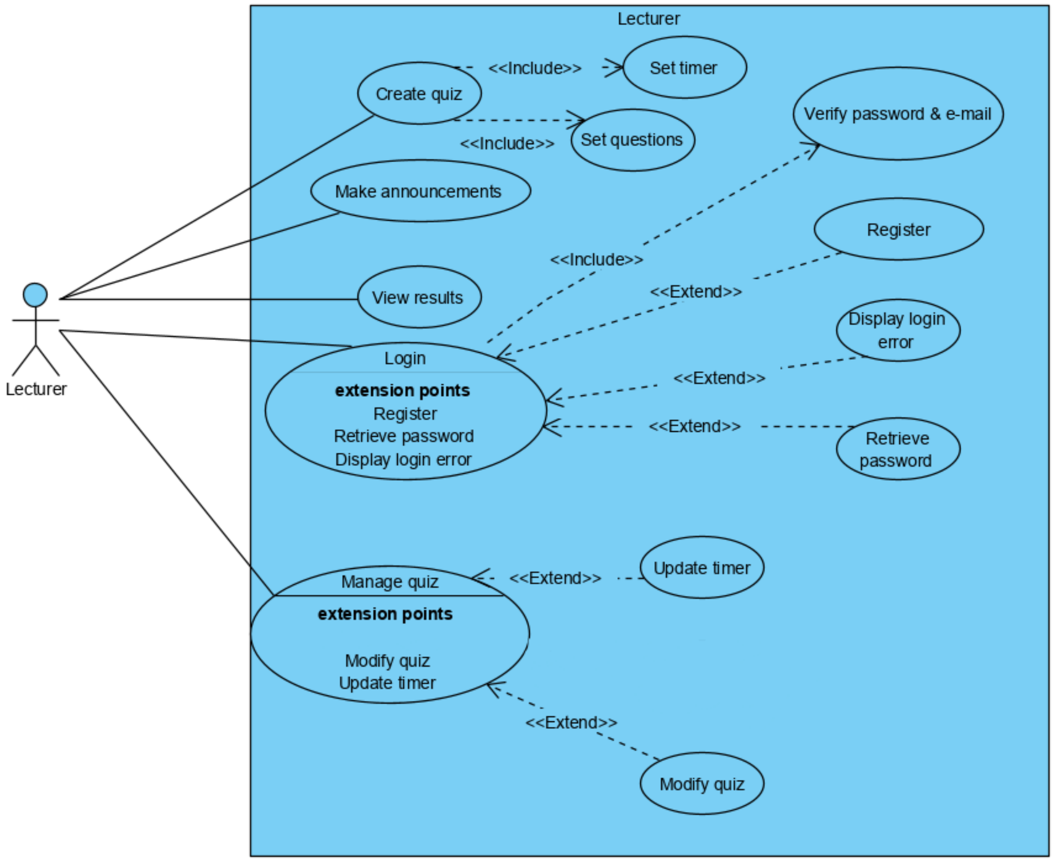


Figure 1: Lecturer use-case

The lecturer will have four functions other than the login/registration which are create quizzes, make announcements, manage the quiz which will include modify the details and roles of the quiz, and the lecturer will be able to view the results of all the students of their who took the quiz.

Student:

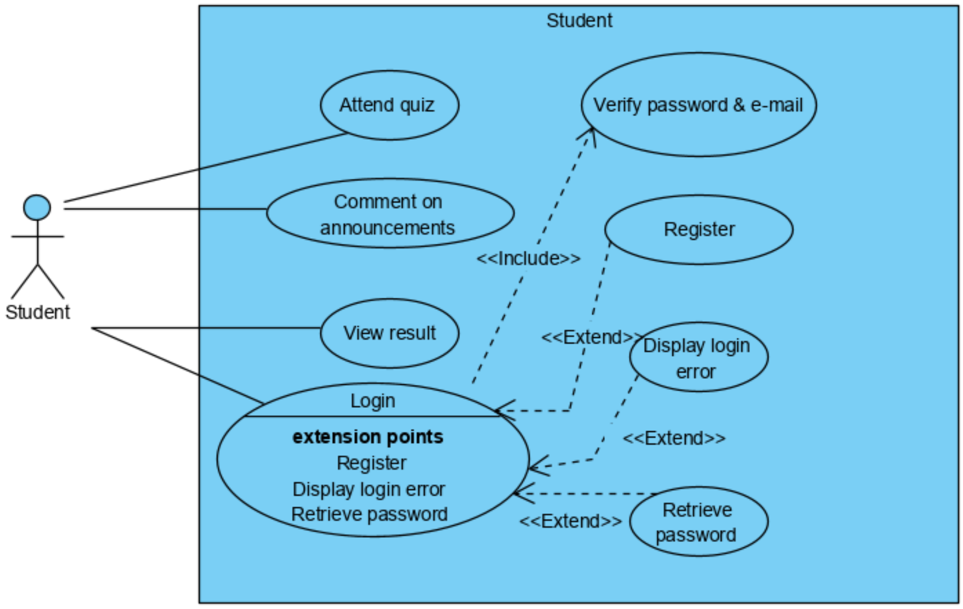


Figure 2: Student use-case

The student will have four functions which are attend the quiz, comment on the announcement given by the lecturer, login and view the results of the quiz after the quiz has been done.

Advisor:

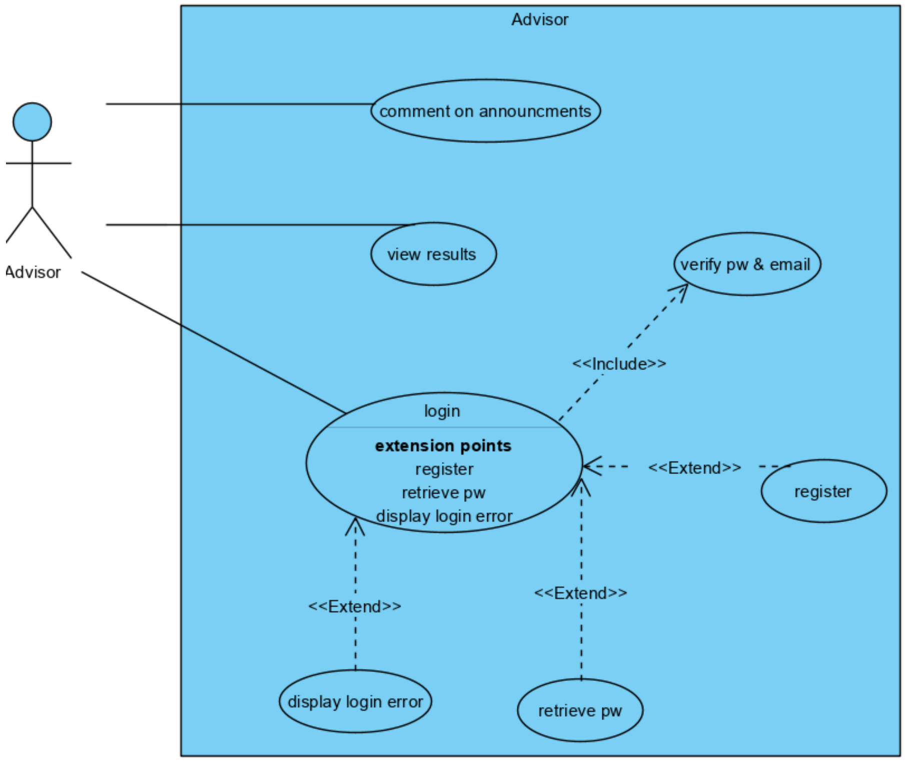


Figure 3: Advisor use-case

Advisor has the ability to comment on announcements, view results, and of course the basic login/registration/retrieve password

2.1.2 Requirements

Functional requirements

- FR1 - Create quiz
  - The system should be able to create a quiz based on the lecturer’s requirements.
- FR2 - Modify quiz
  - The system should be able to modify an existing quiz according to the lecturer’s specifications.
- FR3 - Set timer
  - The system should be able to create and set a timer for the deadline of the quiz.

- FR4 - View timer
  - The system should be able to view the timer for the students in order for them to keep in count the deadline of the quiz.
- FR5 - Set announcements
  - The system should be able to create and publish announcements set by the lecturer.
- FR6 - Add comments to the announcement
  - The system should be able to allow students to add comments to the announcements added by the lecturer.
- FR7 - View results
  - The system should be able to store and view results for Students, Lecturer and Advisor.

Non-functional requirements

- NFR1 – Efficiency
  - QuizGo contains features such as displaying the marks for all students in a particular quiz which ease the lecturer type of users to make such an action instead of showing the marks for each student individually.

- NFR2 – Reliability
  - QuizGo would detect any error occurred when users choose an invalid option such as setting a time for a quiz that were already passed.

- NFR3 – Usability
  - QuizGo allow users to go back to previous sections and change any previous option chosen instead of starting the system all over again.

- NFR4 - Accessibility
  - QuizGo provides information about the assets such as contact info which aids system users to solve problems when using the system.

- NFR5 – Integrity
  - Data shall be backed up at least once per month to prevent data loss.

- NFR6 – Reusability
  - The functionality for frequently asked questions on the website overall may be reused on frequently asked questions for other quizzes websites.

2.1.3 Database

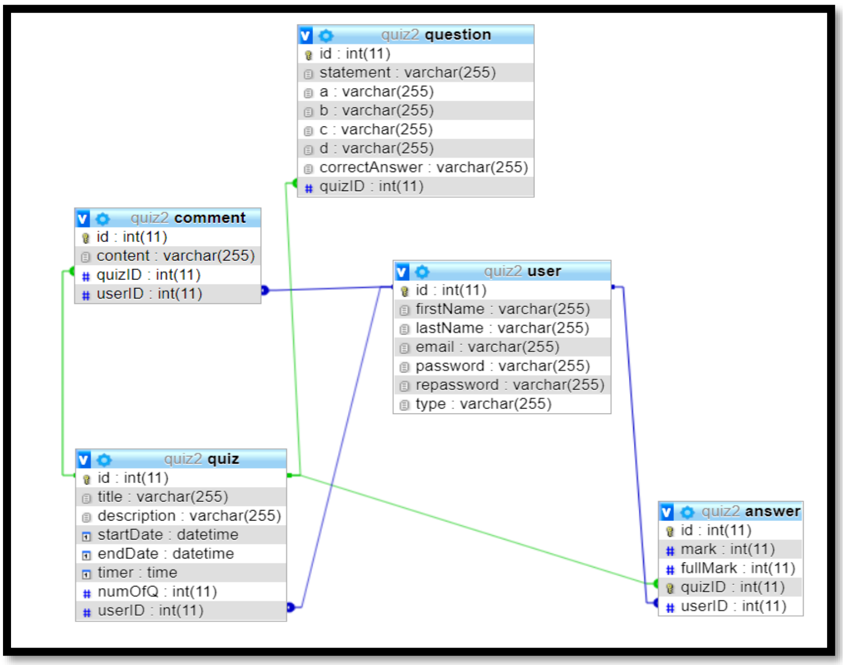


Figure 4: Entity Relationship diagram

MySQL, php, JavaScript and localhost were the configuration during the demo. As shown by the ERD, there are five tables: Question, Comment, User, Answer and Quiz.

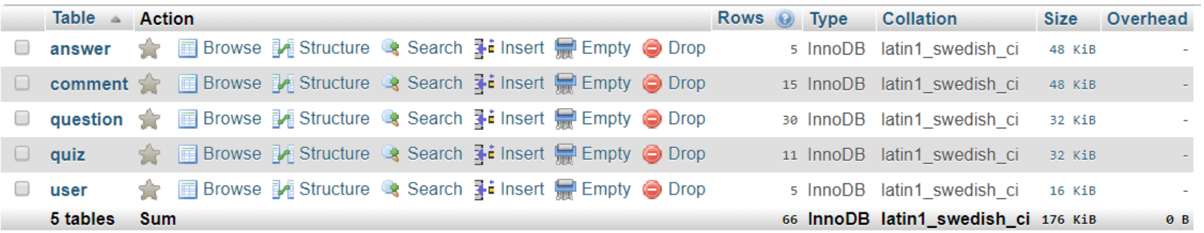
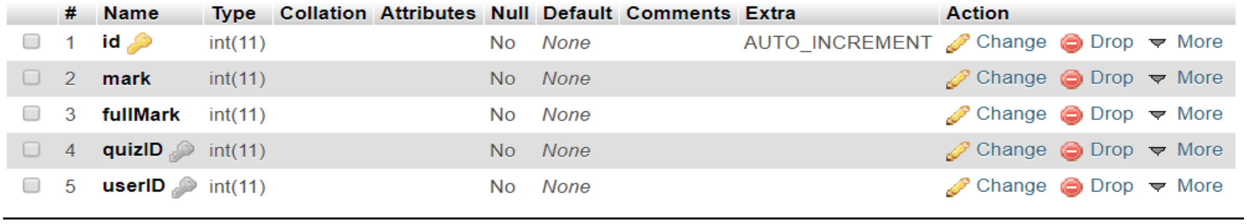


	Table ▲	Action							Rows	Type	Collation	Size	Overhead
□	answer	☆	Browse	Structure	Search	Insert	Empty	Drop	5	InnoDB	latin1_swedish_ci	48 KiB	-
□	comment	☆	Browse	Structure	Search	Insert	Empty	Drop	15	InnoDB	latin1_swedish_ci	48 KiB	-
□	question	☆	Browse	Structure	Search	Insert	Empty	Drop	30	InnoDB	latin1_swedish_ci	32 KiB	-
□	quiz	☆	Browse	Structure	Search	Insert	Empty	Drop	11	InnoDB	latin1_swedish_ci	32 KiB	-
□	user	☆	Browse	Structure	Search	Insert	Empty	Drop	5	InnoDB	latin1_swedish_ci	16 KiB	-
	5 tables	Sum							66	InnoDB	latin1_swedish_ci	176 KiB	0 B

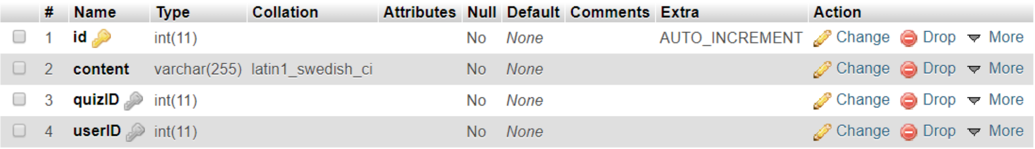
Table 1: All tables



	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□	1	**id** 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop ▾ More
□	2	**mark**	int(11)			No	*None*			Change Drop ▾ More
□	3	**fullMark**	int(11)			No	*None*			Change Drop ▾ More
□	4	**quizID** 🔑	int(11)			No	*None*			Change Drop ▾ More
□	5	**userID** 🔑	int(11)			No	*None*			Change Drop ▾ More

Table 2: Answer table

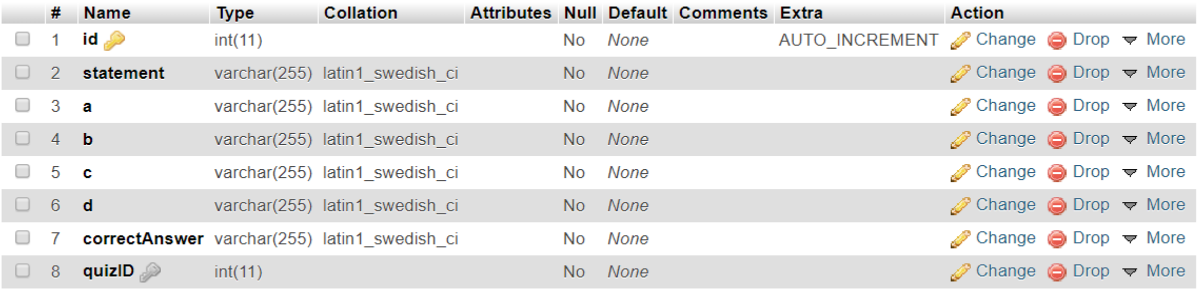
The Answer table contains the answer id as the primary key, it identifies the answer of the quiz uniquely, along with the mark, and the full mark. The quizID and the userID are set as foreign keys to the Answer table. It's connected to both User table and Quiz table as M:1 relationship



	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□	1	**id** 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop ▾ More
□	2	**content**	varchar(255)	latin1_swedish_ci		No	*None*			Change Drop ▾ More
□	3	**quizID** 🔑	int(11)			No	*None*			Change Drop ▾ More
□	4	**userID** 🔑	int(11)			No	*None*			Change Drop ▾ More

Table 3: Comment table

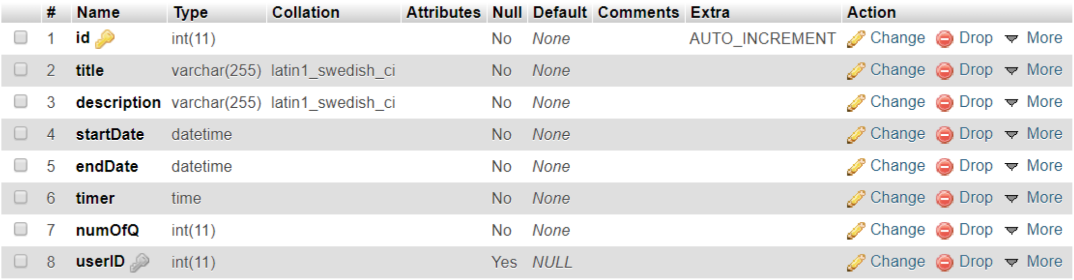
The comment table contains the comment Id as the primary key, the quizID and the userID are set to be the foreign key from the quiz and user tables respectively. The content holds the comment's text. It's connected to both User table and Quiz table as M:1 relationship



	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□	1	**id** 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop ▾ More
□	2	**statement**	varchar(255)	latin1_swedish_ci		No	*None*			Change Drop ▾ More
□	3	**a**	varchar(255)	latin1_swedish_ci		No	*None*			Change Drop ▾ More
□	4	**b**	varchar(255)	latin1_swedish_ci		No	*None*			Change Drop ▾ More
□	5	**c**	varchar(255)	latin1_swedish_ci		No	*None*			Change Drop ▾ More
□	6	**d**	varchar(255)	latin1_swedish_ci		No	*None*			Change Drop ▾ More
□	7	**correctAnswer**	varchar(255)	latin1_swedish_ci		No	*None*			Change Drop ▾ More
□	8	**quizID** 🔑	int(11)			No	*None*			Change Drop ▾ More

Table 4: Question table

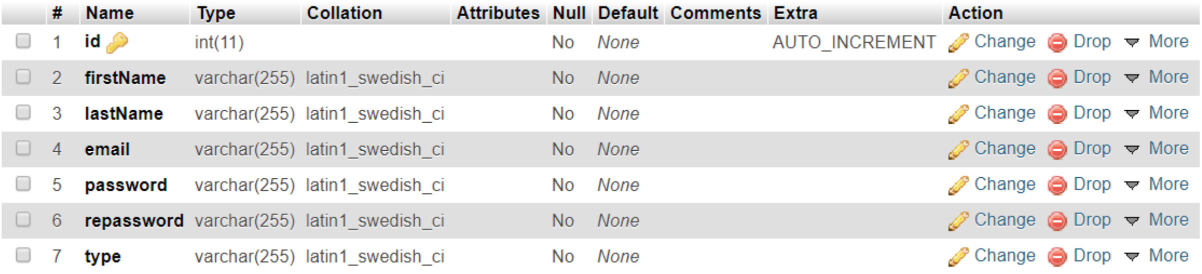
The question table contains the Id as the primary key, the quizID as the foreign key and statement, a, b, c, d and correct Answer as the other attributes. It's connected with Quiz table as M:1 relationship.



	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
□	1	**id**	int(11)			No	*None*		AUTO_INCREMENT	Change	Drop	▾ More
□	2	**title**	varchar(255)	latin1_swedish_ci		No	*None*			Change	Drop	▾ More
□	3	**description**	varchar(255)	latin1_swedish_ci		No	*None*			Change	Drop	▾ More
□	4	**startDate**	datetime			No	*None*			Change	Drop	▾ More
□	5	**endDate**	datetime			No	*None*			Change	Drop	▾ More
□	6	**timer**	time			No	*None*			Change	Drop	▾ More
□	7	**numOfQ**	int(11)			No	*None*			Change	Drop	▾ More
□	8	**userID**	int(11)			Yes	*NULL*			Change	Drop	▾ More

Table 5: Quiz table

Quiz table contains the id as the primary key, userID as the foreign key, title, description, startDate, endDate, timer and numofQ as the other attributes. It's connected with Comment as 1:M relationship, with Question as 1:M relationship, with User as M:1 relationship and with Answer as 1:M relationship.



	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
□	1	**id**	int(11)			No	*None*		AUTO_INCREMENT	Change	Drop	▾ More
□	2	**firstName**	varchar(255)	latin1_swedish_ci		No	*None*			Change	Drop	▾ More
□	3	**lastName**	varchar(255)	latin1_swedish_ci		No	*None*			Change	Drop	▾ More
□	4	**email**	varchar(255)	latin1_swedish_ci		No	*None*			Change	Drop	▾ More
□	5	**password**	varchar(255)	latin1_swedish_ci		No	*None*			Change	Drop	▾ More
□	6	**repassword**	varchar(255)	latin1_swedish_ci		No	*None*			Change	Drop	▾ More
□	7	**type**	varchar(255)	latin1_swedish_ci		No	*None*			Change	Drop	▾ More

Table 6: User table

The user table contains the Id as the primary key, firstName, lastName, email, password, repassword and type as attributes. It's connected with Comment as M:1 relationship, with Answer as M:1 relationship and with Quiz table as M:1 relationship.

2.2 Design

2.2.1 Navigational flow

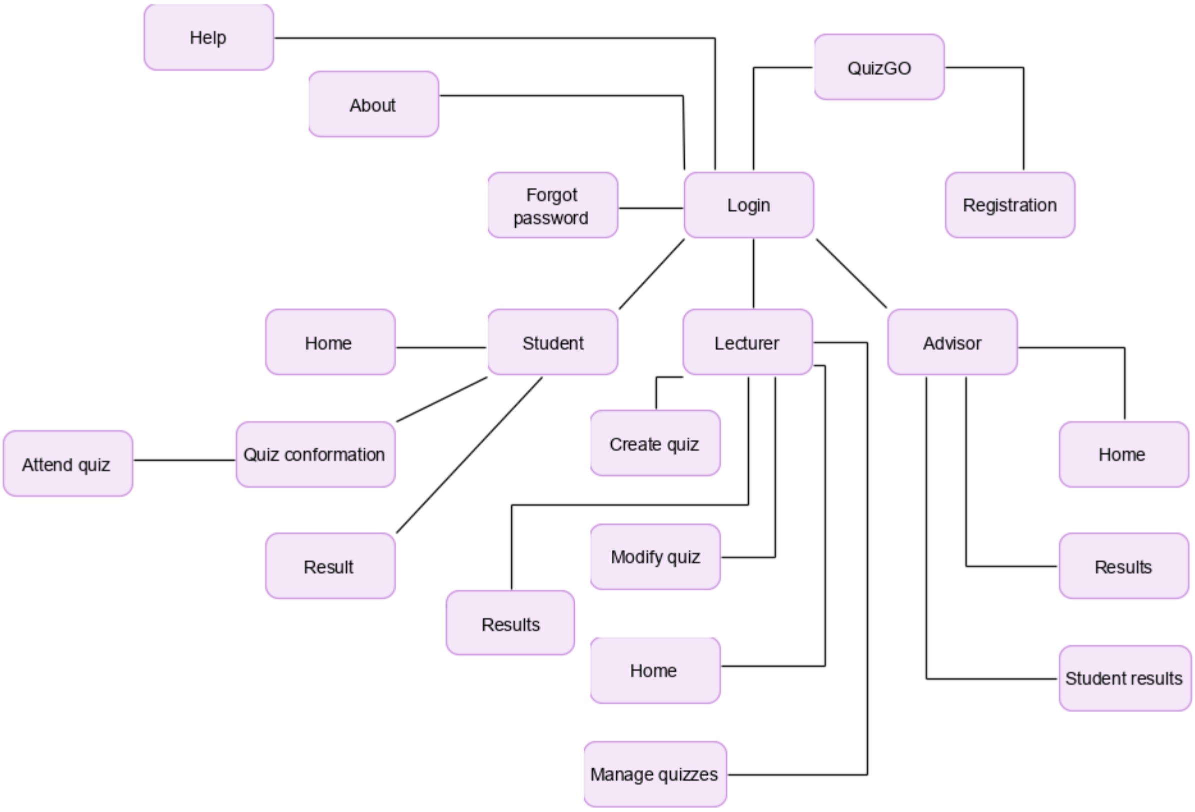


Figure 5: Structure diagram

The figure above is the structure diagram for QuizGo, it shows the functions/pages of the application and how they can be accessed. For example, the user will be able to retrieve their password through the page called “Forgot password” from the Login page.

2.2.2 Intuitive design

The following measures were taken into consideration to make the website design to be as smooth and as intuitive as possible:

- The webpage has navigation elements that dynamically change depending on the type of user. It provides better usability and consistency.
- Login fields prompt the user to insert the proper data by providing proper place holders.
- The lecturer can create a new quiz from the from Recent Quizzes on the side navigation bar.
- Recent Quizzes on the side navigation bar provides quick access to the users of all types.
- The users can check the results quickly from the Timeline by clicking on “Results” besides the quiz title.

2.3 Implementation

2.3.1 Screenshots and description of application

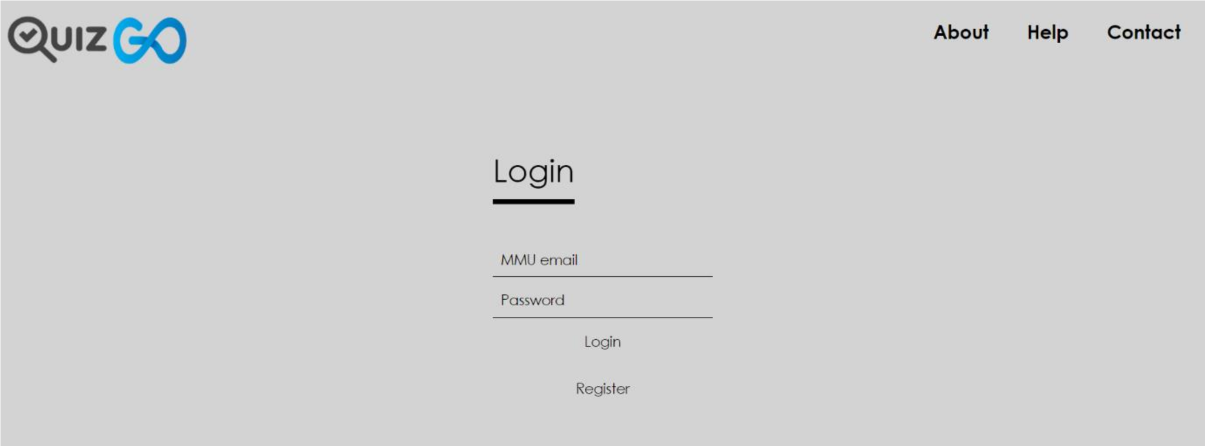


Figure 6: Login page

As shown in the figure above the user will be shown this page when they first enter the website. The user will be asked to log in with their username and password. If the user does not have an account they will have to register, the user will get three registration choices which specifies the role as either a Student, a Lecturer or an Advisor.

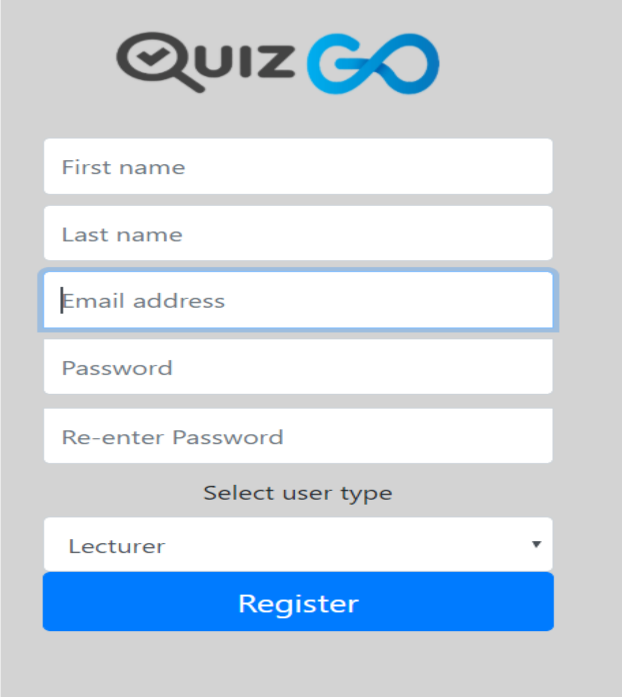


Figure 7: Registration page

The figure above shows the registration page for QuizGo where the new user has to register with their MMU email and specify the role

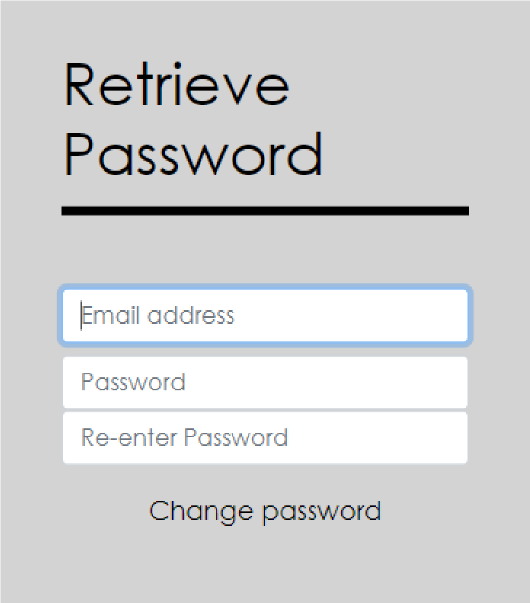
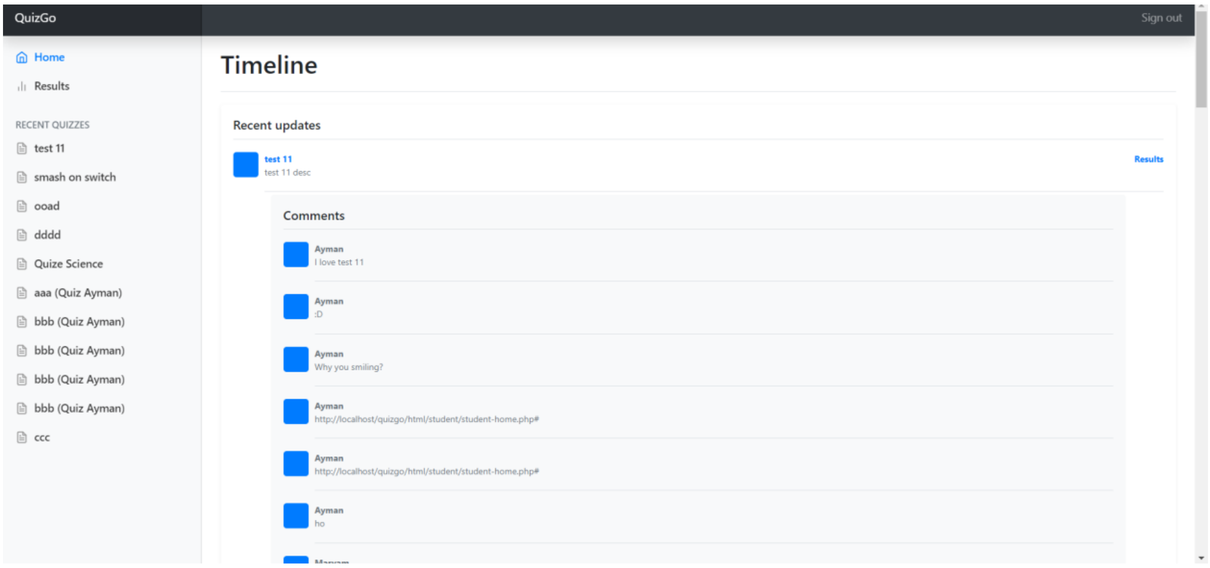


Figure 8: Reset password page

When the user forgets their password, the use clicks on “Forgot password?” in Login page to access this page shown in the figure above to reset their password.



test 11
test 11 desc

Ayman
I love test 11

Ayman
:D

Ayman
Why you smiling?

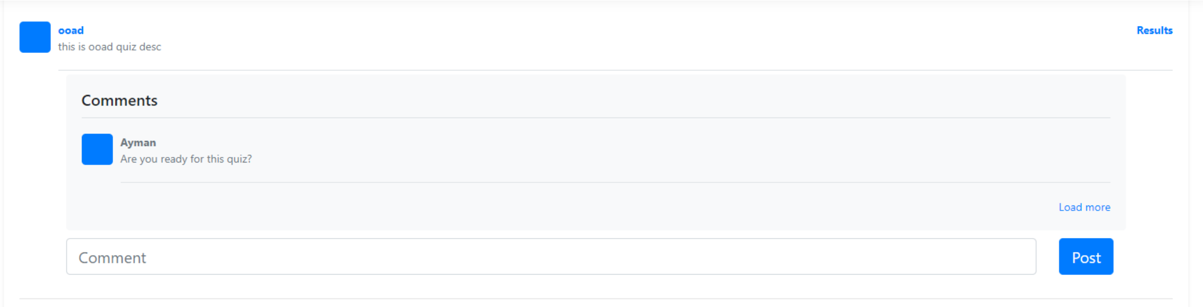
Ayman
http://localhost/quizgo/html/student/student-home.php#

Ayman
http://localhost/quizgo/html/student/student-home.php#

Ayman
ho

Figure 9: Home page

The figure above the home page where it shows the timeline of quizzes, announcements, comments, results and quizzes section. It’s almost similar for all users.

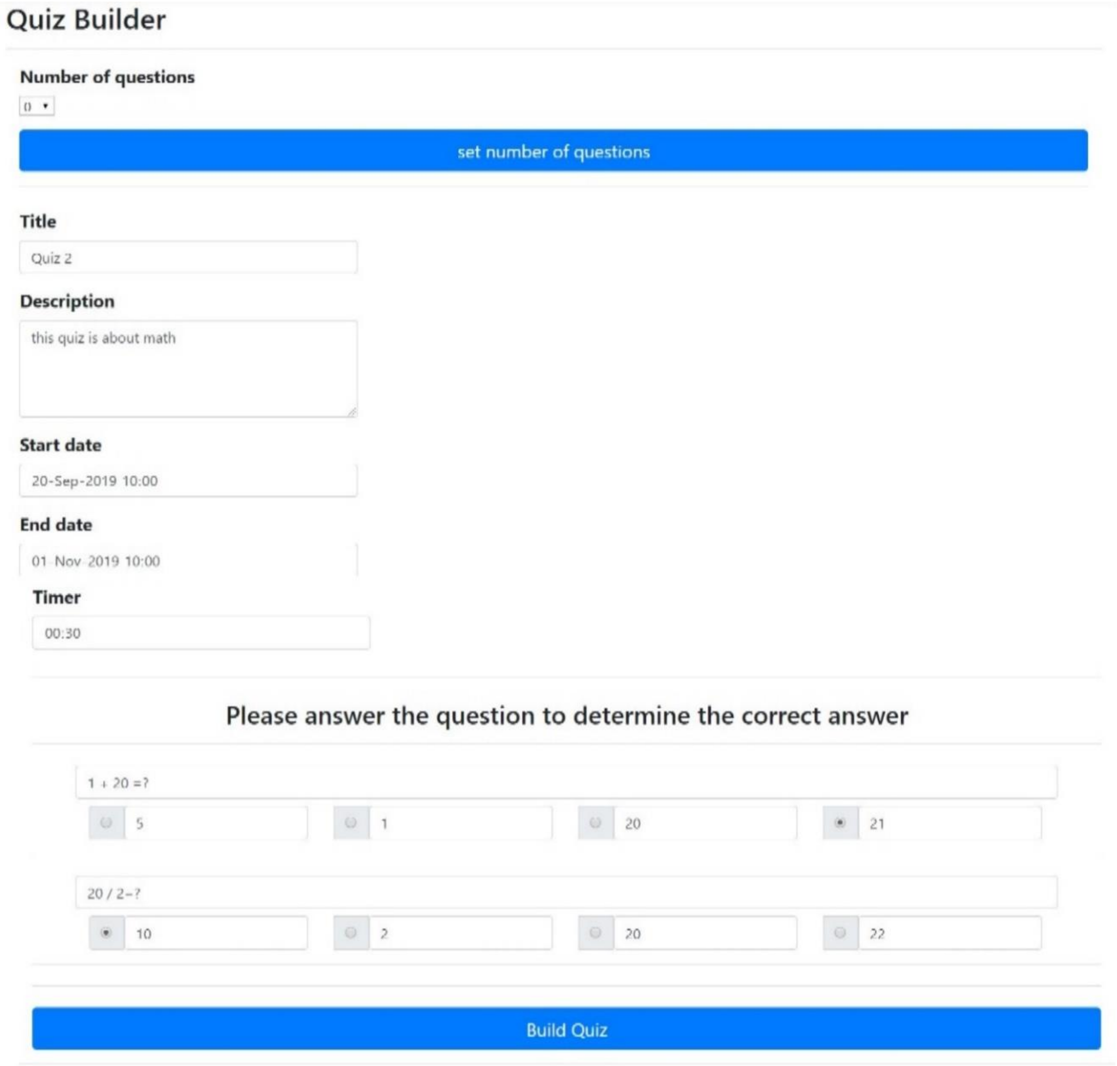


ooad
this is ooad quiz desc

Ayman
Are you ready for this quiz?

Figure 10: Comment section

As shown in the figure above, in the home page all users can comment on quizzes' announcement.



Quiz Builder

Number of questions

0 ▾

set number of questions

Title

Quiz 2

Description

this quiz is about math

Start date

20-Sep-2019 10:00

End date

01 Nov 2019 10:00

Timer

00:30

Please answer the question to determine the correct answer

1 + 20 =?

○ 5 ○ 1 ○ 20 ● 21

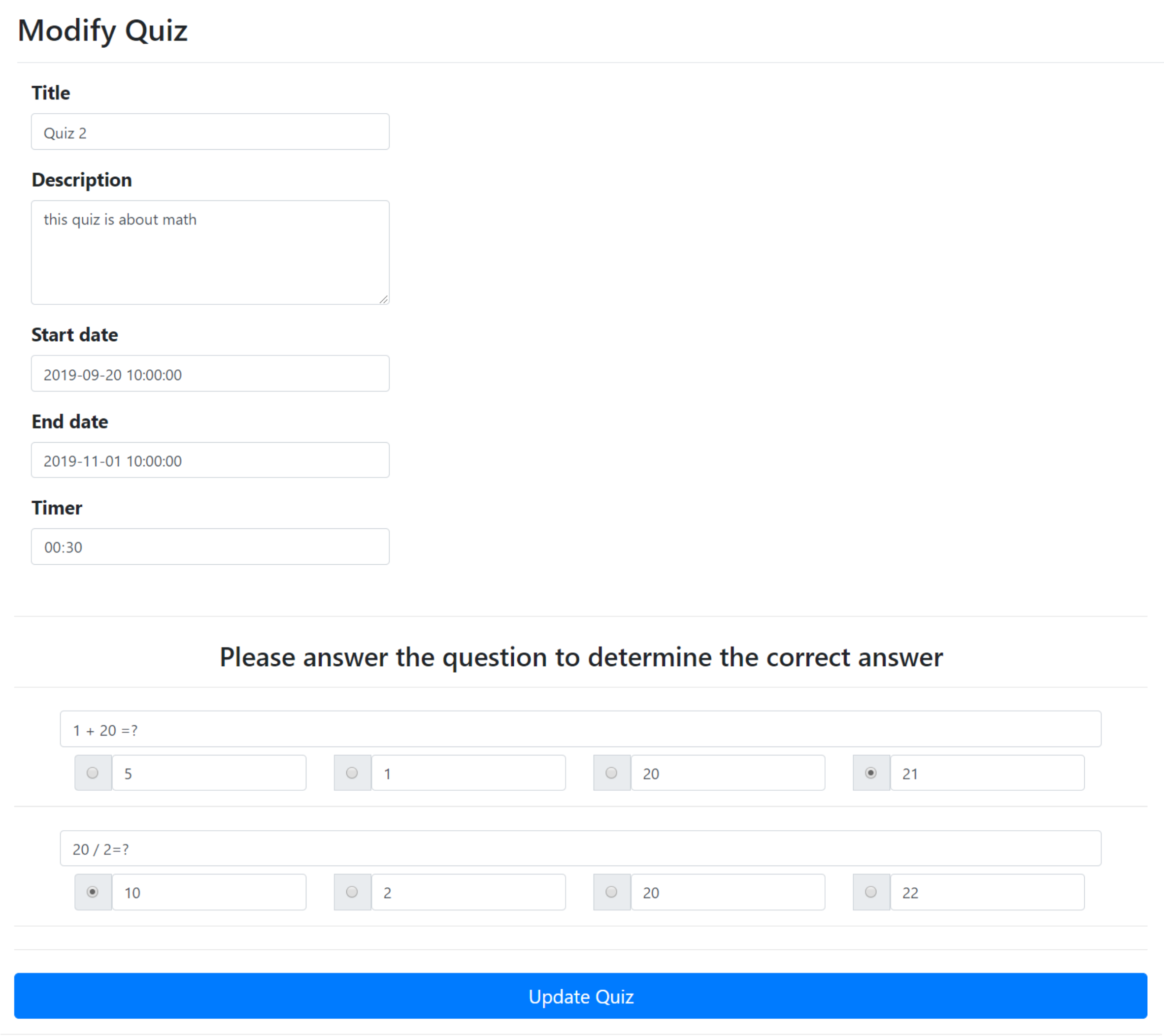
20 / 2=?

● 10 ○ 2 ○ 20 ○ 22

Build Quiz

Figure 11: Build quizzes page

In the quiz builder engine, the lecturer should set the number of questions, title, description, start/end date and time, timer, writing questions/answers and setting the correct answer. The lecturer can simply set the answer by answering the question while making it.



Modify Quiz

Title

Quiz 2

Description

this quiz is about math

Start date

2019-09-20 10:00:00

End date

2019-11-01 10:00:00

Timer

00:30

Please answer the question to determine the correct answer

1 + 20 =?

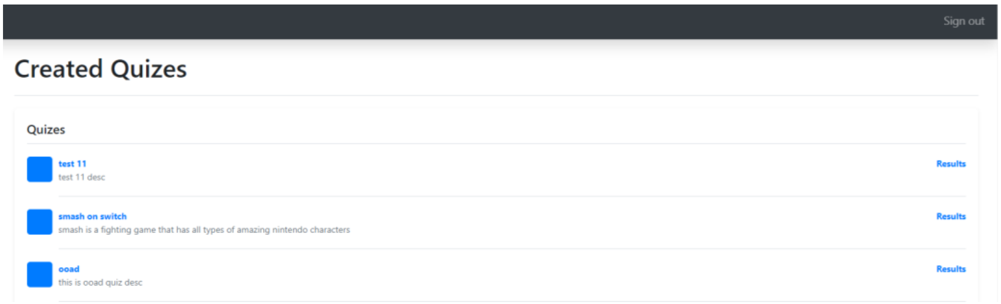
○ 5 ○ 1 ○ 20 ● 21

20 / 2=?

● 10 ○ 2 ○ 20 ○ 22

Figure 12: Modify quizzes page

When the lecturer clicks on a quiz that has been created the website is going to take them to modify quiz page where they can update the quiz details/questions.



Created Quizes

Quizes

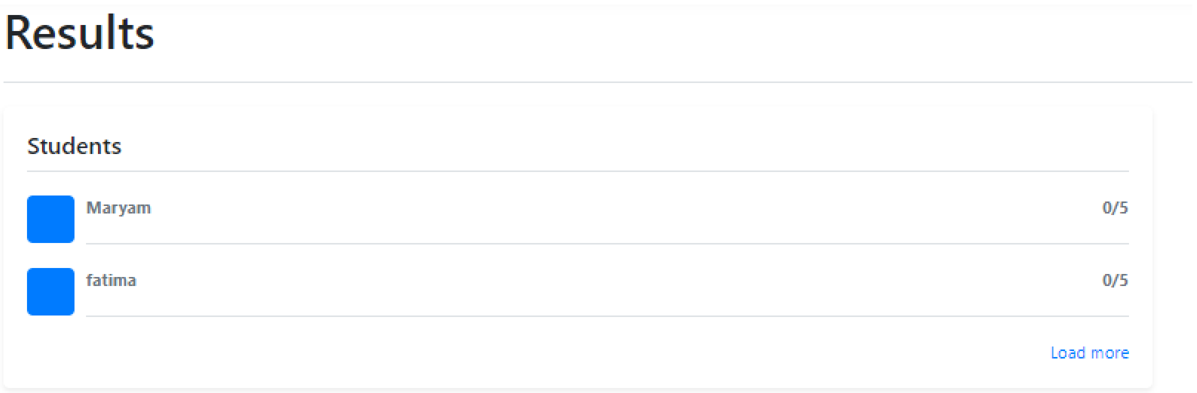
test 11
test 11 desc

smash on switch
smash is a fighting game that has all types of amazing nintendo characters

ooad
this is ooad quiz desc

Figure 13: Created quizzes page

In this page the student is going to be shown a list of all quizzes excluding the comments, so they can just see the quizzes and click on “Results” to see their results of that particular quiz.



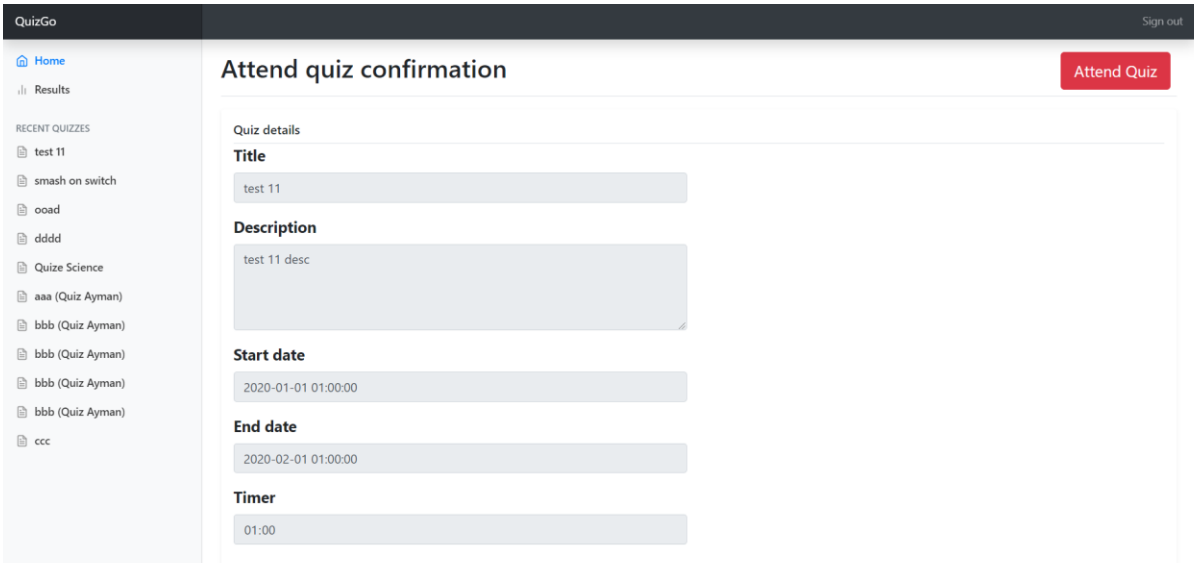
Results

Students

Maryam	0/5
fatima	0/5

Figure 14: Results page

When a Lecturer/Advisor click on results, this page is going to be shown where they can see their students' results. Advisor will only be shown the results of the students they are in charge of, while Lecturers will see the results of their quiz.



Attend quiz confirmation

Quiz details

Title: test 11

Description: test 11 desc

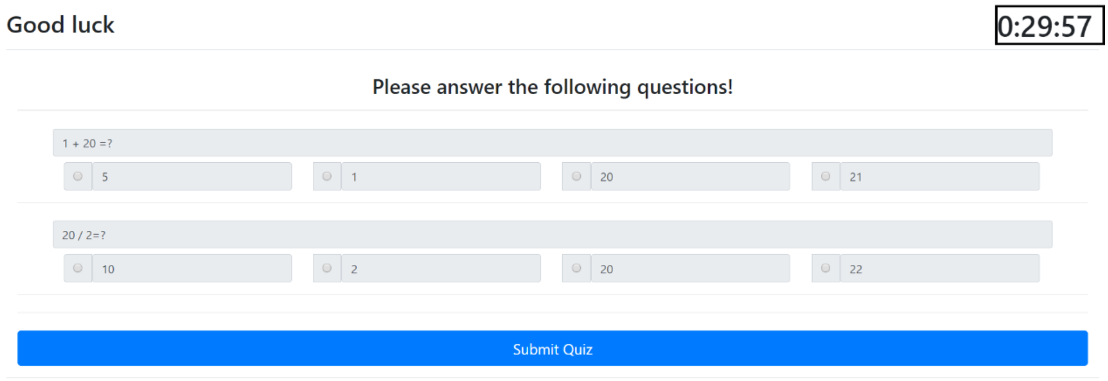
Start date: 2020-01-01 01:00:00

End date: 2020-02-01 01:00:00

Timer: 01:00

Figure 15: Attend quiz confirmation page

Before attending a quiz, the student this page will be shown just to show the details of the quiz before attending it.



Good luck 0:29:57

Please answer the following questions!

1 + 20 =?

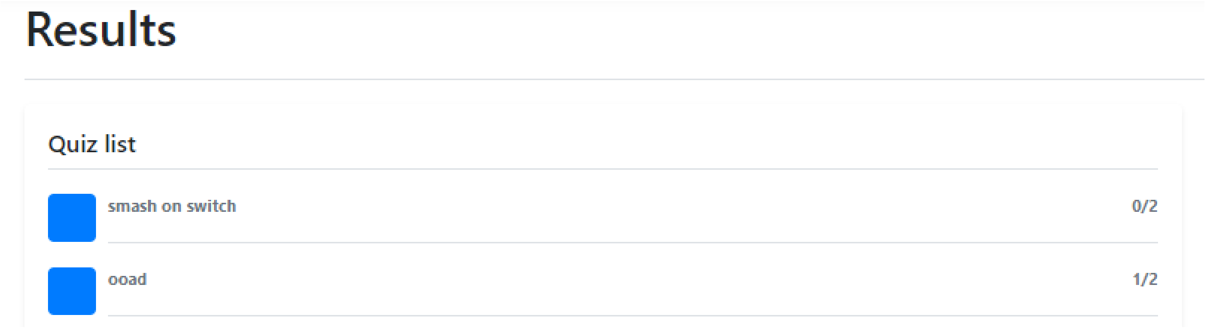
○ 5 ○ 1 ○ 20 ○ 21

20 / 2=?

○ 10 ○ 2 ○ 20 ○ 22

Figure 16: Attend quiz

This figure shows the attending quiz page where it has a timer, submitting quiz, questions and the MCQ.



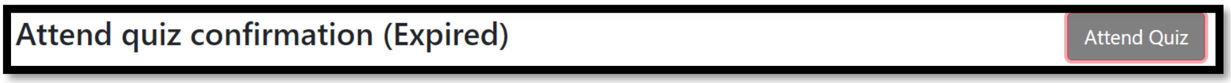
Results

Quiz list

smash on switch	0/2
ooad	1/2

Figure 17: Student results page

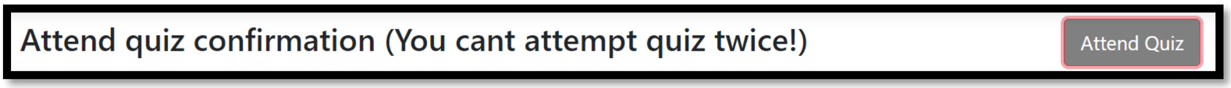
In this page the student will be shown a list of all of their quizzes with their marks.



Attend quiz confirmation (Expired)

Figure 18: Quiz expired

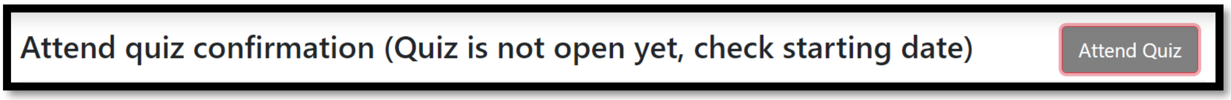
The figure above shows the message when a student tries to attend a quiz that has been expired already.



Attend quiz confirmation (You cant attempt quiz twice!)

Figure 19: Taking quiz more than one time

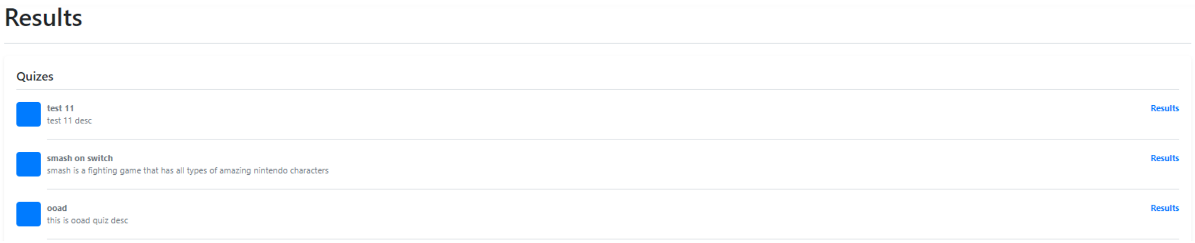
The figure shows an error message when a student tries to attend a quiz more than one time, this error message is going to be shown.



Attend quiz confirmation (Quiz is not open yet, check starting date)

Figure 20: Attend quiz before its starting date

When a student tries to attend a quiz before its starting date/time, this error message is going to be shown as the figure above.



Results

Quizes

test 11
test 11 desc

smash on switch
smash is a fighting game that has all types of amazing nintendo characters

ooad
this is ooad quiz desc

Figure 21: Advisor list of quizzes page

Before the advisor get to be shown the marks of their students this page is shown so they can choose which quiz marks they want to see.

3. Conclusion

In summary the main idea of quizGo is to provide an easier way to set quizzes by MMU lecturers and make it easier for students to attend the quizzes with no loss of information or complicated procedures. The main purpose is to provide a more user-friendly application to make the duty of lecturers, advisors and students easier and more accurate.