



# **Online Testing Platform**

## **LUAssist**

I3302 E

Server-side Web Development  
2022-2023

Realized by:

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## **SUMMARY**

The project report discusses the development of an online testing platform that enables called LUAssist users to create and customize their own quizzes. The platform includes features that allow for the addition of various types of quiz questions, organization into question groups, and document uploads through the Rich Content Editor. The report details the functionalities and technologies used for the development of the platform, as well as the challenges encountered during the process and their resolutions. The resulting platform provides a user-friendly and accessible environment for educators and students, enhancing the overall learning experience.

# Introduction

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The LUAssist online platform is a comprehensive quiz platform that provides features for guests, administrators, teachers, and students. Guests can access the registration page and verify username availability during registration, and subsequently access the login page using their registered username and password to access the system. Administrators have the ability to view and manage all created classes, subjects, teachers, and students. They can also modify passwords and delete accounts if necessary. Teachers can create new quizzes, specify question types, and manage their students by adding or deleting them from the class or modifying their passwords. Students have the ability to attempt pending and unexpired quizzes, view upcoming quizzes, and join new classes by providing the corresponding class code. With automated scoring and reporting, analyzing the results is a breeze. The LUAssist online quiz is a free tool that can be used to evaluate candidates, employees, or students.

LUAssist provides a user-friendly and accessible environment for both educators and students to create and take quizzes, thereby enhancing the overall learning experience. In the following report, we will discuss in detail the different features and functionalities of the online testing platform, along with the technologies used for its development. We will also explore the challenges encountered during the development process and how they were overcome.

This is a link for a YouTube Video explaining the project [\(11\) LUAssist Laravel Project - Project 14 - Online Testing Platform – 101865 100787 - YouTube](#)

# Chapter 1. Preliminary Study

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## 1 Introduction

Introducing LUAssist's online quiz, a free and easy-to-use tool for evaluating the knowledge or skills of candidates, employees, or students. With automated scoring and reporting features, this application provides an objective and standardized assessment that can be used consistently across multiple individuals or groups. Designed for efficiency and user-friendliness, LUAssist's online quiz aims to save time and resources while improving the overall quality of candidates, employees, or students by providing feedback and opportunities for growth and development. In this article/project proposal, we will explore the features, technology stack, and design of LUAssist's online quiz.

## 2 Project objectives

- To provide a free, easy-to-use tool for evaluating the knowledge or skills of candidates, employees, or students.
- To save time and resources by automating the scoring and reporting process.
- To offer an objective and standardized assessment that can be used consistently across multiple individuals or groups.
- To enable users to identify areas of strength and weakness among candidates, employees, or students, and to make data-driven decisions based on this information.
- To improve the overall quality of candidates, employees, or students by providing feedback and opportunities for growth and development.

## 3 Similar applications

There are many applications available online that offer similar features to LUAssist's online quiz.

- Google Forms: A free online tool for creating surveys, quizzes, and other types of forms. It offers automated scoring and reporting features, as well as customizable design options.
- SurveyMonkey: A popular online survey platform that also offers quiz-building features. It includes a variety of question types and customizable templates, as well as reporting and analysis tools.
- Typeform: A platform for creating interactive quizzes, surveys, and forms with a user-friendly interface. It offers automated scoring and reporting, as well as options for custom branding and design.
- Kahoot!: A game-based learning platform that allows users to create and share quizzes and other interactive learning activities. It includes features such as live polling, real-time feedback, and personalized learning paths.
- Quizlet: A study platform that allows users to create and share digital flashcards, quizzes, and other learning materials. It includes features such as automated grading, progress tracking, and collaborative learning tools.
- Moodle.



## 4 Features


1. Guest
  - Access the registration page to provide personal details and select a class code to enroll in
  - Verify username availability during registration
  - Access the login page to provide registered username and password to access the system
2. Administrator
  - View all created classes and add or remove classes
  - View list of subjects for each class and modify or delete any subject from any class
  - Add new subjects to the list
  - View list of all teachers and add or delete teachers
  - Modify teacher's password if needed
  - View list of all students and add or remove students from a class • Update a student's password if required
3. Teacher
  - Access the "Quiz Event" feature to view all previous quizzes and create new quizzes
  - Provide quiz name, class, and set of questions to create a new quiz
  - Specify question type (multiple-choice, true or false, etc.) for each question
  - View list of students in the class and quizzes assigned to them
  - Edit or delete a student from the class
  - Add new students to the class
  - Change their password for account security
4. Student
  - Attempt any pending and unexpired quizzes at their convenience
  - View list of upcoming quizzes to prepare in advance
  - Join a new class by providing the corresponding class code
  - Reset their password for account security

## 5 Design

Home page:



Contact page:

 Get in Touch

Your Name


Email address

We'll never share your email with anyone else.

Message

[Submit](#)

User panel page(Student):

[Home](#) [Contact us](#) AliSaab ▾

[Pending Quiz](#)  
[Upcoming Quiz](#)  
[Settings](#)

## Pending Quizzes

### HTML Basics

Web Development

[Start](#)

Take a quiz page:

Time Remaining: 5:00

LUAssist

[Welcome](#)  
[Question 1](#)  
[Question 2](#)  
[Question 3](#)  
[Question 4](#)  
[Question 5](#)

## Welcome!

Please verify that you are using your **OWN** account. If not, logout then login using your own credentials.

Quiz: **HTML Basics**

Name: **Mr. Ali M. Sweidan**

Course and Section: **IT3A**

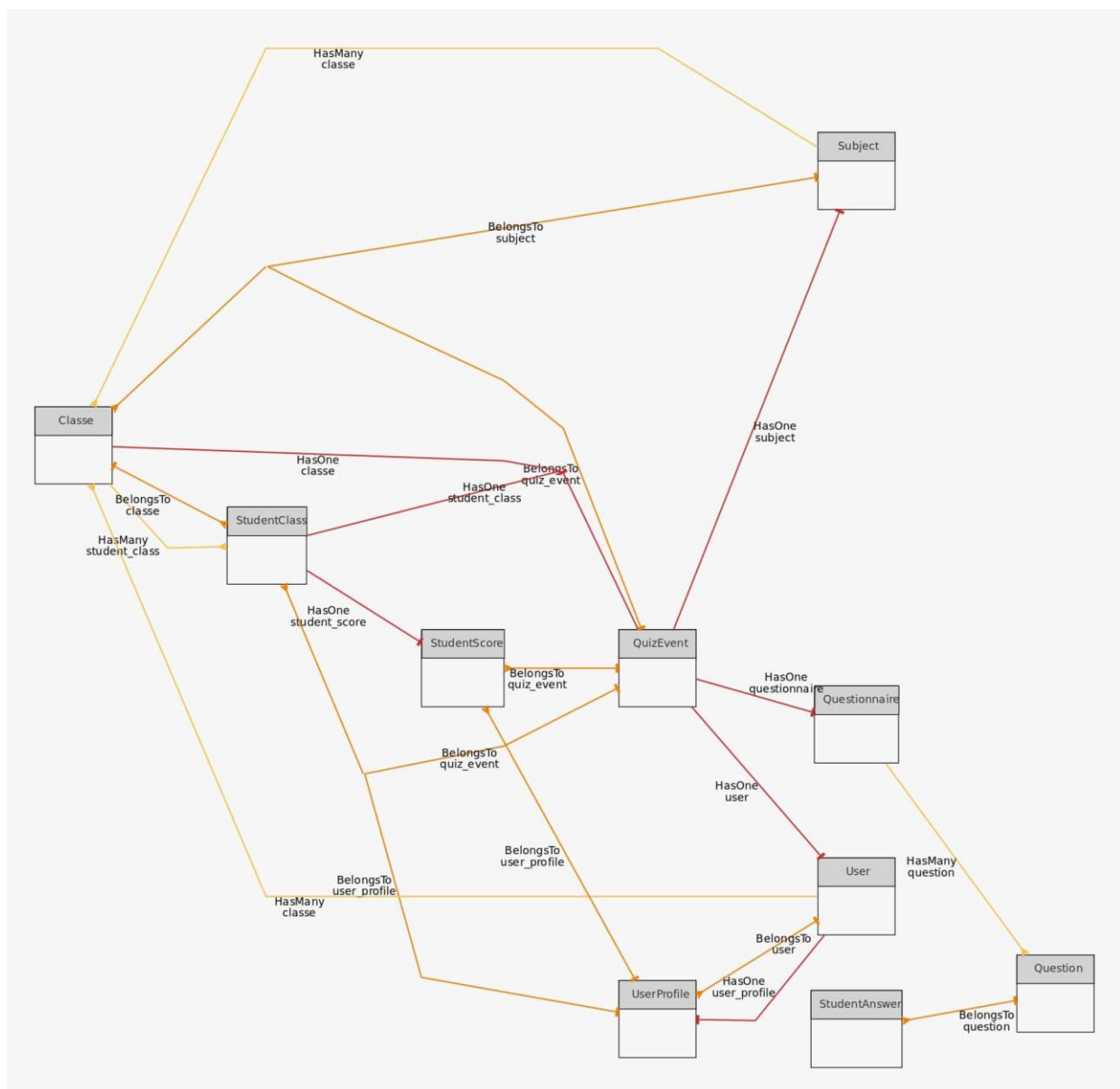
[Yes, this is correct. No turning back.](#) [Logout](#)

# Chapter 2. Database

## 1 Introduction

The database plays a critical role in LUAssist's online quiz, and we have implemented a robust and scalable database system using MySQL and Laravel. We have designed and modeled the database to store and organize all the quiz-related data in 11 tables, including user information, quiz questions, quiz results, and other relevant data. In this section, we will provide a detailed overview of our database design, implementation, and management for LUAssist's online quiz. We will also discuss the technologies and tools we have used to ensure the performance and security of our database system.

## 2 ER diagram



### 3 Tables

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> <b>classes</b>	★ Browse Structure Search Insert Empty Drop	2	MyISAM	utf8mb4_unicode_ci	4.0 KiB	-
<input type="checkbox"/> <b>failed_jobs</b>	★ Browse Structure Search Insert Empty Drop	0	MyISAM	utf8mb4_unicode_ci	1.0 KiB	-
<input type="checkbox"/> <b>migrations</b>	★ Browse Structure Search Insert Empty Drop	13	MyISAM	utf8mb4_unicode_ci	2.7 KiB	-
<input type="checkbox"/> <b>password_reset_tokens</b>	★ Browse Structure Search Insert Empty Drop	0	MyISAM	utf8mb4_unicode_ci	1.0 KiB	-
<input type="checkbox"/> <b>personal_access_tokens</b>	★ Browse Structure Search Insert Empty Drop	0	MyISAM	utf8mb4_unicode_ci	1.0 KiB	-
<input type="checkbox"/> <b>questionnaires</b>	★ Browse Structure Search Insert Empty Drop	1	MyISAM	utf8mb4_unicode_ci	2.0 KiB	-
<input type="checkbox"/> <b>questions</b>	★ Browse Structure Search Insert Empty Drop	5	MyISAM	utf8mb4_unicode_ci	3.4 KiB	-
<input type="checkbox"/> <b>quiz_events</b>	★ Browse Structure Search Insert Empty Drop	1	MyISAM	utf8mb4_unicode_ci	4.0 KiB	-
<input type="checkbox"/> <b>quiz_student_answers</b>	★ Browse Structure Search Insert Empty Drop	0	MyISAM	utf8mb4_unicode_ci	1.0 KiB	-
<input type="checkbox"/> <b>quiz_student_score</b>	★ Browse Structure Search Insert Empty Drop	0	MyISAM	utf8mb4_unicode_ci	1.0 KiB	-
<input type="checkbox"/> <b>student_classes</b>	★ Browse Structure Search Insert Empty Drop	2	MyISAM	utf8mb4_unicode_ci	3.0 KiB	-
<input type="checkbox"/> <b>subjects</b>	★ Browse Structure Search Insert Empty Drop	2	MyISAM	utf8mb4_unicode_ci	2.1 KiB	-
<input type="checkbox"/> <b>users</b>	★ Browse Structure Search Insert Empty Drop	5	MyISAM	utf8mb4_unicode_ci	2.5 KiB	-
<input type="checkbox"/> <b>user_profiles</b>	★ Browse Structure Search Insert Empty Drop	4	MyISAM	utf8mb4_unicode_ci	2.1 KiB	-
<b>14 tables</b>	<b>Sum</b>	<b>35</b>	<b>MyISAM</b>	<b>latin1_swedish_ci</b>	<b>30.9 KiB</b>	<b>0 B</b>

#### classes

Column	Type	Null	Default	Comments
class_id ( <i>Primary</i> )	varchar(5)	No		
course_sec	varchar(255)	No		
instructor_id	int(10)	No		
subject_id	int(10)	No		
class_active	tinyint(1)	No		

#### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	class_id	2	A	No	
classes_instructor_id_foreign	BTREE	No	No	instructor_id	2	A	No	
classes_subject_id_foreign	BTREE	No	No	subject_id	2	A	No	

## migrations

Column	Type	Null	Default	Comments
id ( <i>Primary</i> )	int(10)	No		
migration	varchar(255)	No		
batch	int(11)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	id	10	A	No	

## questionnaires

Column	Type	Null	Default	Comments
questionnaire_id ( <i>Primary</i> )	int(10)	No		
questionnaire_name	varchar(255)	No		
created_at	timestamp	Yes	<i>NULL</i>	
updated_at	timestamp	Yes	<i>NULL</i>	

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	questionnaire_id	1	A	No	

## questions

Column	Type	Null	Default	Comments
question_id ( <i>Primary</i> )	int(10)	No		
questionnaire_id	int(10)	No		
question_name	varchar(255)	No		
question_type	int(11)	No		
choices	varchar(255)	Yes	<i>NULL</i>	
answer	varchar(255)	Yes	<i>NULL</i>	
points	int(11)	No	1	

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	question_id	2	A	No	
questions_questionnaire_id_foreign	BTREE	No	No	questionnaire_id	1	A	No	

## quiz\_events

Column	Type	Null	Default	Comments
quiz_event_id ( <i>Primary</i> )	int(10)	No		
quiz_event_name	varchar(255)	No		
questionnaire_id	int(10)	No		
class_id	varchar(5)	No		
quiz_event_status	int(11)	No		
created_at	timestamp	Yes	NULL	
updated_at	timestamp	Yes	NULL	

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	quiz_event_id	1	A	No	
quiz_events_class_id_foreign	BTREE	No	No	class_id	1	A	No	
quiz_events_questionnaire_id_foreign	BTREE	No	No	questionnaire_id	1	A	No	

## quiz\_student\_answers

Column	Type	Null	Default	Comments
student_id	int(10)	No		
quiz_event_id	int(10)	No		
question_id	int(10)	No		
student_answer	varchar(255)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
quiz_student_answers_student_id_foreign	BTREE	No	No	student_id	2	A	No	
quiz_student_answers_quiz_event_id_foreign	BTREE	No	No	quiz_event_id	1	A	No	
quiz_student_answers_question_id_foreign	BTREE	No	No	question_id	3	A	No	

## quiz\_student\_score

Column	Type	Null	Default	Comments
student_id	int(10)	No		
quiz_event_id	int(10)	No		
score	int(11)	No		
recorded_on	timestamp	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
quiz_student_score_student_id_foreign	BTREE	No	No	student_id	2	A	No	
quiz_student_score_quiz_event_id_foreign	BTREE	No	No	quiz_event_id	1	A	No	

student\_classes

Column	Type	Null	Default	Comments
class_id	varchar(5)	No		
student_id	int(10)	No		

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
student_classes_student_id_foreign	BTREE	No	No	student_id	2	A	No	
student_classes_class_id_foreign	BTREE	No	No	class_id	1	A	No	

subjects

Column	Type	Null	Default	Comments
subject_id (Primary)	int(10)	No		
subject_code	varchar(255)	No		
subject_desc	varchar(255)	No		

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	subject_id	1	A	No	

users

Column	Type	Null	Default	Comments
usr_id (Primary)	int(10)	No		
usr	varchar(255)	No		
password	varchar(255)	No		
permissions	int(11)	No		
remember_token	varchar(100)	Yes	NULL	
created_at	timestamp	Yes	NULL	
updated_at	timestamp	Yes	NULL	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	usr_id	5	A	No	
users_usr_unique	BTREE	Yes	No	usr	5	A	No	

user\_profiles

Column	Type	Null	Default	Comments
usr_id	int(10)	No		
given_name	varchar(255)	No		
family_name	varchar(255)	No		
middle_name	varchar(255)	No		
ext_name	varchar(255)	Yes	NULL	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
user_profiles_usr_id_foreign	BTREE	No	No	usr_id	4	A	No	





## Chapter 3. Implementation

# 1 Introduction

This section provides an overview of the implementation phase, including the goals and key components of the system. It introduces the software tools and technologies used, the database architecture, and the user interface design.

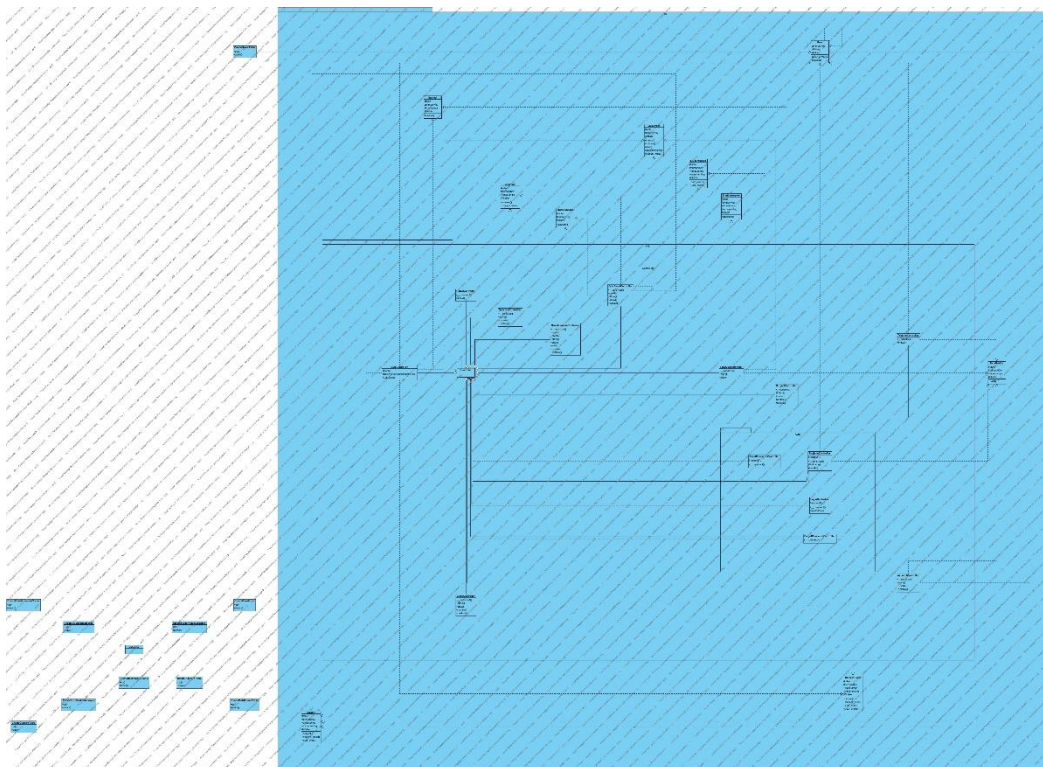
## 2 Technique

This section describes the software techniques and tools used to develop LUAssist's online quiz. Specifically, the system was built using the Laravel PHP web framework and MySQL relational database management system.

Laravel provides a powerful set of tools for building web applications, including built-in authentication, routing, and database management features. In the case of LUAssist, Laravel's built-in authentication features were used to secure user accounts and restrict access to certain areas of the system.

MySQL provides a scalable and reliable way to store large volumes of data, with support for complex queries and transactions. The database schema was designed with 11 tables to store information related to users, classes, subjects, quizzes, and quiz questions.

The high-quality image for the UML class diagram is provided in the project is available in vpp and jpg file format.



### 3 Security

This section describes the security measures that were implemented to protect LUAssist's online quiz from unauthorized access, data breaches, and other security threats.

The system used Laravel's built-in security features, such as encrypted password hashing, CSRF protection, and input validation, to prevent common security vulnerabilities. In addition, the MySQL database was secured with strong passwords and access control measures to prevent unauthorized access.

# Conclusion

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In conclusion, our LUAssist online quiz platform provides a valuable contribution to the field of education, particularly in the area of assessing and evaluating students' knowledge and skills. Our user-friendly interface and customizable features enable educators to create engaging quizzes that accurately measure the students' understanding of the course material. Moreover, our platform's unique features, such as the ability to upload documents through the Rich Content Editor, enhance the overall learning experience by providing additional learning materials to students.

During the development process, we faced various challenges, including technical and design limitations. However, we were able to overcome these challenges through the use of appropriate technologies and effective problem-solving strategies, resulting in a reliable and efficient platform that can be further improved and expanded in the future.

Our project highlights the importance of innovation and technology in education and the potential impact it can have on students' learning experiences. LUAssist online quiz platform provides a practical and accessible solution that can significantly enhance the effectiveness of assessment and evaluation methods in the field of education.