

A Project Report On

Quiz Application

Submitted in partial fulfillment of the requirement for the
award of the degree

Master of Computer Applications
(MCA)

Academic Year 2024 – 25

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**Master of Computer Applications
(MCA)**

Certificate

**This is to certify that the project work entitled
Quiz Application
submitted in partial fulfillment of the requirement for
the award of the degree of
Master of Computer Applications (MCA)
of the**

Marwadi University

is a result of the bonafide work carried out by

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during the academic year 2024-25

Faculty Guide

HOD

Dean

DECLARATION

We hereby declare that this project work entitled Quiz Application is a record done by us.

We also declare that the matter embodied in this project is genuine work done by us and has not been submitted whether to this University or to any other University / Institute for the fulfillment of the requirement of any course of study.

Place:

Date:

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Signature:_____
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ACKNOWLEDGEMENT

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We are very thankful to our guide **kishita ma'am**, the person who makes us to follow the right steps during our project work. We express our deep sense of gratitude to for his /her guidance, suggestions and expertise at every stage. A part from that his/her valuable and expertise suggestion during documentation of our report indeed help us a lot.

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SYNOPSIS

This project is a **Quiz Management System** built using **Django**, designed for three roles: **Admin, Teacher, and Student**. The system allows **teachers to create quizzes**, add **questions, options, and answers**, and view students' results. **Students can register, take quizzes, and view their scores**. The **Admin has full control** over managing teachers, students, and quizzes.

DESCRIPTION

“QUIZ APPLICATION”

The **Quiz Web Application** is an interactive and user-friendly platform designed to create, manage, and participate in quizzes. It enables users to test their knowledge on various subjects and track performance. The system ensures data integrity, scalability, and a seamless user experience.

It is a system by which students can appear in a quiz from anywhere of the world where there is no interaction between pencil and paper rather interaction between computer and human being.

One of the main benefits of our system is automated marking, that is, teachers do not need to check the answers as they do in manual quiz. It saves valuable time of a teacher. On the other hand, students can get there results instantly as soon as they perform final submit and can also see the results of previous quizzes they have attended.

MODULES OF QUIZ APPLICATION

A Module is a self-contained, Functional unit within a project that focuses on a specific task or functionality. It is designed to be independent, making it easier to manage, develop, test and maintain various aspects of a project.

i. User Side:

- Authentication
- Profile
- Quiz
- Result

ii. Professor Side:

- Authentication
- Profile
- Manage Quiz
- See Results

iii. Admin Side:

- Manage Students(User)
- Manage Professors
- Manage Quiz
- See Result

FEASIBILITY STUDY

A feasibility study for a real-estate web project involves assessing its practicality and viability. Key factors include technical feasibility, financial viability, and operational suitability. The study aims to determine if the project can be developed within budget and time constraints while efficiently meeting the user's and broker's operational needs, taking into account potential risks and benefits.

➤ **Hardware Requirements:**

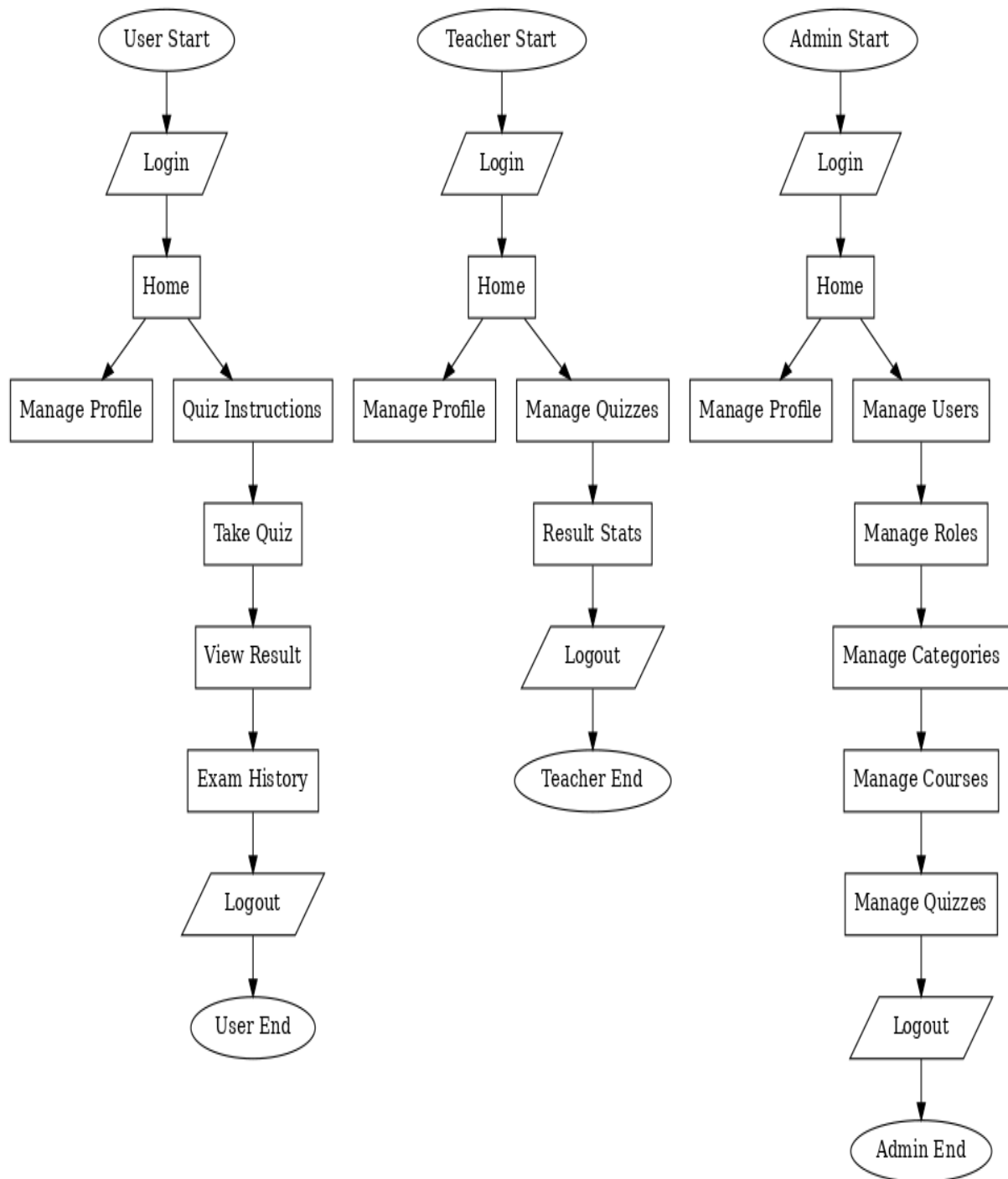
- ⇒ Memory (RAM): 512MB of RAM Required
- ⇒ Hard Disk Space: 1 GB of Free Space Required.
- ⇒ Processor: Intel Dual Core i3
- ⇒ Processor Speed: 3.30 GHz.

➤ **Software Requirement:**

- ⇒ Front-End: VS Code or PyCharm or any IDE
- ⇒ Back-End: SQLite
- ⇒ Operating System: Windows 7, 10 & later

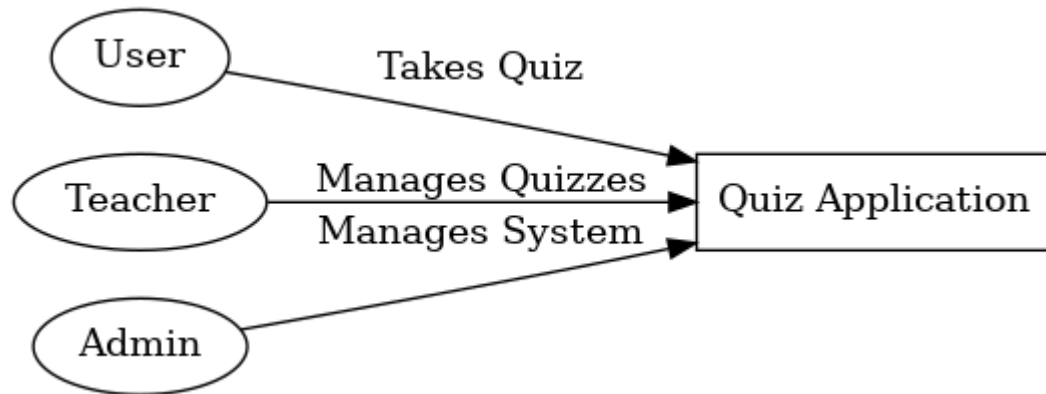
SYSTEM DESIGN AND DEVELOPMENT

➤ Flowchart:

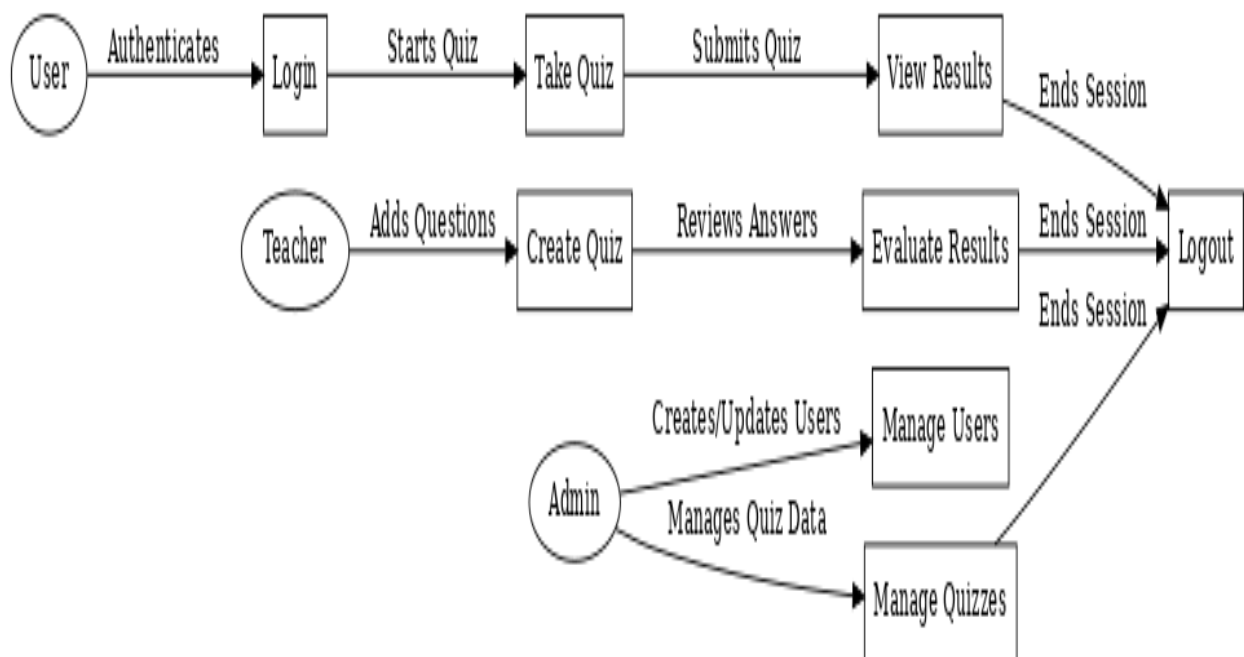


➤ Data Flow Diagrams:

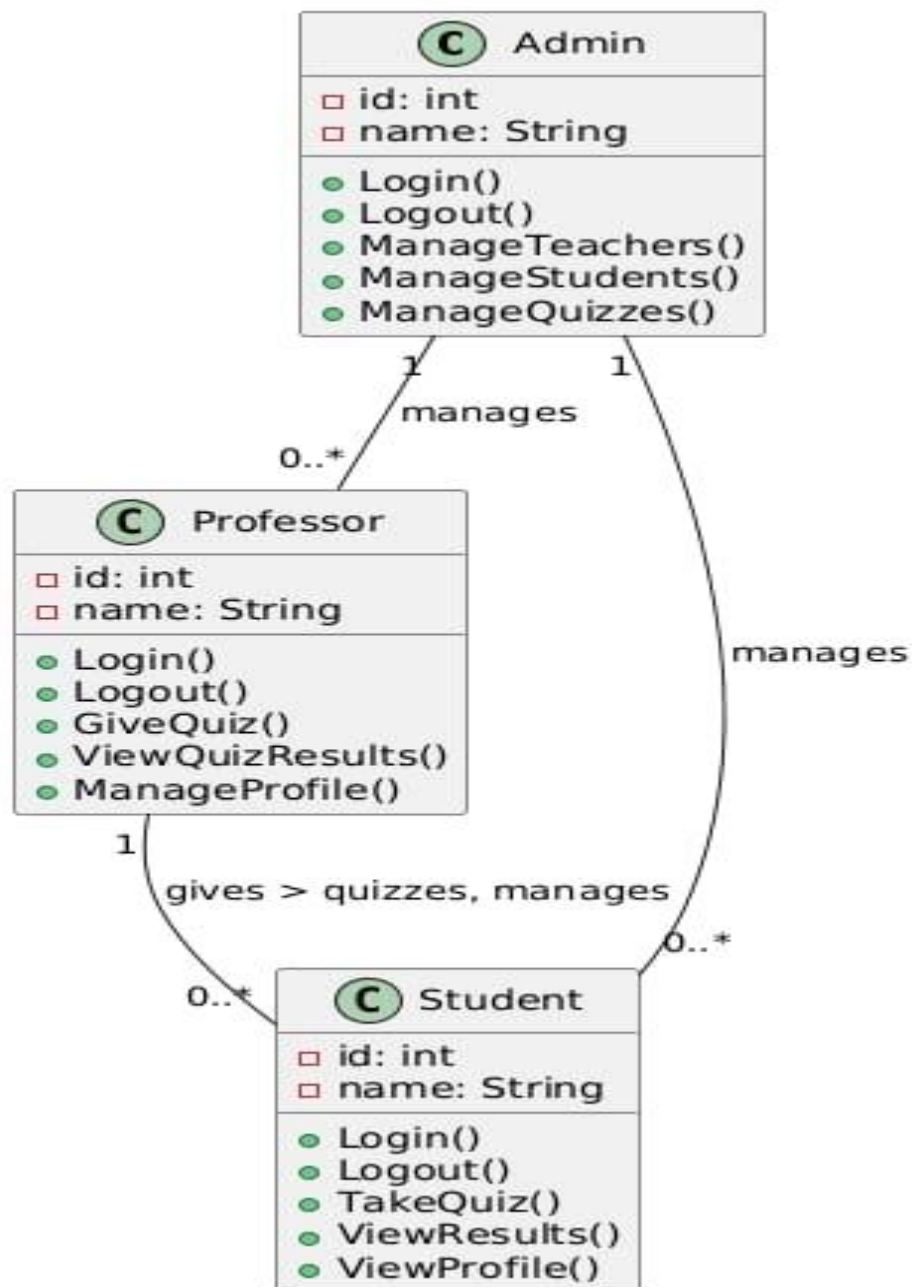
DFD level 0



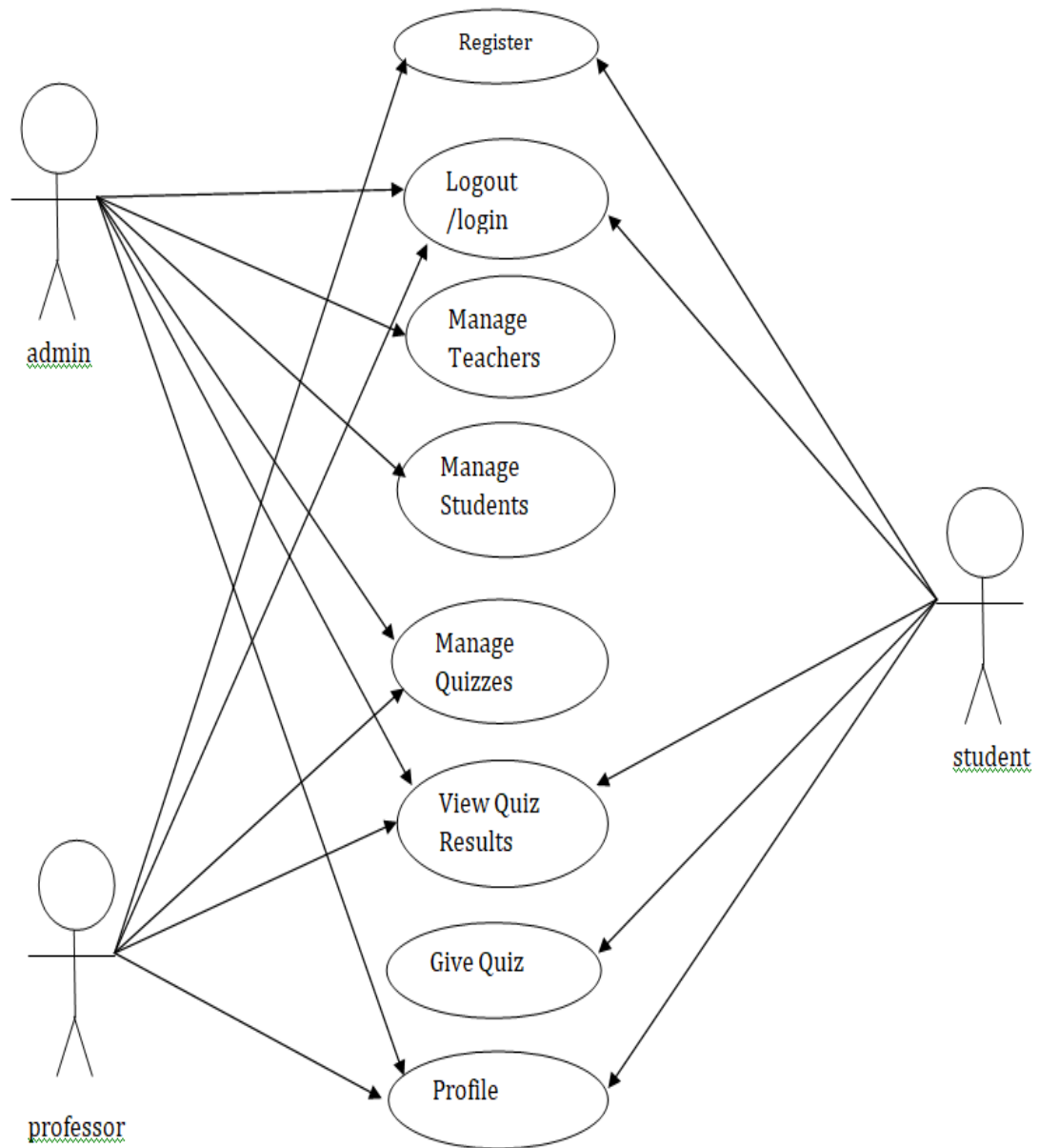
DFD level 1



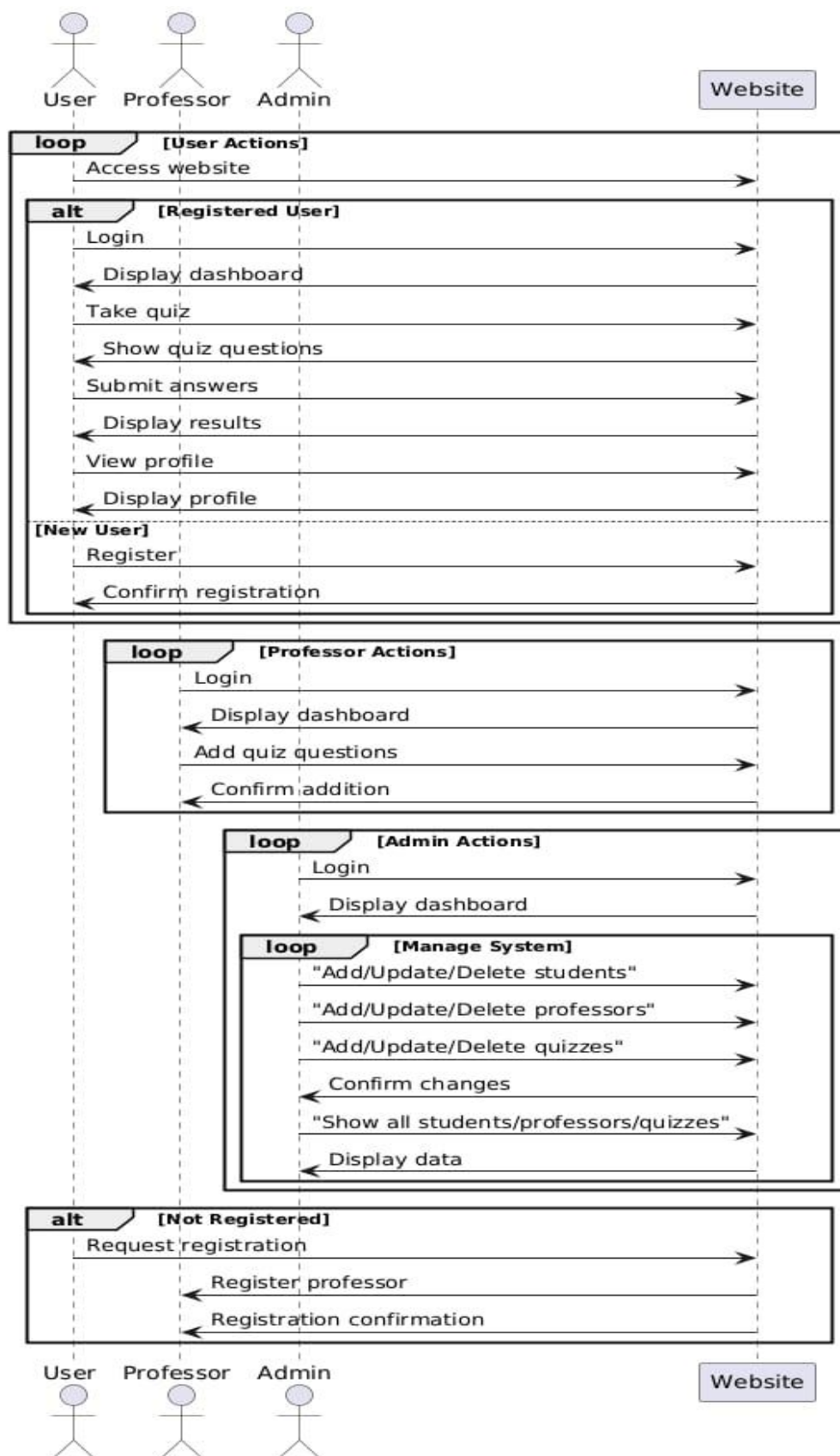
➤ Class Diagram:



➤ Use Case Diagram:



Sequential Diagram:



DATABASE DESIGN

➤ Table for States

tbl_stateMaster		
Constraint	Fields	Data Types
P.K	state_id	int
	state_name	varchar(150)
	state_isAct	bit

➤ Table for Cities

tbl_cityMaster		
Constraint	Fields	Data Types
P.K	city_id	int
F.K	state_id	int
	city_name	varchar(150)
	city_isAct	bit

➤ Table for Roles

tbl_roleMaster		
Constraint	Fields	Data Types
P.K	role_id	int
	role_name	varchar(10)
	role_isAct	bit

➤ Table for Categories

tbl_categoryMaster		
Constraint	Fields	Data Types
P.K	category_id	int
	category_name	varchar(250)
	category_isAct	bit

➤ Table for Course

tbl_courseDetails		
Constraint	Fields	Data Types
P.K	course_id	int
	course_name	varchar(150)
	course_isAct	bit

➤ Table for Quiz

tbl_quizDetails		
Constraint	Fields	Data Types
P.K	quiz_id	int
	quiz_rules	varchar(150)
F.K	user_id	Int
F.K	category_id	int
F.K	course_id	int
	quiz_isAct	bit

➤ Table for Questions

tbl_questionMaster		
Constraint	Fields	Data Types
P.K	question_id	int
	question_text	varchar(150)
F.K	quiz_id	int
	question_isAct	bit

➤ Table for Options

tbl_optionMaster		
Constraint	Fields	Data Types
P.K	option_id	int
	option_text	varchar(150)
F.K	question_id	int
	Option_isCorrect	bit

➤ Table for Users Details

tbl_userDetails		
Constraint	Fields	Data Types
P.K	user_id	int
F.K	state_id	int
F.K	city_id	int
F.K	role_id	int
F.K	course_id	int
	user_firstName	varchar(150)
	user_lastName	varchar(150)
	user_gender	bit
	user_email	varchar(100)
	user_phNo	numeric(10,0)
	user_isAct	bit

➤ Table for Users Responses

tbl_userResponses		
Constraint	Fields	Data Types
P.K	response_id	int
F.K	option_id	int
F.K	question_id	int
F.K	user_id	int

➤ Table for Results

tbl_resultDetails		
Constraint	Fields	Data Types
P.K	result_id	int
F.K	user_id	int
F.K	quiz_id	int
	scored_marks	int
	total_marks	int

SCREEN DESIGN

➤ Login Page:

Login

Enter email

✉ Enter your email

Enter password

🔒 Enter your password

Login ➔

[Forgot password?](#)

Don't have an account? [Register](#)

➤ Student Dashboard Page:

Welcome, john doeUpdate ProfileLogout ➔

Available Quizzes

Python-Mca1:00 MinTake Quiz

Performance 📊

Completed Quizzes
1

Total Questions
5

Correct Questions
1

Incorrect Questions
4

Quiz History 🕒

Show All Results

Subject	Correct Questions	Total Questions	Percentage	Result	Action
Android	1	5	20	FAIL	Result

➤ Registration Page:

Register

Email:

Password:

First Name:

Last Name:

Gender:

Phone:

State:

City:

Course:

Already have an account [Login](#)

➤ Take Quiz Page:

Python-Mca

Question 1 of 5 50

What is the correct syntax to output "Hello, World" in Python?

☐ print("Hello, World") ☐ echo("Hello, World")

☐ printf("Hello, World") ☐ cout << "Hello, World"

➤ Profile Page:

Your Profile, john
First Name:
john
Last Name:
doe
Phone Number:
1234567890
Email:
johndoe@gmail.com
New Password:
Leave blank to keep current
Confirm Password:
Match new password
[Update Profile](#) [Back to Dashboard](#)

➤ Individual Results Page:

Result

Title	Score
Android	12/20
10:30	

Question : what is andriod?
Your Answer : platform
Correct Answer : No correct answer set

Question : what is andriod?
Your Answer : platform
Correct Answer : No correct answer set

➤ All Results Page:

All Quiz Results

Python-Mca

1/51 minutes

Question:

What is the correct syntax to output "Hello, World" in Python?

Your Answer:

`print("Hello, World")`

Correct Answer:

`print("Hello, World")`

Question:

Which data type is immutable in Python?

Your Answer:

List

Correct Answer:

Tuple

Question:

What is the output of 3 * "Hello"?

Your Answer:

No answer selected

Correct Answer:

HelloHelloHello

Question:

Which Python keyword is used to define a function?

Your Answer:

No answer selected

Correct Answer:

def

Question:

What does the len() function do in Python?

Your Answer:

No answer selected

Correct Answer:

Counts the number of elements in an object

Android

1/51 minutes

Question:

What is Android primarily based on?

Your Answer:

Linux

Correct Answer:

Linux

Question:

Which file is the entry point for an Android application?

Your Answer:

No answer selected

Correct Answer:

AndroidManifest.xml

Question:

What is the Android Virtual Device (AVD)?

Your Answer:

No answer selected

Correct Answer:

An emulator to run Android apps on a computer

Question:

Which language is officially recommended for Android development?

Your Answer:

No answer selected

Correct Answer:

Kotlin

Question:

What is the purpose of an Intent in Android?

Your Answer:

No answer selected

Correct Answer:

To navigate between activities or components

Back to Dashboard

Logout

➤ Professor Dashboard:

Welcome, Professor nir!

[Add Quiz](#)[Profile](#)[Logout](#)

Your Quizzes

Title	Subject	Duration	Actions
Javascript		1 min	Delete

➤ Responses Page:

Responses for Javascript

Student	Score
nir mit	3 / 6

[Back to Dashboard](#)

TESTING & IMPLEMENTAION

Objectives:

This website test plan is aimed at verifying the functionality and correct working of every aspect and part of the website. This testing is done to ensure that on completion, the website is foolproof and does not have errors.

Testing Strategy:

Testing is the process of analyzing a website to detect the differences between existing and required conditions and to evaluate the features of the website. Test plan components include:

- ⇒ Purpose for the test
- ⇒ Pass / Fail criteria
- ⇒ Hardware / website requirements

Scope:

Testing is a continuous process which happens at many stages during a website creation process. Hence testing is very important and should not be ignored.

TESTING METHODS

Unit Testing:

Each unit is tested thoroughly and independently to make sure it has no error.

Manual Testing:

It involves a person actively using the software to find bugs and issues. This hands-on approach helps ensure the website works as intended and meets user needs.

Use Case Testing:

This is the testing for bad inputs.

- If during login or signup details were left blank or wrongly entered, then appropriate error message is shown.
- If details entered were wrong or in the wrong format, error message is shown.

Alpha Testing:

The website was tested by 2 students other than the creators to ensure it was working correctly.

PASS / FAIL CRITERIA:

⇒ Failing Criteria:

The Test Is Considered Failed If Any Of The Following Is Encountered:

- ➔ The website crashes.
- ➔ It results in wrong output.

⇒ Passing Criteria:

The Test Is Considered Passed If Any Of The Following Is Encountered:

- ➔ The correct results are obtained.

TEST CASES:

Test Case ID	Test Scenario	Description	Expected Result
TC001	Homepage Accessibility	Verify that the home page loads successfully.	Home page displays correctly with title/logo/navigation.
TC002	Quiz List Display	Check if all available quizzes are displayed to the user.	List of quizzes is shown with title, description, and "Start" button.
TC003	Start Quiz Functionality	Test the ability to start a selected quiz.	Quiz starts and first question is shown.
TC004	Option Selection	Verify user can select an answer for a question.	Selected option is highlighted or saved.
TC005	Submit Quiz	Test if the user can submit the quiz after answering.	Quiz is submitted and results are calculated.
TC006	Score Calculation	Validate the accuracy of the score calculated based on answers.	Correct score is shown based on right/wrong answers.
TC007	Result Display	Check if the result summary is shown after submission.	Result page displays score, correct answers, and feedback.
TC008	Admin Login Access	Ensure admin can log in via Django admin panel.	Admin successfully logs in.
TC009	Quiz Creation by Admin	Verify if admin can create a new quiz via the admin panel.	New quiz is added and visible in quiz list.

CONCLUSION

The **Quiz Application** successfully implements a robust and scalable platform for managing and delivering quizzes in an academic environment. Designed using the Django framework, the application supports role-based access control for administrators, professors, and students, ensuring secure and structured interactions.

Key features include:

- Custom user management.
- Role management for defining access levels (student, professor, admin).
- Dynamic quiz creation tied to subjects and courses.
- A question and option bank supporting multiple-choice quizzes.
- Persistent tracking of user responses for assessment and analytics.

With modular architecture and clean separation of concerns across models, views, and templates, this project lays a solid foundation for future enhancements such as real-time quiz monitoring, result analytics, and gamification features. Overall, the system offers a complete backend infrastructure for digital learning assessment and is ready for integration with modern frontend technologies or mobile platforms.

LEARNING DURING PROJECT WORK

Throughout the development of the Quiz Application, several valuable skills and insights were gained that contributed to both technical competence and real-world software development experience. Key learnings include:

- **Django Framework Proficiency:** Gained in-depth understanding of Django including custom user models, URL routing, and decorators like `@login_required`.
- **Database Design & ORM:** Learned how to structure relational data using Django ORM, establishing efficient relationships among models like users, quizzes, questions, and responses.
- **Form Handling & Validation:** Implemented robust server-side form validation, including custom rules for registration and login, ensuring secure and user-friendly inputs.
- **Authentication & Role Management:** Built a role-based authentication system allowing different dashboards and permissions for students, professors, and administrators.
- **Debugging & Testing:** Improved problem-solving skills by debugging errors, handling edge cases, and testing functionality across different user flows.
- **Real-World Project Workflow:** Understood the full development lifecycle—from planning and modeling to coding, testing, and documentation—mirroring professional development practices.

FUTURE ENHANCEMENTS

To further improve the functionality, scalability, and user experience of the Quiz Application, the following enhancements are proposed for future development:

- **Quiz Scheduling & Notifications:** Enable quiz scheduling with automated email/SMS reminders and notifications to keep users informed.
- **Support for Multimedia Questions:** Allow images, videos, and audio clips to be embedded in questions and options for more interactive learning.
- **Mobile App Integration:** Develop a companion Android/iOS app to allow students to take quizzes on-the-go and receive instant results.
- **Randomized Questions & Options:** Introduce random shuffling of questions and answer options to minimize cheating and improve assessment fairness.
- **Certificate Generation:** Automatically generate and email certificates for students upon quiz completion or achieving certain performance criteria.
- **Dark Mode & Accessibility Improvements:** Improve UI/UX by offering theme choices and ensuring compliance with accessibility standards for users with disabilities.

These enhancements aim to evolve the system into a comprehensive, user-centric assessment platform suitable for schools, universities, and corporate training programs.

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2. Django for Beginners (By William S. Vincent)

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- <https://www.geeksforgeeks.org/>