ONLINE QUIZ SYSTEM

Project Report

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Technology: Java Swing + MySQL

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# Introduction

The Online Quiz System is designed to simplify the quiz process by providing a secure and user-friendly interface. It enables multiple users to interact with the system simultaneously and stores data persistently in a MySQL database. The system handles user authentication, quiz selection, question display, and timed answering. It also provides the ability for administrators to insert new questions dynamically into the database, ensuring that the quiz content remains fresh and up-to-date. The architecture follows modular design principles, making it easier to maintain, extend, and improve.

# 2. Objectives and Scope

The system has the following objectives:

• To provide a complete quiz-taking environment with login, selection, and results.

• To allow new users to register their accounts securely and easily.

• To enable dynamic management of quiz questions without redeploying the application.

• To store data reliably using MySQL and support future scaling of database tables.

• To maintain a separation of concerns between the front-end (Swing) and back-end (JDBC).

• To display results and store scores for later review and analytics.

The scope of the system includes a modular design where each functionality is separated into frames or classes. The DBConnection handles database connectivity, the LoginFrame and RegisterFrame manage authentication, the QuizSelectorFrame manages quiz selection, and the QuizFrame conducts the quiz and shows results. The QuestionInsertFrame is provided to insert new questions without direct database access.

In addition, this project demonstrates basic CRUD operations in Java with a GUI, use of PreparedStatements to prevent SQL injection, and use of timers in Swing.

# 3. System Modules

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## 3.1 User Module

The user module enables registration, login, and taking quizzes. It validates credentials against the database and ensures only valid users proceed.

## 3.2 Admin Module

The admin module allows insertion of questions through a GUI. Admins can add questions with options A, B, C, and D, and mark the correct option.

# 4. Technology Used

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The following technologies are used:

• Frontend (UI): Java Swing

• Backend: Java with JDBC

• Database: MySQL

• Language: Java SE 8 or higher

# 5. Database Schema

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# 6. System Flow

The Online Quiz System is designed to simplify the quiz process by providing a secure and user-friendly interface. It enables multiple users to interact with the system simultaneously and stores data persistently in a MySQL database. The system handles user authentication, quiz selection, question display, and timed answering. It also provides the ability for administrators to insert new questions dynamically into the database, ensuring that the quiz content remains fresh and up-to-date. The architecture follows modular design principles, making it easier to maintain, extend, and improve.

# 7. Snapshots

The Online Quiz System is designed to simplify the quiz process by providing a secure and user-friendly interface. It enables multiple users to interact with the system simultaneously and stores data persistently in a MySQL database. The system handles user authentication, quiz selection, question display, and timed answering. It also provides the ability for administrators to insert new questions dynamically into the database, ensuring that the quiz content remains fresh and up-to-date. The architecture follows modular design principles, making it easier to maintain, extend, and improve.

# 8. How to Run

The Online Quiz System is designed to simplify the quiz process by providing a secure and user-friendly interface. It enables multiple users to interact with the system simultaneously and stores data persistently in a MySQL database. The system handles user authentication, quiz selection, question display, and timed answering. It also provides the ability for administrators to insert new questions dynamically into the database, ensuring that the quiz content remains fresh and up-to-date. The architecture follows modular design principles, making it easier to maintain, extend, and improve.

To compile:

javac \*.java

To run login:

java OnlineQuizSystem

To run insert questions:

java QuestionInsertFrame

# 9. Features

The Online Quiz System is designed to simplify the quiz process by providing a secure and user-friendly interface. It enables multiple users to interact with the system simultaneously and stores data persistently in a MySQL database. The system handles user authentication, quiz selection, question display, and timed answering. It also provides the ability for administrators to insert new questions dynamically into the database, ensuring that the quiz content remains fresh and up-to-date. The architecture follows modular design principles, making it easier to maintain, extend, and improve.

✅ User authentication with login and registration

✅ Multiple-choice quiz interface with timer

✅ Dynamic question insertion through GUI

✅ Database storage of results and scores

✅ Modular architecture for easy maintenance

# 10. Future Enhancements

The Online Quiz System is designed to simplify the quiz process by providing a secure and user-friendly interface. It enables multiple users to interact with the system simultaneously and stores data persistently in a MySQL database. The system handles user authentication, quiz selection, question display, and timed answering. It also provides the ability for administrators to insert new questions dynamically into the database, ensuring that the quiz content remains fresh and up-to-date. The architecture follows modular design principles, making it easier to maintain, extend, and improve.

Future improvements could include password hashing, improved UI design with JavaFX, analytics dashboards for administrators, and an online deployment using web technologies.

# 11. Conclusion

In conclusion, the Online Quiz System achieves its goal of providing a platform for conducting quizzes in a secure and efficient manner. It demonstrates the integration of Java Swing for desktop GUI development with MySQL for persistent storage. This project can serve as a foundation for more complex online examination systems.