

Online Quiz System with Oracle PL/SQL

This project by Bakwiye Massa Patience creates an automated, secure online quiz system. Using Oracle Database and PL/SQL, it delivers advanced quiz management with automatic scoring and performance tracking.

Integrating Management Information Systems concepts, the system provides valuable insights through analytical dashboards.



Develop a secure, automated online quiz platform to improve evaluation efficiency.

Automatic scoring, user action tracking, critical operation restrictions, and MIS analytical dashboards.

Oracle Database, PL/SQL for backend, plus information systems concepts for management and reporting.

Problem Definition

1

Manual System Issues

Manual systems lead to frequent errors and high time consumption for test correction.

2

Real-Time Tracking Required

Urgent need to instantly obtain accurate student performance evaluation during quiz sessions.

3

Missing Integrated Feedback

Existing systems lack integrated dashboards for results tracking and advanced security mechanisms.



Methodology and Approach

Database Design

Normalized ER modeling ensuring data integrity and consistency.

Process Modeling

BPMN diagram with swimlanes describing interactions between teachers, students, system and MIS dashboard.

Entity-Relationship Diagram

Five Main Entities

Teacher, Quiz, Question, Attempt, and Student form the logical structure.

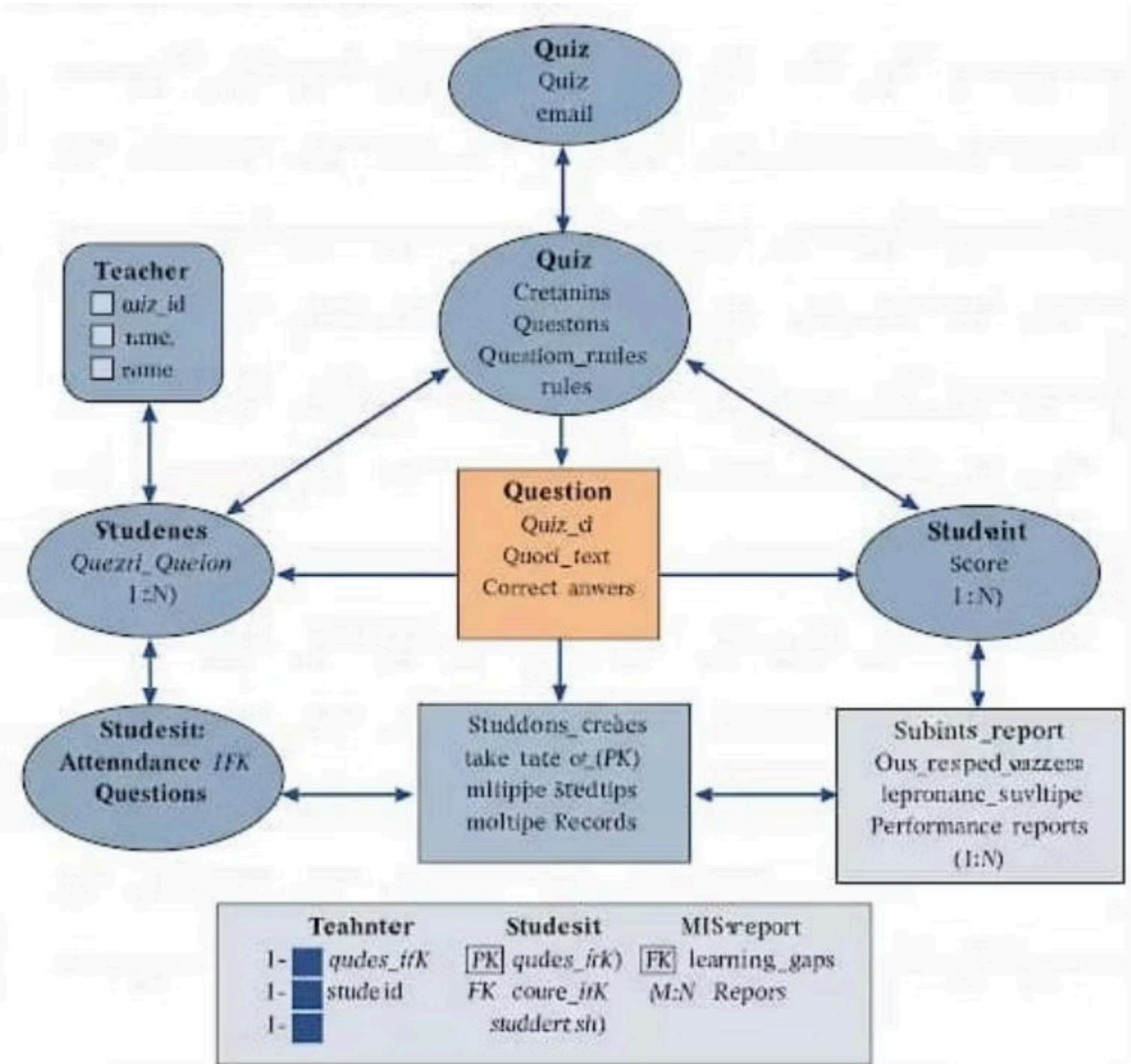
One-to-Many Relations

Multiple quizzes per teacher and multiple student attempts per quiz.

Data Consistency

Modeling ensures coherence and facilitates complex operations like attempt tracking and audit reports.

Business Process Modeling (BPMN)



Student

Participates in online quizzes with secure, automated interactions.

System

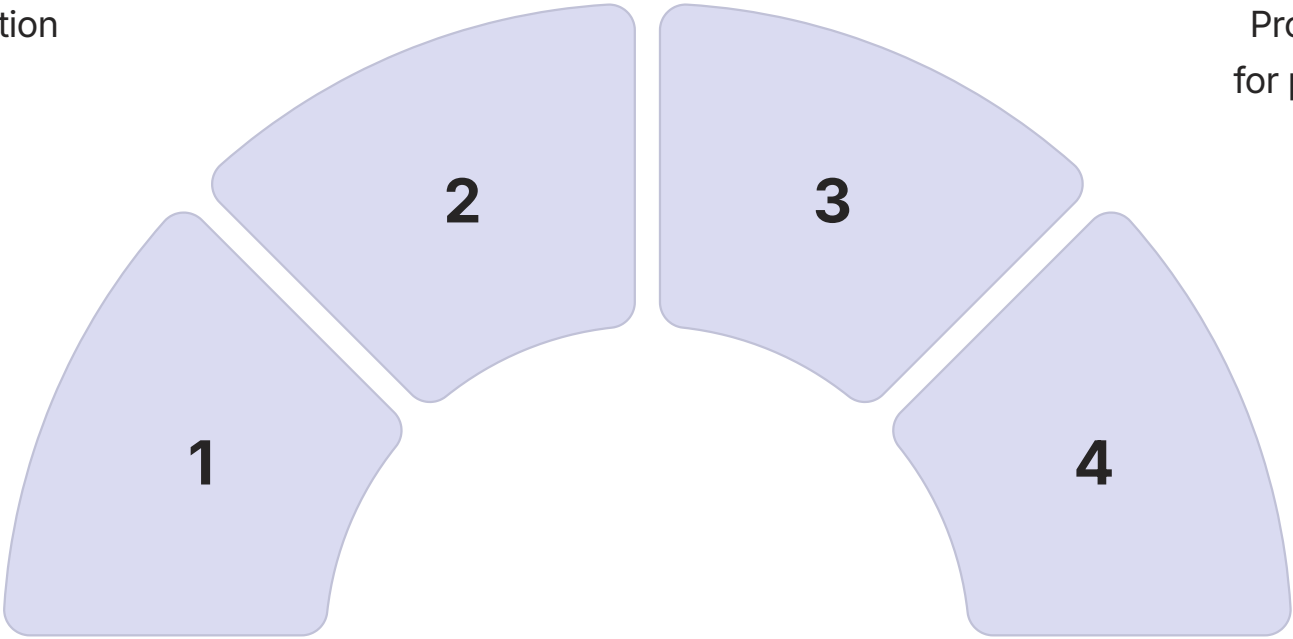
Automates scoring, controls restricted access, stores attempt data.

Teacher

Responsible for quiz creation and management via dedicated interface.

MIS Dashboard

Produces analytical reports for performance tracking and decision making.





System Implementation

1

PL/SQL Procedures

Robust procedures coordinate operation execution and user action control.

2

Security Triggers

Triggers guarantee integrity and security throughout the system.

3

Audit Logs

Essential audit journals provide complete traceability of all operations.

Oracle®

Results and Future Perspectives

Achievements

Functional, secure system deployed with automatic MIS reporting.

Quiz Feedback Module

Incorporate feedback features to improve user experience.

Mobile Development

Create mobile version for anytime, anywhere accessibility.