System Requirement Document

Project Title

Examination System Database

System Overview

The Examination System Database is a robust solution designed to streamline the management, creation, and evaluation of exams. It encompasses comprehensive features for question management, student assessment, and administrative functionalities.

System Requirements

Core Features

1. Question Pool Management:

* Instructors are empowered with access to a versatile question pool, featuring multiple-choice, true/false, and text questions.
* The system facilitates the seamless selection of questions by instructors for exam creation.

1. Question Types:

* Multiple choice and true/false questions: Automated storage of correct answers with real-time assessment.
* Text questions: Manual evaluation enabled through stored best-accepted answers, utilizing text functions and regular expressions.

1. Course Management:

* Centralized storage of course information, including name, description, max degree, and min degree.
* Dynamic association of instructors and students with specific courses.

1. Instructor Responsibilities:

* Empowers instructors with the ability to add, update, and delete questions within their assigned courses.
* Facilitates exam creation, allowing instructors to select questions, assign degrees, and define exam parameters.

1. Training Manager Responsibilities:

* Authority to manage instructors and courses.
* Granular control over branches, tracks, and intakes.
* Oversight in adding students and defining their personal data, intake, branch, and track.

1. User Authentication:

* Robust login authentication for training managers, instructors, and students.
* Role-based access control ensures users only access tasks pertinent to their roles.

Exam Administration

1. Exam Creation:

* Intuitive exam creation for instructors, offering flexibility in question selection, degree assignment, and other parameters.
* Empowers instructors to either randomly select questions or manually curate from the question pool.

1. Exam Details:

* Capture comprehensive details including exam type (exam or corrective), intake, branch, track, course, start time, end time, total time, and allowance options.

1. Student Selection:

* Streamlined process for instructors to select eligible students for specific exams.
* Empowers instructors to define exam-specific details such as date, start time, and end time.

1. Student Responses:

* Automated tracking of student responses during exams.
* Real-time calculation of correct answers and final results for each student within the course.

1. Data Integrity and Security:

* Stringent implementation of constraints and triggers ensuring data integrity.
* Utilization of SQL users and permissions for secure, role-based access control.

Technical Specifications

1. Database Implementation:

* Thoughtful use of file groups based on data size considerations.
* Implementation of optimal data types with adherence to systematic naming conventions.

1. Performance Optimization:

* Rigorous implementation of indexes to enhance database performance.

1. Backup System:

* Automated daily backup functionality ensuring data resilience.

1. Query Abstraction:

* Adoption of stored procedures and functions for seamless execution of system tasks.
* User-friendly views for displaying results, eliminating the necessity for users to directly interact with queries.

1. User Interface:

* Intuitive and diverse options for users to search and display results based on varied criteria.

Testing

1. Test Data:

* Rigorous insertion of test data across all tables to validate and ensure the robust functionality of the system.

---