RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES

RK VALLEY, KADAPA

WAT'S:SMART GUAGE

Using MERN Stack.

Project Guide:

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Weekly Assessment Tests(WAT's)

Outline of the Project:

1. Problem Statement
2. Abstract
3. Objectives
4. Technology Stack
5. Key Modules & Features
6. Conclusion

Problem Statement

The current Weekly Assessment Tests (WATs) at RGUKT face multiple inefficiencies, including delayed start times, inconsistent test durations, lack of immediate results, and high chances of cheating. These challenges cause frustration for students and inefficiencies for teachers. Additionally, the absence of secure authentication allows unauthorized test attempts, and the manual evaluation of test papers adds to the faculty workload.

The WAT platform aims to solve these issues by automating the scheduling process, enforcing strict time limits, securing login, preventing cheating, and instantly evaluating tests to enhance fairness and efficiency.

Abstract

The Automated Weekly Assessment Test (WAT) Platform is a web-based solution designed to modernize and streamline weekly assessments in colleges. Traditional test management methods suffer from manual inefficiencies, delays, and security vulnerabilities.

This platform automates test scheduling, ensures standardized time management, and enhances security measures to prevent cheating. It provides real-time test monitoring, secure login authentication, and instant result generation.

Key features include:

- Automated link distribution to eliminate delays.
- Real-time countdown timer for strict time enforcement.
- Tab-switch detection to prevent cheating.
- Randomized questions and shuffled answer choices to reduce answer sharing.
- Automated score generation for MCQs to minimize faculty workload.

Built using React.js, Node.js, MongoDB, and JWT authentication, this secure and scalable system ensures an efficient, transparent, and fair assessment process.

Objectives

- Automate the test scheduling process to eliminate manual distribution delays.
- Provide instant result evaluation for faster feedback and student performance analysis.
- Ensure fairness with standardized test duration and automatic submission at time expiry.
- Prevent cheating using tab-switch detection, copy-paste restrictions, and randomized questions.
- Secure student authentication using college email-based login and password encryption.
- Reduce faculty workload through automated grading and result generation.

Technology Stack

Frontend:

- React.js with Tailwind CSS for a responsive UI.
- Browser APIs for detecting tab switches and preventing text selection.

Backend:

- Node.js and Express.js for API management and business logic.
- JWT authentication for secure student login.

Database:

- MongoDB for storing test schedules, student records, and results.

Security:

- Bcrypt.js for password encryption.
- Session management for secure test access control.

Key Modules & Features

1. User Authentication & Security

- Secure login & authentication using college email and password.
- JWT-based session management for access control.

2. Test Scheduling & Management

- Automated test scheduling & link distribution.
- Test link expiration to prevent late access.

3. Test Interface & Monitoring

- Real-time countdown timer displayed on the test screen.
- Forced submission when the timer reaches zero.
- Tab-switch detection & auto-submit if a student navigates away.
- Disabled text selection and right-click to prevent copying questions.

4. Randomized Question Papers

- Teachers can create a large question bank.
- Dynamic question selection and shuffling to prevent answer sharing.

5. Automated Evaluation & Instant Results

- Pre-stored correct answers for multiple-choice questions.

- Real-time answer checking and score calculation.
- Instant result display after test submission.

Conclusion

The Automated Weekly Assessment Test (WAT) Platform is a step toward modernizing college assessments, ensuring efficiency, security, and fairness. By automating scheduling, securing authentication, enforcing strict test durations, preventing cheating, and instantly evaluating answers, the platform significantly improves the student testing experience.

This MERN-based solution eliminates manual inefficiencies and reduces faculty workload while maintaining a fair, transparent, and secure examination environment.