Summary Report for Online Learning Portal

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ISTE 240

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March 8, 2025

Project Scope: The objective of this project is to develop an online learning portal where students can read notes from various classes and solve quizzes. At the same time, staff members can monitor student progress. The system will implement role-based authentication, allowing students to access learning materials and quizzes, and staff to oversee student activities. The platform will support essential features such as user registration, authentication, course management and progress tracking.

Technical Requirements

- **Backend:** Spring Boot (Java) for rapid development, dependency management, and API creation.
- **Database:** MySQL for relational data storage (including notes, quizzes and registration data).
- **Frontend:** HTML5, CSS3, SemanticUI for responsive design, and jQuery for interactive UI components.
- **Testing:** JUnit and Spring Test for backend validation.

Major UX/UI Design Decisions

- **User-Friendly Interface:** The UI will be designed for intuitive navigation, with a clean and responsive layout using SemanticUI. JavaScript and jQuery will be used for dynamic content updates and smooth user interactions.
- **Role-Based Dashboard:** Separate dashboards for students and staff with personalized content. This will be achieved using conditional rendering in JavaScript.
- **Progress Visualization:** Graphical representations such as progress bars for course completion. The fetch() method will be utilized to update progress in real-time without reloading the page.
- **Interactive Learning Experience:** fetch()-based dynamic content loading and real-time updates to ensure a seamless experience for users when navigating between courses and quizzes.
- **Mobile Compatibility:** Ensuring usability across various devices using responsive design techniques in SemanticUI and media queries in CSS3.

Key Features

- **User Authentication:**
  - Registration and login via Spring Boot. The user inputs their credentials, sends a request to the server, and the server checks whether the user is a student or staff member based on their credentials.
  - The server verifies the user's role (student or staff) upon login and grants access accordingly.

- **Course Catalog and Enrollment:**
  - Courses categorized by subjects and modules.
  - Students can enroll in courses and track their progress.

- **Quiz System:**
  - Quiz questions stored in the database and retrieved via GET requests.
  - Submission handled via POST requests with instant feedback.

- **Progress Tracking:**
  - The system allows students to track their progress through a dynamic percentage bar that updates as they complete chapters, while admins can view and manage student progress across courses, accomplished by using Spring Boot for backend logic, MySQL for data storage, fetch() for real-time updates, and role-based access control for personalized views.

Web Development Technologies

- **Backend:** Java, Spring Boot, Spring Security, Spring Data JPA.
- **Frontend:** HTML5, CSS3, JavaScript, jQuery, SemanticUI
- **Database:** MySQL