EdTech: Technology-Driven Learning Platform

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Abstract: **The project focuses on developing a robust online course platform using HTML, CSS, Bootstrap and JavaScript, designed to offer an immersive educational experience through videos, articles, quizzes and a compiler. The platform features secure user authentication and role-based access control, ensuring that students, instructors, and administrators have appropriate permissions. Instructors can create and manage courses, including uploading video lectures, writing articles, and designing quizzes, while students can browse, enrol in courses, and track their learning progress. Additionally, the integration of a video player, rich text editor, and interactive quizzes helps deliver diverse educational content effectively, promoting active learning and engagement.**

The backend, powered by PHP, provides RESTful APIs for efficient data handling and seamless communication between the front- end and back-end. By leveraging modern web technologies, this online course platform aims to offer a comprehensive and dynamic learning environment that caters to the diverse needs of students and educators. The combination of secure, scalable backend services with a responsive, interactive front-end makes this platform a powerful tool for modern education, enabling effective knowledge dissemination and fostering an engaging learning community.

Key Words: online course platform using HTML, user authentication, PHP, provides RESTful APIs for efficient data handling

I. LITERATURE SURVEY

Goldsmith and Lafferty (2002) added that these emotions appear when consumers look at an advertisement about the brand and are influenced to buy it.

Adelaar et al (2003) suggested that buying behaviour is a result of emotional response, which is affected by three independent factors i.e., pleasure, arousal, and dominance.

Jacqueline J. Kacen (2002) in her research. Dr. N. Priya (2019) stated that today, in the technology epoch, internet advertising has almost enshrined itself, the internet is the most optimal environment for advertising, which can attract, inform, and motivate consumers to have a positive attitude towards a new product with the help of effective advertisements at an unprecedented frequency and on a large scale, but, on the other hand, A. Kumar (2011) in his research stated that the quality of the product, its value for a given price, and promotional strategies make the second most important impact on the likelihood of a purchase (repurchase).

II. EXISTING SYSTEM

The current landscape of online learning platforms is fragmented, with many systems offering varied functionalities and user experiences.

These platforms typically address individual components of online learning but often fall short in providing a cohesive and integrated solution for course management and enrolment. Key issues in existing systems include:

A. Disjointed User Experiences:

Many platforms lack a seamless user journey, causing confusion and frustration among students and instructors. Navigating through different sections of the platform can be cumbersome, with inconsistent interfaces and unclear navigation paths.

B. Limited Administrative Tools:

Administrators face challenges with insufficient tools for managing courses, users, and content. This often results in increased manual work, higher chances of errors, and inefficiencies in handling administrative tasks.

C. Inefficient Course Management:

Existing platforms frequently provide limited functionality for creating, organizing, and managing course content. Instructors find it difficult to upload, update, and organize materials, leading to outdated or incomplete course resources.

D. Complex Enrolment Processes:

The enrolment process on many platforms is often convoluted, requiring multiple steps and manual intervention. This complexity can deter students from enrolling in courses and result in lower participation rates.

E. Inadequate Feedback Mechanisms:

Platforms often lack robust systems for providing feedback and tracking student progress. This hinders students' ability to gauge their performance and improve their learning outcomes.

F. Lack of Interaction and Engagement Tools:

Many platforms do not adequately support interaction between students and instructors, limiting opportunities for engagement, discussion, and collaborative learning.

III. DRIVERS OF GROWTH OF THE EDTECH INDUSTRY IN INDIA

The rapid growth experienced by the EdTech Industry in India can be attributed to a combination of several factors as explained below:

A. Lower Costs:

The online course platforms leverage the economies of scale since they have a larger user base and very low infrastructural costs as compared to offline modes.

B. Quality Education for all:

The EdTech industry makes quality education accessible to students in regions where the availability of quality offline education is lower. As a result, they see a higher adoption rate from regions like Jammu and Kashmir, Kerala, and Bihar for distance learning programs.

C. Industry Relevant Training:

Unfortunately, an increase in the population of our country has coincided with an increase in unemployment ratios. Jobs aren't created as fast as students enter the job market which makes students explore reskilling options to get the right training for their industries.

D. Demographic Dividend:

Nearly 46 percent of the Indian population is in the age group 15-40, making them a large potential target group for these EdTech companies.

E. Government Initiatives:

The government has supported the growth of the online education industry and have also come up with some initiatives of their own including SWAYAM and NPTEL (free education by IIT professors) to enable the growth of educational infrastructure in India.

IV. PROBLEM STATEMENT

Imagine a web application designed to make learning programming languages as engaging as binge-watching your favourite series. It will allow users to register easily and protect their password with a simple captcha and login page for security. We'll create categories like web development scripting programming and Python (think python for example) to enable learners to browse and find the language that sparks their interest. Making learning manageable and fun.

When you click on a video it will play with intuitive controls and there will be an answer box where the learner can ask questions about their doubts or share insights. But it doesn't stop there! We'll include a built-in compiler so users can test out the code they have learned directly on the desktop platform. If a user successfully runs their code after that they can upload the snippets to their profile, showcasing their progress.

V. OBJECTIVES

The primary objective of this project is to develop a comprehensive web application that streamlines course management and enrolment processes, enhancing the overall user experience for both students and instructors. The key goals include:

A. Improving User Experience:

Design an intuitive and user-friendly interface that simplifies navigation and enhances the overall user journey for students and instructors.

B. Enhancing Administrative Tools:

Develop robust tools for administrators to efficiently manage courses, users, and content, reducing manual work and improving operational efficiency.

C. Simplifying Enrolment Processes:

Implement a straightforward and efficient enrolment system that encourages student participation and reduces barriers to entry.

D. Supporting Multiple User Types:

Establish two distinct user account types (student and instructor) with tailored functionalities to meet their specific needs. Enabling Course Management: Develop tools for instructors to easily manage course materials, assignments, and resources, ensuring that content is up-to-date and well-organized.

E. Integrating Interaction Tools:

Integrate discussion forums and other interaction tools to facilitate communication and engagement between students and instructors.

F. Implementing Notifications:

Develop a notification system to keep users informed about updates, deadlines, and announcements, ensuring they stay engaged and on track.

VI. CHALLENGES AND LIMITATIONS

Despite advancements, online learning platforms face several challenges:

A. Scalability Issues:

As platforms grow, maintaining performance and reliability becomes challenging. High user loads can lead to slow response times and system crashes, affecting the user experience.

B. User Adoption Barriers:

Factors such as technological proficiency, access to reliable internet, and resistance to change can hinder the adoption of online learning platforms. Addressing these barriers requires targeted interventions and support.

VII. METHODOLOGY

A. Development Process:

The software development lifecycle (SDLC) model chosen for this project is Agile, specifically tailored to promote flexibility, responsiveness, and iterative development cycles. Agile methodologies allow for continuous feedback and adaptation to evolving requirements throughout the development process.

- Agile Development Sprint Planning
- Development Sprints
- Daily Standups
- Sprint Reviews and Retrospectives

B. System Architecture:

The high-level architecture of the online course platform is designed to ensure scalability, maintainability, and performance.

- Client-Server Architecture
- Frontend
- Backend
- Database APIs

C. Design Principles:

Key design principles guide the development of the online course platform, focusing on usability, scalability, security, and maintainability

- User-centred Design
- Responsive Design
- Modular Design
- Security by Design

D. Project Management:

Approach Effective project management ensures the timely delivery of the online course platform while managing resources, risks, and stakeholder expectations

- Project Planning
- Task Management
- Version Control
- Continuous Integration and Deployment (CI/CD):
- Quality

VIII. EXPERIMENTAL RESULTS

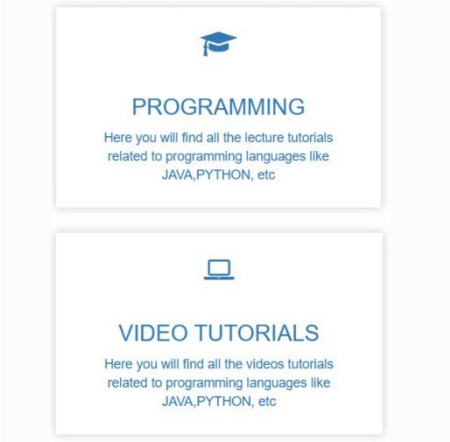

Fig. 1.

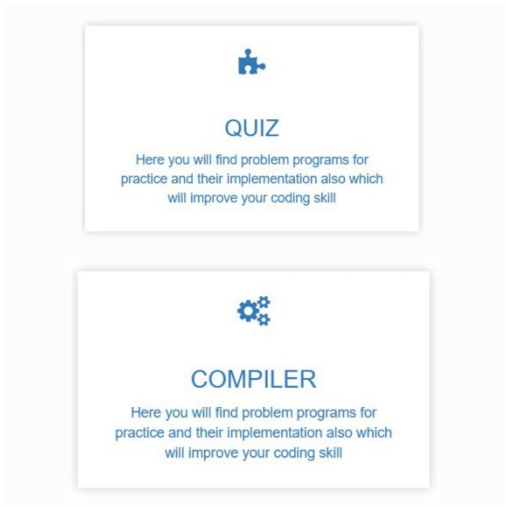

Fig. 2.

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