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## Online Learning Portal with Video Upload & Quiz

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### ABSTRACT

*Online Learning Portal with video upload introduces an online learning portal aimed at addressing limitations in conventional online education systems, such as insufficient security, poor scalability, and limited support for multimedia learning. The primary objective is to offer a secure, efficient, and accessible environment for both administrators and students, where video lectures can be easily uploaded, managed and accessed. Developed with the MERN stack- MongoDB, Express.js, React.js and Node.js the system ensures high scalability, modularity, and optimized performance. Cloudinary is utilized for reliable, secure, and fast video streaming across different devices.*

**KEYWORDS** *Online Learning, E- Learning Portal, Video Upload, Mern Stack, Cloud Storage, Course Management.*

### INTRODUCTION

Online learning platforms that have revolutionized the delivery process and consumption of education in the quickly changing digital age. Despite its effectiveness, traditional classroom-based learning is frequently constrained by scheduling, resource, and geographic limitations. Web-based portals that connect teachers and students and facilitate knowledge sharing across geographical borders have been developed in response to the demand for adaptable, easily

accessible, and interactive learning solutions. By offering a centralized platform where teachers can produce, post, and oversee video-based lessons and students can access these materials whenever it's convenient for them, the Online Learning Portal with Video post aims to meet these demands. A smooth user experience is ensured by the system's support for device-responsive design, well-structured course structures, secure user authentication, and high-quality video streaming. Technologically, Tailwind CSS and daisyUI are used in the platform's React.js frontend, which is powered by Vite for quick development and responsive UI design. Core features are managed by the Node.js and Express.js backend, while user profiles, course metadata, and content organization are efficiently stored in MongoDB. Smooth playback across a range of devices and network circumstances is ensured by the integration of Cloudinary for safe and efficient video storage.

## **LITERATURE SURVEY**

The literature review highlights existing research and technologies used in developing online learning systems. Patel et al. (2019) highlighted how video-based learning portals increase engagement and accessibility. However, their approach lacked personalization features and required high internet bandwidth, which can be a limitation in low-connectivity regions. Chen et al. (2021) explored blockchain for digital rights management in e-learning videos, ensuring content protection and authenticity. A key limitation of their study was the high implementation cost and complex integration of blockchain with existing platforms. Gupta et al. (2013) discussed cloud storage scalability in managing large educational datasets. While their solution offered scalability, it raised data privacy concerns and required strong security measures, which were not deeply addressed in their work. These studies collectively inspired the development of this project while also highlighting gaps that need improvement.

## **RELATED WORK**

Several studies have explored web technologies to enhance e-learning platforms, focusing on scalability, security, content delivery, and user engagement. LMS platforms like Moodle and Canvas support remote education but require technical expertise. Cloud services such as Cloudinary and AWS S3 enable efficient multimedia storage and streaming. NoSQL databases like MongoDB offer flexibility for dynamic course structures, unlike rigid relational schemas. JSON Web Tokens (JWT) provide secure, role-based authentication for different user types. React.js is widely used to build responsive,

interactive interfaces that improve user experience. Together, these technologies form the backbone of modern e-learning systems. The proposed system integrates the MERN stack, JWT authentication, and cloud video storage to create a secure, scalable, and user-friendly platform.

### EXISTING METHOD

The paper by M. R. Islam et al. on video upload and streaming for asynchronous learning, while beneficial, has several drawbacks. It relies heavily on stable internet connections, which can affect streaming in low-bandwidth areas. Large video files lead to longer uploads, buffering issues, and increased storage costs. The paper lacks focus on efficient compression and adaptive streaming, affecting playback quality on different devices. It also overlooks real-time interaction, limiting immediate feedback, and does not address scalability for multiple users or strong security measures for content protection. These gaps highlight the need for more optimized and secure streaming solutions in e-learning.

### PROPOSE METHOD

Existing online learning systems like Moodle and Canvas have limited interactivity and personalization. They struggle with scalability, engagement, and secure content management. The proposed method uses AI-based recommendations for adaptive learning experiences. Blockchain ensures secure video ownership and content authenticity. In the, Cloud-based microservices enhance scalability, reliability, and fast performance. The AR/VR integration enables immersive and interactive virtual classrooms. Machine learning analytics monitor learner progress and suggest suitable content. This approach builds a secure, intelligent, and engaging online learning environment.

### SYSTEM ARCHITECTURE

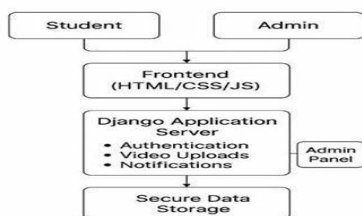


Fig-1: Project Architecture Online Learning Portal with Video Upload

### METHODOLOGY DESCRIPTION

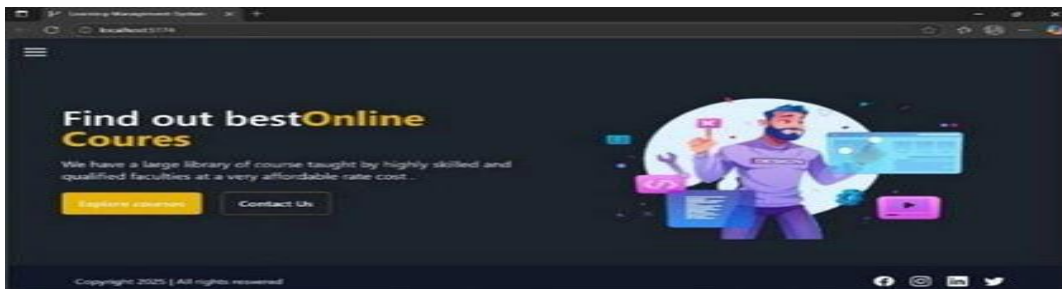
The Online Learning Portal with Video Upload is designed using a three-tier architecture: frontend, backend, and database.

The frontend uses JavaScript, React.js handles user interaction and sends HTTP requests to the backend when data is needed or actions are performed to provide a simple interface for students and instructors to register, log in, and access or upload videos.

The backend, developed with Flask, handles user authentication, data processing, and communication between the interface and the database. Database: The database layer securely stores user details, course data, and video information.

RESTFUL Apis are used for smooth data transfer, and role-based access control ensures system security.

## RESULTS AND DISCUSSION



**Fig-2: Home Page**

The Online Learning Portal's home page highlights the motto "Find out best Online Courses" with a contemporary, dark-themed design that is easy to read and connect with.



**Fig-3: Admin Page**

The LMS allows easy access to the Home page, Admin Dashboard, course creation, courses, contact info, and About Us, with profile and logout options. Its simple and organized layout ensured users can navigate the platform efficiently, improving the overall experience.



**Fig-4: Student Courses Page**

Examine a variety of courses in web development, programming, database administration, and emerging technologies that have been developed by knowledgeable experts. Every course is meant to impart real-world information and skills.

## CONCLUSION

The Online Learning portal with video upload provides an efficient and user-friendly platform for learning and teaching. It ensures secure access, organized course management, and seamless interaction between instructor and students. Overall, the system enhances the digital learning experience supports flexible education.

## FUTURE SCOPE

In the Future Enhancement, the portal can be improved by adding features like real-time chat, AI-based process course recommendations, and integration with AR/VR technologies to make learning more interactive and personalized.

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