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Video Workshop Platform with YouTube Integration

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Abstract

Online video-based education platforms provide extensive learning resources but often reduce learning efficiency due to recommendation-driven distractions. This paper presents a Video Workshop Platform with YouTube Integration that promotes structured and distraction-free learning through hierarchical topic organization. Users can create recursively nested workshops, ensuring focused and goal-oriented learning paths. The system is implemented as a client-side single-page application using HTML, CSS, and JavaScript, integrating the YouTube Data API v3 for controlled content retrieval and browser-based storage for persistence

Keywords: E-learning; Structured learning; YouTube Data API; Single Page Application; Web application

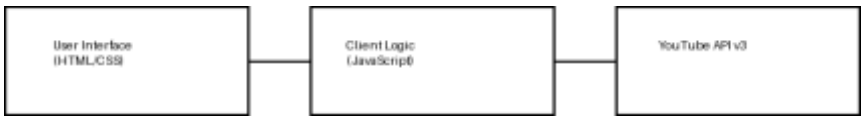
1. Introduction

The widespread adoption of video-based learning has transformed digital education. However, algorithm-driven recommendation systems frequently divert learners from their intended topics. The proposed platform addresses this issue by enforcing topic-centric learning through hierarchical content organization.

2. SYSTEM ARCHITECTURE

The system follows a client-side Single Page Application architecture where all rendering and state management occur within the browser. A hierarchical data model represents workshops and sub- workshops, while navigation depth is managed using a stack-based mechanism.

Fig. 1. Overall System Architecture



3. TECHNOLOGY STACK AND COMPONENTS

The platform integrates standard web technologies with external APIs. Table I summarizes the technology stack used.

TABLE I. TECHNOLOGY STACK

Component	Technology
Frontend	HTML, CSS, JavaScript
API Integration	YouTube Data API v3
Persistence	Local Storage
Deployment	Netlify / Vercel

4. CONCLUSION AND FUTURE WORK

The platform demonstrates the feasibility of structured learning using client-side technologies. Future enhancements include migration to a MERN stack, server-side content filtering, and scalable database persistence.

5. REFERENCES

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