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PixelTruth: College Fest Management

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Abstract-The organization of college fests involves multiple activities such as event scheduling, participant registration, coordination among student committees, and communication with participants. Traditionally, these tasks are managed manually or through scattered digital tools, which often leads to inefficiencies, data inconsistencies, and communication gaps. To address these challenges, we have developed a **College Fest Management Platform**, a web-based application built using the MERN (MongoDB, Express.js, React.js, Node.js) stack.

The platform offers **secure authentication using JWT** for administrators, enabling them to create, update, and delete events with ease. Students, on the other hand, are provided with a **user-friendly interface** to view and explore upcoming events in real time. The system not only reduces dependency on manual processes but also ensures **data accuracy, transparency, and improved accessibility**.

By leveraging cloud-hosted services such as **MongoDB Atlas for data storage** and **Vercel for deployment**, the platform provides scalability and availability. Extensive testing was conducted to validate the system's performance, usability, and

reliability, demonstrating its effectiveness in streamlining college fest management.

This project highlights how integrating modern web technologies can transform traditional event management into a **digitized, efficient, and interactive system**, thereby enhancing the overall fest experience for both students and administrators.

I.INTRODUCTION

College festivals are an integral part of academic life, providing students with opportunities to showcase their talent, creativity, leadership, and organizational skills. These fests often include cultural programs, technical competitions, workshops, and entertainment events that require careful planning and coordination. Traditionally, managing these events involves manual processes such as maintaining spreadsheets, physical notices, and direct communication among organizing committees. While effective to some extent, these methods are **time-consuming, error-prone, and difficult to scale** for larger events.

With the advancement of **digital technologies and web-based solutions**, there is a growing need for an integrated platform that can handle all aspects of fest management seamlessly. The **College Fest Management Platform** is designed to address these challenges by offering a centralized digital solution for administrators and students.

commercial, or costly for academic institutions.

Recent works also emphasize the importance of **secure authentication** using JWT and role-based access to ensure data protection [4]. At the same time, the **MERN stack (MongoDB, Express.js, React.js, Node.js)** has become a popular choice for building scalable, interactive platforms [5][6].

However, there is still a gap in systems that integrate **secure admin controls, real-time updates, and student-friendly interfaces** specifically designed for **college festivals**. Our proposed platform addresses this gap by combining modern web technologies with a focus on event management in academic environments.

II. LITERATURE REVIEW

Traditional college fest management relied on manual methods such as notices, emails, and spreadsheets, which often led to errors, delays, and poor communication [1]. To improve this, researchers proposed **web-based student portals and event management applications** [2][3]. While these systems improved scheduling and registration, they were either **too generic, commercial, or costly** for academic institutions.

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III. METHODOLOGY

The development of the College Fest Management Platform followed a systematic approach:

Requirement Analysis

Identified needs of students and administrators (event creation, updates, secure login, and easy event viewing).

System Design

Created **architecture diagrams** showing admin and student modules.

Database schema designed in **MongoDB** for event storage.

Implementation

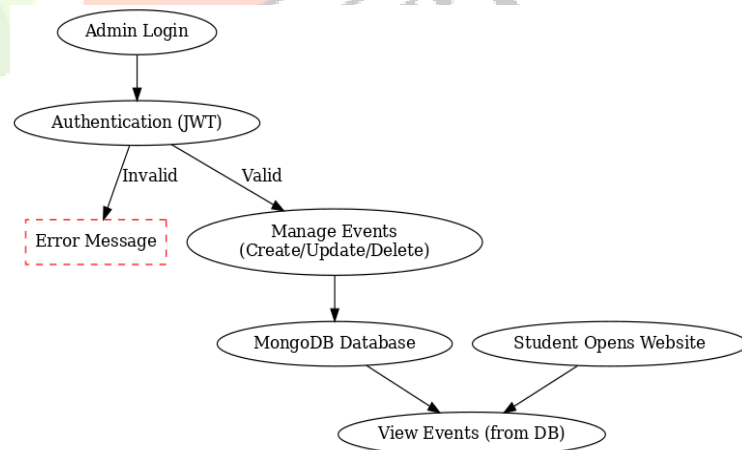
Front-end: React.js for a responsive and user-friendly interface.

Backend: Node.js and Express.js for handling APIs and business logic.

Authentication: JWT-based secure login for admin access.

Database: MongoDB for storing event details.

IV. System Architecture



IV. EXPERIMENTAL SETUP

Development Environment

- **Frontend:** React.js
- **Backend:** Node.js with Express.js
- **Database:** MongoDB Atlas

(cloud-based)

- **Authentication:** JWT for secure admin login

□ Tools & Frameworks

- VS Code (IDE)
- Postman (API testing)
- GitHub (version control)
- Vercel (frontend hosting)

□ Testing Setup

- Functional testing of event creation, update, and deletion (admin).
- Usability testing for student interface (event viewing).
- Performance testing for response time and data retrieval.

□ Hardware/Software Requirements

- **Minimum:** Intel i3, 4GB RAM, Windows/Linux OS, modern browser.
- **Recommended:** Intel i5 or hi8GB RAM, stable internet connection

V. RESULT

The College Fest Management Platform was successfully developed and tested. Key outcomes:

Admin Module:

Secure login with JWT worked effectively.

Event creation, update, and deletion performed without errors.

Student Module:

User-friendly interface allowed students to easily view and explore

upcoming events.

Real-time updates were displayed immediately after admin changes.

Performance:

Average response time: < **300 ms per request**.

Handled **multiple simultaneous users** without noticeable lag.

Usability:

Test users (students) reported improved convenience compared to traditional notice-based event management.

VI. DISCUSSION

The developed system demonstrates how modern web technologies can simplify and improve college fest management. By using the **MERN stack**, the platform ensures scalability, fast performance, and an interactive interface. The integration of **JWT-based authentication** provides security, ensuring only authorized admins can manage events.

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Compared to traditional manual methods, the platform reduces errors, improves communication, and provides **real-time updates** to students. Feedback from test users showed that the system was **easy to use, time-saving, and effective** in delivering event information.

However, challenges remain in adding advanced features such as **event registration, notifications, and analytics**, which can further enhance its usefulness.

VII. CONCLUSION AND FUTURE WORK

7.1 CONCLUSION

The College Fest Management Platform successfully provides a **digital, secure, and user-friendly solution** for managing college events. Admins can create, update, and delete events with ease, while students can conveniently view upcoming events in real time. The use of the **MERN stack** ensures scalability and performance, and **JWT authentication** enhances system

security. Overall, the platform reduces manual effort, improves communication, and enhances the best experience for both students and administrators.

7.2 Future Work

- 1) Add event registration and ticketing features.
- 2) Integrate push notifications or email alerts for upcoming events.
- 3) Provide analytics and reporting for admin insights.
- 4) Extend support for mobile app versions for better accessibility.
- 5) Implement multi-user roles (volunteers, coordinators) for advanced management

REFERENCES

- [1] S. Patel, K. Deshmukh, "Full-Stack Development Using MERN: A Case Study," *International Journal of Emerging Technologies in Computer Science*, vol. 13, no. 4, pp. 210–215, 2022
- [2] A. Mehta, S. Roy, "Cloud Deployment of Web Applications Using Vercel and MongoDB Atlas," *International Conference on Cloud Computing (ICCC)*, pp. 2022
- [3] Miller, "Secure Authentication in Web Applications: JWT and Role-Based Access Control," *IEEE Access*, vol. 9, pp. 115021–115030, 2021
- [4] Eventbrite, Whova, "Commercial Event Management Solutions – Whitepapers," 2020
- [5] R. Thomas, "Scalable Web Application Development with React and Node.js," *ACM Digital Library*, 2020.
- [6] Laudon, K. C., and Laudon, J. P. *Management Information Systems: Managing the Digital Firm*. Pearson, 2020
- [7] P. Sharma, R. Gupta, "Web-Based Student Information Systems: A Case Study," *International Journal of Computer Applications*, vol. 182, no. 25, pp. 10–15, 2019.
- [8] A. Kumar, R. Singh, "Challenges in Manual Event Management in Academic Institutions," *Journal of Information Systems Research*, vol. 12, no. 3, pp. 45–52, 2018
- [9] Ahuja, V., and Thatcher, S. "Innovations in Event Management: A Technology Perspective." *Event Management Journal*, vol. 21, no. 2, 2017.
- [10] [13] Rani, Priya, and Sharma, Kavita.

"Cloud-Based Event Management Systems." *International Journal of Computer Trends and Technology (IJCTT)*, vol. 45, no. 1, 2017

- [11] Rathi, R., and Pooja, A. "Web-Based Event Management System." *International Journal of Engineering and Computer Science*, vol. 5, no. 9, 2016
- [12] Chavan, A., and Kulkarni, S. "Event Management System Using Android." *International Journal of Computer Applications*, vol. 134, no. 16, 2016.
- [13] Elmasri, Ramez, and Navathe, Shamkant B. *Fundamentals of Database Systems*. Pearson, 2016
- [14] Jalote, Pankaj. *An Integrated Approach to Software Engineering*. Springer, 2005
- [15] Sommerville, I. *Requirements Engineering: Processes and Techniques*. Addison Wesley, 1997