“CI/CD Pipelines for Microservices Deployment Using Docker And Kubernetes For an Event Management System”

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Abstract:
The rapid growth of digital platforms has increased the demand for efficient and automated event management systems. Traditional methods of managing events and ticket bookings are often manual, time-consuming, and prone to errors, leading to inefficiencies for both organizers and users. This paper presents a web-based Event Management System developed using the Django framework, designed to simplify event creation, management, and online ticket booking. The proposed system enables event organizers to create, update, and monitor events, manage ticket pricing, and track bookings through an intuitive admin dashboard. On the user side, individuals can browse available events, view detailed information, and book tickets seamlessly in real time. The system incorporates a structured architecture consisting of a user interface, backend processing, and database management to ensure smooth functionality and data handling. It also supports features such as user authentication, real-time ticket availability tracking, and automated booking confirmation. The application is deployed on a cloud platform, ensuring accessibility, scalability, and reliability. The proposed solution reduces manual effort, enhances user experience, and improves overall efficiency in event management processes. Experimental usage demonstrates that the system provides a fast, secure, and user-friendly platform suitable for managing events across various domains such as educational institutions, corporate environments, and public events.

Key Words: Event Management System, Django Framework, Web-Based Application, Online Ticket Booking, Event Scheduling, User Authentication, Real-Time Booking, Cloud Deployment, Database Management, Scalable Web System.

INTRODUCTION

Event management plays a crucial role in organizing and coordinating various activities such as seminars, conferences, workshops, cultural events, and public gatherings. Traditionally, event management and ticket booking processes have been handled manually, which often leads to inefficiencies such as data mismanagement, time delays, and lack of proper coordination. Organizers face challenges in managing event details, tracking ticket sales, and handling user registrations, while users often experience inconvenience due to limited access to information and complicated booking procedures.

With the advancement of web technologies, there is a growing need for automated and centralized systems that can simplify event management processes. Web-based applications provide a flexible and accessible platform where users can interact with the system from anywhere at any time. Frameworks like Django offer robust tools for developing secure, scalable, and efficient applications, making them suitable for building modern event management systems.

This work focuses on the development of a web-based Event Management System using the Django framework. The system is designed to provide an intuitive platform for both event organizers and users. Organizers can create, update, and manage event details, monitor bookings, and control ticket availability through an admin dashboard. On the other hand, users can browse events, view detailed information, and book tickets easily through a user-friendly interface.

The proposed system aims to automate the entire event management process, reduce manual workload, and improve overall efficiency. It also ensures real-time data handling, secure user authentication, and seamless booking experiences. By providing an accessible and scalable solution, the system can be effectively used in various domains such as educational institutions, corporate organizations, and public event management.

LITERATURE SURVEY

The development of web-based event management systems has gained significant attention in recent years due to the increasing need for automation and efficient handling of event-related activities. Researchers have explored various technologies and approaches to improve event scheduling, ticket booking, and user interaction.

Sharma and Verma (2020) proposed a web-based event management system using Django and basic web technologies to automate event scheduling and booking processes. Their system allowed administrators to manage events and users to register and book tickets online. The study highlighted improved efficiency and reduced manual workload, but lacked advanced features such as scalability and real-time tracking.

Patel and Singh (2021) introduced a cloud-based event management platform that focused on scalability and remote accessibility. By leveraging cloud computing, the system ensured high availability and data storage capabilities. However, the implementation complexity and dependency on cloud infrastructure increased system cost and maintenance challenges.

Mehta and Desai (2019) developed a smart ticket booking system integrating database management with web applications. Their system enabled users to browse events, check availability, and complete bookings efficiently. Although the system improved transaction speed and reduced human errors, it lacked user personalization and advanced analytics.

Kumar and Joshi (2022) proposed an event recommendation system using machine learning techniques to enhance user engagement. The system analyzed user behavior and preferences to suggest relevant events. While it improved user experience, the model required large datasets and increased computational resources.

Agarwal and Kulkarni (2023) introduced a scalable event management system based on microservices architecture. Their approach improved flexibility, maintainability, and system performance by separating different modules such as booking, user management, and event handling. However, the system required complex deployment and higher technical expertise.

Overall, existing research demonstrates that web technologies, cloud computing, and machine learning significantly enhance event management systems. However, many solutions either lack simplicity, require complex infrastructure, or do not provide a complete user-friendly platform. The proposed system addresses these limitations by developing a Django-based web application that offers a balanced solution with simplicity, scalability, real-time booking, and efficient event management in a single platform.

METHODOLOGY

The proposed Event Management System follows a structured methodology that integrates web development, database management, and cloud deployment to provide an efficient and user-friendly platform for event organization and ticket booking. The overall workflow consists of user interaction, data processing, event management, booking operations, and result generation.

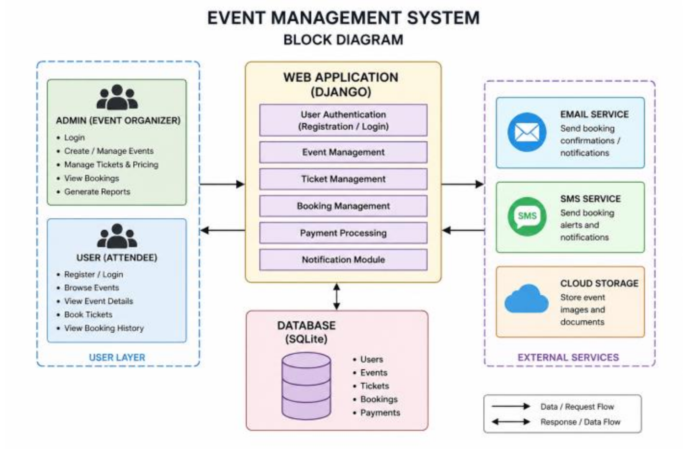
Initially, users access the system through a web-based interface developed using HTML, CSS, and JavaScript. New users are required to register and log in securely, while existing users can directly access the platform. Authentication ensures that only authorized users can perform operations such as booking tickets or managing events. Event organizers (admin) log into the system through a dedicated dashboard where they can create, update, and delete events by providing details such as event name, description, location, date, time, ticket price, and available seats.

Once events are created, the system stores all information in a relational database (SQLite). Users can browse available events, view detailed information, and select the desired event for booking. When a user selects tickets, the system checks ticket availability in real time. If sufficient tickets are available, the system calculates the total cost based on the number of tickets selected and the ticket price. The booking details are then stored in the database, and the ticket availability is updated automatically.

To ensure efficient processing, the backend logic is implemented using the Django framework, which handles request processing, data validation, and communication between the user interface and database. The system also integrates notification services to provide booking confirmation to users through email or system messages. This improves user experience and ensures transparency in transactions.

Finally, the entire application is deployed on a cloud platform, allowing users to access the system anytime and from anywhere. The deployment ensures scalability, reliability, and continuous availability of the system. Overall, the methodology ensures a smooth flow of data, efficient handling of operations, and a seamless experience for both event organizers and users.

BLOCK DIAGRAM



OBJECTIVE

1. To develop a web-based Event Management System that simplifies event creation, management, and ticket booking processes.
2. To provide an intuitive and user-friendly interface for both event organizers and users for easy interaction with the system.
3. To automate event scheduling, ticket booking, and real-time availability tracking to reduce manual effort and errors.
4. To implement secure user authentication and efficient database management for storing event and booking information.
5. To ensure scalability and accessibility by deploying the system on a cloud platform for use anytime and anywhere.

PROBLEM DEFINATIONS

Traditional event management and ticket booking methods are manual, time-consuming, and inefficient. Organizers face difficulties in managing event details and tracking bookings, while users struggle with limited access and complex booking processes. Therefore, there is a need for an automated, user-friendly, and centralized system to simplify event management and online ticket booking Traditional event management and ticket booking methods are manual, time-consuming, and inefficient. Organizers face difficulties in managing event details and tracking bookings, while users struggle with limited access and complex booking processes. Therefore, there is a need for an automated, user-friendly, and centralized system to simplify event management and online ticket booking.

FUCTIONAL REQUIREMENTS

1. The system shall allow users to register and log in securely.
2. The system shall enable event organizers to create, update, and delete events.
3. The system shall allow users to browse events and view detailed information.
4. The system shall enable users to book tickets and check real-time availability.
5. The system shall store and manage booking records and generate confirmations

NON FUCTIONAL REQUIREMENTS

1. Performance: The system should respond quickly and handle multiple users efficiently.
2. Usability: The interface should be simple, intuitive, and easy to navigate.
3. Reliability: The system should operate with minimal downtime and errors.

4. Scalability: The system should support increasing users and events without performance issues.
5. Security: The system should ensure secure authentication and protect user data.

IMPLEMENTAION

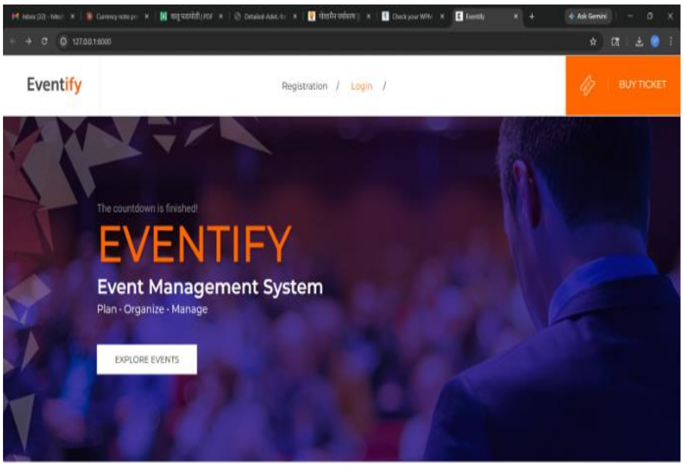


Fig: Home Page

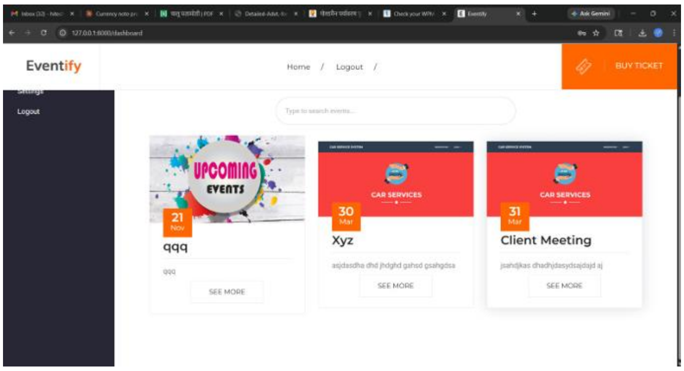


Fig: Login Successful

CONCLUSION

The proposed Event Management System provides a simple and efficient solution for managing events and online ticket bookings. It automates event creation, booking, and availability tracking, reducing manual work and errors. The system is user-friendly, secure, and scalable, making it suitable for various applications such as colleges, organizations, and public events.

REFERENCES:

1. R. Sharma and N. Verma, “Online Event Management System Using Web Technologies,” *International Journal of Computer Applications*, 2020.
2. A. Patel and R. Singh, “A Cloud-Based Event Management Platform,” in *Proc. IEEE Conf. on Cloud Computing*, 2021.
3. K. Mehta and P. Desai, “Smart Ticket Booking System Using Web Applications,” *International Journal of Engineering Research*, 2019.
4. S. Kumar and A. Joshi, “Event Recommendation System Using Machine Learning,” in *Proc. Springer Conf. on Artificial Intelligence*, 2022.
5. A. Gupta and R. Jain, “Web-Based Event Management with Payment Integration,” *International Journal of Advanced Research in Computer Science*, 2021.
6. V. Agarwal and S. Kulkarni, “Scalable Event Management System Using Microservices Architecture,” in *Proc. International Conference on Software Engineering*, 2023.
7. M. Singh and R. Kaur, “Design and Development of Web-Based Event Management System,” *IEEE Access*, 2022.

8. P. Sharma et al., “Online Ticket Booking System Using Cloud Technologies,” *IEEE Transactions on Cloud Computing*, 2023.
9. S. Patil and A. Deshmukh, “Efficient Web-Based Event Management Using Django Framework,” *International Journal of Scientific Research in Computer Science*, 2024.