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MatoshriBuddy: A Smart Event Hosting Platform for College Students

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Abstract: *In today's academic environment, seamless communication and coordination are essential for organizing successful events, workshops, and student activities. However, many colleges still rely on outdated systems such as notice boards, group chats, or word-of-mouth promotions, which often result in miscommunication, low participation, and unorganized event management. To address this gap, we present MatoshriBuddy — a full-stack web application designed to serve as a centralized digital platform for hosting and managing college events.*

MatoshriBuddy empowers students, faculty, and event coordinators to create, discover, and manage events all in one place. The platform provides a dynamic and interactive home page that displays all upcoming and ongoing events with essential details like event name, description, time, date, and organizer information. Event creators can easily publish events, while students can browse through the list, view event details, and stay informed in real time.

To ensure secure access and personalized experiences, the application features an authentication system with email verification using Nodemailer, allowing users to sign up, verify their email, and log in to the platform. Once logged in, users can access dashboards tailored to their roles—whether as participants or event hosts.

The application is built using the MERN stack—React.js for building a responsive and modern frontend interface, Node.js and Express.js for handling server-side logic and APIs, and MongoDB for a flexible, document-based database solution. This stack provides the performance and scalability needed for real-time interactions and multiple user roles. The use of RESTful APIs ensures a smooth and consistent flow of data between the client and server.

By streamlining the event creation and discovery process, MatoshriBuddy significantly enhances student engagement and reduces the logistical challenges faced by event organizers. It serves not just as a tool but as an enabler of digital transformation in academic institutions. With potential future extensions including mobile app integration, push notifications, and QR code-based check-ins, MatoshriBuddy is a forward-looking solution tailored for modern campus life.

With its scalable architecture and user-centric design, MatoshriBuddy not only addresses current challenges in college event management but also lays the groundwork for future advancements in campus digital infrastructure. By bringing all event-related functionalities into a single portal, the platform reduces dependency on fragmented tools and enhances collaboration among students, faculty, and organizers. Looking ahead, the application can be extended to support features like role-based access for student clubs, integration with campus calendars, automated attendance tracking using QR codes, and real-time feedback collection after events. These innovations have the potential to transform MatoshriBuddy from a simple event management system into a comprehensive campus engagement hub, fostering a more connected and participative academic community.

Keywords: MatoshriBuddy

I. INTRODUCTION

College campuses are dynamic environments filled with continuous learning opportunities that extend far beyond the classroom. A large part of a student's growth stems from participating in co-curricular and extracurricular activities

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such as seminars, coding competitions, webinars, workshops, and cultural programs. Despite this, many institutions still follow traditional event management methods, including printed notices, classroom announcements, and fragmented online messaging through platforms like WhatsApp and Telegram. These methods are often chaotic, lack consistency, and fail to reach the entire student population.

The primary issues observed in current college event management include poor communication, missed event notifications, lack of centralized information, and the absence of a structured way to track event history. These inefficiencies not only lower student turnout but also discourage organizers due to the disorganized nature of planning and promoting events.

MatoshriBuddy was created to solve these challenges by offering a smart, scalable, and accessible solution that digitizes the event lifecycle. With a centralized dashboard and real-time updates, MatoshriBuddy ensures that every user—be it a student, faculty member, or event organizer—has access to a smooth and seamless event experience. Users can securely log in or sign up, with email verification handled through Nodemailer, ensuring that only verified users interact with the system.

The platform is developed using the MERN stack (MongoDB, Express.js, React.js, and Node.js), which enables fast performance, asynchronous handling, and a reactive user interface. The frontend interface built with React ensures a responsive and intuitive user experience, while the backend, powered by Node and Express, facilitates RESTful APIs for clean data communication and management. MongoDB allows for dynamic, schema-less storage of event data, which is ideal for scaling and adapting as more features are added.

Beyond functionality, MatoshriBuddy aims to foster a culture of involvement, transparency, and efficiency on campus. By making event information more accessible and enabling two-way interaction between users and organizers, the platform drives better participation, timely communication, and data-driven decision-making for future events.

Moreover, MatoshriBuddy opens up possibilities for advanced features like AI-driven event recommendations based on user interest, digital RSVP and attendance, push/email notifications, analytics for organizers, and even gamification elements to boost user engagement. These features can significantly increase the quality and quantity of student involvement, contributing positively to campus life.

In essence, MatoshriBuddy is not just an event hosting tool—it is a platform for community building. It represents the shift from passive announcements to an active, digital-first engagement model where students are not just participants but collaborators in shaping their academic journey.

Objectives

The goal of MatoshriBuddy is not just to act as a tool for event management, but to become an integral part of a smarter, more connected college campus. With the increasing demand for digitization and efficient communication in academic institutions, MatoshriBuddy strives to solve real-world problems through a technically sound, user-friendly solution. The core objectives of the application are outlined below:

Simplify Event Creation and Discovery

One of the most pressing challenges in college event management is the lack of a centralized, reliable source of event information. MatoshriBuddy addresses this by providing an easy-to-use interface for event creation, where organizers can input all necessary details such as event title, description, category, timing, venue, and hosting club. On the user end, events are displayed in a well-structured and scrollable home feed with filters to enhance discoverability based on category, date, or popularity. This makes finding and attending events more engaging and less time-consuming.

Implement Secure Email-Based Authentication

User security and data protection are fundamental. MatoshriBuddy integrates email authentication using Nodemailer, ensuring that users verify their identity before accessing the system. This mechanism eliminates fake entries and maintains accountability, especially important in educational environments. By sending confirmation or verification links to the registered email addresses, the system builds a trustworthy and secure network of students, faculty, and

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organizers.

Enable Real-Time Updates and Notifications

Events are dynamic—they may change in time, venue, or other logistics. To address this, the platform supports real-time updates so that any changes made by the organizers are reflected instantly across the platform. In future versions, users can opt to receive email or in-app notifications for event reminders, cancellations, and live updates, reducing the chances of miscommunication and last-minute confusion.

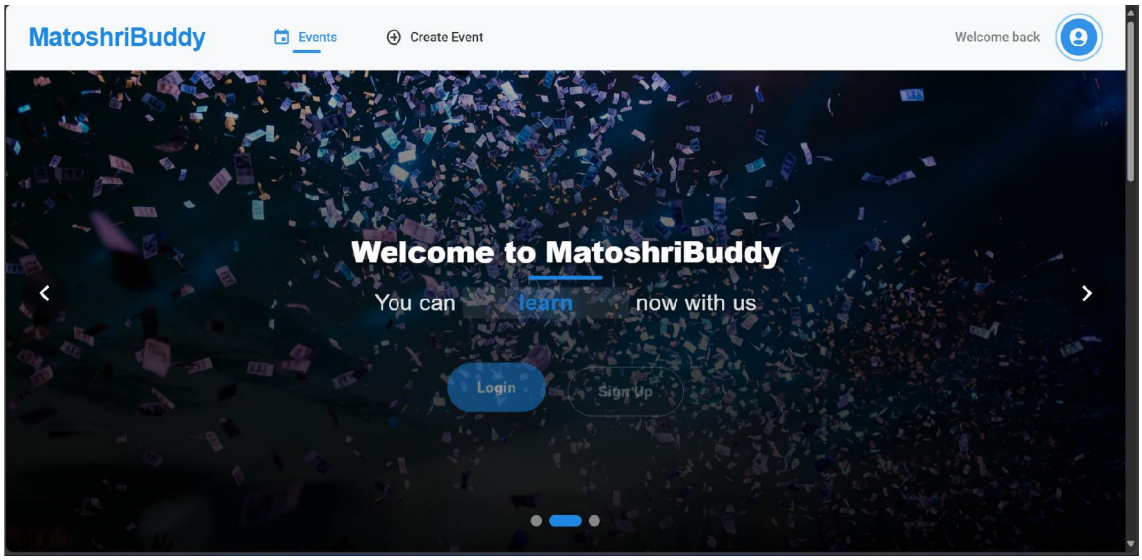
Maintain a Centralized Event Repository with Search and Filter Capabilities

Using MongoDB, MatoshriBuddy stores all event data in a clean, organized database. This acts as a digital repository of past, present, and upcoming events, helping students track their participation and stay updated on what's coming next. With the addition of search and filtering features, users can easily find specific events, clubs, or categories they're interested in.

Foster Digital Inclusion and Campus Engagement

Beyond technical features, MatoshriBuddy is built with the vision of enhancing campus culture. By removing barriers to event access and participation, the application encourages students from diverse backgrounds to get involved in co-curricular activities. It also helps clubs and faculty reach a wider audience, promoting collaboration and knowledge-sharing within the college ecosystem.

System Overview / Features



User Signup/Login (with Email Verification using Nodemailer)

To ensure secure and authenticated access, MatoshriBuddy implements an email-based authentication system. When a user signs up, they enter their email address and receive a confirmation link via Nodemailer, which must be clicked to verify their email before gaining full access to the platform. This adds an extra layer of security and ensures that only legitimate users can access event details and management features. Once verified, users can log in using their email and password credentials.

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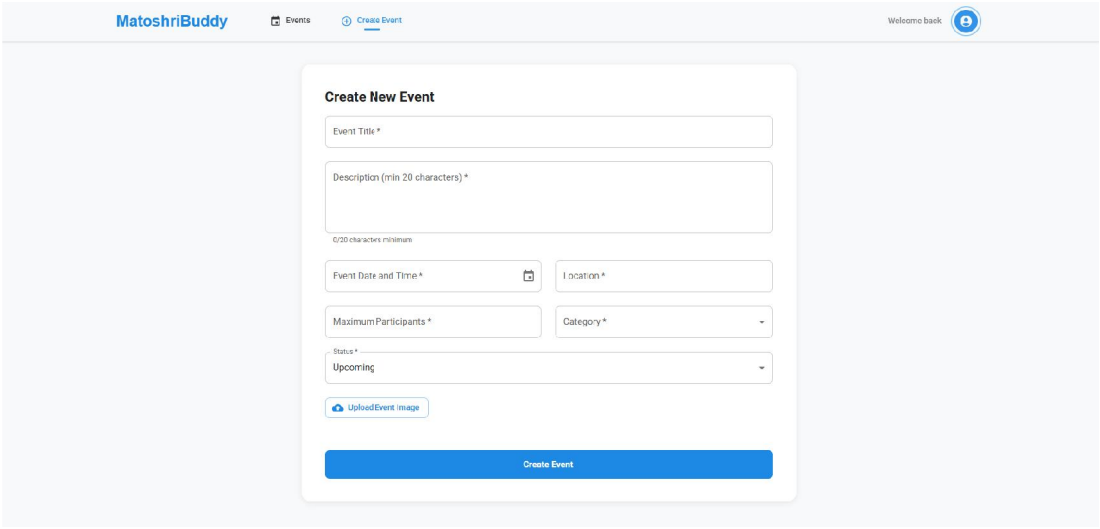
Event Creation with Detailed Information:

Event organizers can create events through a simple, user-friendly interface. The event creation form allows organizers to provide detailed information, such as:

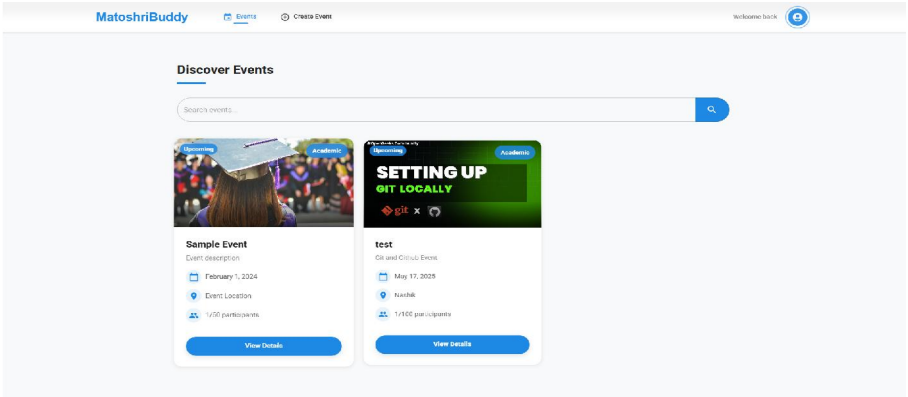
Event Title
Description
Event Date & Time
Venue/Location
Organizer's Contact Details
Category (e.g., Tech, Cultural, Sports, etc.)



After filling in these details, organizers can publish the event to the platform, making it visible to all users immediately. This streamlined process eliminates the need for multiple communication channels and provides a single source of truth for event information.

Event Listing on Homepage:

The homepage of MatoshriBuddy features a dynamic and real-time event listing section where users can view upcoming events in chronological order. Each event listing includes essential details like the event name, date, time, and location. The platform also includes search and filter functionalities, allowing users to narrow down their event search based on criteria such as event type, date, or popularity. By providing a clear and accessible view of all upcoming events, the platform encourages higher participation and engagement from the campus community.



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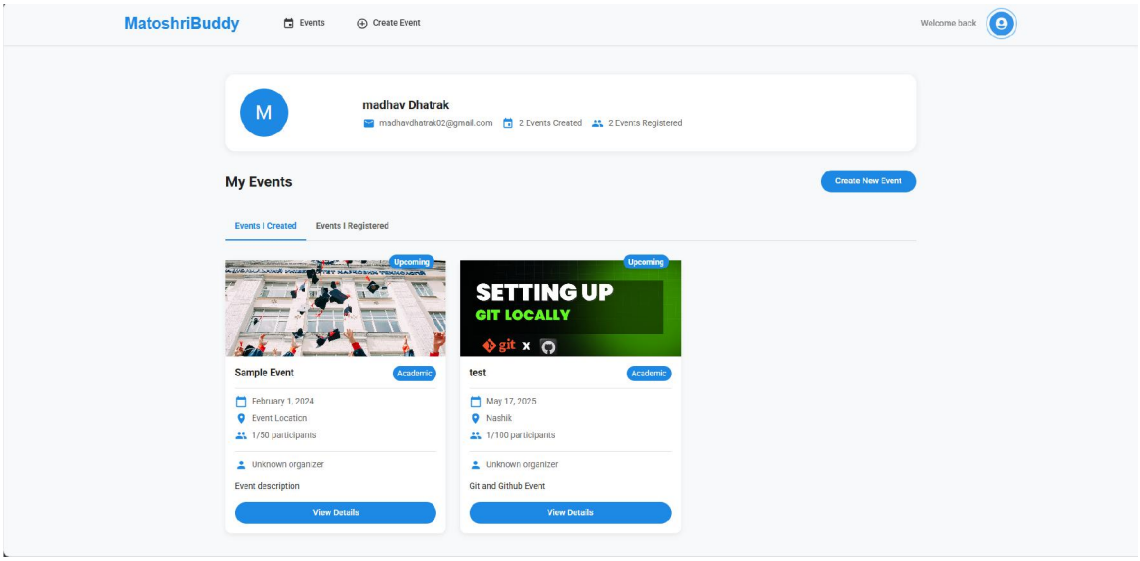
Personalized Dashboard for Users and Organizers

Each user, once logged in, is directed to a personalized dashboard where they can:

View their Upcoming Events: A list of events they have shown interest in or registered for.

Manage Personal Profile: Users can update their contact information, profile picture, and settings.

Track Past Events: Keep a history of events they have attended, including feedback or participation details.



For event organizers, the dashboard serves as a central control panel for managing events, tracking registrations, and updating event details. This personalized experience provides users with the tools they need to easily manage their event participation and engagement.

Email Notification for Events

One of the key features of MatoshriBuddy is its integration with Nodemailer to send email notifications. These notifications help ensure that users stay informed about important event-related updates. Notifications include:

Event Confirmation: A confirmation email when a user registers for an event.

Event Updates: Alerts about changes in event details (e.g., time, venue, cancellation).

Reminder Notifications: A reminder email sent a day or hours before the event starts.

By using emails for notifications, the platform ensures that users never miss an important update, even if they're not logged in or actively browsing the platform. This helps maintain high levels of engagement and participation.

Technology Stack

Frontend: React

For the frontend of MatoshriBuddy, React is used to build a dynamic, fast, and interactive user interface. React's component-based architecture enables the creation of reusable UI components, improving code maintainability and development efficiency. The use of React ensures a responsive, single-page application (SPA) experience, meaning users can navigate the platform without the need for full page reloads. This improves performance and enhances the overall user experience.

React handles dynamic content rendering, such as displaying event lists, showing event details, and updating the UI in real-time based on user interactions.

With React, the platform is easily scalable, meaning as new features are added, the frontend remains efficient and maintainable.

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Backend: Node.js & Express.js

The backend of MatoshriBuddy is built using Node.js and Express.js. These technologies work together to handle the server-side logic, API endpoints, and interactions with the database.

Node.js is a JavaScript runtime that allows for fast, asynchronous, and event-driven handling of HTTP requests. It is ideal for real-time applications where performance and scalability are critical.

Express.js, a lightweight framework built on top of Node.js, simplifies the creation of RESTful APIs. It allows for the efficient routing of user requests and is integral to handling user authentication, event management, and other business logic.

Database: MongoDB

MatoshriBuddy uses MongoDB, a NoSQL database, to store and manage the application's data. MongoDB is highly flexible, allowing for the storage of data in a document-based format (JSON-like), which is perfect for the dynamic nature of event data. The key features of MongoDB for this project include:

Flexible Schema: MongoDB's schema-less design allows for quick changes and additions to the event data model, making it easy to adapt as the application evolves.

Scalability: MongoDB is designed to handle large amounts of data and high traffic, making it ideal for managing events and user data across a college campus.

Real-Time Updates: MongoDB supports real-time data processing, ensuring that events and updates are instantly reflected on the platform.

Email Services: Nodemailer

Nodemailer is used for handling email communication within MatoshriBuddy. It integrates easily with Node.js and allows the platform to send transactional emails like:

Email Verification: When a user signs up, a confirmation email is sent to verify their email address.

Event Notifications: Users receive email notifications for important event-related updates such as registration confirmations, event reminders, cancellations, and changes in event details.

Real-Time Alerts: Nodemailer facilitates the delivery of real-time alerts, keeping users informed about event schedules and updates.

Security and Authentication

In MatoshriBuddy, ensuring the security of user data and providing a seamless and safe authentication experience is a priority. The platform leverages modern security practices and technologies to ensure that all users have a protected experience while accessing and managing events. Below are the key security features implemented in the application:

Password Encryption

To secure users' sensitive data, especially their passwords, MatoshriBuddy employs password encryption using industry-standard techniques. When users create an account or change their password, their credentials are encrypted before being stored in the MongoDB database.

Encryption Algorithm: The platform uses bcrypt.js, a popular hashing algorithm, to hash passwords. Bcrypt ensures that even if the database is compromised, the actual passwords remain protected.

Salt and Hashing: Bcrypt adds a unique "salt" to each password before hashing, making it highly resistant to rainbow table attacks and other password-cracking techniques.

Double-layer Security: The combination of bcrypt and salting ensures that passwords are not stored in plaintext, thereby safeguarding user accounts against unauthorized access.

Email Verification

To confirm the authenticity of a user's identity, MatoshriBuddy incorporates an email verification process during the account creation and password recovery phases.

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Email Verification Flow: When a user registers, they receive a unique verification link to their email. Clicking on this link verifies their account and activates their profile, allowing them to log in and use the platform.
Prevents Fake Accounts: The email verification system prevents the creation of fake or spam accounts, ensuring that only genuine users have access to the platform.
Nodemailer Integration: The email verification process is powered by Nodemailer, which securely sends email notifications and verification links to users' inboxes.

Secure Login System

The login system in MatoshriBuddy is designed to offer secure access to authenticated users. The platform implements a combination of authentication techniques to ensure that only legitimate users can log in and access their accounts.
JWT (JSON Web Tokens): For secure session management, MatoshriBuddy uses JWT tokens. When a user logs in successfully, the system generates a JWT token and sends it to the user's client (frontend). This token is then used to authenticate the user in subsequent requests, ensuring secure access to restricted resources.
Session Expiry: To further enhance security, JWT tokens have an expiry period, after which the user needs to re-authenticate, reducing the risk of session hijacking.
Login Attempts Limitation: To mitigate brute force attacks, the login system limits the number of failed login attempts. After a set number of unsuccessful login attempts, the user's account is temporarily locked to prevent unauthorized access.
HTTPS & Secure Headers: To ensure data security during user login, the platform uses HTTPS, providing encryption for data transmission. Additionally, secure HTTP headers are set to protect against common web vulnerabilities, such as XSS (Cross-Site Scripting) and CSRF (Cross-Site Request Forgery).

Benefits and Impact

MatoshriBuddy brings significant improvements to the event management process within colleges, benefiting both event organizers and participants. The platform creates a more streamlined, efficient, and user-friendly experience for all involved. Below are the key benefits and impacts of the application:
Improved Engagement
One of the main advantages of MatoshriBuddy is its ability to enhance user engagement. By providing a comprehensive and easy-to-navigate platform for discovering and managing events, users are more likely to stay informed and actively participate in college activities.
Real-Time Updates: Event participants receive real-time notifications about changes, cancellations, or updates to events, ensuring they remain engaged and informed.
Personalized Dashboards: The personalized dashboards enable users to track upcoming events, RSVP to events, and access all relevant event information in one place, boosting their engagement with the platform.

Centralized Information

Prior to the introduction of MatoshriBuddy, students often relied on scattered communication channels like emails, posters, or social media to stay updated about college events. With this application, all event-related information is centralized, making it easily accessible to users at any time.
Event Listings: The homepage displays a list of all upcoming events, organized by category, date, and other relevant filters. This eliminates the need to search through multiple platforms or communications to find event details.
Event Details: Each event has its own dedicated page that contains comprehensive information such as date, time, venue, registration links, and more.

Better Communication

Communication between event organizers and participants is greatly improved through the MatoshriBuddy platform.
Email Notifications: Using Nodemailer, the application sends timely email alerts for event registrations, reminders, and updates, ensuring that all participants are informed in a professional and efficient manner.

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Interactive Platform: The platform also fosters interaction among students and organizers by allowing users to express interest in events, ask questions, and even leave feedback or reviews.

Time-Saving for Organizers

- For event organizers, MatoshriBuddy automates several manual processes, reducing administrative workload and saving time.
- Event Creation: Organizers can quickly create events, set event details, and publish them to the platform without needing third-party tools or manual effort.
- Email Automation: The use of Nodemailer automates email notifications, eliminating the need for organizers to manually send emails to each participant.
- Real-Time Data: The dashboard offers organizers real-time visibility into registration numbers, helping them manage events more efficiently.

II. CONCLUSION & FUTURE SCOPE

MatoshriBuddy has successfully addressed several pain points in event management at colleges by offering an intuitive platform that simplifies event creation, management, and participation. The key achievements include:

Streamlined Event Management: Both organizers and participants now benefit from an easy-to-use platform that provides a seamless experience in organizing and attending events.

Secure and Reliable Authentication: The use of email verification and secure login with password encryption ensures that user data is protected at all times.

Increased Engagement: By centralizing event information and offering real-time notifications, the platform has significantly increased user engagement and participation in college events.

What Can Be Added Later

As MatoshriBuddy continues to evolve, there are several exciting features that could be added in future versions of the platform to further enhance its functionality and user experience:

Mobile App: To make event management even more accessible, a dedicated mobile app could be developed, allowing students and organizers to manage events directly from their smartphones.

Push Notifications: In addition to email notifications, push notifications can be integrated into the mobile app or web app, providing users with instant updates even when they are not actively using the platform.

RSVP System: An integrated RSVP system could allow users to confirm their attendance directly through the platform, enabling organizers to better manage event capacity and participant numbers.

QR Code Check-ins: To make event check-ins faster and more efficient, the platform could incorporate QR code check-ins, allowing participants to scan a code for quick entry to events.