ALX SOFTWARE ENGINEERING SPECIALIZATION PROJECT:BACKEND

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**EVENT PLANNING AND MANAGEMENT SYSTEM**

The proposed event management system is designed to streamline and make easier the process of scheduling, creating, and managing events, such as weddings, corporate gatherings, and other special occasions. Its primary objective is to provide users with an intuitive platform that simplifies the organization of complex events by offering features such as event creation, scheduling, task delegation, vendor coordination, and real-time updates among many more.

This system aims to reduce the stress and time-consuming nature of event planning, allowing users to easily manage multiple aspects from one centralized platform. By incorporating tools for guest list management, budgeting, and notifications and reminders, the system will ensure efficient communication and coordination among all involved parties. Developing this software is essential to addressing the growing demand for digital solutions that can enhance productivity and deliver smooth event experiences in an increasingly connected world.

OBJECTIVES OF THE SYSTEM

* Simplify Event Planning: Provide a user-friendly interface that allows users to easily create, schedule, and manage events like weddings, conferences, or parties, with minimal effort.
* Comprehensive Event Management: Offer tools for handling all key aspects of event organization, including guest list management, venue booking Real-Time Communication and Updates:
* Facilitate efficient communication among event organizers, vendors, and attendees by providing real-time notifications and updates about event details or changes.
* Customizable Event Templates: Offer predefined templates for different types of events, allowing users to customize and adapt them to their specific needs.
* Integration of payment options to allow users to book for venues to hold their events
* A section to allow users to upload photos and videos taken during the event for future reference

**FUNCTIONAL REQUIREMENTS**

* Event Planning and Scheduling: Users can create, plan, and schedule events with specific dates, times, and durations.
* A detailed timeline for tracking milestones and tasks, such as booking venues, sending invitations, and setting deadlines.
* Rescheduling options to easily move event dates or times and notify attendees of changes.
* Reminder System: Automated reminders for event organizers, vendors, and attendees about upcoming tasks, deadlines, or event dates.
* Customizable reminder intervals (e.g., days before the event) via email, SMS, or in-app notifications.
* Payment Options for Venue and Vendor Bookings: Secure payment gateway integration to allow users to book venues and pay vendors directly through the platform. Support for multiple payment methods (credit cards, bank transfers, mobile payments eg MPESA).
* Guest Invitation System: Users can invite members to events through digital invitation cards (customizable templates), email, or SMS. Users can track RSVPs, manage attendance, and follow up with guests who haven't responded.
* Rescheduling and Cancellations: Easy options for rescheduling events, with automatic updates sent to attendees and vendors.
* Automated reminders and notifications when tasks are overdue.
* Customizable Event Templates: Pre-built templates for various event types (weddings, conferences, parties), which can be adapted by users to suit their needs.
* Save custom templates for future use.
* Feedback and Analytics: Users can gather post-event feedback from attendees and vendors to evaluate the success of the event. Analytics on attendance, budget performance, and task completion
* Ratings and review functionality
* Section to allow the event manager to upload photos ,videos and other media files related to the event for future storage and use

**NON-FUNCTIONAL REQUIREMENTS**

**Scalability:**

* The system should be able to handle an increasing number of users, events, and concurrent
* bookings without performance degradation.

**Security and Privacy:**

* Ensure secure authentication, data encryption, and user data protection in compliance with
* relevant privacy laws Regular security audits and vulnerability checks.

**Performance and Reliability:**

* The system should be highly responsive and able to handle high traffic during peak event
* periods.
* Should maintain uptime and availability, especially during critical event planning phases.
* User Interface and User Experience:
* A clean, intuitive design that ensures ease of use for all types of users, including non-technical
* individuals.
* Adaptive UI for mobile devices and tablets to allow planning on the go.

**Cross-Platform Support:**

* The system should be accessible via web browsers, mobile applications (iOS and Android), and
* tablets.
* Integration with External Tools:
* Ability to integrate with other services, such as cloud storage for uploading event files
* (contracts, schedules), communication tools (Slack, Zoom), or accounting software.
* Backup and Recovery:
* Automated backups of all event data with a simple recovery process in case of system failures
* or data loss.

**Localization and Multi-Language Support:**

* Support for different languages and regions to cater to global users.
* Time zone handling for events in different geographic locations.

**System Customizability:**

* Admins should have the ability to customize settings such as the platform’s color scheme,
* branding, and certain features according to user needs.
* They can also help regular users manage their accounts in cases like password loss or accounts being compromised

**TECHNOLOGY STACK**

Front-End Technologies:

* **HTML5:** Will be used for structuring the web pages and forming the basic layout of the
* application.
* **CSS3:** Responsible for the styling and design of the web pages, ensuring that the user interface
* is visually appealing and responsive across devices.
* **JavaScript** For adding dynamic behavior to the web pages, managing user interactions,
* and handling client-side logic.
* **Framework** :framework like **Vue.js,boostrap** will be used to make the development of interactive UI elements easier,

**Backend Technologies**

* **Node.js**: A JavaScript runtime that allows you to write server-side code in JavaScript. It is
* efficient for building scalable, real-time applications.
* **Express.js:** A fast and minimal web framework for Node.js that simplifies routing, middleware
* integration, and request handling.
* **Database:**
* **MySQL:** A relational database management system that will store and manage all event data,
* such as user information, event details, vendors, guest lists, etc. MySQL is reliable and
* well-suited for structured data.

**API Integration:**

* Payment API e.g., Stripe, PayPal, Square: To handle payment processing for venue bookings
* and vendor payments. These APIs allow secure transactions and integrate easily with
* Node.js.
* REST APIS
* Stripe: Popular for its ease of use and wide feature set, including subscriptions, one-time
* payments, and invoicing.
* PayPal: Well-known and trusted for global payments.
* Email/SMS Notification API (e.g., Twilio, SendGrid):
* Twilio: Allows you to send SMS reminders and 5notifications to users and vendors.
* SendGrid: Ideal for sending email invitations, reminders, and event updates to users.
* Calendar API (Google Calendar API): To enable users to sync their events with personal or
* work calendars, providing them with reminders and updates.
* Geolocation/Map API (Google Maps API): Useful for event venue searches, providing

**Other Back-End Tools**

* **JSON Web Tokens:** For handling user authentication and authorization in a secure way.
* It’s commonly used for managing sessions in stateless applications.
* Bcrypt.js: A library for hashing passwords, ensuring secure user authentication and protecting
* user data.
* **Sequelize:** An ORM (Object-Relational Mapping) tool for Node.js that simplifies MySQL
* database interactions by allowing you to use JavaScript to interact with your database.
* **Node mailer:** A Node.js library for sending emails from your application (e.g., event confirmation,
* guest invitations).

**Development and Deployment Tools:**

* Git: Version control to manage your project codebase.
* Docker (optional): To containerize your application and manage its dependencies consistently
* across different environments.
* Heroku or AWS (Amazon Web Services): For deploying and hosting your Node.js application in
* the cloud.

**1. Header Section**

* **Title:** "Manage Your Events"
  + The title should be prominent, guiding users on what the page is for.
* **Navigation Menu:**
  + **Home:** Link back to the homepage.
  + **Create Event:** Quick access button to create a new event.
  + **My Events:** Link to view all events the user is managing.
  + **Notifications/Reminders:** Icon or link to see upcoming reminders or notifications.
  + **User Profile:** Dropdown for profile settings, logout, etc.

**2. Main Dashboard**

* **Overview Section:**
  + **Upcoming Events:** Display a brief summary of the next 3-5 events.
  + **Pending Actions:** Notifications for events that need attention (e.g., awaiting confirmation, payments pending).
  + **Quick Actions:**
    - **Create Event:** Button to start a new event.
    - **Reschedule Event:** Quick access to reschedule an event.
    - **Cancel Event:** Quick access to cancel an event.
    - **Send Reminders:** Option to send out reminders to attendees.

**3. Event Creation & Management**

* **Event List:**
  + A list or calendar view of all the user’s events with filters (e.g., date, type, status).
  + **Event Cards:** Each event displays essential details like the name, date, location, status, and a thumbnail image.
  + **Action Buttons:**
    - **Edit:** Modify event details.
    - **View:** See more detailed information about the event.
    - **Cancel:** Cancel the event with an optional reason.
    - **Reschedule:** Change the date/time of the event.
    - **Send Reminder:** Send reminders to all attendees.
* **Create Event Form:**
  + **Event Name:** Text input for the name of the event.
  + **Date & Time:** Calendar and time picker.
  + **Location:** Dropdown or input field for location (can use Google Maps integration).
  + **Description:** Detailed description of the event.
  + **Guest List:** Option to add and manage guests (with email invitations).
  + **Event Type:** Dropdown to select the type of event (e.g., Wedding, Conference).
  + **Budget Management:** Optional section to track the budget.
  + **Notifications:** Option to set up reminders (e.g., email, SMS) for the organizer and attendees.
  + **Upload Images/Documents:** Feature to upload event-related documents or images.
  + **Submit Button:** Save and create the event.

**4. Event Details Page**

* **Event Overview:**
  + **Event Banner:** A large banner image representing the event.
  + **Event Details:** A section displaying all critical information (date, time, location, description).
  + **Attendees:** List of confirmed, pending, and declined attendees.
  + **Event Timeline:** Timeline of the event schedule.
  + **Edit/Cancel Buttons:** Access to modify or cancel the event.

**5. Event Reminders & Notifications**

* **Reminder Settings:**
  + Set up automatic reminders (e.g., 1 day before, 1 hour before).
  + Choose reminder methods (email, SMS, in-app notification).
* **Notification Center:**
  + A section displaying all notifications related to events.
  + **Mark as Read:** Option to mark notifications as read or delete them.

**6. Calendar Integration**

* **Calendar View:**
  + A full calendar displaying all events with color-coding for different statuses (e.g., confirmed, pending).
  + **Click to View:** Clicking on a date/event brings up detailed information or a pop-up with quick actions.

**7. Footer Section**

* **Quick Links:**
  + **Support:** Link to a support page.
  + **Privacy Policy:** Link to privacy information.
  + **Terms & Conditions:** Link to terms and conditions.
* **Contact Information:**
  + **Email Support:** Email address for event support.
  + **Phone Support:** Contact number.
  + **Location:** Address of the event management system's main office.
* **Social Media Links:**
  + Icons for various social media platforms where users can follow the event management system for updates.

**8. Additional Features**

* **Analytics Dashboard:**
  + Insights into event performance (e.g., attendance rate, budget usage).
* **Export Option:**
  + Ability to export event details and attendee lists to PDF or CSV.