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Topic Name: **Web-Based Catering System**

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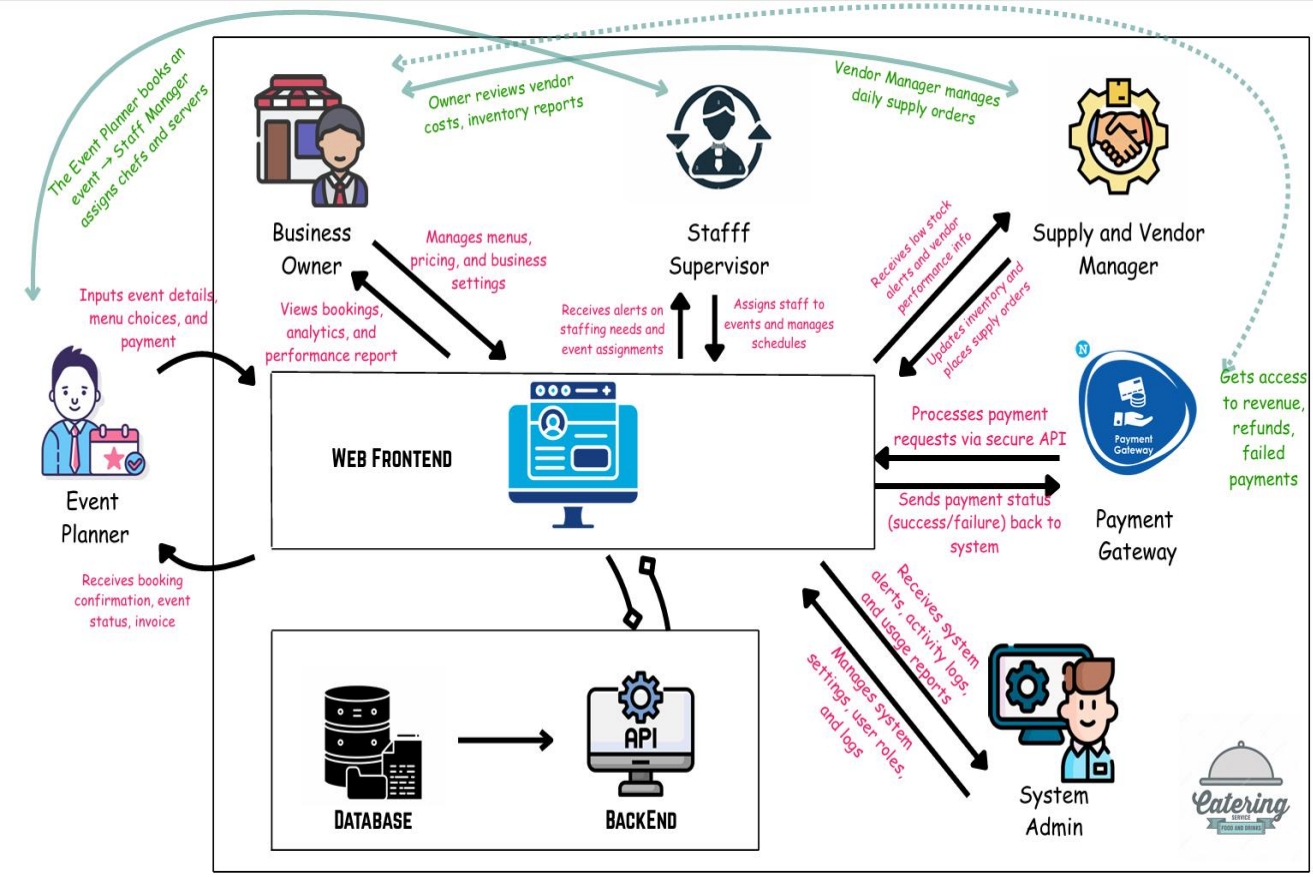
1. Introduction

The catering industry in Sri Lanka, like many service-based sectors, faces increasing pressure to deliver seamless, organized, and personalized experiences for clients. Traditional catering operations often struggle with fragmented communication, manual scheduling, and poor coordination between staff, vendors, and event planners. To address these gaps, this proposal presents the development of a Web-Based Catering Management System designed to streamline and automate catering workflows.

This system integrates all key stakeholders—including event planners, catering business owners, staff supervisors, vendor managers, payment gateway providers, and system administrators—into a centralized digital platform. It enables users to manage bookings, customize menus, assign staff, monitor inventory, process payments, and generate reports in real time. Through role-based access, a user-friendly interface, and secure data handling, the system aims to enhance efficiency, accountability, and customer satisfaction across catering operations.

2. System Overview Diagram



3. Functional Requirements

The System is designed to support the needs of multiple stakeholders involved in managing catering operations. The following functional requirements define the essential capabilities of the system:

User Roles and Access

- The system must support six main user roles: Event Planner, Catering Business Owner, Catering Staff Supervisor, Supplier Vendor Manager, System Administrator, and Payment Gateway Provider.
- Each user must have secure login credentials and role-based access to relevant system modules.

Event Planning and Management

- Event Planners must be able to:
    - Create and manage event requests.
    - Select menus and customize guest preferences.
    - Check staff availability.
    - View real-time updates from catering and supplier teams.

Booking and Scheduling

- The system must allow:
    - Clients or planners to book catering services based on available dates.
    - Business Owners to view and manage booking schedules.

Menu and Order Management

- Users must be able to:
    - Select, customize, and update catering menus.
    - Update guest count and make changes to event orders.

Staff Coordination

- Catering Staff Supervisors must be able to:
    - View upcoming events and required staffing.
    - Assign duties and update task statuses (e.g., when food is ready).
    - Report issues during preparation.

Supplier and Inventory Management

- Supplier Vendor Managers must be able to:
    - View inventory needs based on event bookings.
    - Send purchase orders to vendors.
    - Track delivery status and update supplier records.

Payment Integration

- The system must integrate with a secure payment gateway (e.g., PayLink Lanka Pvt Ltd) to:
    - Initiate and track payment transactions.
    - Display real-time payment status.
    - Support refunds and generate payment reports.

Feedback and Reporting

- Customers must be able to submit feedback and rate services.
- Business Owners must be able to view reports on:
    - Bookings, revenue, staff performance, and customer satisfaction.

Notification and Communication

- The system must send automated notifications via email, SMS, or in-system alerts for:
    - Booking confirmations.
    - Staff task reminders.
    - Supplier delays.
    - Food preparation updates.

AI-Based Chatbot Assistant

- A built-in AI chatbot must:
    - Provide support for navigating the system.
    - Answer FAQs.
    - Identify stakeholders based on project title input.
    - Help users troubleshoot or get assistance.

Advanced/Optional Features

- Live chat between internal staff and planners.

- Graphical dashboards for analytics and insights.
- Mobile access for task updates on the go.

4. Non-Functional Requirements

Performance

- System response time must not exceed 2–3 seconds per user action.
- Must support concurrent usage by at least 100–200 users during peak hours (e.g., weekends).

Scalability

- The system must be easily scalable to handle increasing users, events, suppliers, and data volume over time.

Security

- Must implement role-based access control.
- Customer data (names, contact info, addresses) and payment data must be encrypted using SSL.
- Strong password policies and secure authentication are required.
- Comply with data privacy laws in Sri Lanka.

Usability

- Interfaces must be intuitive and simple for users with limited technical knowledge.
- The layout should use clear buttons, labels, and responsive design for better user experience.
- The system should be mobile-friendly and responsive across different devices.

Accessibility

- The system must comply with accessibility guidelines to support users with disabilities.
- Text and visuals should be readable and easy to interpret.

Compatibility

- The system must be compatible with modern web browsers (Chrome, Firefox, Edge).
- It must work on both desktop and mobile devices without feature loss.

5. Key Stakeholders and Their Roles

5.1 Event Planner

- Schedules and manages catering events.
- Coordinates with clients to finalize menus, dates, and requirements.
- Creates and updates event bookings in the system.
- Screens event details, client info, and booking approvals.

5.2 System Administrator

- Maintains system security, uptime, and user access.
- Manages user roles and permissions
- Ensures technical stability of the platform.

5.3 Payment Gateway Provider

- Integrates and maintains the payment processing system.
- Ensures secure client transactions.
- Assists with resolving payment issues.
- Screens may show transaction statuses, invoices, and refund workflows.

5.4 Supply & Vendor Manager

- Manages supplier relationships for food and equipment.
- Places inventory orders and tracks stock levels.
- Confirms deliveries and handles quality checks.
- Screens likely show supplier profiles, order forms, and inventory alerts.

5.5 Catering Business Owner

- Oversees all business operations.
- Reviews reports and analytics (financials, performance).
- Manages user accounts and pricing.
- Screens dashboards and reports.

5.6 Catering Staff Supervisor

- Assigns staff to catering events.
- Tracks staff schedules, availability, and performance.
- Monitors attendance and shift allocations.
- Screens shift planners.

6. Key Stakeholder Functions

6.1 Event Planner

Major Function

- Function: Manage and schedule catering events
- Who uses it: Event Planner
- What it does: Helps plan events, assign dates, and finalize menu details with clients.
- Expected outcome: Smooth event scheduling and happy clients.

Minor Functions

- View and approve client bookings: Check incoming event requests and give them the green light.
- Assign event details: Pick the date, time, and food package for the event.
- Coordinate with staff and suppliers: Make sure the team and vendors are ready for the event.
- Track event status: Keep an eye on which events are coming up or done.
- Update or cancel bookings: Make changes or cancel events if needed.

Sub-functions:

- Search and filter client booking requests.
- Auto-generate booking confirmation emails.
- Set calendar reminders and alerts for upcoming events.
- Upload and manage custom client requirements.
- Select pre-defined or custom menu templates.
- Link staff and suppliers directly to each event record.
- View real-time event status dashboards.

6.2 System Administrator

Major Function

- Function: Maintain system stability and user access
- Who uses it: System Admin
- What it does: Keeps the system running and controls who can do what.
- Expected outcome: System works smoothly without errors or unauthorized access.

Minor Functions

- Manage roles and permissions: Control what each user can see and do in the system.
- Perform data backups: Save copies of data just in case something goes wrong.

- Restore data if needed: Bring back saved data if there's a system issue.
- Monitor uptime and security: Make sure the system is always up and safe.
- Handle user issues: Fix bugs or help users with technical problems.

Sub-functions

- Create/edit/delete user roles and assign permissions.
- Schedule automated data backups.
- Trigger manual backup and restoration operations.
- Monitor system activity logs and login attempts.
- Set password and session timeout policies.
- Generate error/bug reports from user feedback.
- Configure firewall and authentication settings.

6.3 Payment Gateway Provider

Major Function

- Function: Handle secure online payments
- Who uses it: Payment Provider
- What it does: Processes client payments safely when they book an event.
- Expected outcome: Payments go through without issues and money reaches the right place.

Minor Functions

- Process refunds: Give money back when a client cancels.
- Generate payment receipts: Create proof that a client paid.
- Track transaction status: Keep a record of whether payments succeeded or failed.
- Handle payment errors: Fix issues if a payment doesn’t go through.
- Ensure data encryption: Protect payment data from hackers.

Sub functions

- Initiate secure payment session via token-based system.
- Validate card or digital wallet credentials.
- Notify user of payment success or failure.
- Issue automatic refund or partial refund based on cancellation policy.

- Generate and email/download receipts.
- Display transaction history and invoice reports.
- Run payment system health checks.

6.4 Supply & Vendor Manager

Major Function

- Function: Manage food and equipment supplies
- Who uses it: Vendor Manager
- What it does: Orders food and tools, and checks if everything's ready on time.
- Expected outcome: Everything needed for the event is delivered and ready.

Minor Functions

- Add or update supplier info: Keep supplier contact details current.
- Place inventory orders: Order ingredients and tools for upcoming events.
- Track deliveries: Check if supplies are arriving on time.
- Monitor stock levels: Know when items are running low.
- Confirm quality of items: Make sure delivered goods meet the standards.

Sub functions

- Add/edit/delete supplier profiles.
- Generate supplier performance reports.
- Send order requests via email or system portal.
- Set reorder thresholds with alerts.
- Upload product images and item specs.
- Track supply chain delivery with status indicators.
- Rate supplier quality and reliability.

6.5 Catering Business Owner

Major Function

- Function: Oversee overall catering operations
- Who uses it: Business Owner
- What it does: Manages pricing, reviews reports and checks dashboard.
- Expected outcome: A well-organized catering service.

Minor Functions

- View business reports: Check how much money is made or lost.
- Update menu items: Add or remove food options.
- Create promotions: Offer discounts to attract more customers.
- Read customer feedback: See what clients are saying.
- Adjust pricing: Change prices based on demand or cost.

Sub functions

- View daily/weekly/monthly revenue reports.
- Filter analytics by event type, date range, or location.
- Modify item price with auto-update to menus.
- Post promotional codes or limited-time offers.
- Collect and categorize client feedback (positive/negative).
- Toggle menu item availability.
- Track business KPIs from an admin dashboard.

6.6 Catering Staff Supervisor

Major Function

- Function: Manage staff assignments and schedules
- Who uses it: Staff Supervisor
- What it does: Assigns staff to events and tracks their availability.
- Expected outcome: Every event has the right team in place.

Minor Functions

- Assign staff to events: Choose which staff go to which events.
- View staff availability: See who is free to work.
- Monitor staff performance: Keep track of how well each staff member is doing.
- Manage shift times: Set when each person starts and finishes work.
- Track attendance: Check if staff show up on time.

Sub functions

- Match staff availability to event schedules.
- Send event briefings and work notifications to staff.
- Create/edit/delete shift templates.
- View staff attendance history and punctuality reports.

- Assign performance ratings after each event.
- Manage leave requests and replacements.
- Generate workload balance reports per staff member.

7 Limitations

7.1 System Limitations

1. **Basic Chatbot Capabilities**
    - The AI chatbot will support only predefined queries such as stakeholder guidance, FAQs, and simple support prompts. Advanced NLP or integration with third-party AI assistants is not included at this stage.
2. **Limited User Roles**
    - Only the primary roles (Event Planner, Business Owner, Staff Supervisor, Supplier Manager, System Admin, and Payment Provider) will be supported. Roles such as customers or delivery staff are excluded in this version.
3. **No Native Mobile Application**
    - The system will be optimized for mobile web use but will not include a standalone mobile app.
4. **Single Language Support**
    - The system will operate in English only. Multilingual support (Sinhala, Tamil) is excluded in the initial release.
5. **Fixed Event and Menu Types**
    - Only common event types (weddings, parties, corporate events) and fixed menu templates will be used. Custom event types or personalized menus are outside the initial scope.

7.2 Technical Constraints

1. **Single Payment Gateway Integration**
    - The system will integrate only with **PayLink Lanka Pvt Ltd** for handling transactions. Other providers or international gateways will not be supported in this phase.

2. **Manual Supplier Interaction**
    - Supplier orders and updates will be handled manually through the system by the Vendor Manager. Automated order processing or supplier-side portals are not in the current implementation.
3. **Local or University-Hosted Deployment**
    - The system will be deployed on a local or university-provided server. Commercial hosting or cloud-based deployment (AWS, Azure, etc.) is not part of the initial implementation.
4. **Basic Reporting Dashboard**
    - Only essential metrics such as event bookings, payment summaries, and feedback will be reported. Visual dashboards, charts, or data analytics tools are not included at this point.
5. **Rule-Based Notifications Only**
    - Notifications (e.g., event reminders, task updates) will be basic and time-triggered. AI-driven notifications or adaptive alerts will be considered for future versions.

7.3 Project Assumptions

1. **Stable User Roles**
    - It is assumed that the six primary stakeholders identified (Planner, Owner, Supervisor, Supplier Manager, Admin, Payment Provider) will remain constant throughout the project timeline.
2. **Consistent Network Access**
    - The users will have reliable internet access to use the web-based system on both desktop and mobile browsers.
3. **Training Not Required**
    - It is assumed that users will be able to use the system with minimal or no training due to a simple and intuitive interface.
4. **No External Integrations Needed**
    - Except for the payment gateway, no third-party software or external API integrations are assumed in this version.

8 Project Timeline

Week	Activities
Week 3	System Analysis & Planning
Week 4,5	Design wireframes and mock user interfaces
Week 6	Database Design
Week 7,8	Backend Architecture Setup, Implement user login and role-based dashboards
Week 9,10	Develop event planning, booking, and menu selection modules, Backend Integration
Week 11	Check cross-role access and data consistency
Week 12	Get peer or mentor feedback
Week 13	Improve UI/UX and optimize performance
Week 14	Present system demo

9 Conclusion

The proposed Web-Based Catering Management System offers a comprehensive and scalable solution to the challenges faced in catering service management. By digitizing core functions such as event planning, staff coordination, supply ordering, and payment processing, the system not only improves operational efficiency but also ensures a smooth and professional client experience.
Supported by a clear system architecture and well-defined stakeholder roles, this platform is built with practical constraints in mind while allowing future expansion. Though initial limitations exist, such as basic chatbot functionality and single payment gateway support, the project lays a strong foundation for future upgrades like mobile app integration and multilingual capabilities. With this system in place, catering businesses can transition from reactive management to proactive service excellence.