

IT5106 - Software Development Project

Project Proposal - 2025

(Submission deadline: 24th November 2025)

Candidate Details

Index No: 2014173

Name of candidate: W. A. A. D. Wijesingha

Contact Numbers: 0766024625

Email: inbox.ashen@gmail.com
a.d.wijesingha@gmail.com

Supervisor/Advisor Details

	Supervisor 1 (IT Related)	Supervisor 2 (Optional)
Name	Ranula Gihara Gamage	
Designation	Senior Software Engineer	
Workplace address	Level 18, Orion Towers, 736 Dr Danister De Silva Mawatha, Colombo	
Academic/ professional/ qualifications and memberships	MSc In Advance Software Engineering	
Work experience	5 Years	
Email:	ranula.gamage@sitecore.net	
Phone number/s	0719340435	

Note: Any deviation of the final project from the project described in this proposal should be explained by the candidate in the final Project Report.

Project Details

1. Title of Project

Wedding and Event Management System for Chance Palace Hotel Group

2. Name and address of client (ONLY if applicable)

Chance Palace Hotel Group

Mallehewa Road, Kottala, Veyangoda, Sri Lanka

Contact Person: Mr. Bandula Sirikumara (General Manager)

Email: chancepalace@gmail.com

Phone: 033 229 7125

3. Brief Introduction

Chance Palace Hotel Group is a leading luxury hotel chain in Sri Lanka specializing in weddings, corporate events, conferences, and social functions. Currently, the hotel manages all event-related operations manually through email correspondence, Excel spreadsheets, WhatsApp communication, and paper-based documentation. This manual process results in delayed responses to client inquiries (averaging 24-48 hours), occasional double bookings during peak seasons, miscommunication between departments, difficulty tracking vendor payments, and substantial administrative overhead. The proposed system is a comprehensive web-based Wedding and Event Management System designed to automate and streamline the entire event management lifecycle. The system will enable prospective clients to browse event packages, check real-time venue availability, submit detailed inquiries, and receive automated preliminary quotations. Hotel staff will efficiently manage bookings, coordinate vendors, track payments, allocate resources, and generate management reports. The system will significantly reduce manual workload, eliminate booking conflicts, improve response times, and enhance overall client satisfaction.

4. Motivation for project

The hotel industry in Sri Lanka is highly competitive, particularly in the luxury event segment. Chance Palace Hotel Group currently faces several operational challenges that impact revenue and client satisfaction. Manual quotation preparation takes 1-2 business days, causing potential clients to approach competitors offering faster responses. The absence of a centralized availability calendar has led to double bookings and last-minute venue changes, damaging the hotel's reputation. Administrative staff spend approximately 15-20 hours per week on repetitive tasks such as drafting contracts, preparing invoices, and tracking payment installments. Management lacks real-time visibility into booking trends, revenue forecasts, and resource utilization, making strategic planning difficult.

A dedicated event management system will address these pain points by automating repetitive tasks, providing real-time availability information, ensuring data consistency across departments, enabling faster client communication, and generating actionable business intelligence. This will position Chance Palace as a technology-forward hospitality provider and increase booking conversion rates by an estimated 25-30%.

5. Project Objectives

1. To develop a secure, responsive web application that automates event management processes from inquiry to post-event feedback for Chance Palace Hotel Group.
2. To implement a real-time venue availability calendar that prevents double bookings and scheduling conflicts through database-level transaction control.
3. To create a dynamic package customization engine allowing clients to select base packages and add-on services with automatic price calculation.
4. To automate quotation and contract generation with professional PDF output incorporating hotel branding and terms.
5. To develop a comprehensive booking management system tracking payment installments, vendor assignments, resource allocation, and event timelines.
6. To implement role-based access control supporting five user types (Super Admin, Event Manager, Sales Staff, Accounts Staff, Client Portal) with appropriate authorization levels.
7. To create a reporting and analytics module providing management insights on revenue trends, package popularity, resource utilization, and booking conversion rates.
8. To ensure system usability through responsive design compatible with desktop computers, tablets, and mobile devices.

6. Scope of proposed project

The system will be a full-stack web application developed using PHP 8.2+, Laravel 11 framework, MySQL 8.0, and Bootstrap 5 for responsive UI design. The application will follow a layered architecture pattern with clear separation between presentation, business logic, and data access layers.

In Scope

- Public-facing website section showcasing hotel venues and event packages
- Authenticated client portal for inquiry submission, quotation review, and booking tracking
- Comprehensive admin dashboard with full CRUD operations for all system entities
- Interactive event calendar with drag-and-drop functionality and color-coded availability status
- Dynamic package customization engine with real-time price calculation
- Automated PDF generation for quotations, contracts, and invoices using DomPDF library
- Payment tracking module supporting multiple installments and payment methods
- Email notification system using Laravel Mail and hotel's SMTP server
- SMS alerts for critical events using third-party SMS gateway API integration
- Multi-user role-based authentication and authorization using Laravel's built-in authentication
- Comprehensive reporting module with export functionality (PDF/Excel)
- Version control using Git with regular commits demonstrating development progress

Out of Scope

- Cloud-based infrastructure deployment (AWS, Azure, Google Cloud) - system will be deployed on hotel's on-premise server or standard shared hosting
- AI-driven recommendation engines or machine learning analytics

Third-Party Components Used (Student's Original Contribution Clarified)

- Laravel 11 Framework: Used for routing, authentication scaffolding, and ORM - all business logic, controllers, models, and database migrations written by student
- Bootstrap 5: Used for responsive grid system and basic UI components - all custom layouts, page designs, and event-specific interfaces designed and coded by student
- DomPDF Library: Used for PDF rendering engine - all PDF templates, dynamic content population, and formatting logic implemented by student
- AdminLTE Template: Optional dashboard template - if used, only as base layout; all event management interfaces, calendar views, and reporting dashboards custom-built by student

7. Critical functionalities for project:

Feature 1: User Authentication & Authorization System

- User registration with email verification and account activation workflow
- Secure login with password hashing (bcrypt) and session management
- Role-based access control with five user roles (Super Admin, Event Manager, Sales Staff, Accounts Staff, Client)
- Permission matrix defining create/read/update/delete rights per role per module
- Password reset functionality with secure token generation and email delivery
- User profile management with photo upload and contact information updates
- Activity logging tracking all user actions with timestamp, IP address, and action type
- Account suspension and reactivation functionality for administrative control
- "Remember me" functionality with secure cookie handling

Feature 2: Venue & Date Availability Management

- Interactive calendar interface displaying all hotel venues (Grand Ballroom, Garden Terrace, Rooftop Pavilion, Conference Hall, Poolside Area)
- Real-time availability checking with database queries preventing concurrent booking conflicts
- Color-coded calendar view (Available/Green, Booked/Red, Tentative/Yellow, Blocked/Gray)
- Date range blocking for venue maintenance or private hotel events
- Database transaction handling ensuring atomic booking operations (no double bookings)
- Availability filtering by venue capacity, date range, and event type
- Calendar export functionality for staff scheduling (iCal format)
- Automatic release of expired tentative bookings after 48 hours
- Booking conflict detection algorithm with alternative date suggestions

Feature 3: Package & Service Management Module

- CRUD operations for event packages (Silver Package, Gold Package, Platinum Package, Custom Package)
- Package configuration including base price, guest capacity range, included services, and validity period
- Add-on service catalog management (floral arrangements, photography, videography, entertainment, decoration themes, custom cake design, welcome drinks, valet parking)
- Dynamic pricing rules based on guest count tiers, event day (weekday/weekend), and peak/off-peak seasons
- Service availability calendar linked to vendor capacity
- Package versioning to track historical pricing for existing bookings
- Image gallery management for packages and services with upload, crop, and compression functionality
- Package comparison tool showing feature-by-feature breakdown for client decision-making
- Bulk import/export of service catalog using CSV format (Laravel Excel library)

Feature 4: Client Inquiry & Quotation System

- Multi-step inquiry form capturing event details (type, date, guest count, venue preference, package selection, dietary requirements, special requests)
- Form validation with real-time error feedback and data sanitization
- Automatic preliminary quotation generation based on inquiry parameters
- Manual quotation adjustment interface for sales staff to add custom discounts or notes
- Quotation PDF generation with hotel letterhead, itemized pricing breakdown, terms & conditions, and validity period
- Quotation versioning system tracking revisions and client responses
- Email notification to client with quotation attachment and response deadline
- Quotation approval workflow (Draft → Sent → Client Reviewed → Accepted/Rejected → Converted to Booking)
- Follow-up reminder system for pending quotations after 3, 7, and 14 days
- Conversion tracking metrics (inquiry-to-quotation, quotation-to-booking ratios)

Feature 5: Booking & Contract Management

- Booking creation from approved quotation with automatic data population
- Contract generation with customizable terms using template system
- Contract PDF output with signature fields and legal clauses
- Booking confirmation workflow requiring minimum 25% advance payment
- Event timeline builder (setup time, guest arrival, ceremony start, cocktail hour, reception, teardown)
- Booking status tracking (Confirmed, In Progress, Completed, Cancelled, Refunded)
- Booking modification interface with change history logging
- Automatic venue locking upon booking confirmation preventing conflicts
- Booking cancellation with refund policy enforcement (50% refund if cancelled 60+ days before, 25% if 30-60 days, 0% if <30 days)
- Guest count adjustment handling with automatic price recalculation

Feature 6: Payment Processing & Tracking

- Payment installment schedule creation (Advance 25%, Second Installment 35%, Final Payment 40%)
- Payment recording interface supporting multiple payment methods (Bank Transfer, Credit/Debit Card, Cash, Check)
- Payment receipt generation with unique receipt numbers and hotel stamp
- Balance calculation and outstanding amount display on booking dashboard
- Payment reminder email automation based on due dates (7 days before, 1 day before, overdue)
- Payment reconciliation interface for accounts staff matching bank deposits
- Refund processing workflow with approval authorization
- Payment history log for each booking with transaction dates and amounts
- Overdue payment flagging and follow-up task creation

(Note: Online payment gateway integration will be simulated in development environment; live integration with PayHere or bank API subject to hotel's banking agreements and would be configured post-deployment)

Feature 7: Vendor & Resource Coordination

- Internal resource inventory management (mandapa/poruwa, chiavari chairs, table linens, sound systems, lighting equipment, projection equipment)
- Resource availability calendar with booking assignments
- External vendor database with categorization (Florist, Photographer, DJ, Decorator, Cake Designer, Transportation)
- Vendor contact management with ratings and past performance notes
- Vendor assignment interface for specific bookings
- Vendor payment tracking with advance and final payment records
- Vendor performance evaluation form completion post-event
- Automatic vendor notification email upon assignment with event details
- Resource conflict detection preventing double allocation
- Vendor cost tracking for profitability analysis

Feature 8: Menu & Catering Management

- Menu catalog management with cuisine types (Sri Lankan, Chinese, Italian, BBQ, Fusion)
- Menu item database with descriptions, dietary labels (Vegetarian, Vegan, Halal, Gluten-Free), and pricing
- Custom menu builder allowing clients to select courses and dishes
- Guest dietary requirement tracking and special meal preparation notes
- Menu tasting session scheduling interface
- Final menu confirmation workflow with head chef approval
- Menu cost calculation per guest for financial planning
- Recipe and ingredient tracking for kitchen preparation (basic inventory management)

Feature 9: Staff Allocation & Task Management

- Staff roster management for event coordinators, waiters, bartenders, security personnel
- Event-specific staff assignment with role definition
- Staff availability calendar with shift management
- Task checklist creation for each event (pre-event setup, registration desk, guest assistance, teardown)
- Task assignment to specific staff members with deadline tracking
- Task completion status dashboard for event manager
- Staff performance tracking based on completed tasks and client feedback
- Automated staff notification via email when assigned to event or task

Feature 10: Reporting & Analytics Dashboard

- Revenue summary report showing total bookings, revenue, and average booking value by month/quarter/year
- Booking trends analysis with graphical visualization (line charts, bar graphs)
- Package popularity report ranking packages by booking frequency and revenue contribution
- Venue utilization report calculating occupancy rates per venue
- Conversion funnel analysis (Inquiries → Quotations → Bookings → Completed Events)
- Cancellation rate analysis with reasons categorization
- Seasonal demand analysis identifying peak and off-peak periods
- Vendor performance comparison report based on ratings and number of assignments
- Outstanding payment report listing all bookings with pending balances
- Staff productivity report showing events coordinated and tasks completed per staff member
- Export functionality for all reports in PDF and Excel formats using Laravel Excel
- Date range filtering and parameter customization for all reports
- Dashboard widgets showing key metrics (upcoming events, revenue this month, pending payments, active inquiries)

Feature 11: Email & SMS Notification System

- Email template management with merge fields for personalization
- Automated email triggers for key events (inquiry received, quotation sent, booking confirmed, payment received, payment reminder, event in 7 days, thank you post-event)
- Email queue management using Laravel Queue for reliable delivery
- Email delivery status tracking and failure logging
- SMS notification integration using third-party SMS gateway API (basic implementation for critical alerts)
- Notification preference management allowing clients to opt in/out of specific notification types
- Manual email/SMS sending interface for custom communication
- Notification history log for audit trail

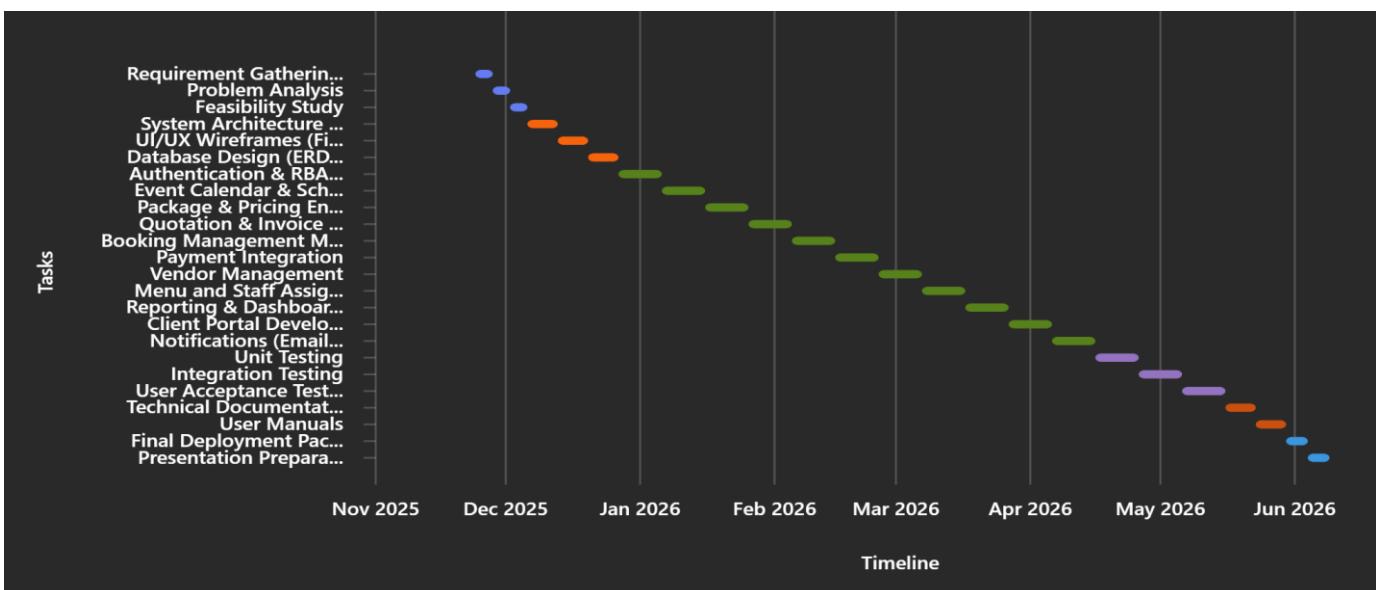
Feature 12: Client Portal & Self-Service Features

- Client dashboard showing all inquiries, quotations, and bookings
- Booking detail view with event timeline, vendor assignments, payment schedule, and document downloads
- Online document uploads for contracts and identification
- Payment history view with downloadable receipts
- Post-event feedback form submission
- Photo/video gallery access for completed events (basic file sharing)
- Direct messaging interface to assigned event coordinator
- Booking modification request submission
- FAQ section and help documentation

8. Itemized list of deliverables of the system:

1. **Fully Functional Web Application** - Complete source code with all features implemented, tested, and documented
2. **MySQL Database** - Fully populated database with sample/test data and complete backup SQL file
3. **Final Project Report** - Comprehensive dissertation covering all SDLC phases as per UCSC template
4. **System Documentation Package**
 - User Manual for clients explaining portal usage
 - Administrator Manual for hotel staff covering all system features
 - Technical Documentation including system architecture, database schema, API documentation, and code structure
 - Installation Guide with server requirements and deployment instructions
5. **Design Documentation**
 - Entity-Relationship Diagram (ERD) in Chen notation
 - Use Case Diagrams for all major functionalities
 - Class Diagrams showing system object model
 - Sequence Diagrams for critical workflows
 - UI Wireframes and final mockups
 - High-level system architecture diagram
6. **Testing Documentation**
 - Test Plan document
 - Test Cases (Unit, Integration, System Testing)
 - User Acceptance Testing (UAT) results with client sign-off
 - Bug tracking log and resolution status
7. **Training Materials**
 - Video tutorial series covering admin functions (screen recorded demonstrations)
 - Quick reference guides for common tasks
 - Live training session for hotel staff (post-submission, documented in report)
8. Version Control Repository - Complete Git repository showing development history and commit logs
9. Deployment Package - Configured application ready for production deployment on hotel server
10. Presentation Materials - PowerPoint slides and demonstration script for final viva

9. A project plan using Gantt chart (include the work involved in system development as well as writing the Final Project Report):



10. Resource requirements for project (e.g., hardware, software,...):

Hardware Requirements:

- Personal laptop with Intel Core i7 (10th gen or higher) processor, 16GB RAM minimum, 512GB SSD storage
- Stable internet connection (minimum 10 Mbps) for development research, package downloads, and testing
- External hard drive (1TB) for backup of code, database, and documentation

Software Requirements

- Operating System
 - Windows 11 Professional or Ubuntu 22.04 LTS
- Development Environment
 - Visual Studio Code / PHPStorm IDE
 - XAMPP 8.2+ / Laragon (for local PHP, MySQL, Apache development stack)
 - Composer (PHP dependency manager)
 - Node.js and npm (for frontend asset compilation)
- Version Control
 - Git 2.40+ and GitHub account for repository hosting
- Framework & Libraries
 - Laravel 11 framework
 - Bootstrap 5.3 for responsive design
 - jQuery 3.7 for frontend interactivity
 - Chart.js for analytics visualization
 - FullCalendar library for interactive event calendar
 - DomPDF for PDF generation
 - Laravel Excel for report export functionality
 - Maatwebsite/Excel for CSV import/export

- Database
 - MySQL 8.0 / MariaDB 10.6+ with MySQL Workbench for database design
- Testing Tools
 - PHPUnit for unit testing
 - Laravel Dusk for browser automation testing
 - Postman for API testing
- Documentation Tools
 - Microsoft Word / Google Docs for report writing
 - Draw.io / Lucidchart for diagrams (ERD, use case, sequence)
 - Microsoft Visio (optional) for system architecture
 - Adobe Acrobat Reader for PDF review
- Design Tools
 - Figma / Adobe XD for UI/UX wireframes and mockups
 - GIMP / Photoshop for image editing
- Optional Tools
 - Mailhog / Mailtrap for email testing
 - SMS gateway sandbox account (free tier) for SMS testing
- Additional Resources
 - Access to hotel's existing logo, branding guidelines, and sample contracts/quotations for template design
 - Test data including sample event details, vendor information, and pricing structures
 - Client availability for requirement clarification and UAT participation
- Hosting (Development & Deployment)
 - Local development on student laptop during development phase
 - Production deployment on hotel's Windows Server with IIS or Linux server with Apache/Nginx (provided by client post-submission)
 - Domain name (optional): chancepalaceevents.lk or subdomain events.chancepalace.lk

11. Proposed way of self-evaluating the success of your system:

Functional Completeness

- **Target:** 100% of the 12 critical features listed in Section 7 must be fully implemented and operational without critical bugs
- **Measurement:** Feature-by-feature checklist with demo scenarios; supervisor verification during milestone reviews

Code Quality & Standards

- **Target:** Achieve minimum 80% code coverage through PHPUnit unit tests; adhere to PSR-12 PHP coding standards throughout codebase
- **Measurement:** Automated code coverage reports; code review by supervisor; static analysis using PHP CodeSniffer

User Acceptance Testing Success Rate

- **Target:** Minimum 90% satisfaction rating from UAT participants (5 hotel staff members and 2-3 external test users simulating clients)
- **Measurement:** Structured UAT feedback forms with 5-point Likert scale covering usability, functionality, and performance; minimum average score of 4.5/5.0

Performance Benchmarks

- **Target:** System must support 50 concurrent users with average page load time under 2 seconds; database queries optimized to execute under 500ms
- **Measurement:** Load testing using Apache JMeter or LoadRunner; Laravel Debugbar for query performance monitoring

System Reliability

- **Target:** Zero critical bugs causing system crashes or data corruption during 2-week intensive testing period
- **Measurement:** Bug tracking log categorizing issues by severity; resolution of all high-priority bugs before final submission

Business Impact Validation

- **Target:** Post-submission pilot use by hotel for real inquiries; successful processing of minimum 10 actual inquiries within first month demonstrating operational viability
- **Measurement:** Client feedback interview; booking conversion tracking; staff productivity improvement survey

Documentation Completeness

- **Target:** All required documentation deliverables (listed in Section 8) completed and professionally formatted; technical documentation sufficient for another developer to understand and maintain system
- **Measurement:** Supervisor review of documentation; self-assessment checklist against UCSC project guidelines

Supervisor & Client Approval

- **Target:** Formal sign-off from project supervisor confirming academic standards met; acceptance letter from hotel client confirming system meets business requirements
- **Measurement:** Written approval documents obtained before final submission

Academic Integrity

- **Target:** Clear demonstration that all business logic, database design, and core functionality represents substantial original work by student despite use of frameworks and libraries
- **Measurement:** Code commentary explaining design decisions; Git commit history showing incremental development; ability to explain and defend all implementation choices during viva voce

Declaration

I confirm that the Wedding and Event Management System described in this proposal represents substantial original software development work by myself. While I will utilize the Laravel 11 framework, Bootstrap 5, and specific libraries (DomPDF, Laravel Excel, FullCalendar), the following components represent my original contribution:

- Complete database design and all table structures, relationships, and indexes
- All business logic including package customization engine, availability checking algorithm, quotation generation logic, payment tracking workflows, and reporting calculations
- All Laravel models, controllers, middleware, and service classes
- All Blade templates and custom UI components beyond basic Bootstrap elements
- All API endpoints and route definitions
- Integration logic connecting third-party libraries to application-specific requirements
- Complete test suite covering unit, integration, and system testing
- All PDF templates and dynamic content population logic
- Calendar visualization and interaction logic
- User interface layouts specifically designed for event management workflows

The estimated 306 hours of effort represents genuine software engineering work aligned with the BIT program's intended learning outcomes, demonstrating my ability to independently plan, design, implement, test, and deploy a complete software system.

Signature of Candidate: Ashen
Date: 22nd November 2025