Event & Support Management System

Advanced Certificate in
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Project Proposal Documentation

C-Clarke International Institute

Moratuwa

Project Title: **Event & Support Management System (ESMS)**

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Introduction

Project Overview

Event & Support Management System (ESMS)

The Event & Support Management System (ESMS) is a unified web platform designed to streamline event coordination and customer support for organizations such as universities, companies, and community groups. It enables administrators to create and manage events while allowing participants to register, view details, and receive updates all within a single interface. Simultaneously, users can submit support tickets for issues like registration errors or payment concerns, which staff can track, respond to, and resolve efficiently.

By integrating event management and support ticketing into one cohesive system, ESMS eliminates the need for fragmented communication channels like email or phone calls. It empowers users with self-service capabilities and provides administrators with centralized control over both event logistics and participant inquiries. This dual-functionality enhances operational efficiency, improves user experience, and ensures timely resolution of issues making ESMS a powerful tool for modern organizational

Problem Statement

At present, many organizations, universities, and companies manage their event operations and customer support separately and manually. Event registrations are often handled using spreadsheets, Google Forms, or email, while customer inquiries and complaints are addressed individually through emails or phone calls. This results in inefficiency, miscommunication, and unnecessary time consumption.

For example, when a participant registers for a workshop or conference but doesn't receive a confirmation email, they have to contact the organizers manually. Since communication happens through multiple emails, responses are often delayed. Similarly, administrators find it difficult to manage participant information or identify support requests because the data is scattered across different sources.

These manual processes lead to several issues:

- Lack of integration between event registration and support systems.
- Delays in responding to participant inquiries.
- Disorganized and scattered user data.
- No real-time updates or notifications for event changes
- Increased administrative workload and poor communication.

Therefore, the Event & Support Management System (ESMS) is essential to address these inefficiencies by combining event management and customer support into a single platform ensuring faster responses, better organization, and a more reliable experience for both users and administrators.

Proposed Solution

The proposed Event & Support Management System (ESMS) provides an integrated, web-based solution to the challenges identified in traditional event and support management processes. Instead of relying on separate tools like spreadsheets, emails, and manual communication, this system combines both event registration and customer support within a single, user-friendly platform.

Through the Event Management Module, administrators can easily create, edit, and manage event details such as title, description, date, venue, and capacity. Participants can browse available events, register online, and receive automated confirmation and reminder emails. Meanwhile, the Support Ticket Module enables users to submit inquiries or complaints directly through the same platform. Admins can view, track, and update ticket statuses (Pending → In Progress → Resolved) while users receive instant notifications about updates.

The core vision of the ESMS is to create a unified, automated, and efficient system that improves communication between event organizers and participants. It ensures all event and support-related activities occur within one digital space reducing delays, eliminating manual errors, and increasing overall transparency. By doing so, ESMS enhances organizational efficiency and provides a modern, professional experience for users and administrators alike.

Goals and Scope

<u>Project Objectives (Goals)</u>

SMART Goals:

- Specific: The ESMS aims to integrate event management and customer support in a unified web platform, streamlining event coordination and support ticket handling for administrators and participants.

- Measurable: Success will be determined by the system's ability to handle event registration, participant management, and support ticketing without requiring separate tools, as well as the reduction in response times and administrative effort.

- Achievable: The system is designed with achievable functionality using existing web technologies, supported by a development team with relevant skills.

- Relevant: The system will address current inefficiencies in event and support management, which is highly relevant to organizations, universities, and companies.

- Time-bound: The system is expected to be fully implemented by the end of the project timeline, with testing and user feedback incorporated by project submission.

Functional Goals:

- Event Creation and Management: Allow administrators to easily create, edit, and manage event details such as the title, description, date, venue, and participant capacity.

- Participant Registration: Enable users to browse available events and register online, with automated confirmation emails sent upon successful registration.

- Support Ticket System: Provide users with the ability to submit support tickets for event-related issues, such as registration errors or payment concerns, and track the status of these tickets (Pending → In Progress → Resolved).

- Real-time Notifications: Ensure that both participants and administrators receive real-time notifications about event updates, ticket status changes, and reminders.

- Admin Dashboard: Provide administrators with a comprehensive dashboard to track event registrations, support ticket statuses, and overall system activity in real-time.

- Role-Based Access: Implement role-based access to ensure that only authorized users (e.g., event organizers, admins) can modify event details or view sensitive information.

Non-Functional Goals:

- Usability: Ensure the platform is user-friendly and easy to navigate, with a clean interface suitable for both tech-savvy and non-technical users.

- Scalability: Design the system to handle an increasing number of events, participants, and support tickets without performance degradation.

- Performance: Ensure the system provides quick responses and minimal loading times for users, ensuring smooth interactions during event registrations and ticket updates.

- Security: Implement robust security measures to protect user data, including encryption, secure login mechanisms, and data protection protocols.

- Availability: Ensure that the platform is available 24/7 with minimal downtime, providing users with uninterrupted access to event registration and support services.

Scope and Boundaries

Project Scope

The **Event & Support Management System (ESMS)** aims to revolutionize the way organizations, universities, and companies manage their events and customer support services by providing an integrated, web-based platform. This system will eliminate the inefficiencies caused by manual event management processes and fragmented communication channels. The ESMS combines event registration and support ticketing into a single interface, ensuring seamless communication, faster resolutions, and improved operational efficiency.

Currently, event management and customer support are handled through disconnected tools such as spreadsheets, emails, and phone calls, resulting in inefficiencies, delays, and poor user experiences. The ESMS will address these challenges by providing a centralized platform for both event coordination and issue resolution. Event administrators will have the ability to create, manage, and update event details, while participants can register, receive real-time updates, and submit support tickets for any issues they encounter. Support staff can then track, respond to, and resolve these tickets in an organized, transparent, and timely manner.

This project will reduce administrative workload, enhance user experience, and foster better communication between event organizers and participants. By automating these processes, the ESMS will ensure smooth and effective event execution while improving the efficiency of customer support services. The integration of both functions within a single platform represents a significant leap forward in modern organizational management systems.

Boundaries

In-Scope:

- Event registration and management for multiple events including title, description, date, venue, and participant capacity.
- A support ticketing system allowing users to submit issues, track them, and receive updates.
- Notifications for event changes or ticket updates sent to both participants and administrators.
- User authentication and role management for administrators and participants.
- Integration of the event and support management into a single unified platform.

Out-of-Scope:

- Integration with external systems like payment gateways for processing event fees (although this could be considered for future phases).
- Advanced features like multi-language support, which can be added later.
- Mobile app development (the initial version will be web-based only).
- Non-event-related customer support functionality beyond the scope of event management.

System Analysis and Design

Target Users & Stakeholders

The primary users and stakeholders of the ESMS include participants, event organizers, and support staff. Each group interacts with the system in different capacities to achieve distinct goals.

User/Stakeholder	Roles and Responsibilities
Participant/User	Registers for events, submits support tickets, views updates.
Organizer/Admin	Creates, updates, or deletes events and manages participant lists.
Support Agent	Reviews and resolves tickets, communicates with users.
System Administrator	Maintains system performance, backups, and updates.

Functional Requirements and Non functional Requirements

Functional Requirements

Functional requirements define the behavior of the ESMS system. These requirements are organized as user stories and use cases, highlighting the interaction between users and system components.

User Registration and Authentication

- Users should be able to sign up by providing personal details such as username, email, phone number, and password.
- Users should be able to log in and log out securely using their credentials (username/email and password).
- The system should authenticate user credentials during each login attempt.
- Administrators should have a separate login interface with additional privileges.

Event Management System

- Administrators should be able to create, update, and delete events with detailed information such as title, description, date, venue, capacity, and registration link.
- Users should be able to view a list of upcoming events and register for them.
- Users should receive automatic email notifications upon successful event registration and reminders closer to the event date.
- Users should be able to view event details such as event agenda, speakers, and other relevant information.

Event Registration and Participation

- Users should be able to register for events by selecting an event and submitting required details.
- Users should be able to cancel their event registration and receive confirmation of cancellation.
- Users should be able to add or remove themselves from event waiting lists if the event has a limited capacity.

Support Ticket Management System

- Users should be able to submit support tickets for issues like registration errors, payment concerns, or event-related queries.
- Users should be able to track the status of their submitted support tickets (Pending, In Progress, Resolved).
- Administrators should be able to view, prioritize, and respond to support tickets.
- Users should receive notifications when their support ticket status changes.

Notifications and Alerts System

- Users should receive automatic email and/or SMS notifications for event registration confirmation, reminders, and updates.
- Administrators should be able to send manual alerts or announcements to event participants via email or SMS.
- Users should be able to opt-in or opt-out of receiving notifications based on preferences.

Admin Dashboard

- Administrators should have access to a dashboard displaying all event details, user registrations, support tickets, and event-related notifications.
- The system should allow administrators to view event participation statistics, such as total registrations, cancellations, and waiting list status.
- Administrators should be able to generate reports based on event data and user interactions.

Payment and Checkout Management

- If the event requires a fee, users should be able to make payments securely using multiple payment methods (e.g., credit/debit card, KOKO, etc.).
- Users should be able to apply discount codes or promotional offers during the checkout process.
- Users should be able to review their payment details and confirm their event registration before completing the transaction.

Event Feedback and Ratings System

- After attending an event, users should be able to rate the event and provide feedback on their experience.
- Users should be able to submit reviews for events they attended, including aspects like the event content, venue, and overall experience.
- The system should allow administrators to view and manage the submitted feedback for analysis.

Customer Profile Management

- Users should be able to edit their personal profile, including information such as name, phone number, email, and profile picture.
- Users should be able to update their communication preferences (e.g., opt-in/opt-out of email/SMS notifications).

- Users should be able to manage and set multiple delivery or event attendance addresses.

Search and Filter System

- Users should be able to search for events by criteria such as event type, date, location, and keyword.
- Users should be able to filter event results based on categories like online events, free events, or upcoming events.

User Stories

- Users can sign up, log in, and manage profiles securely.
  Participants can browse and register for available events.
  Users can submit support tickets and view their ticket history.
  Admins can manage events and monitor registration statistics.
  Support agents can respond to tickets and update ticket status.

Use Cases

Use Case	Description
UC1: User Authentication	Allows users to sign up, log in, and log out securely using their credentials.
UC2: Event Management	Admins can create, update, delete, and manage events, including publishing event details to users.
UC3: Registration	Users can browse available events, register, and receive confirmation emails with event details.
UC4: Ticket Management	Users can submit support tickets, track their status, and receive responses from administrators.
UC5: Notification System	Sends automatic notifications to users for event registration confirmations, reminders, and ticket updates.
UC6: Event Search and Filter	Users can search for events by type, date, location, and other criteria.
UC7: Admin Dashboard	Admins can view all event registrations, user activities, and support tickets in a centralized dashboard.
UC8: Profile Management	Users can edit their profile information such as name, email, phone number, and update delivery addresses.

UC9: Payment and Checkout	Users can pay for event tickets using various methods (credit card, PayPal), apply discount codes, and confirm delivery details.
UC10: Event Feedback	After attending an event, users can rate the event and provide feedback on their experience.
UC11: User Role Management	Admins can assign roles to users and manage their access permissions.
UC12: Report Generation	Admins can generate reports on event registrations, user participation, and support ticket resolutions.
UC13: Support Ticket Updates	Admins can view, assign, and respond to tickets, changing their status (e.g., Pending, In Progress, Resolved).
UC14: Multi-Device Access	The system is accessible and functional across desktop, tablet, and mobile devices.

System Design

The system design phase outlines the architecture, components, database schema, and workflow of the ESMS. This ensures smooth communication between the frontend, backend, and database layers.

System Architecture

The system follows a three-tier architecture:
1. Frontend: HTML, CSS, Javascript
2. Backend: FastAPI for RESTful APIs and routing logic.
3. Database: PostgreSQL for secure data storage and retrieval.

Technology Stack

The development tools that will be used for our software is as follows:

- Visual Studio Code

-Visual Studio Code is a powerful software development platform that is

used to create a wide range of software applications. Visual Studio code offers multiple languages, extensions, Integrated git and debugging tools.

- GitHub

-GitHub is a powerful software that allows developers to collaborate on code, manage projects, and build software together. It uses Git, a version control system(VCS) to developers to manage their codebase over time.

- Figma

-Figma is a collaborative design tool widely used for interface designing, prototyping and real time collaboration. Figma can be used by many users who are interested in working in the same project in Realtime.

- Draw.io

- Draw.oi is a software that allows users to create various types of diagrams such as UML diagrams, Flowcharts, networks diagrams, etc. draw.oi is commonly used because of its simplicity, collaborative tools, and exporting diagrams in multiple formats.

- Bugzilla(for automate the testing phase)

- Bugzilla is a software that helps the teams track issues, manage software defects, and collaborate on software development tasks. Bugzilla provides a central place for developers, testers, and stakeholders to report and track bugs.

Frontend:

- **Languages**: HTML, CSS, JavaScript (for building the user interface)
  - **HTML**: For structuring the content of the web pages.
  - **CSS**: For styling the website with responsive designs.
  - **JavaScript**: For adding interactivity and dynamic features to the user interface.
- **Authentication**: **JWT (JSON Web Tokens)** for secure user login and session management. Authentication will be managed on the backend and tokens will be used for secure communication between the frontend and backend.

Database Design

Database: PostgreSQL

- PostgreSQL will be used for secure data storage and retrieval, storing data related to user profiles, event details, tickets, transactions, etc.

- PostgreSQL’s relational structure will ensure data integrity, efficient queries, and secure transactions

Key tables include Users, Events, Registrations, and Tickets. Each table is connected through foreign key relationships ensuring referential integrity.

Example Schema:
• users(user_id, name, email, password_hash, role)
• events(event_id, title, date, venue, capacity)
• registrations(reg_id, user_id, event_id, timestamp)
• tickets(ticket_id, user_id, subject, message, status, created_at)

System Architecture:

- Client-Server Architecture: The system will follow a typical client-server architecture, where the frontend (client-side) communicates with the backend (server-side) to fetch, manipulate, and display data.
- Microservices Architecture (optional): Depending on scalability requirements, microservices could be considered for handling different modules (event management, support tickets, payment processing) as separate services to ensure independence and scalability.
- API Gateway: An API Gateway to handle incoming requests and route them to the appropriate microservices (if applicable).

Security & Access Control

The system enforces role-based authentication, ensuring that users only access permitted features. Passwords are encrypted, and sensitive data is protected using HTTPS protocols.

Project Plan Deliverables

Project Methodology

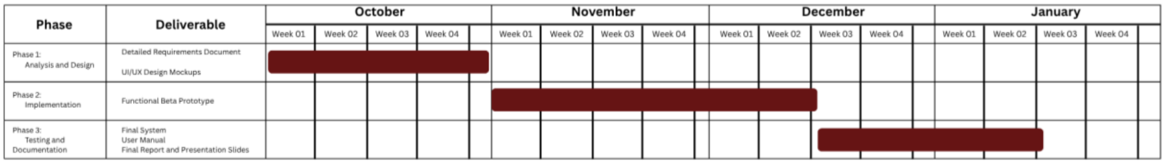
To develop the **Event & Support Management System (ESMS)**, we propose using the **agile methodology** due to its iterative and incremental development process. Agile is a flexible software development approach where cross-functional teams collaborate to deliver working software in short cycles. The most suitable technique for this project is the **Scrum framework**, as it allows us to break the development process into manageable sprints and work efficiently using a sprint backlog. This ensures continuous feedback, faster delivery of core features (such as event registration and ticket handling), and the ability to adapt to changing user needs throughout the development lifecycle.

Why we use agile methodology?

1. **Modular System with Evolving Requirements**
   - Event and Support Management System include multiple modules: Event Management, Support Ticketing, User Roles and Email Notifications.
   - Agile allows us to build and improve each module in short, focused sprint, adapting to feedback and changing needs.
2. **User – Centered Development**
   - The system serves both participants and admins, each with unique workflows.
   - Agle ensures continuous collaboration with stakeholders, helping us refine features like ticket status updates and registration flows.
3. **Incremental Delivery of Features**
   - We can release core features (like event registration and ticket submission) early, then add enhancements (like email alerts and dashboards) in later sprints.
   - This ensures the system is usable and testable throughout development.
4. **Improved Transparency and Team Coordination**
   - Scrum ceremonies (sprint planning, daily stand-ups, reviews) help the team stay aligned and track progress.
   - The sprint backlog keeps tasks organized and prioritized.
5. **Reduced Risk and Faster Feedback**
   - Early testing of critical features helps identify bugs and usability issues before full deployment.
   - Agile encourages continuous improvement, making the final system more robust and user-friendly.

Major Milestones and Timeline

1. **Phase 1: Analysis & Design**
   - **Timeline**: October 1 - October 31
   - **Deliverable**:
     - Detailed Requirements Document
     - UI/UX Design Mockups
2. **Phase 2: Implementation (Core Features)**
   - **Timeline**: November 1 - December 15
   - **Deliverable**:
     - Functional Beta Prototype
3. **Phase 3: Testing & Documentation**
   - **Timeline**: December 16 - January 15
   - **Deliverable**:
     - Final System
     - User Manual
     - Final Report and Presentation Slides



Phase	Deliverable	October					November					December					January				
		Week 01	Week 02	Week 03	Week 04		Week 01	Week 02	Week 03	Week 04		Week 01	Week 02	Week 03	Week 04		Week 01	Week 02	Week 03	Week 04	
Phase 1: Analysis and Design	Detailed Requirements Document UI/UX Design Mockups	🟥	🟥	🟥	🟥	🟥															
Phase 2: Implementation	Functional Beta Prototype						🟥	🟥	🟥	🟥	🟥	🟥	🟥								
Phase 3: Testing and Documentation	Final System User Manual Final Report and Presentation Slides													🟥	🟥	🟥	🟥	🟥			

Deliverables

- Working Software
- Source Code
- User Manual
- Database ER Diagram
- UI/UX Design Deliverables
- Test Cases and Results
- Final Report
- Presentation Slides

Conclusion

The Event & Support Management System (ESMS) is a transformative project that addresses the inefficiencies and fragmented processes in event coordination and customer support. By integrating both functions into a single platform, the system significantly enhances communication between event organizers and participants, improves user experience, and streamlines administrative tasks. The ability to handle everything from event registration to issue resolution within one cohesive system will not only increase operational efficiency but also ensure timely, accurate, and professional service.

This project is of immense value as it solves real-world challenges faced by universities, organizations, and businesses in managing events and customer inquiries. The ESMS will reduce administrative burdens, prevent data silos, and offer a modern, user-friendly experience for both users and administrators. Additionally, the system will offer scalability and flexibility, allowing for future enhancements and broad adoption across various sectors.

Given the structured phases and clear deliverables outlined in the project timeline, we are confident that the Event & Support Management System is achievable within the proposed timeframe. With careful planning, resource allocation, and diligent execution, we aim to deliver a high-quality system that meets user needs and exceeds expectations. This project not only represents a critical solution for better event management but also an opportunity to demonstrate technical excellence and project management capability within the given constraints.

In conclusion, the ESMS will provide a long-lasting, impactful solution, positioning it as a critical tool for modern organizations.