“ActivityNest”

MINOR PROJECT REPORT

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE & ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

GYAN GANGA INSTITUTE OF TECHNOLOGY & SCIENCES

JABALPUR (M.P.)

RAJIV GANDHI PRODYOGIKI VISHWAVIDYALAYA,

Bhopal(M.P.)

Submitted by

Shivam Kushwaha

Enroll No.:0206CS221182

Siddharth Jain

Enroll No.:0206CS221201

Satwick Singh

Enroll No.:0206CS221175

Shrikant Kushwaha

Enroll No.:0206CS221196

CERTIFICATE

This is to certify that the Minor Project Report entitled “Event Management site(ActivityNest)” submitted by Shivam Kushwaha, Shrikant Kushwaha, Siddharth Jain and Satwick Singh has been carried out under my guidance & supervision. The Minor project report is approved for submission towards partial fulfillment of the requirement for the award of degree of BACHELOR OF ENGINEERING in COMPUTER SCIENCE & ENGINEERING from “RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P).

Prof. Shweta Tiwari
Guide
Dept. of CSE

Prof.Ashok Verma
HOD
Dept. of CSE

CERTIFICATE

This is to certify that the Minor Project Report entitled “Event Management site(ActivityNest)” is submitted by Shivam Kushwaha, Shrikant Kushwaha, Siddharth Jain and Satwick Singh for the partial fulfillment of the requirement for the award of degree of BACHELOR OF ENGINEERING in COMPUTER SCIENCE & ENGINEERING from “RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P).

Internal Examiner

Date: 12/05/2016

External Examiner

Date:08/06/2016

DECLARATION

We hereby declare that the project Report entitled “Event Management site(ActivityNest)” which is being submitted in partial fulfillment of the requirement for award of the Degree of Bachelor of Engineering in Computer Science and Engineering to “RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P.)” is an authentic record of our own work done under the guidance of Mrs Shweta Tiwari., Department of Computer Science & Engineering, GYAN GANGA INSTITUTE OF TECHNOLOGY & SCIENCES, JABALPUR..

The matter has not been submitted earlier for the award of any other degree.

Dated: 12/05/2016

Place: JABALPUR.

Shivam Kushwaha

Siddharth Jain

Shrikant Kushwaha

Satwick Singh

ACKNOWLEDGEMENT

We sincerely express indebtedness to esteemed and revered guide “Prof. Shweta Tiwari mam”, Designation in Department name for her invaluable guidance, supervision and encouragement throughout the work. Without his kind patronage and guidance the report would not have taken shape.

We take this opportunity to express deep sense of gratitude to “Mr. Ashok Verma”, Head of “Computer Science” for his encouragement and kind approval. Also we thank him in providing the computer lab facility. We would like to express our sincere regards to him for advice and counseling from time to time.

We owe sincere thanks to all the lecturers in “Computer Science” for their advice and counseling time to time.

Dated: 12/05/2016

Place:JABALPUR

Shivam Kushwaha

Shrikant Kushwaha

Siddharth Jain

Satwick Singh

TABLE OF CONTENTS

ABSTRACT

In modern educational institutions, extracurricular activities and events play a significant role in fostering student engagement, skill development, and community building. However, managing these activities often becomes challenging due to a lack of an organized system for communication, event tracking, and club management. Our project, “Club and Events Website for Colleges And Events”, aims to address these challenges by providing a centralized and interactive digital platform to streamline the management of clubs and events within the college.

The proposed system is designed to cater to students, club administrators, and college management. Students can explore various clubs, view their objectives, and register as members. They can also access event details, register for upcoming events, and track their participation history. Club administrators will have access to a dedicated dashboard to create and manage events, oversee memberships, and communicate with members through notifications and announcements. Additionally, the system will provide analytics tools to help administrators gauge participation trends and improve engagement strategies.

The development of the system follows the Incremental Rapid Application Development (RAD) Model, ensuring faster delivery of functional prototypes and incorporating user feedback iteratively. This approach enhances the user-centric design of the platform and reduces the time to market. The website is built using modern web technologies, such as HTML, CSS, JavaScript, React.js (for the front-end), and Node.js or (for the back-end). The database is designed using a relational database management system (RDBMS) like MySQL or PostgreSQL to store and manage data securely.

Key features of the system include:-

1. Club Management: A comprehensive directory of college clubs, their objectives, and membership details.
2. Event Calendar: An interactive calendar showcasing upcoming events, with easy registration options.
3. Notification System: Alerts and updates sent to users about events, deadlines, and announcements.
4. User Roles: Separate portals for students and administrators, ensuring tailored access to functionalities.

The system Is designed to handle scalability, supporting a growing number of users and events as the college expands its activities. Performance optimization is a key focus, ensuring fast load times and seamless navigation, even during peak usage. Security measures, such as encrypted communication and secure authentication, are implemented to protect user data and ensure compliance with privacy standards.

The Club and Events Website is expected to transform the way extracurricular activities are managed and promoted in the college. By fostering better communication, simplifying registration processes, and enhancing student engagement, the platform contributes to a vibrant and collaborative campus culture. The system also benefits the administration by reducing the overhead of manual processes and providing valuable insights for strategic decision-making.

This project demonstrates the potential of leveraging technology to bridge communication gaps and promote inclusivity in college life. By providing an efficient, user-friendly, and scalable solution, the website ensures that every student has the opportunity to participate in activities that enrich their college experience and contribute to their personal and professional growth.

INTRODUCTION

In colleges and universities, clubs and events form an integral part of campus life, providing students with opportunities to develop skills, foster creativity, and build a sense of community. However, managing these activities often involves challenges such as fragmented communication, manual registrations, and a lack of streamlined processes for event promotion and club coordination. To address these issues, this project introduces a comprehensive Club and Events Website for [College Name], aimed at creating a unified digital platform for managing extracurricular activities.

The proposed system serves as a bridge between students and the college administration, facilitating seamless communication and engagement. Students can use the platform to explore various clubs, view their objectives, join as members, and stay informed about upcoming events. Club administrators, on the other hand, can leverage the platform to organize events, manage memberships, and track participation. This ensures that all stakeholders benefit from a streamlined, transparent, and user-friendly system that reduces the inefficiencies of traditional methods.

The key objectives of this project are as follows:-

1. Centralization of Information: A single platform for all club-related and event-related information.
2. Improved Accessibility: Ensure that students can easily discover and join clubs or register for events.
3. Efficient Communication: Enable notifications and alerts for event updates, deadlines, and other announcements.
4. Simplified Management: Provide club administrators with tools to create events, manage members, and track participation effortlessly.

The system Is developed using modern web technologies such as HTML, CSS, and JavaScript for the front-end, combined with a robust back-end powered by frameworks like Node.js .A relational database, such as MySQL or PostgreSQL, is used for storing and managing data securely. The platform employs responsive web design principles to ensure compatibility across desktops, laptops, tablets, and smartphones, enhancing user experience for all types of users.

The project follows the Incremental Rapid Application Development (RAD) Model, which allows for the delivery of functional prototypes at each stage of development. This iterative approach ensures continuous improvement based on user feedback and aligns the platform with the actual needs of its stakeholders. The focus is on providing a fast, reliable, and scalable system that adapts to the growing demands of the college's activities.

By automating and digitizing the management of clubs and events, this project aims to improve student engagement and streamline administrative tasks. The Club and Events Website is not just a tool for managing activities; it is a platform to promote inclusivity, encourage participation, and foster a vibrant campus culture. In the long term, it empowers students to make the most of their college experience while enabling administrators to focus on enhancing the quality of extracurricular activities.

This introduction sets the stage for an efficient and impactful solution to address the challenges of club and event management in colleges. It highlights the importance of leveraging technology to create a dynamic and collaborative campus environment that benefits all its participants.

PROBLEM STATEMENT

In a college environment, extracurricular activities such as clubs and events play a crucial role in fostering student engagement, personal growth, and a sense of community. However, the current approach to managing these

activities often relies on manual and fragmented processes, which leads to inefficiencies and missed opportunities for both students and administrators.

Challenges Faced:-

1. Decentralized Communication:

Information about clubs and events is typically shared through posters, word-of-mouth, or social media, which often results in miscommunication or lack of awareness. Students may miss important announcements or deadlines, leading to reduced participation.

2. Manual Registration Processes:

Event and club registration are usually handled through physical forms or spreadsheets, which can be time-consuming and error-prone. This makes it difficult to track participation and maintain accurate records.

3. Lack of a Centralized System:

There is no single platform where students can explore all the clubs, view their objectives, and register for events. This fragmentation makes it challenging for students to make informed decisions about joining clubs or participating in events.

4. Inefficient Event Management:

Club administrators often face challenges in organizing and managing events. Tasks such as tracking attendance, collecting feedback, and managing resources are done manually, consuming significant time and effort.

5. Low Student Engagement:

Due to ineffective promotion and lack of visibility, many students remain unaware of the clubs and events available to them. This leads to underutilization of the opportunities provided by the college.

6. Absence of Data Insights:

Without a proper system, it is difficult to analyze trends in participation, track event success, or gather feedback for improvement. This limits the ability of administrators to make data-driven decisions to enhance engagement.

Impact of the Problem:-

The lack of an efficient system not only hinders the smooth functioning of clubs and events but also reduces student involvement in extracurricular activities. This diminishes the overall campus experience and prevents students from taking full advantage of opportunities that could contribute to their personal and professional development.

Proposed Solution:-

To address these challenges, this project proposes the development of a Club and Events Website for the college. The platform will serve as a centralized system where students can discover clubs, register for events, and receive notifications about important updates. It will also provide administrators with tools to manage events, track participation, and streamline communication.

By implementing this solution, the project aims to:-

- Eliminate inefficiencies in event promotion and registration.
- Enhance communication between students and administrators.
- Increase student participation in clubs and events.
- Provide valuable insights through analytics and reporting.

This system is expected to transform the way extracurricular activities are managed and promoted, fostering a more vibrant and inclusive campus culture.

SOFTWARE REQUIREMENTS SPECIFICATION

The Software Requirements Specification (SRS) serves as a comprehensive document that outlines the functional and non-functional requirements of the Club and Events Website. It provides a detailed description of the system's purpose, scope, intended audience, and overall behavior, ensuring that all stakeholders share a common understanding of the project's objectives.

The SRS defines the technical and operational requirements of the platform to guide its development, testing, and deployment. It includes descriptions of the user interface, system architecture, database design, and performance criteria, along with constraints and assumptions that influence the development process.

3.1 PURPOSE OF THE SYSTEM

The purpose of the Club and Events Website is to provide a centralized platform that simplifies the management of college clubs and events. The system aims to enhance student engagement, streamline administrative tasks, and foster better communication between students and club administrators.

Key Objectives:

1. To enable students to discover and join clubs, register for events, and stay updated with notifications.
2. To provide club administrators with tools to manage memberships, create events, and track participation.

3. To digitize and automate processes like event registrations and attendance tracking, reducing manual workload.
4. To create a data-driven system that allows for insights into participation trends and feedback for improvement.
5. To foster an inclusive and vibrant campus culture by increasing student involvement in extracurricular activities.

The system's purpose aligns with the broader goal of improving student life by promoting active participation and collaboration.

3.2 SCOPE OF THE DOCUMENT

This document outlines the scope of the Club and Events Website, covering its functional and non-functional requirements, system architecture, user roles, and constraints.

Inclusions:

1. Core Functionalities:

- Displaying information about clubs and events.
- Facilitating event registrations and membership applications.
- Sending notifications and alerts to users.
- Providing administrative tools for event creation and management.

2. User Roles:

- Students: Access event details, register for events, and join clubs.
- Club Administrators: Manage club profiles, create and manage events, and track registrations.
- System Administrator: Oversee platform functionality, manage user accounts, and ensure system maintenance.

3. System Features:

- Responsive web interface for seamless use across devices.

- Secure authentication and data storage mechanisms.
- Integration with email or SMS for notifications.
-

Exclusions:

The document does not cover:

- Financial transactions or event ticketing systems.
- Integration with external social media platforms.

Scope Expansion:-

The system is designed to be scalable, allowing for future enhancements such as event feedback collection, analytics dashboards, and integration with third-party services.

INTENDED AUDIENCE:-

The Club and Events Website is designed to serve the following primary audiences:

1. Students:

Students are the primary users of the system. They will use the platform to explore and join clubs, register for events, and stay informed about upcoming activities. The platform aims to make it easy for them to find opportunities that align with their interests and engage in campus life.

2. Club Administrators:

Club leaders and organizers will utilize the system to manage their club's activities. They can create and promote events, approve membership applications, send notifications, and track participation. The platform simplifies administrative tasks and improves communication with members.

3. College Management:

The college administration can use the platform to oversee club activities and ensure that all events are aligned with institutional guidelines. Additionally, the system provides analytics and insights to help management assess the success of events and student participation levels.

4. Developers and Testers:

The SRS document is also intended for the development and quality assurance teams. It serves as a guideline for system implementation, testing, and validation, ensuring that the platform meets the specified requirements.

By clearly defining its audience, the SRS ensures that the system is tailored to meet the needs and expectations of its users while aligning with institutional goals.

TEAM ARCHITECTURE

The success of the Club and Events Website project depends on a well-structured and collaborative team. Each team member plays a crucial role in ensuring the project's objectives are achieved efficiently and effectively. The team architecture is designed to allocate responsibilities based on specific expertise, promoting a streamlined workflow and high-quality deliverables.

Roles and Responsibilities

1. Project Manager:

Responsibilities:

- Oversee the entire project lifecycle, from planning to delivery.
- Ensure that project milestones and deadlines are met.
- Coordinate between team members, resolve conflicts, and manage resources.

- Monitor progress, identify risks, and implement mitigation strategies.

Skills Required: Leadership, communication, time management, and problem-solving.

2. Frontend Developers:

Responsibilities:

- Design and implement the user interface using HTML, CSS, JavaScript, and frameworks like React.js or Angular.
- Ensure a responsive and user-friendly design across all devices.
- Collaborate with backend developers to integrate APIs and ensure seamless functionality.

Skills Required: Proficiency in web design, knowledge of UI/UX principles, and experience with frontend frameworks.

3. Backend Developers:

Responsibilities:

- Develop and maintain the server-side logic of the application using frameworks like (Python) or Node.js.
- Implement secure user authentication, database connections, and API endpoints.
- Optimize server performance and ensure scalability.

Skills Required: Proficiency in backend programming, database management, and API integration.

4. Database Administrator (DBA):

Responsibilities:

- Design, implement, and maintain the database schema.
- Ensure data integrity, security, and efficient query execution.
- Optimize database performance and handle backups and recovery processes.

Skills Required: Expertise in RDBMS (MySQL, PostgreSQL), database optimization, and data security.

5. Quality Assurance (QA) Team:

Responsibilities:

- Test the application at every stage to identify and resolve bugs.
- Ensure the system meets functional and non-functional requirements.
- Conduct usability testing to ensure a seamless user experience.

Skills Required: Knowledge of testing methodologies, attention to detail, and familiarity with tools like Selenium or Junit.

6. Documentation Specialist:

Responsibilities:

- Maintain comprehensive project documentation, including technical specifications, user manuals, and reports.
- Ensure all documentation is clear, concise, and accessible to stakeholders.
- Record project updates, changes, and meeting notes.

Skills Required: Strong writing and organizational skills, familiarity with documentation tools like MS Word or Google Docs.

7. UI/UX Designer (Optional, if a separate role is required):

Responsibilities:

- Create wireframes, prototypes, and design mockups for the website.
- Conduct user research and gather feedback to improve the design.
- Ensure the platform aligns with accessibility standards.

Skills Required: Proficiency in design tools like Adobe XD, Figma, or Sketch, and a strong understanding of user behavior.

Team Workflow

1. Planning Phase:

- The project manager drafts the project plan, defines milestones, and assigns responsibilities.
- The team collaborates to finalize requirements and architecture.
-

2. Design Phase:

- UI/UX designers create mockups and share them with the frontend team.
- Database design is completed by the DBA.

3. Development Phase:

- Frontend and backend developers work concurrently, integrating their components through APIs.

4. Testing Phase:

- The QA team conducts testing, and any identified issues are resolved by developers.

5. Deployment Phase:

- The platform is deployed and monitored for performance and user feedback.

Team Communication:-

- Regular meetings will be conducted to review progress and address challenges.
- Tools like Trello, Slack, or Microsoft Teams will be used for collaboration and task tracking.
- This team structure ensures that the project is developed systematically and delivered successfully within the given timeline.

OVERALL DESCRIPTION

The Club and Events Website aims to revolutionize the management of extracurricular activities in colleges by providing a centralized, user-friendly platform for students and administrators. The platform serves as a bridge between students and club organizers, enabling seamless communication, efficient event organization, and active participation. By digitizing and automating processes like membership registration, event creation, and notifications, the system reduces administrative workload while enhancing user experience.

This system is designed to cater to the specific needs of its stakeholders—students, club administrators, and college management—while being scalable and adaptable to future requirements. The platform also ensures compatibility across various devices, providing users with a responsive and reliable interface.

PRODUCT FUNCTION:-

The Club and Events Website offers several core functionalities to enhance the overall experience of managing and participating in extracurricular activities:

1. Student-Facing Features

- Club Directory: A detailed list of all clubs with descriptions, objectives, and contact information.
- Event Calendar: An interactive calendar displaying upcoming events with details such as date, time, venue, and registration links.
- Membership Management: Students can apply for membership in clubs and track their applications.
- Event Registration: Students can register for events directly through the platform.
- Notifications: Alerts for event updates, deadlines, and important announcements.

2. Administrator Features

- Event Management: Tools to create, update, and manage events, including participant tracking.
- Membership Approval: Options to review and approve/reject membership requests.
- Analytics Dashboard: Insights into participation trends, event feedback, and overall engagement.
- Communication Tools: Send notifications and announcements to targeted groups.

3. System-Level Features

- User Authentication: Secure login for students, administrators, and system managers.

- Role-Based Access Control: Ensure users can only access features relevant to their role (e.g., student or admin).
- Data Security: Encryption and secure protocols to protect user information.
- Scalability: Support for a growing number of clubs, events, and users as the system expands.

ASSUMPTIONS AND DEPENDENCIES:-

The development and functionality of the Club and Events Website are based on several assumptions and dependencies:

Assumptions

1. User Access:

- All users (students and administrators) have access to a stable internet connection and a compatible device (desktop, laptop, tablet, or smartphone).
- Students and administrators are familiar with basic web navigation.

2. Data Availability:

- Accurate and up-to-date information about clubs, events, and members is provided by the college administration for initial setup.
- Administrators will regularly update event details and respond to membership requests.

3. Usage Adoption:

- Students and administrators will actively use the platform for managing and participating in activities.

- The college will mandate the use of the platform as the primary tool for club and event management.

Dependencies

1. Technological Requirements:

- Frontend frameworks (React.js, Angular) and backend technologies (Node.js) must be properly configured for development and deployment.
- A reliable database management system (MySQL) must be available for secure data storage.

2. Infrastructure:

- Hosting services with sufficient bandwidth and storage must be available to deploy the system.
- Secure email or SMS services must be integrated for notifications.

3. Third-Party Libraries and APIs:

- Use of third-party tools for features like responsive design (Bootstrap) and analytics (Google Analytics or similar tools).
- APIs for user authentication and communication (e.g., OAuth, Twilio).

4. Human Resources:

- Skilled developers, designers, and administrators are required to ensure proper development and maintenance.

5. Maintenance and Updates:

- Regular maintenance must be performed to ensure optimal performance and security.
- System updates must be implemented to adapt to changing requirements or technological advancements.

By addressing these assumptions and dependencies, the project ensures a robust, reliable, and user-friendly platform that meets the needs of its stakeholders.

SPECIFIC REQUIREMENTS

This section outlines the detailed functional and non-functional requirements of the Club and Events Website. It specifies the external interfaces, performance expectations, and constraints to guide the development and implementation of the system.

EXTERNAL INTERFACE REQUIREMENTS

The external interface requirements describe how the system interacts with users, hardware, software, and communication systems.

User Interface:-

Web Interface:

- The website should have a responsive design to ensure compatibility across devices (desktops, tablets, and smartphones).
- User-friendly navigation menus with clear labels and icons.
- Interactive event calendar for displaying upcoming activities.
- Registration forms with auto-validation for event participation and club memberships.
- Separate dashboards for students, club administrators, and system administrators.
- Notifications displayed on the homepage for quick updates.

Design Considerations:

- Use of modern design principles (e.g., material design).

- Accessibility features like alt text for images, readable fonts, and color contrast compliance.

Hardware Interface:-

Server Requirements:

- Minimum 8-core CPU and 16 GB RAM for hosting the backend system.
- At least 500 GB of SSD storage for database and media files.
- Reliable network interface card (NIC) for fast and stable connectivity.

Client Requirements:

- Devices such as laptops, desktops, tablets, and smartphones capable of running a web browser (e.g., Chrome, Firefox, Safari).
- Minimum device specifications: 1 GB RAM, 1 GHz CPU, and screen resolution of 1024x768 or higher.

Software Interface

- Operating System:
  Server: Linux-based OS (e.g., Ubuntu, CentOS).
  Client: Compatible with Windows, macOS, iOS, and Android.
- Web Browsers:-Support for modern browsers (Google Chrome, Mozilla Firefox, Microsoft Edge, Safari).
- Backend Frameworks:-Node.js for server-side operations.
- Frontend Frameworks:-React.js or Angular for the client-side application.
- Database:-MySQL or PostgreSQL for storing club, event, and user data.
- Third-Party Libraries:-Libraries for user authentication (e.g., OAuth), responsive design (e.g., Bootstrap), and notifications (e.g., Twilio).

Communication Interface

- Network Protocols:HTTPS for secure communication between clients and servers.
- RESTful APIs for client-server data exchange.
- Email Notifications:Integration with email services like SendGrid or Gmail for sending notifications about events and updates.
- Push Notifications:Optional feature to notify users through browser or mobile push notifications.

PERFORMANCE REQUIREMENTS

Response Time:

Page load time should not exceed 2 seconds under normal conditions.

Event registration and data retrieval must be completed within 1 second of the request.

Concurrent Users:

The system must support at least 500 concurrent users during peak times.

Scalability to accommodate 1000+ users as the platform grows.

Data Throughput:

The system should handle 100 transactions per second for read/write operations on the database.

Uptime:

Ensure 99.5% system uptime, with scheduled maintenance limited to non-peak hours.

Scalability:

The system must be designed to scale horizontally by adding more servers to handle increased traffic.

NON-FUNCTIONAL REQUIREMENTS

1. Security Requirements

- User data (including personal information and login credentials) must be encrypted using SSL/TLS protocols.
- Passwords must be stored using secure hashing algorithms (e.g., bcrypt).
- Role-based access control to prevent unauthorized access.

2. Reliability

- The platform should recover from server crashes within 5 minutes using backup servers.
- Daily automated backups of all critical data.

3. Maintainability

- Modular code structure to simplify debugging and updates.
- Comprehensive documentation for developers and administrators.

4. Usability

- Ensure the platform adheres to web accessibility guidelines (e.g., WCAG 2.1).
- Provide tooltips, help pages, and FAQs for user assistance.

5. Portability

- The system must be deployable on cloud services (e.g., AWS, Azure) and on-premises servers.

6. Legal and Compliance

- Adherence to data protection regulations like GDPR (if applicable) to ensure user privacy.

By meeting these specific requirements, the Club and Events Website will deliver a reliable, secure, and user-friendly experience for all stakeholders.

SOFTWARE SYSTEM ATTRIBUTES

The Club and Events Website is designed with a robust architecture to ensure high performance, security, and reliability. The software system attributes describe the essential quality factors that define the system's behavior and usability under various conditions. These attributes ensure the software meets user expectations and operational requirements.

1,Reliability

- The system is designed to operate continuously without failure under defined conditions.

- Mechanisms like error handling and automated recovery are implemented to ensure minimal downtime.
- Regular backups and failover servers are in place to safeguard data during unexpected crashes.

Metrics:

Uptime guarantee: 99.5%.

Mean time to recovery (MTTR): Less than 5 minutes.

---

1. Scalability

- The system supports scaling to accommodate a growing number of users, clubs, and events.
- Horizontal scaling through load balancers and additional servers is implemented for peak usage times.

Metrics:

Initial support for 500 concurrent users, scalable up to 1000+ users.

---

2. Security

- User data is protected using encryption protocols (SSL/TLS) to secure communication.
- Authentication mechanisms include secure password storage (bcrypt hashing) and multi-factor authentication (optional).

- Role-based access control ensures users can only perform actions relevant to their permissions.

Features:

Protection against common vulnerabilities such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF).

---

3. Maintainability

- Modular and clean code structure ensures ease of debugging and updating.
- Comprehensive documentation is provided for both developers and system administrators.
- Adherence to industry-standard coding practices for long-term maintainability.

Metrics:

Time to fix bugs: Less than 2 hours for critical issues.

---

4. Usability

The platform is designed to be intuitive and user-friendly, ensuring ease of use for both students and administrators.

Features include:

- Clear navigation menus and visually appealing layouts.
- Accessibility compliance with WCAG 2.1 standards.
- Responsive design for compatibility across devices.

Metrics:

Average time for a new user to perform a key task (e.g., register for an event): Less than 2 minutes.

---

5. Performance

- The system is optimized for fast response times and efficient data handling.
- Key functionalities, such as event registration and membership management, execute seamlessly under load.

Metrics:

Page load time: Less than 2 seconds.

Database query execution time: Under 1 second.

---

6. Portability

- The system can be deployed on different platforms, including cloud services (AWS, Azure) and on-premises servers.
- The design ensures compatibility across operating systems like Windows, macOS, Linux, Android, and iOS.

Metrics:

Deployment time on a new server: Less than 30 minutes.

---

7. Availability

- High availability is ensured through redundancy and load balancing.
- Scheduled maintenance is performed during off-peak hours to minimize disruption.

Metrics:

Availability: 24/7 access with a downtime of less than 0.5% annually.

---

8. Modularity

- The system is developed using a modular architecture, with components such as user authentication, event management, and notifications designed independently.
- This enables easy addition of new features and updates.

Features:

Independent modules for frontend, backend, and database layers.

By adhering to these software system attributes, the Club and Events Website will deliver a reliable, scalable, and user-focused solution, ensuring long-term success and adaptability to future requirements.

SOFTWARE PROCESS MODEL

The Incremental Rapid Application Development (RAD) model is chosen as the software process model for developing the Club and Events Website. This model is ideal for projects that require quick iterations, user feedback, and modular development, ensuring faster delivery of a functional product while incorporating flexibility for changes.

Why Not Evolutionary Models?

Evolutionary models, such as the Prototyping Model and Spiral Model, are often used for iterative development but may not be suitable for this project due to the following reasons:

1. Prototyping Model:

- The prototyping model focuses heavily on building a prototype before final development, which may delay the actual implementation.
- It Is less suitable for projects requiring modular delivery, as prototypes often need significant rework to align with the final architecture.

2. Spiral Model:

- While the spiral model provides risk management at every iteration, it is overly complex and resource-intensive for a medium-scale project like this one.
- It requires extensive documentation and evaluation at every iteration, increasing overhead without proportionate benefits for this project.

Why Not Waterfall Model?

The Waterfall Model, a sequential process model, is not chosen for the following reasons:

1. Lack of Flexibility:

The Waterfall Model requires all phases (requirements, design, development, testing, and deployment) to be completed in sequence.

Any changes in requirements during development would necessitate revisiting earlier phases, causing delays and inefficiency.

2. Delayed Feedback:

User feedback is collected only after the deployment phase, which can lead to a product that does not align with user expectations.

3. Long Development Time:

The sequential nature of the model results in longer development cycles, which conflicts with the project's goal of delivering functional components quickly.

Why Incremental RAD Model?

The Incremental RAD Model is selected due to its numerous advantages for this project:

1. Quick Delivery of Functional Components:

The model divides the project into smaller, manageable increments. Each increment delivers a functional module (e.g., event calendar, membership management) that can be tested and used independently.

2. User Feedback at Each Stage:

Each increment is tested and validated with users, ensuring that their feedback is incorporated early in the development process.

3. The RAD approach allows multiple teams to work on different modules simultaneously, reducing overall development time.

4. Flexibility:

The model accommodates changes in requirements even after the initial phases, ensuring that the final product aligns with user needs.

5. Reduced Risk:

Testing and feedback in each iteration minimize the risk of delivering a system that does not meet expectations.

6. Cost and Time Efficiency:

By focusing on reusable components and iterative development, the model optimizes resource utilization and ensures faster delivery.

OBSERVATION

Based on the analysis, the Incremental RAD Model is the most appropriate choice for the following reasons:

- It aligns with the project's goals of rapid delivery and user-centric design.
- It minimizes risks by incorporating user feedback early and often.
- The modular structure allows for the addition of new features and scalability without disrupting existing functionalities.
- The model's flexibility ensures the system can adapt to changes in requirements or technology trends.

By using the Incremental RAD Model, the Club and Events Website can be developed efficiently, meeting the expectations of both students and administrators while maintaining high quality and adaptability.

DETERMINING PROJECT FEASIBILITY

Before initiating the development of the Club and Events Website, it is crucial to evaluate the feasibility of the project. This ensures that the project is realistic, achievable, and aligned with the goals of the stakeholders. The feasibility study focuses on multiple aspects, including technical, economic, operational, legal, and scheduling feasibility.

1. Technical Feasibility

This aspect examines whether the necessary technologies and expertise are available to develop and maintain the project.

Available Resources:

- Development team skilled in frontend (React.js, Angular) and backend (Django, Node.js) technologies.
- Access to hosting platforms like AWS, Azure, or on-premise servers.
- Familiarity with database management systems (MySQL, PostgreSQL).

Scalability:

- The use of modern frameworks ensures the system can be easily scaled to handle increased traffic or future feature enhancements.

Risk Mitigation:

- Regular backups and robust security protocols reduce risks related to data loss or breaches.

Conclusion: The project is technically feasible due to the availability of resources and tools required for development and deployment.

---

2. Economic Feasibility

This aspect evaluates whether the benefits of the system outweigh its costs.

Cost Analysis:

- Development Costs: Primarily involves developer salaries and software tools/licenses (if required).
- Infrastructure Costs: Includes server hosting, domain registration, and cloud storage.
- Maintenance Costs: Regular updates, bug fixes, and performance optimizations.
-

Benefit Analysis:

- Reduction in administrative workload by automating event and membership management.
- Increased student engagement, leading to better participation in extracurricular activities.
- Long-term cost savings by eliminating manual processes and paper-based systems.

Conclusion: The project is economically feasible, as the long-term benefits significantly outweigh the initial and operational costs.

---

3. Operational Feasibility:

   This aspect evaluates whether the system can be successfully integrated into the college's existing ecosystem.

Ease of Use:

- The user-friendly interface ensures students and administrators can easily adapt to the system.
- Minimal training required for users, with clear instructions provided during onboarding.

Stakeholder Support:

- The project has backing from college management, ensuring smooth implementation and user adoption.

Conclusion: The project is operationally feasible, as it aligns with the college's goals and is easy to implement.

---

4. Legal Feasibility

- This aspect examines whether the project complies with relevant legal and regulatory requirements.

Data Protection Laws:

- Compliance with laws like GDPR (if applicable) ensures the privacy of student data.
- Secure data storage and encryption protocols are implemented to protect user information.

Intellectual Property:

- The use of open-source tools and frameworks avoids copyright issues.

Conclusion: The project is legally feasible, as it adheres to data protection regulations and avoids intellectual property conflicts.

---

5. Scheduling Feasibility

- This aspect assesses whether the project can be completed within the allocated time frame.

Timeline:

- The use of the Incremental RAD model ensures rapid development of functional modules.
- A detailed project plan with milestones for requirement gathering, development, testing, and deployment has been created.

Resource Allocation:

- Adequate human and technological resources are allocated to avoid bottlenecks.

Conclusion: The project is feasible within the specified time frame due to efficient planning and the use of iterative development methods.

Overall Feasibility Analysis

Final Conclusion: The project is deemed highly feasible across all aspects, making it a viable and beneficial initiative for the college.

DATABASE DESIGN

- The database design for the Club and Events Website is centered around ensuring efficient storage, retrieval, and management of data related to users, clubs, events, and registrations. The database is normalized to eliminate redundancy and improve performance.

Entity: Customer

- The “Customer” entity represents the students or users of the system who will interact with the platform. Below is the detailed schema design:

Customer Table Schema

Relationships

The Customer entity interacts with other entities as follows:

1. Customer – Events:

A customer can register for multiple events.

Relationship: Many-to-Many (implemented via a “Registration” table).

2. Customer – Clubs:

A customer can be a member of multiple clubs.

Relationship: Many-to-Many (implemented via a “Membership” table).

3. Customer – Notifications:

A customer receives notifications for events and club updates.

Relationship: One-to-Many.

ER Diagram Representation

Key Relationships:

CustomerID serves as the primary key, ensuring uniqueness.

Email is indexed for faster lookup during login.

Foreign keys link CustomerID to the relevant entities (Events, Clubs, Notifications).

Example SQL Script:-

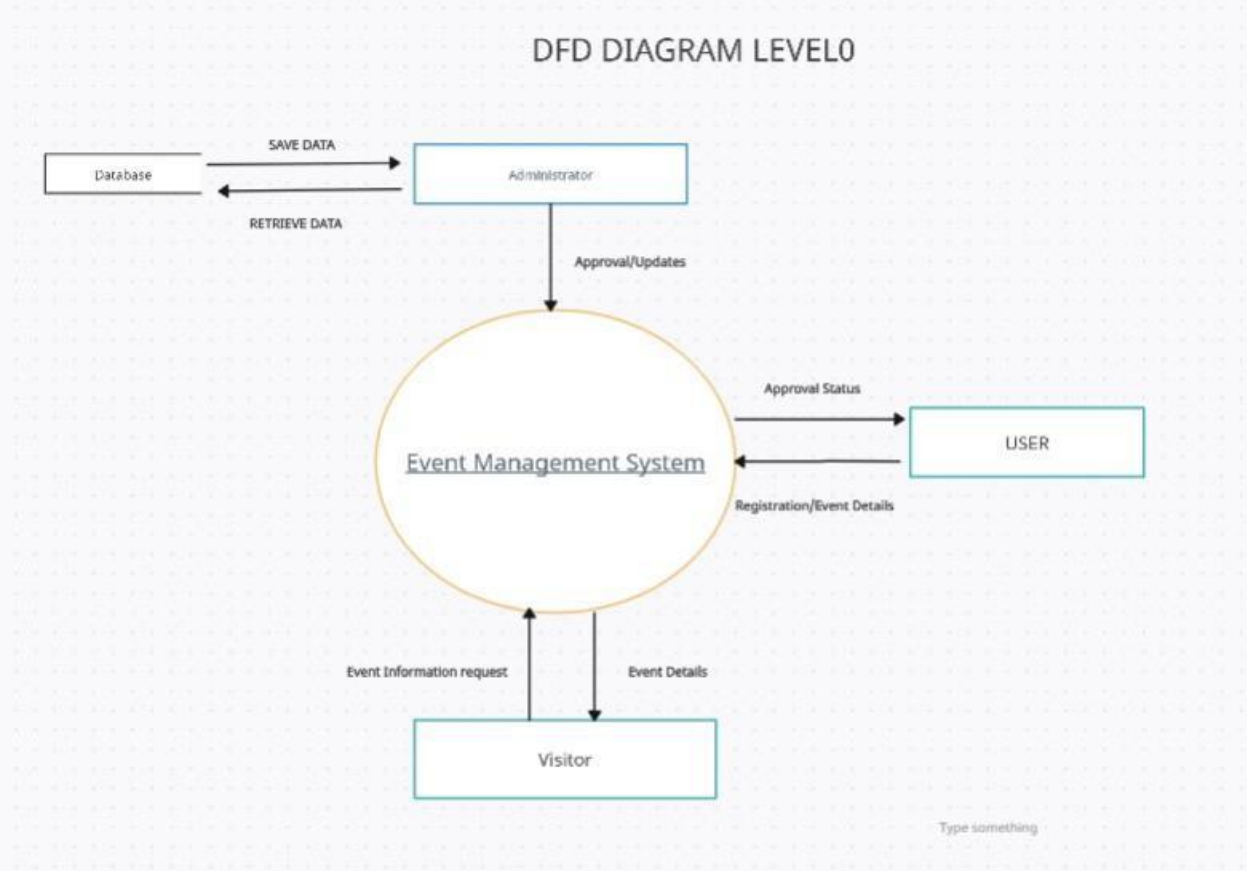
```
CREATE TABLE Customer (
   CustomerID INT AUTO_INCREMENT PRIMARY KEY,
   FirstName VARCHAR(50) NOT NULL,
   LastName VARCHAR(50) NOT NULL,
   Email VARCHAR(100) NOT NULL UNIQUE,
   Password VARCHAR(255) NOT NULL,
   PhoneNumber VARCHAR(15),
   DateOfBirth DATE,
   RegistrationDate TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
   ProfilePicture VARCHAR(255),
   Status ENUM('Active', 'Inactive') DEFAULT 'Active'
);
```

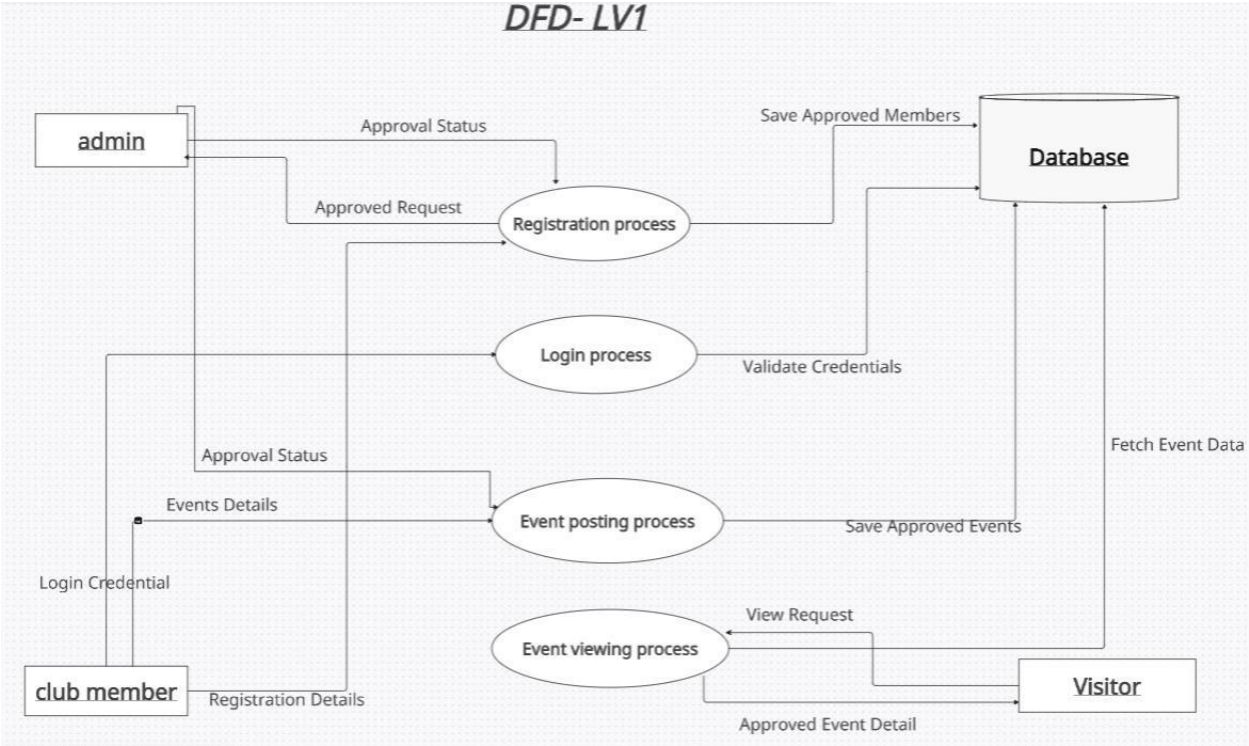
Sample Data

The Customer table ensures a robust structure for managing user data, enabling efficient interactions between students, clubs, and events. Additional indexing and optimization strategies can be employed as the platform scales.

DESIGN MODELS

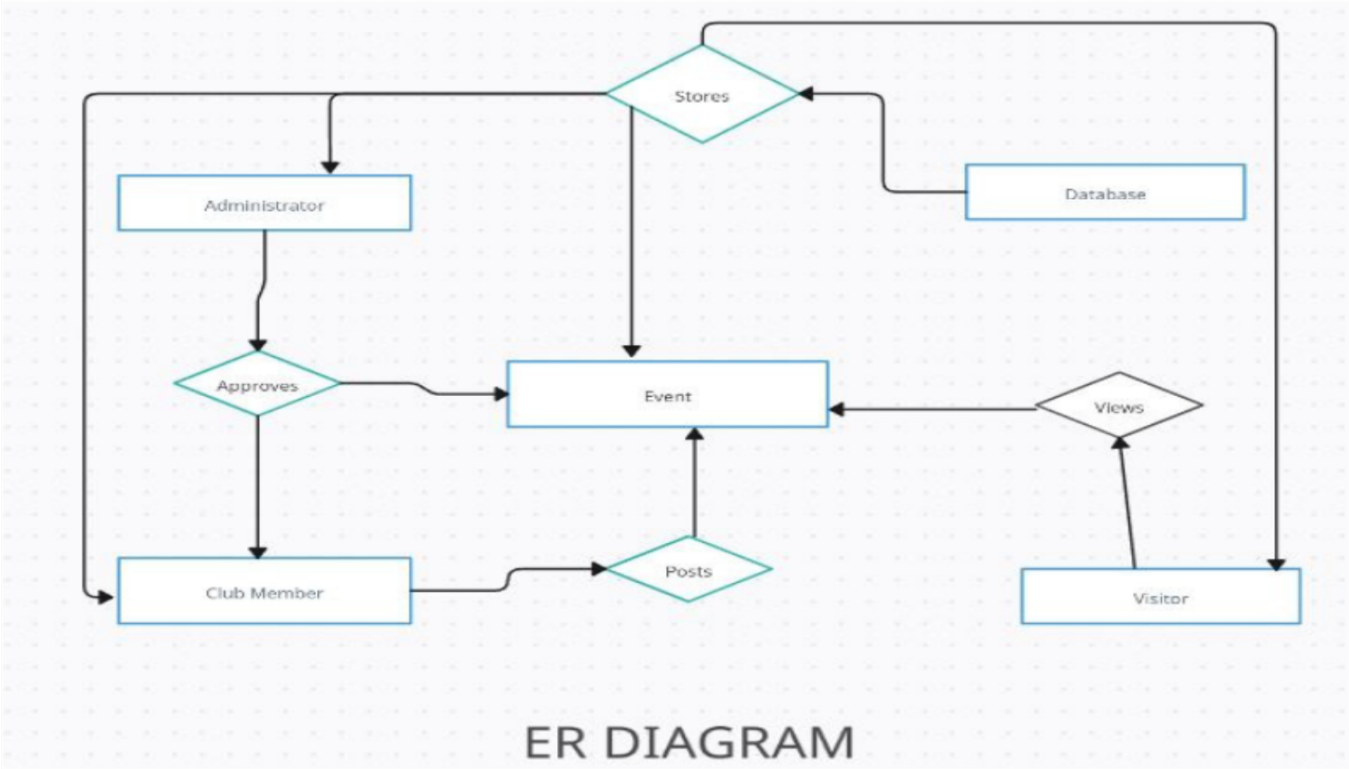
Data Flow Diagram



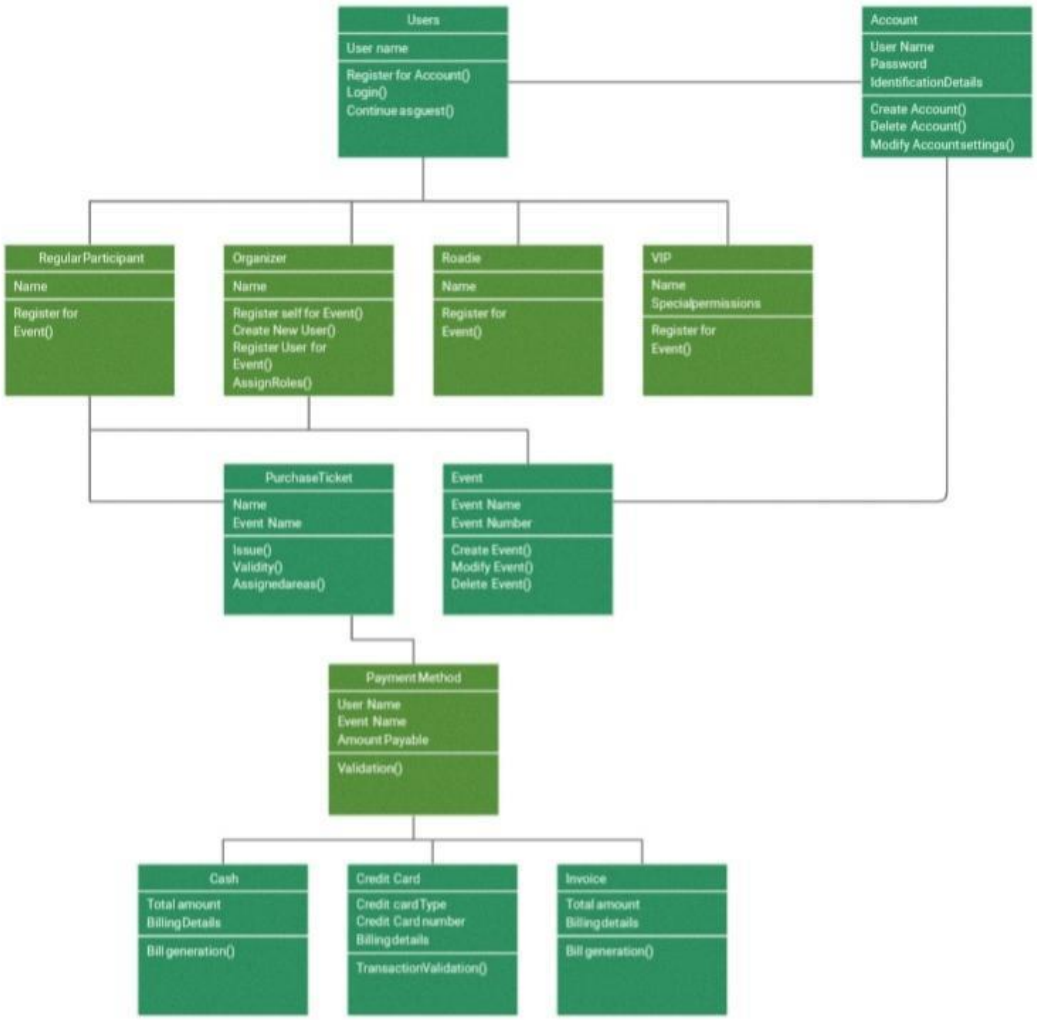


Use Case

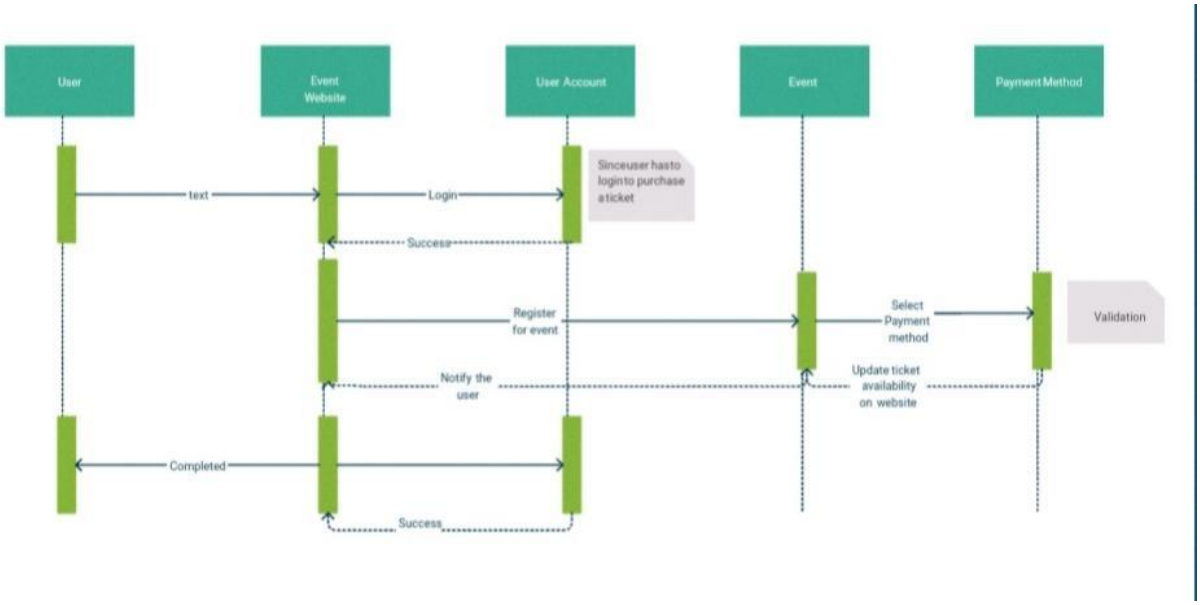
E-R Diagram



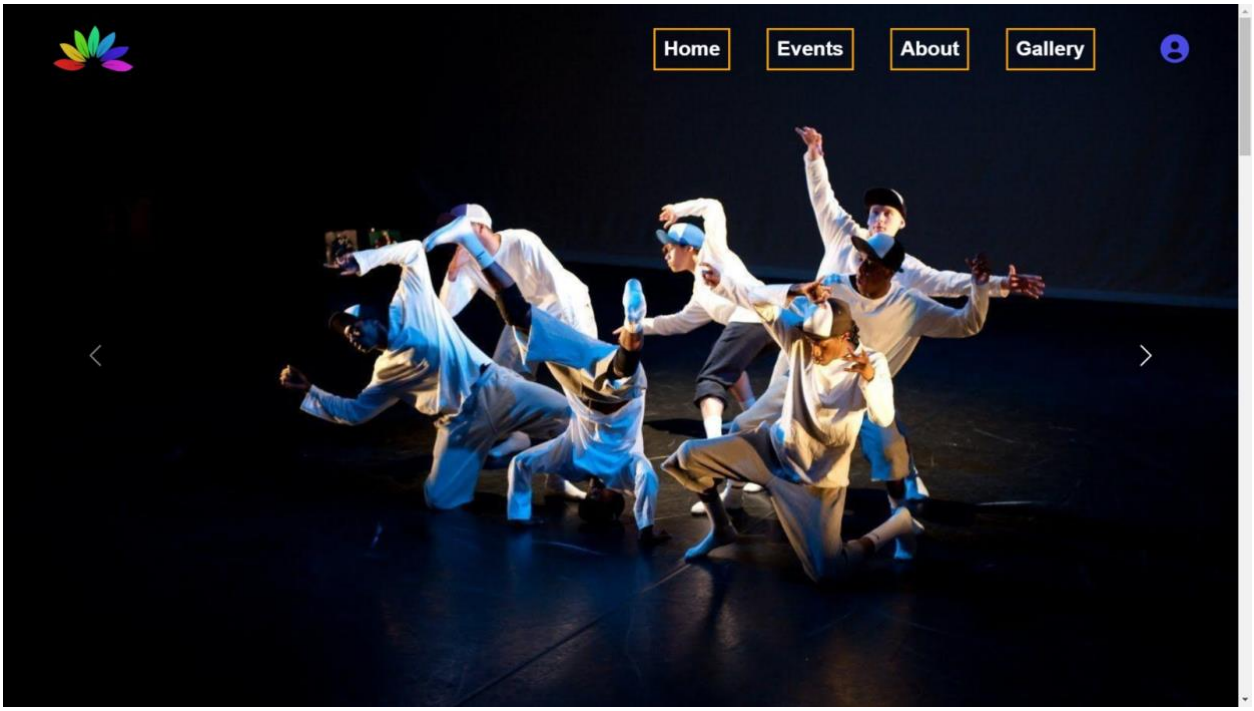
Class Diagram

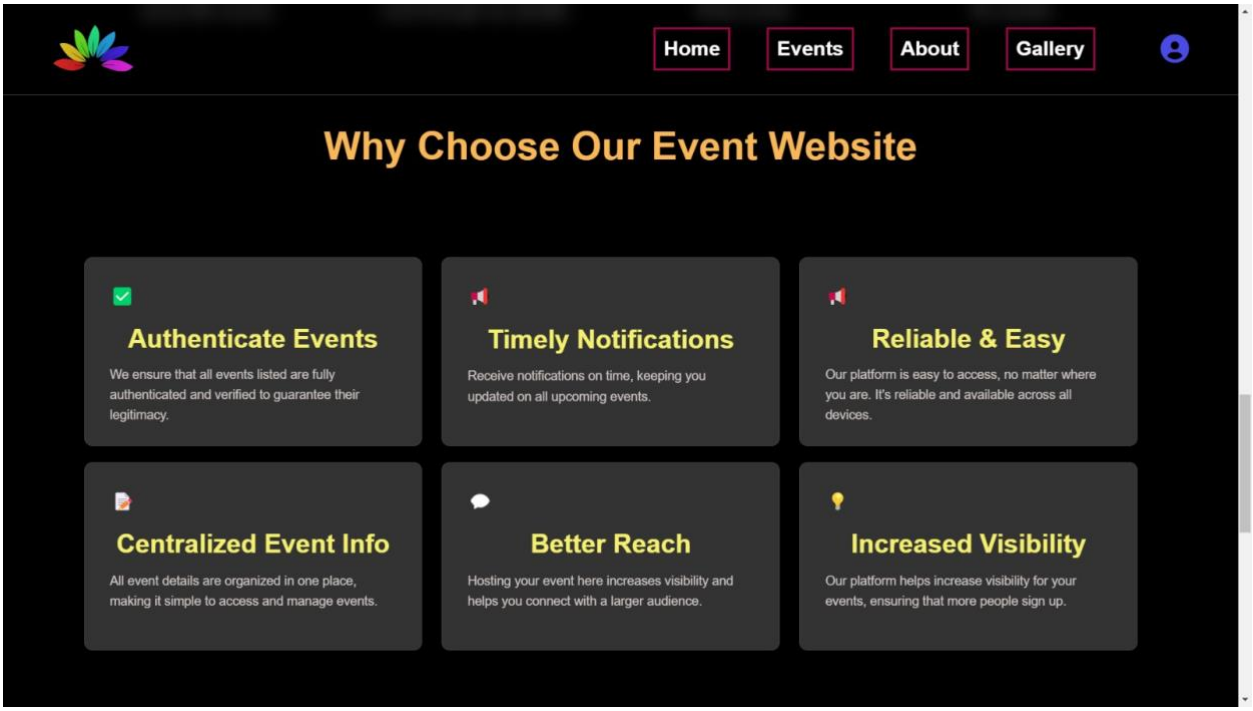


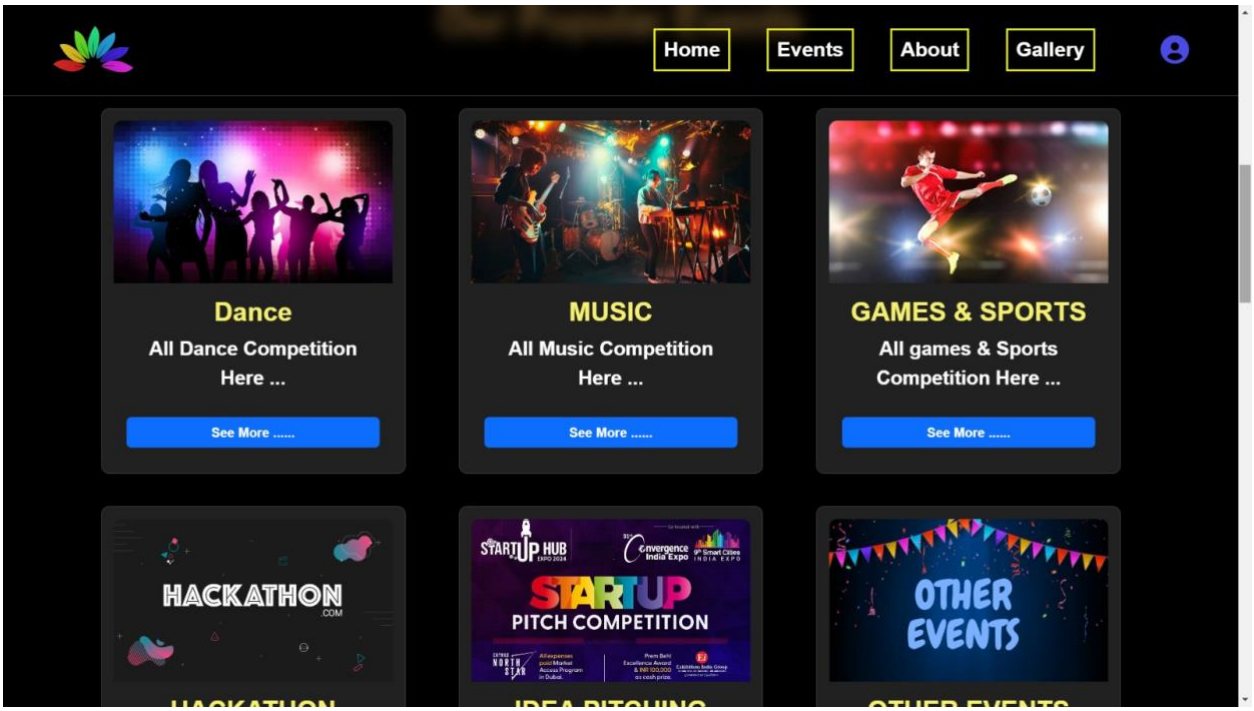
Sequence Diagram

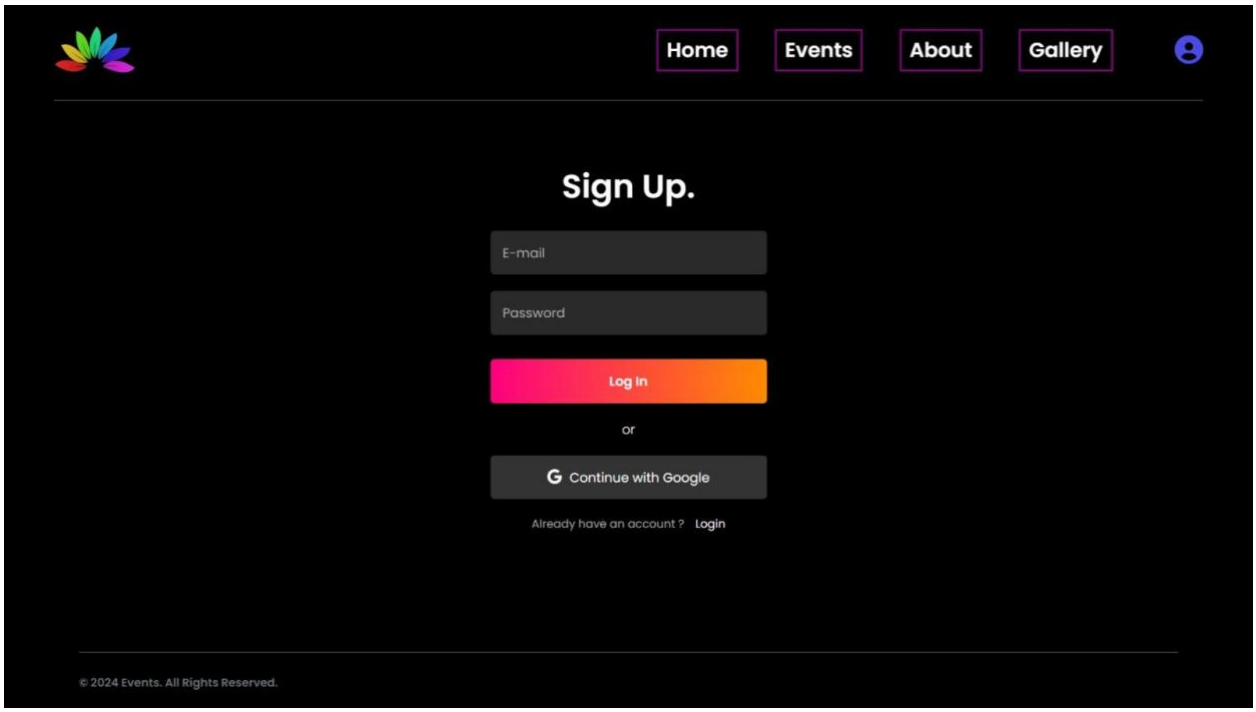


Screenshot


Home
Events
About
Gallery


Home
Events
About
Gallery
Why Choose Our Event Website
Authenticate Events
We ensure that all events listed are fully authenticated and verified to guarantee their legitimacy.
Timely Notifications
Receive notifications on time, keeping you updated on all upcoming events.
Reliable & Easy
Our platform is easy to access, no matter where you are. It's reliable and available across all devices.
Centralized Event Info
All event details are organized in one place, making it simple to access and manage events.
Better Reach
Hosting your event here increases visibility and helps you connect with a larger audience.
Increased Visibility
Our platform helps increase visibility for your events, ensuring that more people sign up.


Home
Events
About
Gallery
Dance
All Dance Competition Here ...
See More .....
MUSIC
All Music Competition Here ...
See More .....
GAMES & SPORTS
All games & Sports Competition Here ...
See More .....
HACKATHON
.COM
STARTUP HUB
Convergence India Expo
STARTUP
PITCH COMPETITION
OTHER EVENTS


Home
Events
About
Gallery
Sign Up.
E-mail
Password
Log In
or
Continue with Google
Already have an account ? Login
© 2024 Events. All Rights Reserved.

DATABASE

cid	name	type	notnull	dflt_value	pk
0	event_id	INT	0	NULL	1
1	club_id	INT	0	NULL	0
2	event_name	VARCHAR(255)	1	NULL	0
3	event_description	TEXT	0	NULL	0
4	event_date	DATE	0	NULL	0
5	event_time	TIME	0	NULL	0
6	venue	VARCHAR(255)	0	NULL	0

cid	name	type	notnull	dflt_value	pk
0	club_member_id	INT	0	NULL	1
1	club_id	INT	0	NULL	0
2	user_id	INT	0	NULL	0
3	joined_at	TIMESTAMP	0	CURRENT_TIM...	0

cid	name	type	notnull	dflt_value	pk
0	club_id	INT	0	NULL	1
1	club_name	VARCHAR(255)	1	NULL	0
2	description	TEXT	0	NULL	0
3	created_at	TIMESTAMP	0	CURRENT_TIM...	0
4	club_logo	VARCHAR(255)	0	NULL	0

cid	name	type	notnull	dflt_value	pk
0	feedback_id	INT	0	NULL	1
1	user_id	INT	0	NULL	0
2	event_id	INT	0	NULL	0
3	rating	INT	0	NULL	0
4	comments	TEXT	0	NULL	0
5	created_at	TIMESTAMP	0	CURRENT_TIM...	0

cid	name	type	notnull	dflt_value	pk
0	registration_id	INT	0	NULL	1
1	event_id	INT	0	NULL	0
2	user_id	INT	0	NULL	0
3	registration_date	TIMESTAMP	0	CURRENT_TIM...	0