



# Project Demonstration

## A University Club Management System

Presented by

[Mariam Ahmed | Renada Ahmed | Eman Gaber | Ahmed Saad | Mohamed Abo Elhaggag | Mostafa Mohamed]

Supervisor : Prof. Wessam Ahmed

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# Project Overview

Problem Statement: lack of centralized, Official platform for university clubs to manage Events, Announcements, and Lost& Found items.

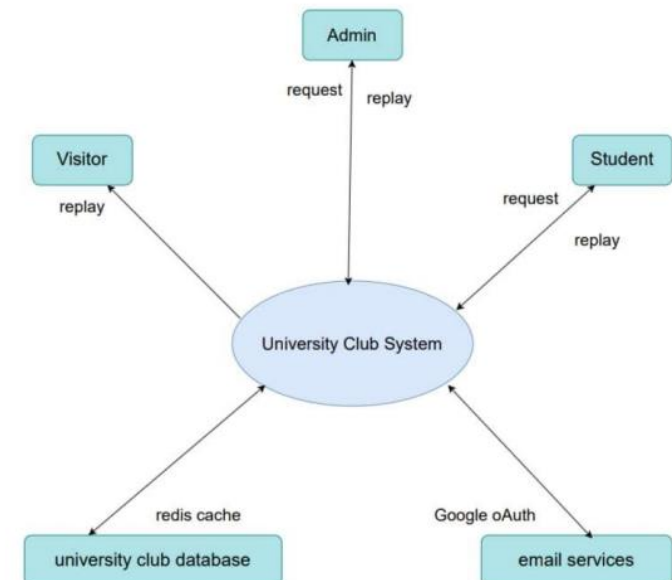
Our core vision is to enhance campus engagement and streamline club management operations.

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# System Architecture – High level view

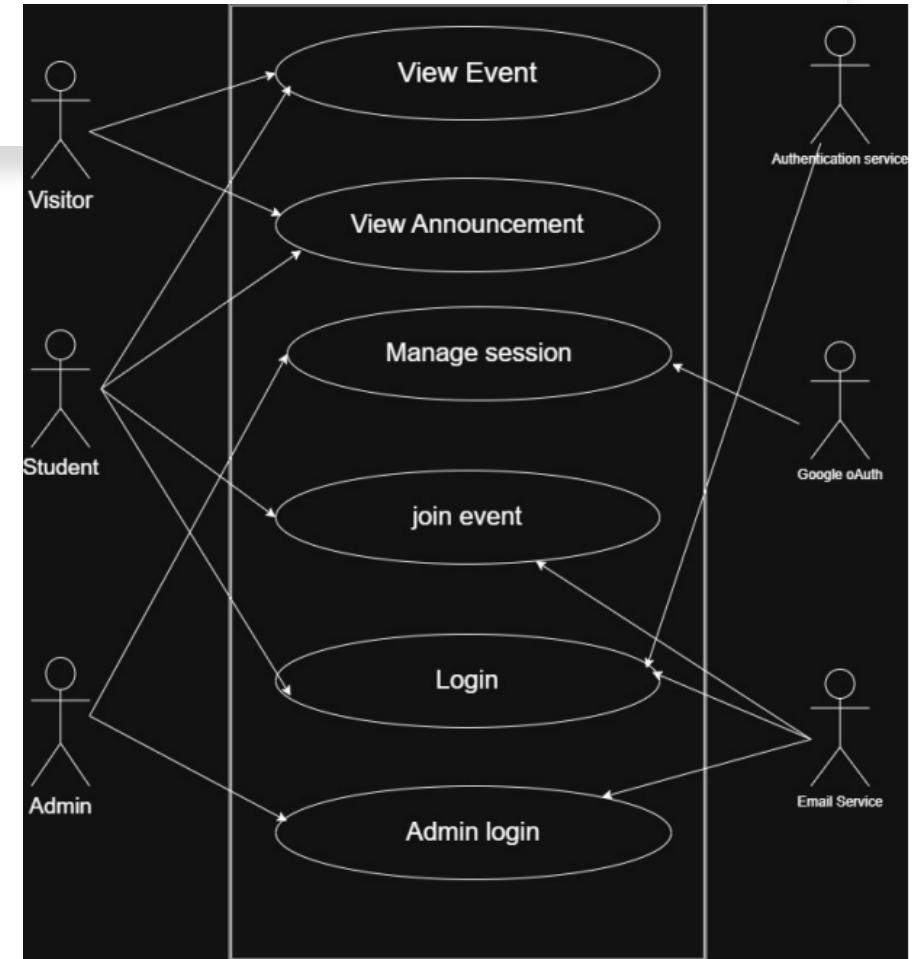
- Context model diagram (summary):
  - Actors : Student, Admin, Visitor
  - Core System: University Club System
  - External Services : Google OAuth (Authentication), Email Service, Redis cache
- Architecture Pattern : Model-View-Controller(MVC)
- Separation Concerns:
  - Front-end: React.js (User Interface)
  - Back-end: Express.js (Business logic & API)
  - Database: PostgreSQL with Prisma ORM (data persistence)
  - Cache: Redis (Performance)

## Context Model



# User Roles & permissions

- Three-tier Role-based Access control(RBCA):
  - Visitor (Public):
    - View Events, Announcements, Lost & Found items
    - No personal data access
  - Student (Authenticated Member):
    - All visitor Privileges
    - Join Events and Announcements
    - Claim Lost & Found items via Admin contact
    - Manage personal Profile
  - Admin (Club management):
    - Full CRUD (Create, Read, Update, Delete) on Events, Announcements and Lost & Found
    - Manage Students Accounts
    - Access to administrative dashboard





# Multi-Level Authentication System

- Student registration/login (Local + Google OAuth)
  - Admin registration/login (Requires approval - pending)
  - Different roles (Student, Admin, Public)
  - Google OAuth integration for quick signup
  - Session Management with Redis
-



# Authentication & Authorization

- Authentication methods
    - JWT token authentication
    - Session-based authentication (Redis-backed)
    - Google OAuth 2.0 for students
    - Local authentication (email/password) for admins and students
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# Authentication & Authorization

- Role-based access control
    - Super Admin: full system access, can create admins and approve admin requests
    - Admin: manage events, announcements, gallery, team, contact messages, lost & found
    - Student: view content, join announcements, manage profile
    - Public: view public content (events, announcements, gallery, team, lost & found)
-



# Authentication & Authorization

- Security features
    - Password hashing with bcrypt
    - Rate limiting (API, auth, contact form)
    - Security headers (Helmet)
    - CORS configuration
    - Input validation (express-validator)
    - XSS protection
    - SQL injection prevention (Prisma ORM)
-





# User Management

- Admin management
    - Admin registration requests (requires approval)
    - Admin approval/rejection workflow
    - Super admin creation
    - Admin listing and management
    - Email notifications for admin requests
-



# User Management

- Student management
    - Student registration
    - Student profile management
    - Student verification status
    - Student level tracking (Freshman, Sophomore, Junior, Senior, Graduate)
    - Google OAuth integration for students
-



# Events Management

- Features :
    - Create, read, update, delete events
    - Event categories (Workshop, Social, Academic, Sports, etc.)
    - Event date and location
    - Event images with upload and processing
    - Event descriptions
    - Public event listing with pagination
    - Category filtering
-



# Announcements System

- Features :
    - Create, read, update, delete announcements
    - Announcement categories (General, Event, Important)
    - Announcement images
    - Location information
    - Student join/leave announcements
    - Track students subscribed to announcements
    - Public announcement listing with pagination
-



# Gallery System

- Features :
    - Upload gallery photos (admin only)
    - Photo categories (Events, Team, General)
    - Photo titles and descriptions
    - Image processing and optimization (Sharp)
    - Delete photos
    - Public gallery viewing with pagination
    - Category filtering
-



# Team Management

- Features :
    - Add team members (admin only)
    - Team member roles (President, Vice President, Secretary, Treasurer, Member)
    - Team member photos
    - Team member bios
    - Contact information (email, phone)
    - Ordering/sorting team members
    - Public team listing
-



# Contact System

- Features :
    - Public contact form (rate limited)
    - Contact message management (admin)
    - Mark messages as read/unread
    - Email confirmation to sender
    - Admin notification for new messages
    - Message filtering (read/unread)
-



# Lost & Found System

- Features :
    - Create lost/found items (admin)
    - Item status tracking (lost, found, claimed)
    - Item images
    - Location information
    - Contact information for claiming
    - Public viewing
    - Status filtering
    - Pagination support
-





# Performance & Caching

- Redis caching :
    - Redis-based caching with memory fallback
    - Cache invalidation on data updates
    - Different cache durations per data type:
      - Events: 10 minutes
      - Announcements: 5 minutes
      - Gallery: 30 minutes
      - Team: 1 hour
      - Students: 5 minutes
      - Lost & Found: 10 minutes
-



# Performance & Caching

- Smart caching :
    - User-specific caching
    - Pattern-based cache invalidation
    - Automatic cache cleanup
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# File Management

- Image upload & processing :
    - Multer for file uploads
    - Image processing with Sharp
    - Automatic image resizing and optimization
    - JPEG conversion with quality optimization
    - File size limits (configurable, default 5MB)
    - File type validation (images only)
    - Automatic file cleanup on deletion
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# Email Notifications

- Email service :
    - Admin request notifications
    - Admin approval/rejection emails
    - Contact form confirmation emails
    - Configurable SMTP (Nodemailer)
    - HTML email templates
    - Email service fallback (graceful degradation)
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# API Features

- RESTful API :
    - RESTful endpoints
    - Request validation
    - Error handling
    - Pagination support
    - Query filtering
    - Health check endpoint
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# API Features

- API documentation :
    - Postman collection included
    - Endpoint documentation
    - Request/response examples
-



# Database Features

- Prisma ORM :
    - Type-safe database queries
    - Automatic migrations
    - Database seeding with sample data
    - Relationships and constraints
    - Transaction support
-



# Database Features

- Models :
    - Admin, Student, Event, Announcement
    - GalleryPhoto, TeamMember
    - ContactMessage, LostAndFound
    - StudentAnnouncement (many-to-many)
    - AdminRequest
-





# Technical Features

- Logging :
    - Winston logger
    - Console and file logging
    - Log levels (debug, info, error)
    - Structured logging
    - Error stack traces
-



# Technical Features

- Error handling :
    - Custom error classes
    - Centralized error handling
    - Prisma error handling
    - JWT error handling
    - Development vs production error messages
-



# Technical Features

- Development tools :
    - Nodemon for hot reload
    - Prisma Studio for database management
    - Environment configuration
    - Docker support
-



# Additional Features

- Health monitoring :
    - Health check endpoint
    - Server uptime tracking
    - System status endpoint
-



# Additional Features

- Data validation :
    - Input validation on all endpoints
    - Email format validation
    - Phone number validation
    - File type validation
    - Required field validation
-



# Additional Features

- Pagination :
    - Configurable page size
    - Total count and pages
    - Efficient database queries
-



# Deployment Features

- Docker support :
    - Docker Compose configuration
    - PostgreSQL container
    - Redis container
    - Backend container
    - Volume management
    - Health checks
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# Deployment Features

- Environment configuration :
    - Environment variable management
    - Development/production modes
    - Secure defaults
    - Configuration validation
-





# Unique Features our Your System

- 1. Admin Approval System: No one becomes admin without another admin's approval
  - 2. Google OAuth for Students: Quick and secure login
  - 3. Dynamic Announcement Registration: Students can register for announcements
  - 4. Integrated Lost & Found: Complete system for lost items within university
  - 5. Categorized Gallery: Organized photo viewing
  - 6. Integrated Contact System: From sending to response and tracking
  - 8. Multi-role Dashboard: Each role has different dashboard
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[Home](#)[About](#)[Contact](#)[Login](#)[Sign In](#)

Last Event



Upcoming Event



Lost and Found

## Hurghada University

Email Address

Password

☒ Student ☐ Admin

Login

 Continue with Google

Don't have an account? [Sign up](#)

Contact with   [Contact Us](#)

# Student Login

## Sign Up

Full Name

Email Address

Phone Number

Password (minimum 6 characters)

Academic Year

10

☒ Student ☐ Admin

Sign Up

# Student Sign up

## Sign Up

Full Name

Email Address

Phone Number

Password (minimum 6 characters)



Student



Admin

Sign Up

Already have an account? [Login](#)

Contact with



[Contact Us](#)

# Admin Sign Up



### Academic Orientation Day

📅 Fri, Sep 20, 2024

An orientation event for new students to learn about majors and university services



### Artificial Intelligence Lecture

📅 Fri, Jul 12, 2024

An introductory lecture on the latest developments in artificial intelligence and its practical applications

## Past Events

- Admin can convert event to past, then add photos



Past Events

Upcoming Events

Lost and Found



### Annual Career Fair

📅 Fri, Nov 15, 2024

A direct meeting with representatives of major local and international companies for recruitment

Join Event



### User Interface Design Workshop

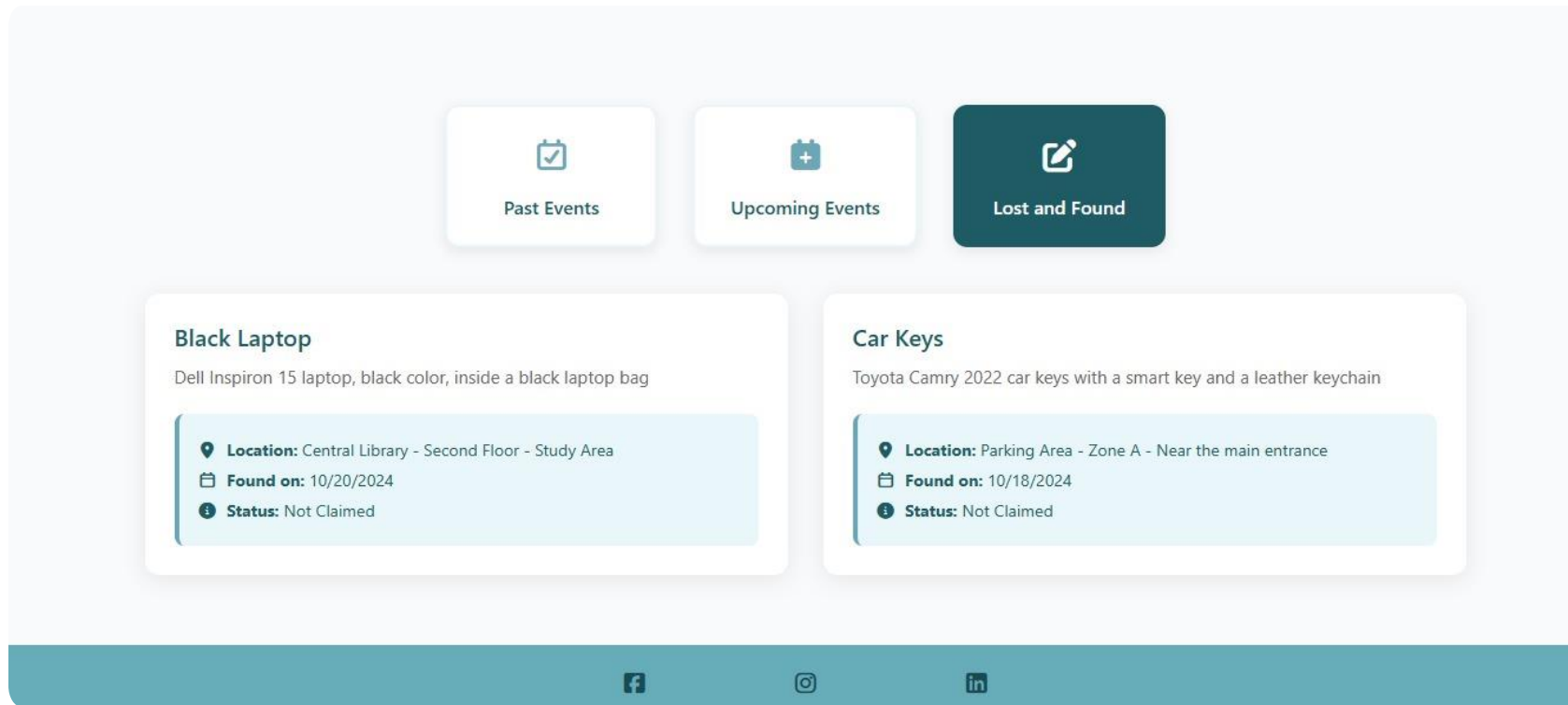
📅 Tue, Nov 5, 2024

A hands-on workshop to learn the basics of UI/UX design

Join Event

## Upcoming Events

- Event displayed on public / student home page as "Upcoming"



Lost & Found  
items uploaded



## GALLERY



## OUR ACTIVITY



Tech event



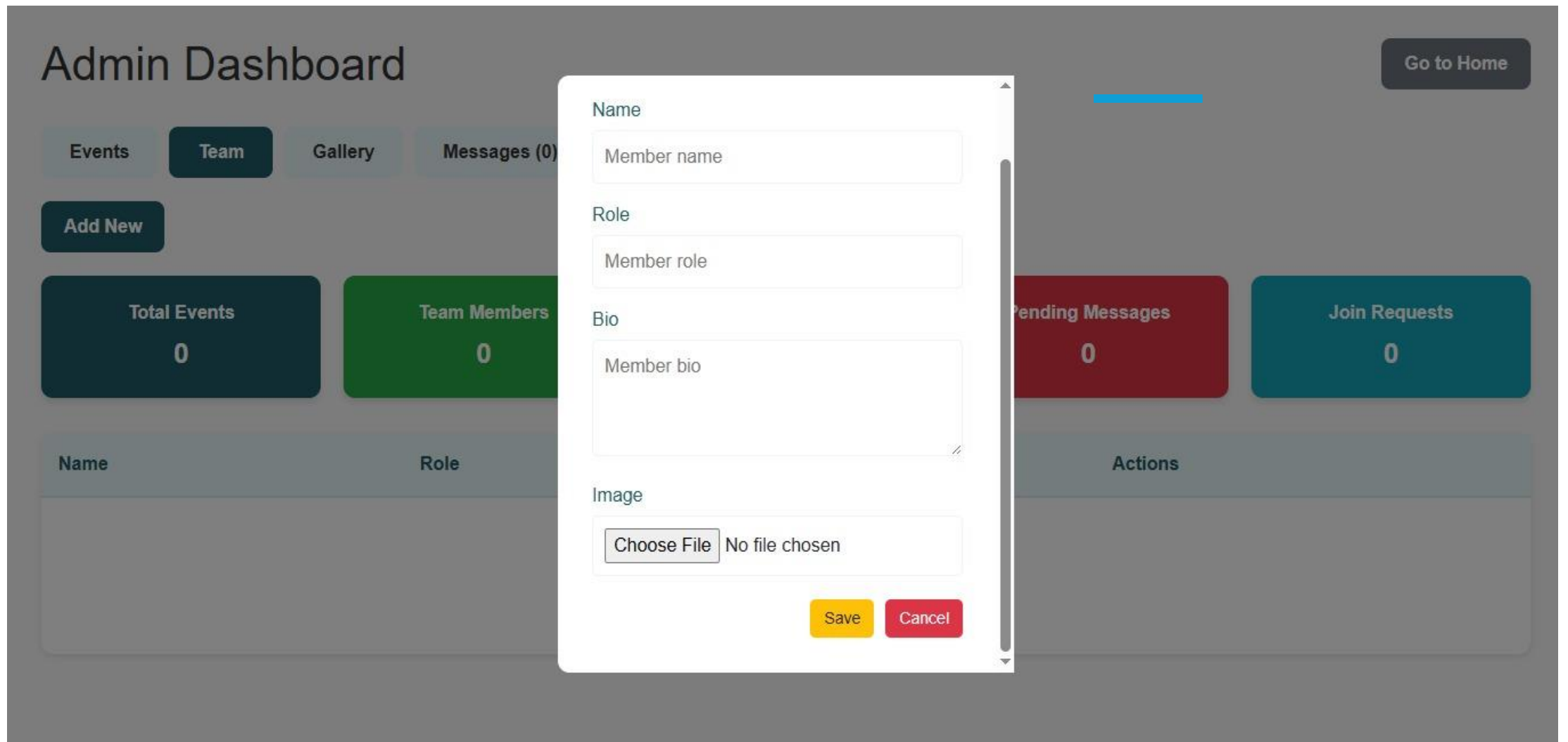
Volunteer



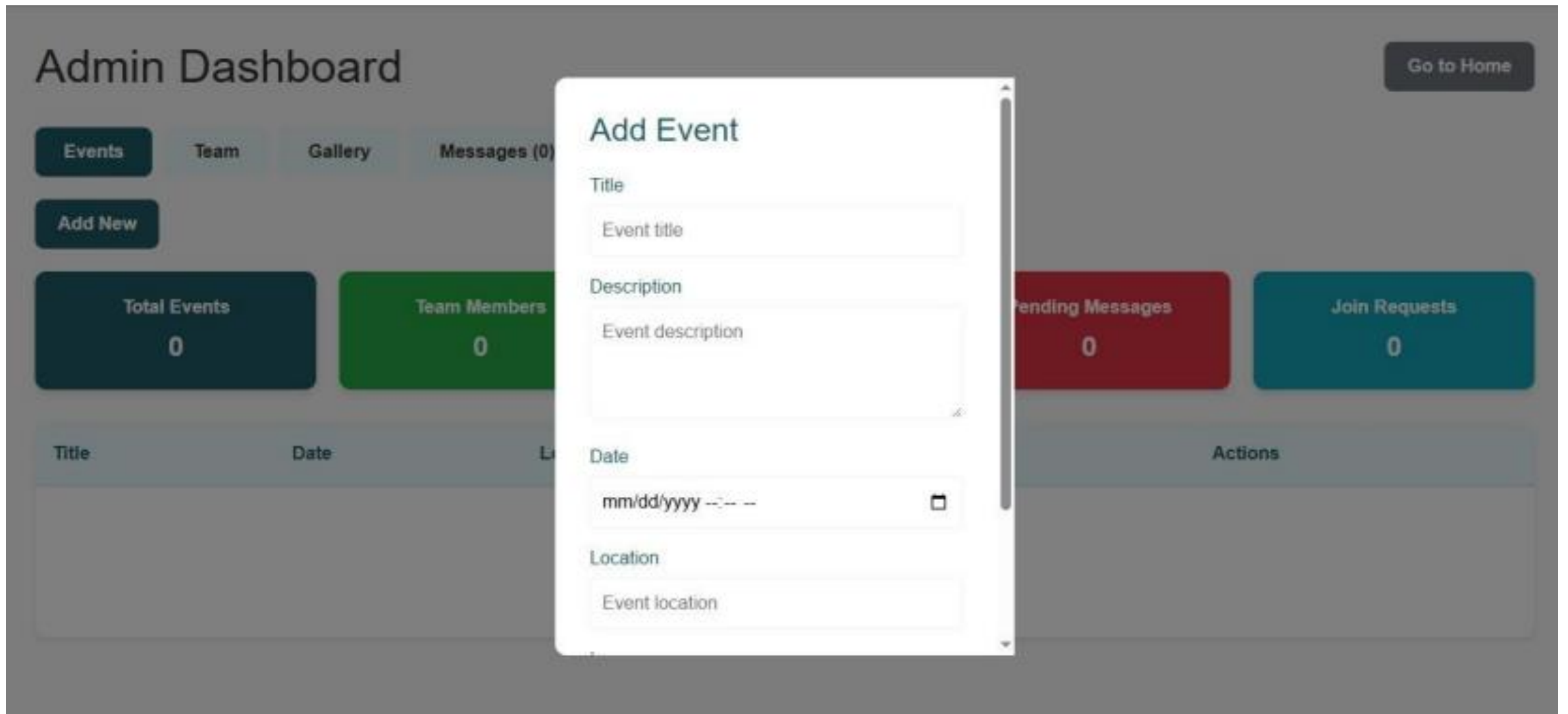
Training



Cultural



Admin add a new  
team member



Admin uploading an  
upcoming Event

# Admin Dashboard

Go to Home

Events

Team

Gallery

Messages (0)

Lost & Found

Join Requests (0)

Add New

Total Events

0

Team Members

0

Gallery Items

0

Pending Messages

0

Join Requests

0

Title

Date

Location

Status

Actions

No data found

# Admin Dashboard



Phone



Email



Whatsapp



Facebook

## Get in Touch

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If you have any problem, contact us  
anytime and we will fix it right away

Send Message



# Admin management flow

- Report Entry: Only Admins can add lost/found items (description, photo, location).
  - Public Listing: Items displayed for Students/Visitors to browse.
  - Claim Process: Student initiates a claim request on an item.
  - Admin Arbitration: Admin receives request, verifies ownership, updates item status.
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# Installation Requirements



Device: Laptop or  
Computer or a tablet  
(Windows, Linux, macOS)



Browser: Chrome



Internet: Stable  
connection



No installation needed:  
just open the website in  
the web browser



# Future Work:

- Mobile Application: React Native version for better accessibility.
  - Advanced Features: Live chat, event calendars, push notifications.
  - Analytics Dashboard: For admins to track engagement metrics.
  - Payment Integration: For event tickets or club merchandise.
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# Conclusion:

- Successfully developed a full-stack, secure, and functional club management system.
  - Met all core SRS requirements: User management, Event cycle, Lost & Found, Announcements.
  - Implemented formal design models into a working application.
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Thank you