



Project Demonstration

A University Club Management System

Presented by

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Project Overview

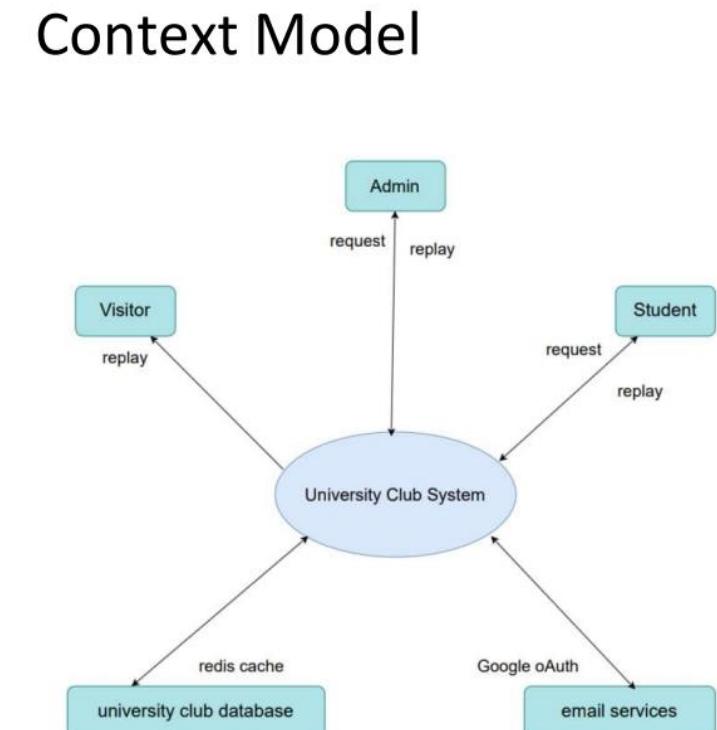
Problem Statement: lack of centralized, Official platform for university clubs to manage Events, Announcements, and Lost& Found items.

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



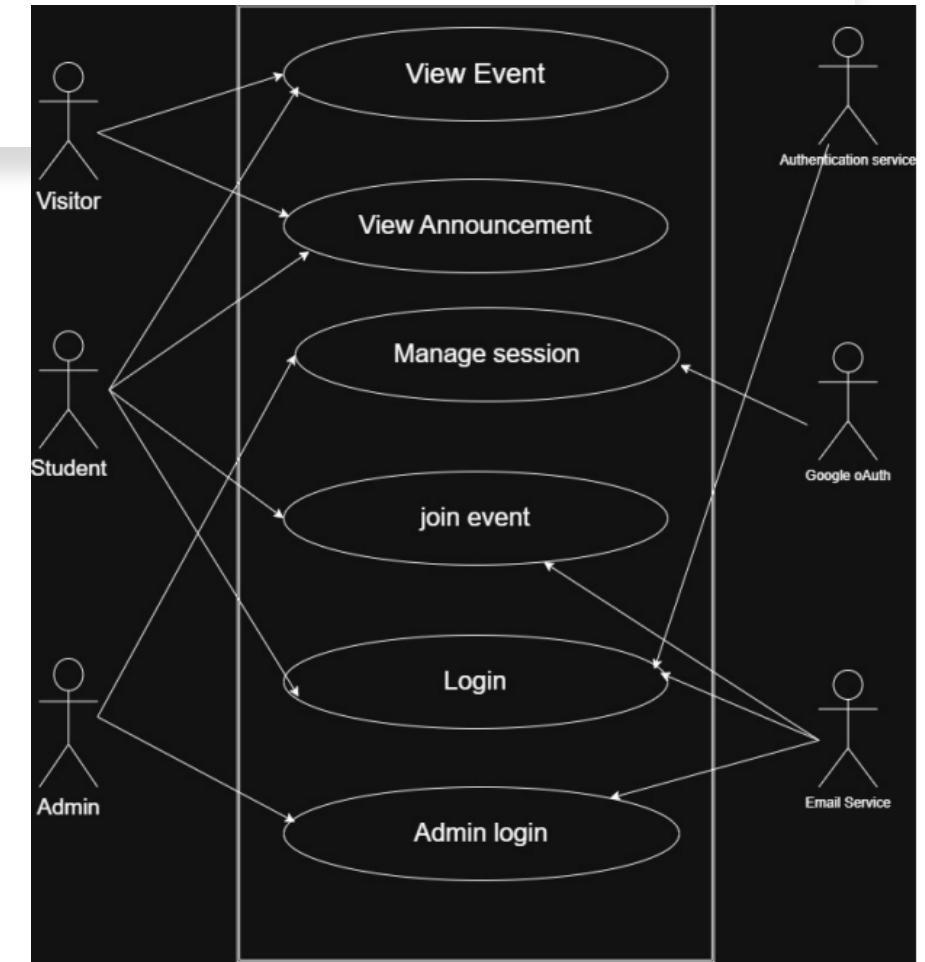
System Architecture – High level view

- 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)



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)
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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
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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)
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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
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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
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Database Features

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

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

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

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

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

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

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

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

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

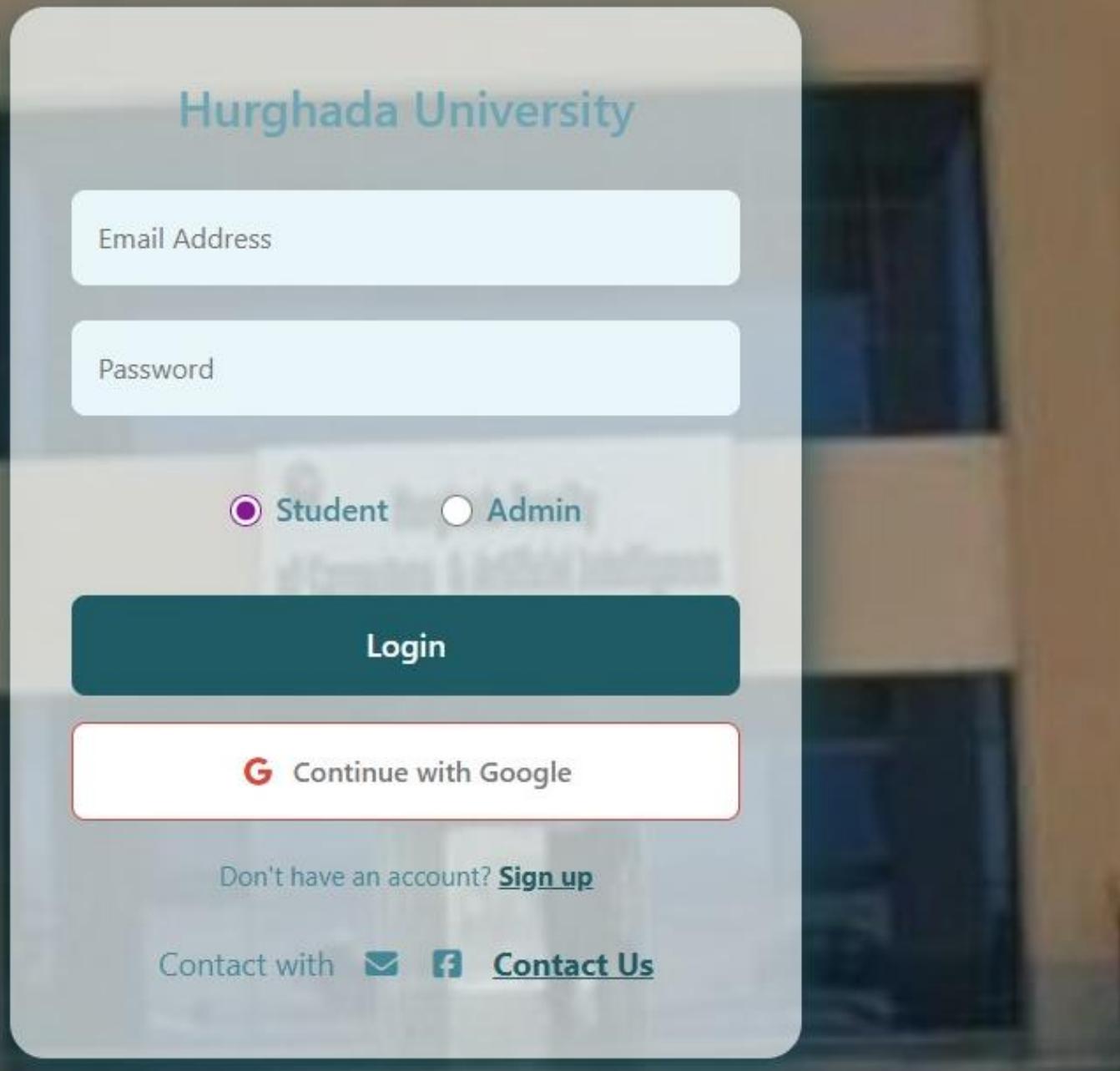
- Environment configuration :
 - Environment variable management
 - Development/production modes
 - Secure defaults
 - Configuration validation
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Unique Features our Your System

- 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](#)



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"



Past Events



Upcoming Events



Lost and Found

Black Laptop

Dell Inspiron 15 laptop, black color, inside a black laptop bag

📍 **Location:** Central Library - Second Floor - Study Area

📅 **Found on:** 10/20/2024

ℹ️ **Status:** Not Claimed

Car Keys

Toyota Camry 2022 car keys with a smart key and a leather keychain

📍 **Location:** Parking Area - Zone A - Near the main entrance

📅 **Found on:** 10/18/2024

ℹ️ **Status:** Not Claimed



Lost & Found items uploaded

GALLERY



OUR ACTIVITY



Tech event



Training



Volunteer



Cultural

Admin Dashboard

[Go to Home](#)[Events](#)[Team](#)[Gallery](#)[Messages \(0\)](#)[Add New](#)

Total Events

0

Team Members

0

Name

Role

Actions

Name

Role

Bio

Image

 No file chosen

[Save](#) [Cancel](#)

Admin add a new
team member

Admin Dashboard

[Go to Home](#)[Events](#)[Team](#)[Gallery](#)[Messages \(0\)](#)[Add New](#)

Total Events

0

Team Members

0

Title

Date

Date

Actions

mm/dd/yyyy -- --



Location

Event location

Admin uploading an upcoming Event

Add Event

Title

Event title

Description

Event description

Pending Messages

0

Join Requests

0

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



Get in Touch

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

Name

Email

Subject

Message

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