

FormCO - Platform for Competitions

- For complete project details - [Visit Portfolio](#)
(Go to the Portfolio section and open “FormCo MERN Platform” in the Web category.)
- For Code - [Visit GitHub Repo](#)
- For Demo - [Live Demo](#)
(This project was deployed for a client; the live link cannot be shared.)
- Screenshots added in last of Document

Overview

FormCO is a full-featured competition management platform that centralizes the entire event lifecycle - from creation and publishing to **application intake, payment verification, team registration, certificate generation, and post-event management**. It provides organizations and organizers a scalable, role-based system while giving students a simple way to discover events, apply individually or as teams, submit payments and documents, and download certificates. The app is built using [Next.js \(App Router\)](#) with [MongoDB/Mongoose](#) and [NextAuth](#) for authentication, emphasizing usability, scalability, and clear role-based authorities.

Architecture & Key Concepts

Frontend

- Next.js (App Router) with React and TypeScript for UI and client-side logic.
- Styling and components: Tailwind CSS, Headless UI.
- Forms and UX: React Hook Form for form handling, React Hot Toast for toasts, and React Icons for UI icons.
- Accessible components and responsive design prioritized for mobile and desktop.

Backend

- Next.js API routes implement server logic directly within the application.

- Mongoose models define domain entities and enforce schema validation and business rules.
- Clear separation of concerns between route handlers, models, and UI.

Auth

- NextAuth configured with Google OAuth and Credentials providers.
- Credentials login validates against role-specific collections (Student, Organizer, Organization) using bcrypt.
- JWT session strategy. Sessions are augmented with role, organizationId/name, and role-specific attributes (e.g., department, educationLevel, phone, website, isApproved, logo, createdAt).
- Google sign-in merges with existing accounts by email and augments session with primary organization data when applicable.

Database

- MongoDB with connection caching to avoid redundant connections during development and hot reloads.
- Strict schemas and validation rules encode business constraints (team sizes, title uniqueness within an organization).
- Indexes for performance and uniqueness (e.g., application uniqueness per student per competition).

Files & Storage

- Support for uploading and serving logos, receipt images, resumes, and other assets.
- Paths are managed by the app; can be backed by local public/ storage or external providers (S3, Cloudinary).

Email, Certificates & Background Tasks

- Automated email workflows for notifications and verification (Nodemailer / SendGrid).
- Canvas-based certificate generation for issuing participation/achievement certificates.
- Architecture allows later integration with message queues or background workers for heavy tasks.

Security & Data Integrity

- Passwords hashed with bcrypt and stripped from JSON responses via schema transforms.
- Minimal, role-relevant claims in JWT sessions.
- Audit-friendly payment and transaction tracking fields.

Scalability & Extensibility

- Role-based augmentation of session data enables granular permissions.
- Team registration and dynamic fields support customizable registration schemas per competition.
- Designed to integrate external storage, message queues, and payment webhooks if needed.

Data Models (Highlights)

1. Organization
2. Organizer
3. Student
4. Competition
5. Application
6. Team-Registration
7. TeamMember

Authentication Flow (NextAuth)

- Providers: Google OAuth and Credentials.
- Credentials flow validates users against role-specific collections using bcrypt.
- JWT sessions include role and role-specific fields (organizationId/name, department, educationLevel, phone, website, isApproved, logo, createdAt).
- Google sign-in merges with existing Student/Organizer accounts by email and augments session with organization info when applicable.

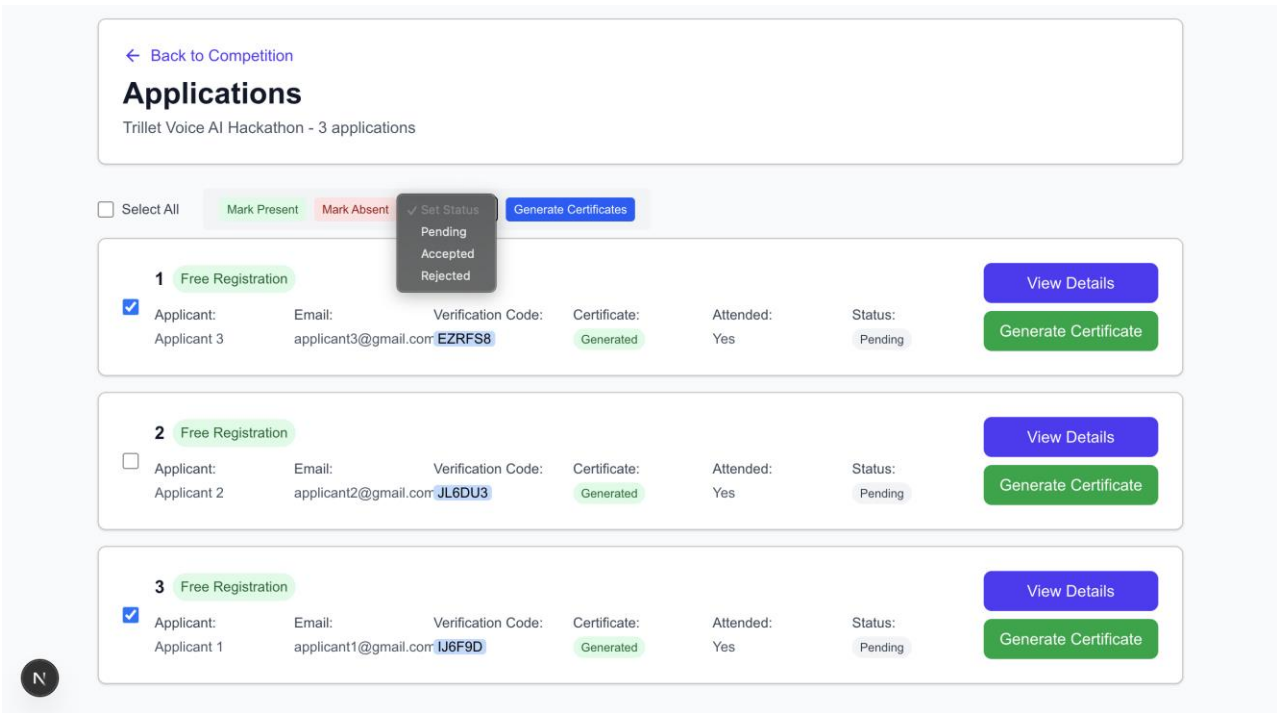
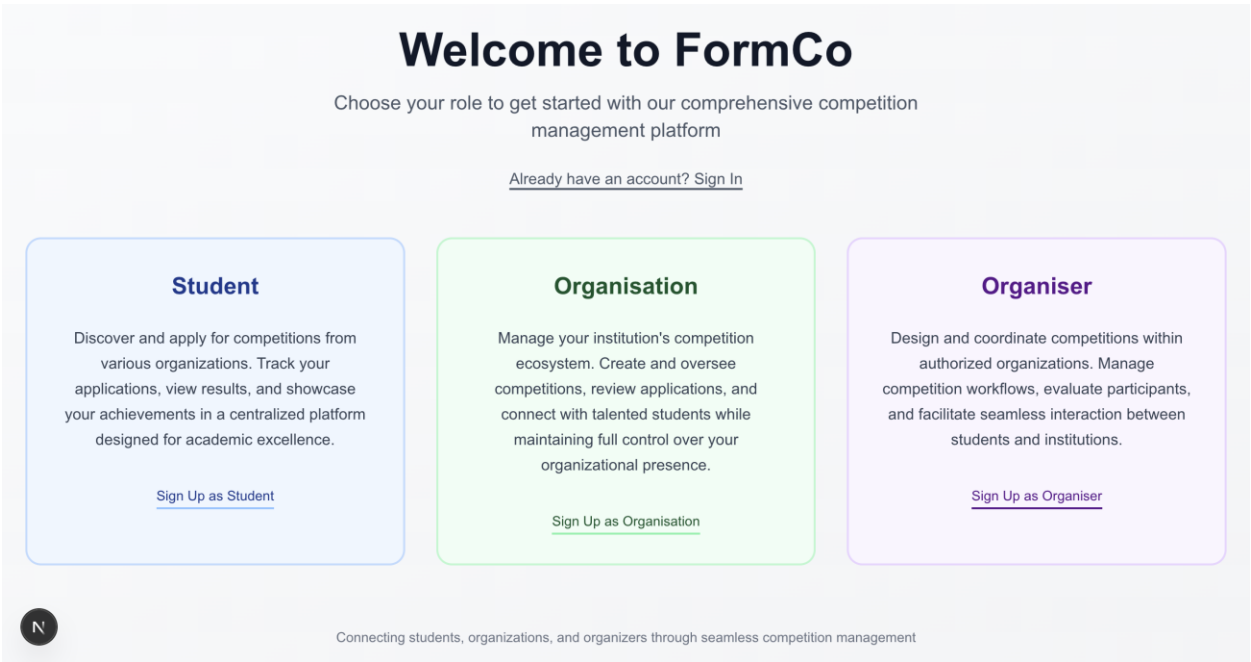
Role-Based Responsibilities & Authorities

- **Organization (Admin)**
 - Create, edit, publish competitions for the organization.
 - Invite and manage authorized organizers via a secret code.
 - Approve organizers, upload branding, configure payment and verification rules.
 - Monitor applications, verify payments, mark attendance, and generate certificates.
- **Organizer**
 - Join organizations using secret code and await approval.
 - Create and manage competitions, review/process applications, manage teams, and generate certificates.
 - Collaborate with other organizers within the same organization.
- **Student**
 - Discover competitions, review instructions/dates/fees/eligibility.
 - Apply as an individual or team, upload required documents, and track application status.
 - Download participation certificates after verification and attendance confirmation.

API Highlights (Non-Exhaustive)

- POST /api/auth/register/organization — Register an organization
- POST /api/auth/register/organizer — Register an organizer
- POST /api/auth/register/student — Register a student
- POST /api/competitions — Create a competition
- GET /api/competitions — List competitions
- GET /api/competitions/[id] — Get competition details
- POST /api/competitions/[id]/apply — Apply for a competition
- GET /api/competitions/[id]/applications — List applications for a competition
- POST /api/competitions/[id]/applications/[application]/payment — Submit/verify payment
- POST /api/certificates/generate — Generate a certificate
- GET /api/certificates/check — Verify a certificate

Screenshots



Salman Ahmed

Name

Salman Ahmed

Phone

0319000000

Education Level

Higher Education

Cancel

Save Changes

Official Email

Enter organization email

Enter official email carefully for verification

Website (Optional)

https://yourorganization.com

Organization Logo

Choose file

No file chosen

Password

Create a strong password

Password must contain:

At least one lowercase letter

At least one uppercase letter

At least one number

At least one special character

Minimum 8 characters

Create Organization Account

All Competitions

Search competitions by title...

All Events

All Categories

All Organizations

All Statuses

dd/mm/yyyy

dd/mm/yyyy

TechPreneur Pitch Fest

Happened

Got a game-changing tech business idea? Pitch your startup model, app ... [Read more...](#)

Business

onsite

1000 /- rs

Apply by: August 5th, 2025

COMSATS - Islamabad

Trillet Voice AI Hackathon

Open

Step into the future with this voice-command based AI challenge. Desig... [Read more...](#)

Computing

onsite

No Entry Fee

Apply by: August 31st, 2025

COMSATS - Islamabad

WebDev Sprint Hackathon

Open

Build a full-stack web solution in just 6 hours! This is your chance t... [Read more...](#)

Computing

onsite

4500 /- rs

Apply by: August 20th, 2025

FAST NUCES - Islamabad

SE Masters Quiz Challenge

Open

This is a high-paced quiz battle covering Software Engineering topics ... [Read more...](#)

Speed Typer Showdown 2025

Open

This competition tests how fast and accurately



Student Dashboard

Welcome back, Salman Ahmed

255 KB • Done



6891d3869cb418e86cd686d1_6891f
13f7ad01fac65e68faa.png
255 KB • 11 minutes ago



Search organizations...

Browse All Competitions



FAST NUCES - Islamabad

🏆 Competitions: 3

👤 Applicants: 0

👤 Organizers: 1

📅 Events

<https://isb.nu.edu.pk>

📅 Registered since 05/08/2025



COMSATS - Islamabad

🏆 Competitions: 2

👤 Applicants: 3

👤 Organizers: 1

📅 Events

<https://islamabad.co...>

📅 Registered since 05/08/2025

N

Create New Competition

Basic Information

Title

WebDev Sprint Hackathon

Description

Build a full-stack web solution in just 6 hours! This is your chance to turn a given real-world problem into a responsive, functioning web app using any modern stack.

Instructions

You can participate solo or in teams of 2-3
The theme will be revealed at the start of the event
All code must be original and written during the competition
Final submission should include GitHub link and deployment URL

Important Dates

Application Deadline

20/08/2025, 11:59 PM

Start Date

21/08/2025, 10:00 AM

End Date

21/08/2025, 02:00 PM

Competition Details

Category

Select a category

Or enter custom category

Event (Optional)

NaSCon

Mode

On-site

Location

FAST NUCES Islamabad, Karakoram Labs

Registration Fee

5000

Registration Fee

5000

☒ Require Receipt(img) and Transaction ID

Account Details

Account Name

Saad

Account Number

030000000

Account Type

JazzCash

☒ This is a team event

Minimum Team Size

2

Maximum Team Size

3

Required Team Member Fields

☒ Name (Required)

☒ Email (Required)

☒ Institute

☒ Contact

☐ Resume

☐ Qualification

These fields will be required for each team member.

Skills & Eligibility

Required Skills (comma-separated)

HTML, CSS, JavaScript, GitHub, Backend Frameworks, UI/UX

Separate each skill with a comma. Each skill will be displayed as a separate bullet point.

Eligibility Criteria

Any Computer Science or IT student with basic frontend knowledge

Create Competition