Tech Stack:

Frontend: React.js + Next.js, Tailwind CSS, D3.js
Backend: Next.js (API routes), NextAuth, Mongoose, Socket.IO
Database: MongoDB, Appwrite
Additional Services: Git

Overview:

Next.js, built on React, provides SSR, SSG, and API routes—offering both frontend and backend capabilities within one framework. D3.js enables dynamic, data-driven visualizations such as leaderboards, live score graphs, and performance charts. NextAuth manages authentication (OAuth, email, credentials, and sessions) securely and efficiently. MongoDB stores core user and tournament data, while Mongoose streamlines database operations. Appwrite handles image storage (e.g., galleries, profile photos). Git ensures proper version control and collaboration.

System Design:

The platform centralizes all user information in MongoDB, with distinct account types for students and coaches. Both register through NextAuth; their accounts are reviewed and approved by admins, with all actions logged for transparency.

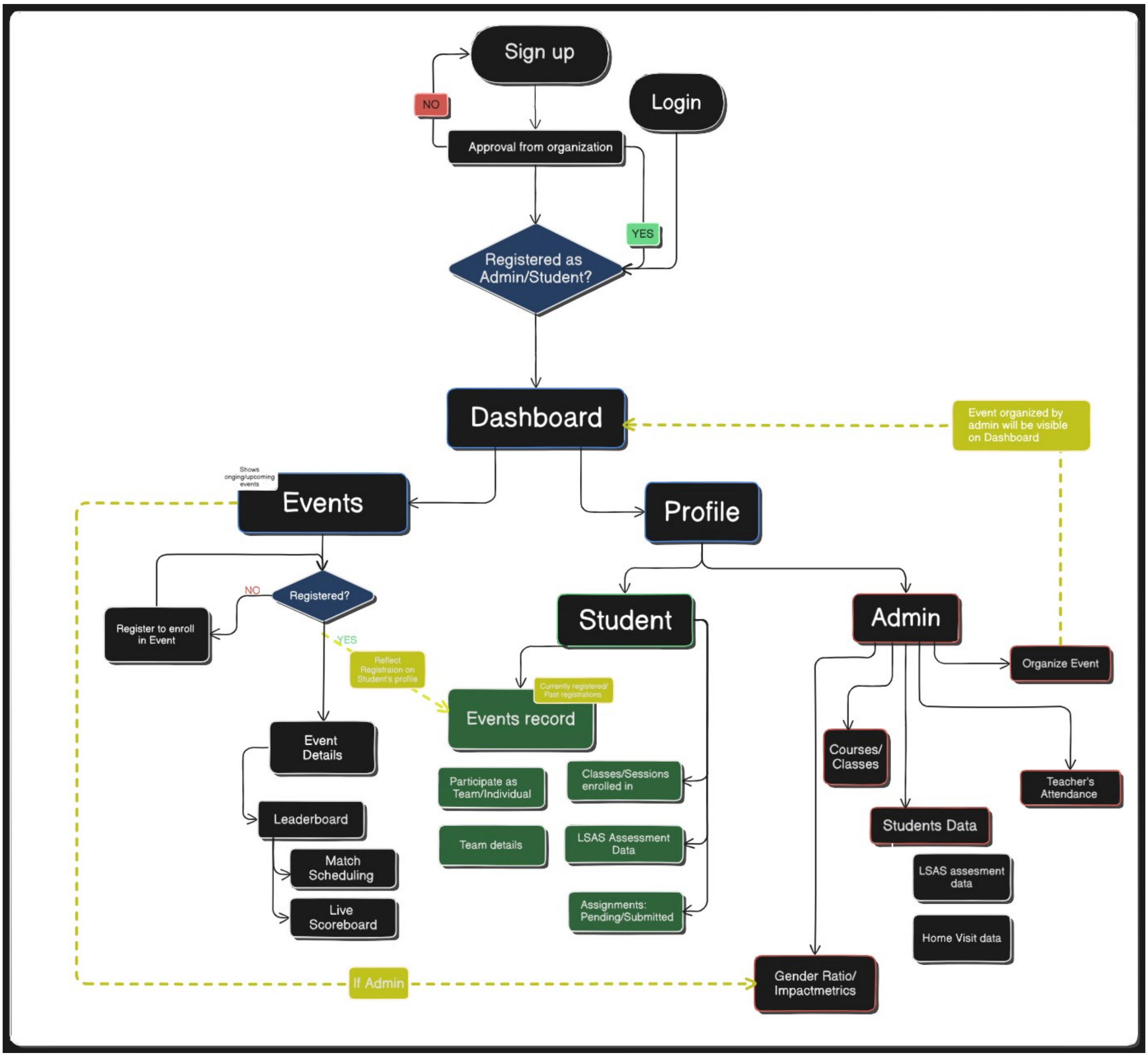
Coach accounts include course details and access to student data (attendance, LSAS assessments, tournament participation). Student accounts display class info, tournament enrollment, and team details.

Coaches can organize tournaments, allowing students to register individually or in teams. Tournament data—participants, organizers, results—is stored for historical reference. Scheduling algorithms automate match planning based on constraints like timings and overlaps.

Leaderboards update in real-time via Socket.IO as judges submit scores. Each tournament maintains an endpoint for storing participant and organizer images through Appwrite.

This architecture ensures scalability, security, and real-time interactivity for seamless tournament and academic management.

Flow Chart:



Sign up
Login
NO
Approval from organization
YES
Registered as Admin/Student?
Dashboard
Event organized by admin will be visible on Dashboard
Shows onging/upcoming events
Events
Profile
Registered?
NO
Register to enroll in Event
YES
Reflect Registraion on Student's profile
Student
Admin
Organize Event
Currently registered/ Past registrations
Events record
Event Details
Courses/ Classes
Participate as Team/Individual
Classes/Sessions enrolled in
Teacher's Attendance
Leaderboard
Students Data
Team details
LSAS Assessment Data
Match Scheduling
LSAS assesment data
Live Scoreboard
Assignments: Pending/Submitted
Home Visit data
If Admin
Gender Ratio/ Impactmetrics