Functional Requirements

5 major functional requirements. It also includes 25 specific features derived from the project's core and main objectives.

FR1: User & Authentication Services (Core Features)

- **Feature 1 (User Registration System):** The system shall provide a secure sign-up flow allowing new users to create an account by selecting a primary role (Organizer, Coach, Player, or Fan).
- **Feature 2 (User Authentication):** The system shall authenticate registered users via a secure login form. It will also provide "Forgot Password" and password reset options via email.
- **Feature 3 (Role-Based Access Control - RBAC):** The system shall grant or restrict access to specific features, data, and dashboards dynamically based on the authenticated user's assigned role.
- **Feature 4 (User Profile Management):** Authenticated users shall be able to access and edit their personal profile, including updating their bio, personal details, and uploading a profile photo.
- **Feature 5 (Main Landing Page & Dashboard):** The system shall present a public, static landing page to visitors. Upon login, the system shall present a role-specific dashboard (e.g., an Organizer sees "Pending Registrations," a Player sees "Next Match").

FR2: Tournament & Logistics Management (Organizer Features)

- **Feature 1 (Multi-Sport Tournament Creator):** An Organizer shall be able to create a new tournament, specifying its name, sport (Football, Cricket, Tennis), and format (e.g., Round Robin, Knockout).
- **Feature 2 (Team Registration Portal):** An Organizer shall be able to review, approve, and reject team registration applications submitted by Coaches.
- **Feature 3 (Automated Schedule Generator):** The system shall provide a tool for Organizers to automatically generate a fair and balanced match schedule based on the registered teams, selected format, and venue availability.
- **Feature 4 (Venue Management System):** An Organizer shall be able to create, edit, and manage a list of venues, including their location and capacity, and assign them to specific matches.
- **Feature 5 (Centralized Announcements):** An Organizer shall be able to create and broadcast official announcements to all participants of a specific tournament.

FR3: Team & Player Management (Coach & Player Features)

- **Feature 1 (Team Roster Management):** A Coach shall be able to create a team, build a roster, and invite registered Players to join.
- **Feature 2 (Player Availability Tracker):** A Player shall be able to view their upcoming match schedule and mark their availability (e.g., "Available," "Unavailable") for each match, which is then visible to their Coach.

- **Feature 3 (Internal Team Communication):** The system shall provide a private, team-only chat or message board for coaches and players to communicate.
- **Feature 4 (Practice & Training Planner):** A Coach shall be able to use a calendar to schedule team practices and outline training drills for their players.
- **Feature 5 (Private Video-Link Library):** A Coach shall be able to maintain a secure repository of video links (e.g., of past games) for team review and analysis.

FR4: Match & Performance Analytics (Analysis Features)

- **Feature 1 (Live Score-Entry Interface):** Designated users (e.g., Organizers) shall have access to a simple, mobile-friendly interface to enter live score updates during a match (e.g., goals, wickets, points).
- **Feature 2 (Detailed Match Stat-Entry Form):** A Coach shall be able to submit detailed, sport-specific statistics (e.g., assists, tackles, aces) for their players after a match is completed.
- **Feature 3 (Team Performance Dashboard):** A Coach shall be able to access an analytics dashboard that visualizes team-level statistics (e.g., possession, passing accuracy, save percentage).
- **Feature 4 (Individual Player Statistics Dashboard):** A Player shall be able to view a personal dashboard that tracks their individual stats, performance trends, and growth over time.
- **Feature 5 (Tactic Visualization Tool):** A Coach shall have access to an interactive digital whiteboard to draw, save, and share team formations and tactical plays.

FR5: Fan & Community Engagement (Public-Facing Features)

- **Feature 1 (Public Tournament Pages):** The system shall provide public, shareable web pages for each tournament that display schedules, results, and group standings.
- **Feature 2 (Automated Tables & Leaderboards):** The system shall automatically calculate and display real-time tournament standings and public leaderboards (e.g., Top Scorer, MVP) based on data entered.
- **Feature 3 (Team/Player Following System):** A Fan shall be able to "follow" their favorite teams and players, causing updates from those entities to appear on their personal dashboard.
- **Feature 4 (Printable Match & Team Reports):** The system shall auto-generate downloadable PDF reports for individual matches and team performance summaries.
- **Feature 5 (Official Merch Shop):** The system shall provide an e-commerce interface for Organizers to create and manage an online store for official tournament merchandise.

Non-Functional Requirements

Category	Requirement Description
Performance	**Real-time Updates:** Live score data entered via the score-entry interface must be reflected on all public pages and fan dashboards within 5 seconds.
	Page Load Time: All authenticated dashboards (Player, Coach, Fan, Organizer) must load completely in under 3 seconds on a standard broadband connection.
Security	**Data Protection:** All user passwords must be stored using a modern, salted hashing algorithm (e.g., bcrypt).
	API & Route Protection: The system must enforce Role-Based Access Control (RBAC) on the server side. API endpoints and routes must be protected, ensuring a "Player" cannot access a "Coach" or "Organizer" function, even if they have the direct URL.
Usability	**Responsiveness:** The entire platform must be fully responsive. Critical-use features, such as the "Live Score-Entry Interface" and "Player Availability Tracker," must be optimized for a mobile-first experience.
	Role-Specific UI: The user interface for each role's dashboard must be streamlined to show only relevant tools and information, minimizing clutter and simplifying the user flow for that specific role.
Reliability	**Uptime:** The platform's core services (live scoring, public-facing pages) shall maintain 99.9% uptime during the scheduled hours of any active tournament.

Modularity **Multi-Sport Architecture:** The system must be designed to be sport-agnostic at its core. Sport-specific logic (e.g., stat-entry forms, analytics calculations) must be modular, allowing for dynamic adaptation based on the tournament's selected sport without requiring code duplication.

Scalability **current Users:** The platform must be able to support 1,000 concurrent users 'ing live score pages during peak tournament times without service degradation.