

Tournament Manager

Project Name: Tournament Manager

Team Name: WebWizards



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1. Overview

The Tournament Manager is the one-of-a-kind, web-based application that understands the whole meaning of changing sports tournaments-right from their organization to their management. For the organizers and participants, this is a comprehensive tool that simplifies every stage in the life cycle of the tournament, from creation and registration to real-time management and the publishing of results.

On one end, the application is all about equipping organizers to better build updates and manage tournaments without necessarily involving much hustle. Equipping organizers easily with the facility for update management over building and managing tournaments, besides providing a secured environment ensures that all interactions by any user are protected and there would be no breach of sensitive information to others. This is intended to be very user-centric as it provides an interface clear of clutter, thus putting the application well within reach even of less-than-moderately-technical folks.

Key features of the Tournament Manager include robust user registration and authentication systems, enabling secure access through login and logout functionalities. The application supports various tournament types, allowing organizers to choose formats that best suit their needs, whether it's a single elimination, double elimination, or round-robin format. Additionally, the system facilitates status updates and notifications, ensuring that all stakeholders are kept informed about the latest developments and changes within the tournament.

With all these features integrated into one platform, the Tournament Manager not only makes the administration smooth but also helps to provide an experience for the participants that is worth their time and engagement.

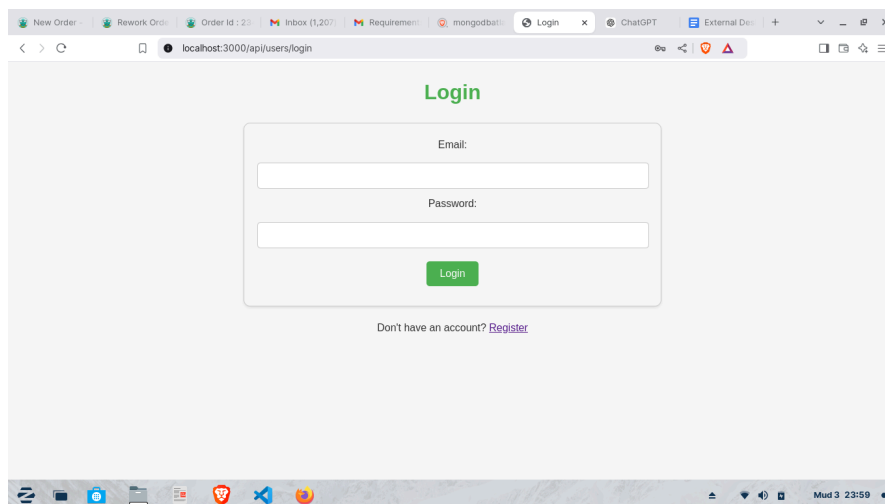
2. User Interface Design

The UI of the Tournament Manager is intelligently designed; users can go through it comfortably to reach their intended purpose without much hassle. The philosophy of design here lies in clarity, responsiveness, and accessibility to guarantee this application will look both visually appealing and functionally solid at the same time.

2.1. Login Page

The Login Page is the entrance or gateway to the Tournament Manager; it should, therefore, provide a secure entrance to the users. Upon accessing the application, a user will be presented with a clean and simple login page where an email and password can be typed in. The page is designed keeping security and usability in mind; hence, form validation mechanisms will promptly warn the users about missing or incorrect input. This immediate feedback ensures that users can fix errors quickly, improving the overall login experience.

Besides the basic authentication fields, it might also allow for a "Forgot Password" option or so in the login page for users to easily regain access into their account. The responsive design makes sure the interface of the login works from desktops right down to mobile phones, addressing all the different needs of the end user.

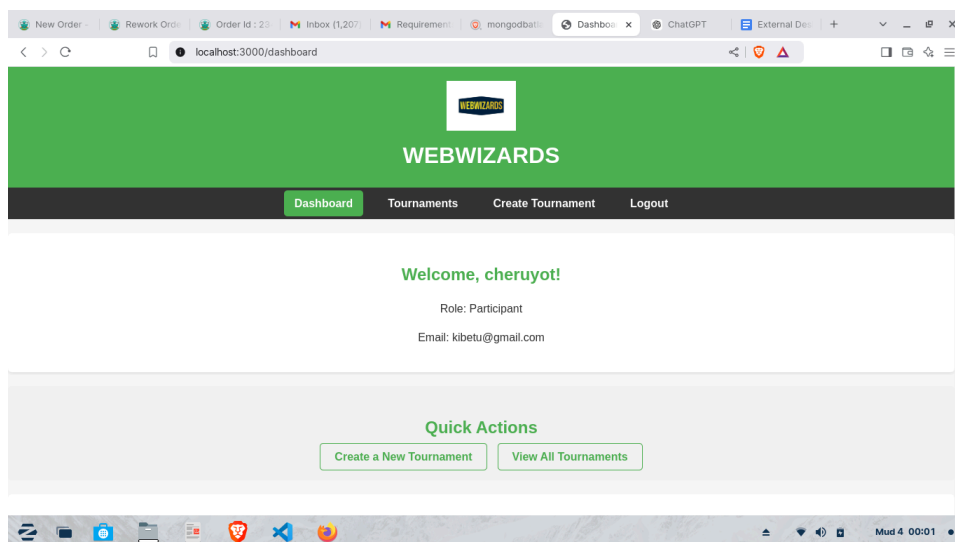


2.2. Dashboard

Once logged in, he is taken to the Dashboard, the heart of the application. The first thing that the Dashboard would do is welcome the user by name and role-a personal touch-which makes users feel part of the system. It does have a set of quick-action buttons, which are strategically placed to enable users to take some key actions with minimum navigation. These buttons create shortcuts for creating new tournaments, managing existing ones, and relocating to other important parts of the application.

In addition to these quick-access features, the Dashboard hosts summary widgets that are bound to provide much-needed insight into the state of the tournaments. Users can get information on the number of upcoming tournaments, active participants, and recent activities, hence keeping them informed at a single glance. A notification panel is also integrated with the dashboard, informing the user of the important updates, deadlines, or system messages so one can keep themselves updated.

This will help the user feel more familiar with the application because of the consistency in layout and design elements across the Dashboard and other pages, making them confident in navigation.



2.3. Create Tournament Page

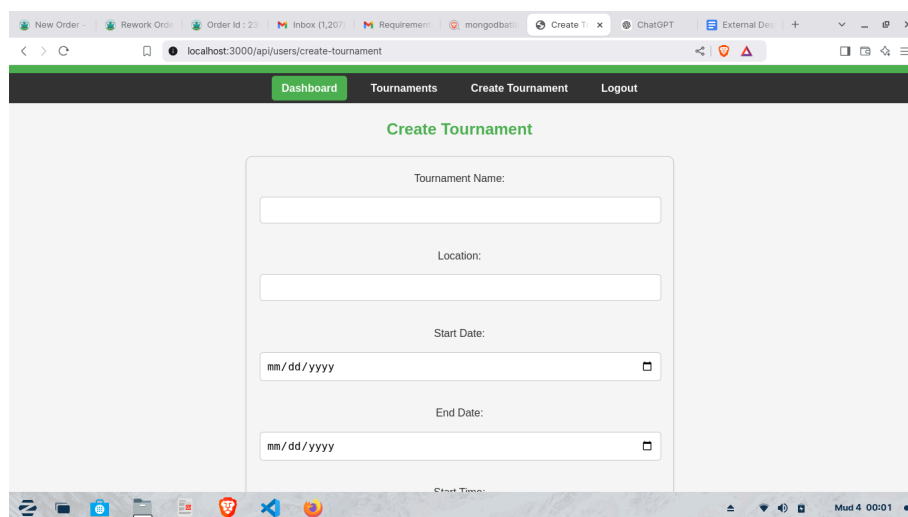
The Create Tournament page is one of the more important features of the application an Organizer will use; it grants organizers a structured, well-elaborated form for creating new tournaments. This

page will represent or capture all details to basically define a tournament-the capture of all essential information in detail to correctly introduce the organizers' information.

It asks for critical information from the users in the form of the name of the tournament, its venue, the starting and closing date, and the type of tournament they are going to run. In the said form, some fields have dropdowns where you can mark the status of the tournament such as "Ongoing" or "Completed," which would be keeping track of the progress and state of each tournament.

Other validators on the Create Tournament page also ensure all marked fields are filled with what is required, eliminating broken or invalid submissions and not compromising the integrity of tournament content. Organizers could yet attach related documents to make the profile of their said event vibrant with logos or image ads around it.

The intuitive layout and responsive design of the Create Tournament Page ensure organizers can efficiently set up tournaments without unnecessary complications, streamlining the administrative process.

A screenshot of a web browser displaying the 'Create Tournament' page. The browser's address bar shows 'localhost:3000/api/users/create-tournament'. The page has a dark green header with navigation links: 'Dashboard', 'Tournaments', 'Create Tournament' (highlighted), and 'Logout'. Below the header, the title 'Create Tournament' is centered in green. The main content area contains a form with the following fields: 'Tournament Name:' with a text input; 'Location:' with a text input; 'Start Date:' with a date picker showing 'mm/dd/yyyy'; and 'End Date:' with a date picker showing 'mm/dd/yyyy'. At the bottom of the form, there is a 'Create Time:' label. The browser's taskbar at the bottom shows various icons and the system clock 'Mon 4 00:01'.

2.4. Edit Tournament Page

The Edit Tournament page allows the organizer to modify the details of an existing tournament with ease. Because a tournament may change or, after some time, it might require some editing, this page helps provide a user-friendly interface to make the necessary adjustments.

Once logged into the Edit Tournament Page, the organizer finds a form already filled with the present details of the selected tournament. This makes editing a whole lot easier since it saves them from typing all details afresh by just searching for what needs change.

The page makes sure that all changes have gone through validation; this ensures that any updated data satisfies the validation formats and restrictions. Some of these tests include a date format check, field requirements, acceptable tournament types and statuses. By doing these validations, it guarantees accuracy and consistency in the data.

The Edit Tournament Page can also include confirmatory messages before saving so that changes are not made accidentally and organizers may go through their updates for correctness. It could also allow for audit trails, recording every change made to the details of the tournament for accountability and historical record.

The seamless editing process facilitated by this page ensures that tournament information remains current and accurate, reflecting any necessary adjustments promptly.

The screenshot displays a web application interface for editing a tournament. The header is green with the 'WEBWIZARDS' logo. A dark navigation bar contains links for 'Dashboard', 'Tournaments', 'Create Tournament', and 'Logout'. The main section, titled 'Edit Tournament', features a form with three input fields: 'Tournament Name' (filled with 'planting'), 'Location' (filled with 'Mombasa'), and 'Start Date' (filled with 'mm/dd/yyyy' and a calendar icon). The browser's address bar at the top shows the URL 'localhost:3000/api/tournaments/674f6dd739c0754f4e8cc5e3/edit'.

2.5. Tournaments Page

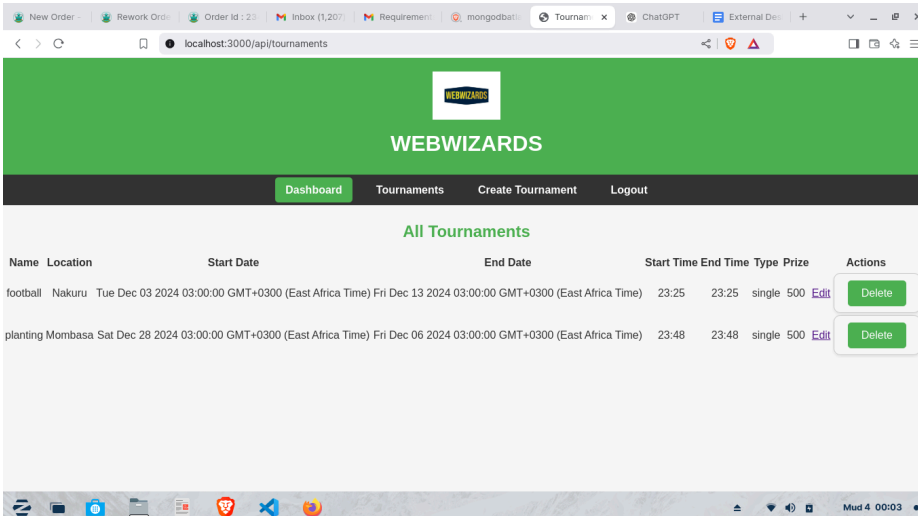
The Tournaments page is a catalog of all of the tournaments managed within an application. This page is intended for providing users with detailed information about each tournament, making necessary data and management actions reachable.

Tournaments are listed in tabular format, showing main information such as the name of a tournament, venue, and dates. For each of the listed tournaments, there are action buttons to show details, edit the tournament information, and delete the tournament. They are clearly labeled and appropriately placed to ensure users execute the management tasks with ease.

The Tournaments Page may have search and filter functions to enhance usability in finding certain tournaments according to name, location, or date. This will be useful for users who operate a large number of tournaments and thus find access to certain events much easier.

Moreover, pagination plays another critical feature in Tournaments Page-developments, maintaining the page friendly and quick, even to make it function with a massive listing of tournaments. The performance and usability that the app sustains shall not clog the customer in an over-informed condition at a time by dividing into lesser pages of manageable lists.

In general, the Tournaments Page offers a neat and one-stop overview of all events, allowing users to do event management well while in charge of their organizational tasks.



The screenshot displays the 'WEBWIZARDS' application interface. At the top, there's a green header with the 'WEBWIZARDS' logo. Below it, a dark navigation bar contains links: 'Dashboard', 'Tournaments', 'Create Tournament', and 'Logout'. The main content area is titled 'All Tournaments' and features a table with the following columns: Name, Location, Start Date, End Date, Start Time, End Time, Type, Prize, and Actions. Two tournament entries are visible: 'football' in Nakuru and 'planting Mombasa'. Each entry has 'Edit' and 'Delete' buttons in the Actions column.

Name	Location	Start Date	End Date	Start Time	End Time	Type	Prize	Actions
football	Nakuru	Tue Dec 03 2024 03:00:00 GMT+0300 (East Africa Time)	Fri Dec 13 2024 03:00:00 GMT+0300 (East Africa Time)	23:25	23:25	single	500	Edit Delete
planting Mombasa		Sat Dec 28 2024 03:00:00 GMT+0300 (East Africa Time)	Fri Dec 06 2024 03:00:00 GMT+0300 (East Africa Time)	23:48	23:48	single	500	Edit Delete

3. Navigation Flow

The **Navigation Flow** of the Tournament Manager application is meticulously designed to ensure that users can transition smoothly between different sections without encountering confusion or delays. By establishing a logical and intuitive pathway, the application enhances user experience and facilitates efficient task completion.

A typical user journey within the application begins with the **Login** process, where users authenticate themselves using their email and password credentials. Upon successful login, users are directed to the **Dashboard**, which serves as the central hub of their interactions. From the Dashboard, users can initiate the creation of new tournaments via the **Create Tournament** page, allowing them to set up events tailored to their specifications.

After creating a tournament, users can navigate to the **View Tournaments** page to see a comprehensive list of all tournaments, enabling them to manage existing events effectively. Within this page, users have the option to **Edit** tournament details as needed, ensuring that all information remains current and accurate.

Finally, once users have completed their tasks, they can **Logout** from the application, securely terminating their session and ensuring that their account remains protected.

The **Navigation Bar**, consistently positioned across all pages, plays a crucial role in maintaining this seamless flow. It provides quick access to major features, allowing users to switch between different sections with ease. The consistent placement and design of the navigation bar ensure that users always know where to find essential tools and functionalities, reducing the learning curve and enhancing overall usability.

By adhering to this structured navigation flow, the Tournament Manager ensures that users can accomplish their objectives efficiently, fostering a productive and user-friendly environment.

4. Functional Requirements

The **Tournament Manager** application is equipped with a range of functionalities that collectively deliver a comprehensive solution for tournament organization and management. Each functionality is designed to address specific user needs, ensuring that the application is both versatile and user-centric.

4.1. User Registration

The **User Registration** functionality is fundamental to the Tournament Manager, enabling new users to create accounts and gain access to the application's features. This process begins with users entering their personal information, including their name, email address, and a secure password. Additionally, users select their role within the application, such as Organizer or Participant, which determines their access levels and available functionalities.

Security is a paramount consideration in the registration process. Passwords are encrypted using robust hashing algorithms before being stored in the database, ensuring that user credentials remain confidential and protected against unauthorized access. The registration system also incorporates validation checks to ensure that all provided information is accurate and adheres to the required formats, preventing the creation of accounts with incomplete or invalid data.

Upon successful registration, users may receive a confirmation email, welcoming them to the platform and providing any necessary onboarding information. This not only verifies the user's email address but also enhances the overall user experience by offering immediate access to essential resources and support.

4.2. Login

The **Login** functionality serves as the secure gateway for users to access the Tournament Manager. By authenticating users against stored credentials, the application ensures that only authorized individuals

can access and interact with its features. The login process requires users to enter their registered email and password, which are then verified against the encrypted credentials stored in the database.

Upon successful authentication, the application initiates a user session using session-based authentication mechanisms. This session management ensures that users remain logged in as they navigate through different sections of the application, maintaining a continuous and seamless user experience. Conversely, if the login attempt fails due to incorrect credentials, the system promptly notifies the user with clear and informative error messages, allowing them to rectify the issue and try again.

The logout functionality complements the login process by providing users with a secure means to terminate their sessions. By ending the session and redirecting users to the login page, the application ensures that sensitive information remains protected and that unauthorized access is prevented after the user has finished their tasks.

4.3. Dashboard

The **Dashboard** serves as the heart of the Tournament Manager, offering users a personalized and interactive overview of their activities within the application. Upon logging in, users are greeted with a welcome message that includes their name and role, creating a sense of ownership and personalization.

The Dashboard is designed to facilitate quick access to the application's core functionalities. It features a series of quick-action buttons that allow users to initiate tasks such as creating new tournaments or managing existing ones with just a few clicks. This streamlined access reduces the time and effort required to perform routine tasks, enhancing overall efficiency.

In addition to these quick-action features, the Dashboard provides summary widgets that display key statistics and insights. Users can view the number of upcoming tournaments, the total number of participants, and recent activities, enabling them to monitor the status and progress of their

organizational efforts at a glance. A notification panel is also integrated into the Dashboard, alerting users to important updates, deadlines, or system messages, ensuring that they remain informed and up-to-date with the latest developments.

The cohesive design of the Dashboard ensures that users can manage their responsibilities effectively, accessing all necessary tools and information from a centralized and easily navigable interface.

4.4. Create Tournament

The **Create Tournament** functionality empowers organizers to set up new tournaments tailored to their specific needs. This feature is accessed through a dedicated form that captures all essential details required to define a tournament comprehensively.

Organizers begin by entering the tournament name and specifying its location, ensuring that the event is accurately positioned geographically. They then set the start and end dates, determining the duration of the tournament and providing participants with clear timelines. The type of tournament is selected from predefined options, such as single elimination or double elimination formats, allowing organizers to choose the structure that best suits their objectives.

To manage the progression of the tournament, organizers can assign a status to each event, indicating whether it is "Ongoing" or "Completed." This status assignment facilitates easy tracking and monitoring of tournaments, enabling users to quickly identify the current state of each event.

Before submission, the form undergoes thorough validation to ensure that all required fields are completed correctly and that the data adheres to the specified formats. This validation process prevents the creation of incomplete or erroneous tournament entries, maintaining the integrity and reliability of the tournament data.

Upon successful creation, the new tournament is added to the MySQL database, making it immediately visible on the Tournaments Page. Organizers receive a confirmation message, affirming

the successful setup of the tournament and providing options to view the tournament details or create additional events as needed.

4.5. Edit Tournament

The **Edit Tournament** functionality is designed to provide organizers with the flexibility to update and modify tournament details as necessary. Recognizing that tournaments may evolve over time, this feature ensures that all relevant information remains current and accurate.

Accessing the Edit Tournament Page, organizers are presented with a form pre-populated with the existing details of the selected tournament. This pre-filled form allows for efficient editing, as organizers can easily identify and update specific fields without having to re-enter all information from scratch.

Organizers can modify various attributes of the tournament, including its name, location, dates, type, and status. For instance, they can change a tournament's status from "Upcoming" to "Ongoing" as the event progresses, or update the prize details to reflect new offerings. Each modification undergoes rigorous validation to ensure that the updated data meets the required standards and formats, preventing the introduction of errors or inconsistencies.

To safeguard against accidental changes, the Edit Tournament Page may incorporate confirmation prompts that require organizers to verify their updates before saving them. Additionally, an audit trail feature can be implemented to log all changes made to tournament details, providing a historical record for accountability and reference.

Once the edits are successfully saved, the updated tournament information is reflected immediately on the Tournaments Page, ensuring that all users have access to the most current and accurate data. This seamless updating process enhances the reliability and responsiveness of the Tournament Manager, allowing organizers to manage their events dynamically and effectively.

4.6. Tournaments Page

The **Tournaments Page** is a central repository that lists all tournaments managed within the Tournament Manager application. This page is meticulously designed to provide users with a comprehensive overview of each tournament, facilitating easy access to detailed information and management actions.

Displayed in a structured table format, each tournament entry includes critical details such as the tournament name, location, and dates, offering users a clear and concise summary of each event. Action buttons are strategically placed alongside each tournament entry, granting users the ability to view detailed information, edit tournament details, or delete tournaments as necessary.

The inclusion of search and filter functionalities significantly enhances the usability of the Tournaments Page. Users can effortlessly search for specific tournaments by entering keywords related to the tournament name, location, or date, streamlining the process of finding and accessing particular events. Additionally, filter options allow users to sort tournaments based on criteria such as status (e.g., Upcoming, Ongoing, Completed) or type (e.g., Single Elimination, Double Elimination), providing a tailored and efficient browsing experience.

To maintain optimal performance and usability, especially when handling a large number of tournaments, the Tournaments Page incorporates pagination. This feature divides the list of tournaments into manageable pages, preventing the page from becoming cluttered and ensuring that users can navigate through tournaments smoothly without experiencing delays or performance issues.

Overall, the Tournaments Page offers a centralized and organized view of all tournaments, empowering users to manage and oversee events effectively while maintaining easy access to essential information and management tools.

5. Technical Design

The Technical Design describes the architectural framework and technological componentry for the application that underpins the Tournament Manager application. This design ensures the robustness,

scalability, and maintainability of the application so that it meets today's requirements while allowing the capabilities for enhancements in the near future.

5.1. Frontend

The EJS Templating Engine is used in the development of the Tournament Manager's frontend, and it helps in rendering dynamic content on the server side. EJS offers developers the ability to build reusable templates that can use data from the backend and seamlessly embed it into the frontend, thereby generating dynamic, personalized user interfaces.

This is done with Custom CSS, giving a modern and responsive user interface. Custom styles assure that the application is not only visually appealing but also smooth-flowing into different screen sizes and devices, thus improving usability and accessibility. With Custom CSS, you have the liberty of flexibility and creativity, and therefore, a consistent identity could be made throughout every page.

5.2. Backend

The core of the Tournament Manager has Node.js as its backbone-a mighty runtime environment for JavaScript that gives server-side scripting a whole new meaning. Express.js: A lightweight web framework on Node.js, which is used here for managing server-side logics, routing, middleware, and handling requests.

The application follows all the principles of RESTful API. Thus, the architecture is highly scalable and keeps a good separation of concerns. This helps maintain the codebase modularized, with each API endpoint corresponding to certain features or functionalities that can be administered individually.

Key backend features include:

- Routing: This is the process of mapping HTTP requests to proper handlers using Express.js so that the code remains organized and maintainable.

- Middleware: This is used to handle requests, manage sessions, authentication, and security.
- Controllers: These manage all the business logic behind the routes so that whatever needs to be done with data is done in the right way, creating responses.

This structured backend architecture enables the application to be robust, adaptable, and facilitate increases in load and requirements.

5.3. Database

Mongodb is used in the Tournament Manager, due to its reliability and performance. This is also because it provides the ability to store structured data. The database schema design was done with great care in order to avoid data redundancy, maintaining data integrity through the use of normalized tables.

Key aspects of the database design are:

- Normalized Tables: Users and tournaments in their tables with fields capturing important information on them. It will store the data efficiently to avoid cases of inconsistencies.
- Users Table: It can store user-related information such as ID, name, email, password (hashed), role - Organizer or Participant, and created/updated time.
- Tournaments Table: It contains information on all the tournaments - ID, name, location, start and end dates, type, prize details, status, and references to the organizer who has created the tournament.
- Registrations Table: Maintains the relationship between users and tournaments, storing who has registered for what event.

It is also important in the database design to include security. Passwords are stored securely by hashing them using robust algorithms like bcrypt, making the sensitive information protected against

unauthorized access. In addition, foreign key constraints have been used to maintain the referential integrity of tables to ensure consistency in relationships among data entities.

5.4. Authentication

Auth in the Tournament Manager represents a Session-Based Authentication system and was implemented using the library `express-session`. A user has secure sessions, therefore, can surf around the application without constant authentications.

Some of the key components of the authentication mechanism include:

- **Session Management:** A session gets initiated with the successful log in of a user and associates the session with the respective user by storing the session data safely on the server. Such session data is then tied up with the user's browser by using a session cookie that would allow persistence across multiple pages and interactions.
- **Security Sessions** are secured by using cookies that have the `HttpOnly` and `Secure` flags attributes. The first one does not allow client-side scripts to access session data, while the second makes sure that the cookies are only sent over a secure HTTPS connection.
- **Session Expiration:** Sessions are set to expire after a certain period of inactivity, adding an extra layer of security by minimizing the time window in which a user might have left their session unattended and, therefore, open to potential unauthorized access.

It balances the security and usability in this session-based approach while keeping the user's authenticated state really secure.

6. Tools and Methodologies

In this development, the Tournament Manager uses some combination of Agile methodologies with a suite of specialized tools that make for efficient project management, collaborative development, and quality-rich deliverables.

6.1. Agile Methodology

The Agile methodology is one that truly allows the developers to be flexible and responsive, delivering variable requirements respective of collaboration and iteration-oriented project management.

- **Sprint Duration:** The project uses 2-week sprints, that are dedicated times to get certain tasks or incremental enhancement of the application. A short cycle lets the team be agile as to feedback or changing project needs.
- **Stand-ups:** Regularly, weekly stand-up meetings are conducted to monitor progress, impediments of any kind, and assurance that all team members are on the same page for the goals of the sprint. In these meetings, open communications and fast resolutions are discussed to keep up the momentum in the development process.

6.2. Project Management Tools

Effective project management is indispensable in coordinating activities, monitoring progress, and making sure that delivery is done on time. The Tournament Manager relies on the following in this regard:

- **Trello:** This is the main tool used for task management and sprint planning. It offers a visual Kanban-like board where tasks are organized in columns, representing different states on the road to being accomplished, for example, from Backlog to To Do, then to In Progress, Review, and finally Done. Each of the tasks was represented by a card that could be assigned to the team members, prioritized, and tracked through its entire life cycle.

- GitHub: Versioning and collaborative development include hosting the code repository on GitHub, which allows for team member collaboration on the code in terms of managing changes by branching strategy and performing code reviews using pull requests. This involves issue tracking and proper documentation related to GitHub, therefore making the platform a central tool for everything related to the project.

6.3. Testing

Combination of manual and automated testing practices secure the Tournament Manager for its quality and reliability.

Manual Testing: This will include exploratory testing and usability reviews for defects that might have been missed by automated tests. Here, the testers would use the application like any other end-user, ensuring that all the functions work as they should and the user interface is friendly and responsive.

This can be demonstrated by embedding manual and automated testing throughout the development of the app, so that a quality assurance can be maintained to ensure smooth, easy-to-use functionality reliably over time with Tournament Manager.

Conclusion

The "Tournament Manager" External Design Document gives a broad and detailed view of the architecture, user interface, functional requirements, and methodologies to be followed in developing the application. Those sections will be elaborated on with great detail to make sure that the design and technological implementations forming the backbone of the Tournament Manager are well understood by all stakeholders for proper scope and objectives of the project.

The basis of the architecture will therefore be crucial in realizing an application that will be robust, scalable, user-friendly, sure to bring a complete makeover to managing tournaments with an intuitive interface for seamless user management, secure authentication mechanism, and versatile features that promise to manage tournaments effortlessly. By being true to the values of Agile and availing these specialized toolsets, it fosters the development team towards efficient and collaborative working relationships by adapting quickly to new needs; in the process, setting up for Tournament Manager to see its effective implementation.