BIRMINGHAM CITY University

DIG5127
2024–2025

D2: PLANNING AND DESIGN DOCUMENTATION

COMPCLUB HUB
(A CLUB AND COMPETITION MANAGEMENT SYSTEM)

OUR GROUP MEMBERS ARE:

- Imogen
- Jasmine
- Safica

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1 Report Introduction – Imogen

In this report, we will be providing you with information that will form the basis for our web application project: CompClub Hub.

Starting off will be the problem identification, explaining the reasons as to what our chosen problem and solution is, why we have chosen this problem compared to our initial candidate ideas, and why our chosen problem is better than these initial ideas. Following on from that will be the identification of specific users of the web application as well as features we wish to implement for these said users, based on the problem chosen.

In section 2, one can find a Gantt chart detailing our main goals and sub tasks regarding the specific features we want to include in our implementation of a club and club competition organiser web application that we plan to reach before the deadline of 15th of January 2025. Also presented are entity relationship diagrams and their given explanations based on what data we identified was crucial to store in regards with our project. Afterwards, a sitemap and a few Figma screenshots are shown to allow for understanding of the web application's structure and navigation as a visual insight to the product.

Finishing off the report are a few appendices including an explanation of what pairing system we will be using to generate pairings for competitions in the web application and some sample SQL code that was thought of when initially generating and choosing the problem we wished to solve.

1.1 Problem identification – Imogen

1.1.1 Our Chosen Problem

Being a club leader in sixth form can be an easy job for some but for those who are passionate about their club's chosen activity, it can get increasingly difficult to manage the club, keep the club data up to date, start hosting competitions within the club, and to inspire those around them to join the club simultaneously. From personal experience, I led the chess club at sixth form, and for someone who wanted to raise the social profile of the club, I took management of the club and competitions with other school chess clubs seriously.

While managing the chess club, I ran into a problem. Bi-weekly I would hand-write the attendance for each session, hand write the somewhat fair club tournament pairings, and type them up on excel afterwards, sometimes misplacing this information, disallowing weekly updates to the teacher in charge.

Our project's problem is exactly this; there is no single place to manage clubs and competition data in general.

In the modern chess world, they have a few websites like the ECF LMS to store club league competition data, as well as club member data, and for the storage competition results, they use Swiss-pairing manager along with Chess-Results worldwide. However, to use Swiss-pairing manager, one needs some training; a club leader will not learn how to use the system to upload pairings onto the internet as it is long winded and time consuming, and as this solution is solely for chess, it would not be helpful for clubs of other activities or interests.

Therefore, here comes our solution, CompClub Hub. CompClub Hub aims to automate the storage of club and club competition data (for more information on how we will be implementing the pairing system for competitions, see Appendix 1) club leaders in schools and small organisations in one single place. With database queries and creation scripts, PHP, HTML, CSS, and JavaScript code we plan to create a web application to allow club members, interested club members and club admins to register their memberships, join clubs, create clubs, and participate in club competitions. Meanwhile, club admins will need not worry about losing written information about a club member or about creating unfair competition pairings as our web application will do it for them. It will have a simple user interface to be user-friendly, not requiring any training to use compared to the chess Swiss-pairing manager (Ecforum.org.uk, 2017) and Chess-Results. Our solution will be a more convenient place to store all this data; there will be no need for handwritten sheets of paper, disorganised excel sheets or word documents. As long as the user has access to the web application, they have all these features, and more, at their disposal.

1.1.2 Our Initial Candidate Ideas

Initially we had three other candidate ideas alongside CompClub Hub to tackle for our project: a tram tracker, a dental appointment management system, and a food stock tracker. The problem with all these ideas were mainly that they weren't as feasible as the problem we ended up choosing due to our limited access to the data needed.

1.1.2.1 Tram tracker

The very first idea we came up with was a tram tracker. With two of our team members taking the tram, we identified that a real-world problem was that there is not an app solely for tracking the location of our chosen trams. However, this idea was quickly dismissed after finding out that the Google Maps mobile app could be used to solve this problem. The other limitation to this idea included the question of how we, as university students, would access the live updated location of each tram in Birmingham; this was too ambitious of an idea to pursue.

1.1.2.2 Dental appointment management system

The third idea we generated (with our chosen being the second) was a dental appointment management system, to allow one-sided communication between dentists and their assigned patients, as well as to create an online user interface that can notify patients of their booked appointments and possible appointment slots, instead of being informed about a dentist appointment by a single text from one patient's GP. Furthermore, we recognised the data we would be using would be all dummy data as it would not be possible to retrieve data from an actual GPs system; it would go against the Data Protection Act .

1.1.2.3 Food stock tracker

The last idea was a web application to track the food stock of local shops. This stems from the problem of going to a shop for a specific item and eventually finding out it is out of stock or that the shop does not sell that item. Our solution would be to create a web application to notify its users when the item they're shopping for is in stock to increase shopping efficiency and decrease inconvenience. Again, like the other two candidate ideas above, the main problem we had with this idea was how we would attain the updated live data regarding each shop's stock.

1.1.2.4 Why choose the club and competition manager system to implement?

In the end, we chose to implement CompClub Hub (the club and competition manager system). This was because it was the most feasible regarding the data we would be using (dummy data) as there is no limitation to our access to the data. Additionally, it is the only web application out of our candidate ideas that could be used straight after implementation considering we are in an environment full of other students that could utilise the product.

1.2 Users / Stakeholders identification for the website - Jasmine

The different types of users that would interact with CompClub Hub web application include viewers (the authenticated users), viewers (the non-authenticated users), club members (authenticated users who have joined a club) and club admins.

An authenticated viewer is a user that is a registered. They can view clubs and competitions and can choose to become members or even club admins.

An unauthenticated user can visit the website but is not logged in. They can go visit the website, view general clubs' information or check any upcoming competitions without having access to more private/sensitive information.

A club admin is a "senior level" user with full administrative access to manage club related activities e.g. managing competitions. They are also responsible for managing clubs, ensuring their smooth running and overseeing competitions.

Kind of User	User's Role	Description	Motivation
Viewer (Authenticated)	Authenticated User (Not a club member yet)	Can join a club, create a club, view competitions and club details (without accessing full names)	To view clubs and see/decide which one they might want to join or consider becoming a club admin in the future.
Viewer (Non- authenticated)	Non- authenticated User	Can search for any clubs and view leaderboards but can't access full member names.	Can browse the web application and explore clubs or competition details before deciding to register.
Club Member	Authenticated User	Can join competitions, view competitions and club leaderboards with full names (instead of usernames).	Join competitions to progress on the club and category leaderboards.
Club Admin	Authenticated Club Admin	Can add members to the club, create competitions, enter competition data and download/print competition data.	Encourage users to join their club and enter club competitions.

It is very important to identify the different types of users that would interact with the CompClub Hub system, their roles and their motivation(s).

Understanding this would help us ensure that the different features and functionality of the web application that we implement meet the needs of each user. Each user is going to have different

permissions and privileges depending on whether they are authenticated or non-authenticated, or if they administrative or membership roles within the club.

By categorising the users and their permissions, our web application can serve all user needs effectively.

1.3 Features / Capabilities of the system – Safica

This section describes the features and functionality of the club management system, along with the data required for its implementation. Defining each element is important to ensure that the system efficiently addresses user's needs, provides practical and efficient solutions, and coordinate with overall purpose of the project. By identifying the system's intended capabilities and the rationale behind each feature, this section creates a foundation for development planning and future evaluation of the systems performance.

FeatureID	Description	User(s) involved	Purpose	Data involved
F1	View club leaderboards – users can look up a club and see its leaderboard	Non-authenticated and authenticated users (from users that don't belong to a club to those who do, and club admins)	Makes club performance data available to all relevant club members and keep them engaged with it.	Club data, member scores, member data
F2	Club admin login and data access – club admins can log in to manage their club's details securely	Club admins	Helps protect sensitive data and ensures only authorised persons can make changes and can organise their club by adding members, deactivating memberships and creating or managing competitions.	Club ID, club admin information and club details
F3	Competition creation and management – admins can create, schedule and manage competitions	Club admins (authenticated competition organisers)	Makes the handling of competition easier and allows competition data to stay secure as only club admins can access this feature.	Competition data, member IDs, member usernames or full names and match results
F4	Login as normal user – user logs in to view, amend their data, and to view competitions they're participating in on their dashboard	User with a login (Authenticated members)	To view their club and join competitions or to create their own club.	Leaderboard, current competition, club details, user details
F5	Search clubs – users search for clubs to join clubs	Authenticated and non-	To look for clubs and see their club pages for details	Club ID, club names, club category, club

		authenticated users	that will help them to join the club.	address, club admin, and the club admins and club's email
F6	Register an account – helps users register to the club	Non-authenticated users	Helps new users to create an account to join a club or to create a club.	User's full name, chosen username, email and password.
F7	Create a competition, generate round pairings, export standings and pairings	Authenticated admin users	To help host the competition to update the club leaderboard and print the competition data.	Competition data, participants data, club's data, club leaderboard data.
F8	Category leaderboard – view top users on the leaderboard according to club categories	Authenticated and non-authenticated users	This helps to view the top users in each club category.	User's details (e.g. username or full name), club names and scores.
F9	Tournament Scheduling – club members could see the schedule of the competitions they're participating in on their dashboard	Club members who are currently participating in a competition	This ensures the club member knows the times that they are expected to participate in competition rounds (date and time specified)	Date and time of competition round, club the competition belongs to

Comparing the chosen idea to the other project ideas that we had such as food stock tracker, tram tracker system, or dental appointment management system, we chose the club management system because the functionality of the club and competition management system as well as the connection with user requirements are more viable.

Leaderboards, competitions scheduling and account registration may all be established using the existing fake data, decreasing complexity. In contrast, the food supply tracker would need live updates from the external links from retailers, and the tram system would need real-time data supplied to us, therefore, these both were impractical because of the data access limitations. In addition, the dental appointment managing system has issues since it requires access to sensitive personal data, raising privacy concerns. However, the club and the competition management system could be simply implemented with manageable, non-sensitive data, making it a more feasible and reliable choice for the project.

2 Planning and Design

In this section, one can find the system we are using to manage our time while completing this project, the initial and final draft designs of the entity relationship diagrams to aid us code the project, and the drafted navigational structure of our web application.

2.1 Project Timeline Planning (including Gantt Chart) – Imogen

Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 1

TASK	ASSIGNED TO	PROGRESS	START	END
D2				
Complete gantt chart	Imogen	**100%**	**25/11/24**	**10/12/24**
~ Explanation & discussion behind reasoning	Safica	50%	5/12/24	11/12/24
~ Further planning documentation	Jasmine	99%	5/12/24	11/12/24
Entity relationship diagram	Jasmine	**90%**	**25/11/24**	**10/12/24**
~ Explanation & discussion behind reasoning	Imogen	0%	5/12/24	11/12/24
~ Further planning documentation	Safica	10%	5/12/24	11/12/24
Site map diagram	Safica	**99%**	**25/11/24**	**10/12/24**
~ Explanation & discussion behind reasoning	Jasmine	0%	5/12/24	11/12/24
~ Further planning documentation	Imogen	0%	5/12/24	11/12/24
Write up	All	**25%**	**4/12/24**	**11/12/24**
~ Introduction	Imogen	90%	4/12/24	11/12/24
~~ Problem identification	Imogen	100%	4/12/24	11/12/24
~~ Users identification	Jasmine	50%	4/12/24	11/12/24
~~ Features of system	Safica	80%	4/12/24	11/12/24
Last checks	All	**0%**	**11/12/24**	**12/12/24**
Submit D2	All	**0%**	**12/12/24**	**13/12/24**

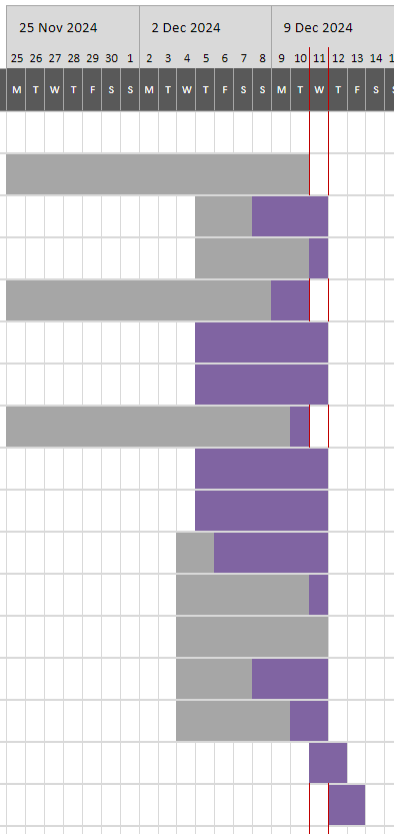


Figure 1. D2 Gantt chart timeline.

Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 1

TASK	ASSIGNED TO	PROGRESS	START	END
D2 + D3 User interface design - figma (to help with coding)				
Sketches of all important pages	Imogen	**100%**	**29/11/24**	**4/12/24**
Figma design		**20%**	**29/11/24**	**14/12/24**
~ Home - not logged in	Safica	0%	29/11/24	14/12/24
~ Normal user logged in home	Safica	0%	29/11/24	14/12/24
~ Admin user logged in home	Safica	0%	29/11/24	14/12/24
~ Login	Safica	0%	29/11/24	14/12/24
~ Create user account	Safica	0%	29/11/24	14/12/24
~ Create club + create club admin account	Safica	0%	29/11/24	14/12/24
~ Club category leaderboard	Safica	0%	29/11/24	14/12/24
~ Club leaderboard	Imogen	0%	29/11/24	14/12/24
~ View user profile	Safica	0%	29/11/24	14/12/24
~ View own user profile	Safica	0%	29/11/24	14/12/24
~ Create competition	Imogen	0%	29/11/24	14/12/24
~ Insert competition results	Imogen	0%	29/11/24	14/12/24
~ Competition pairings	Imogen	0%	29/11/24	14/12/24
~ Competition rankings	Imogen	0%	29/11/24	14/12/24
Last checks	**All**	**0%**	**14/12/24**	**15/12/24**

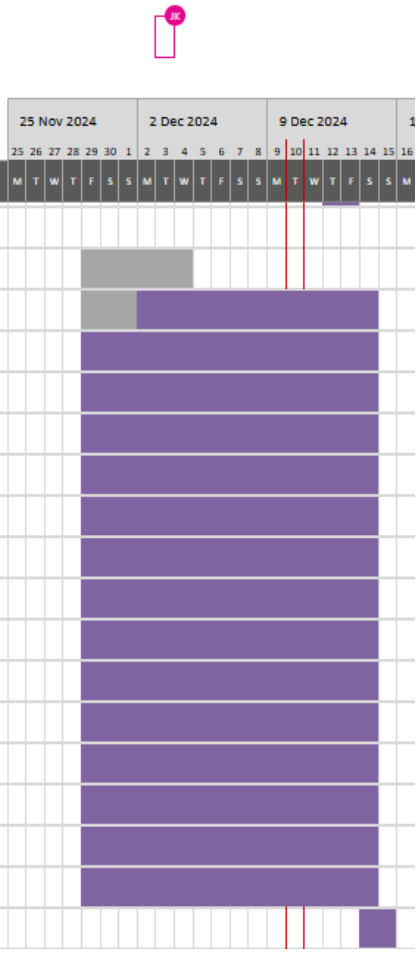
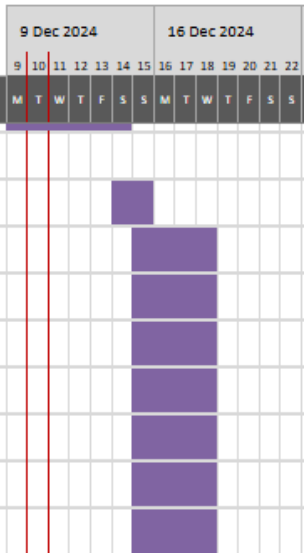


Figure 2. Gantt chart timeline regarding user interface design.

Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 3



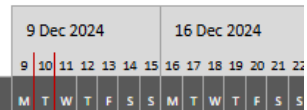
TASK	ASSIGNED TO	PROGRESS	START	END
D3 Database design, scripting and pairings				
Completed & polished database design	Imogen	**0%**	**14/12/24**	**15/12/24**
Database creation scripts for each table		**0%**	**15/12/24**	**18/12/24**
~ User	Safica	0%	15/12/24	18/12/24
~ Membership	Safica	0%	15/12/24	18/12/24
~ Admin	Jasmine	0%	15/12/24	18/12/24
~ Club	Jasmine	0%	15/12/24	18/12/24
~ Competition	Imogen	0%	15/12/24	18/12/24
~ Competitor	Imogen	0%	15/12/24	18/12/24

Figure 3. Gantt chart timeline regarding the database creation scripts for each table and important SQL queries that should be figured out (part one).

Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 3



TASK	ASSIGNED TO	PROGRESS	START	END
Important queries		**0%**	**15/12/24**	**20/12/24**
~ Create normal or admin user	Safica	0%	15/12/24	18/12/24
~ Checking if login is user or admin	Safica	0%	15/12/24	18/12/24
~ Check if login details are existent	Jasmine	0%	15/12/24	18/12/24
~ Generating user profiles	Imogen	0%	15/12/24	18/12/24
~ Flag membership as active / inactive	Jasmine	0%	15/12/24	18/12/24
~ Club category leaderboard	Safica	0%	15/12/24	18/12/24
~ Club leaderboard	Safica	0%	15/12/24	18/12/24
~ Flag club as active / inactive	Jasmine	0%	15/12/24	18/12/24
~ Tournament starting rank	Imogen	0%	15/12/24	18/12/24
~ Generating competition pairings	Imogen	0%	15/12/24	20/12/24
~ Tournament round rankings	Imogen	0%	15/12/24	20/12/24

Figure 4. Gantt chart timeline regarding the database creation scripts for each table and important SQL queries that should be figured out (part two).

Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 4

16 Dec 2024

TASK	ASSIGNED TO	PROGRESS	START	END
D3 HTML, PHP, CSS and JavaScript				
Main (accessible from most pages)		**0%**	**18/12/24**	**22/12/24**
~ Logo - a home link	Safica	0%	18/12/24	22/12/24
~ Login	Safica	0%	18/12/24	22/12/24
~ Header	Safica	0%	18/12/24	22/12/24
~ Footer	Safica	0%	18/12/24	22/12/24
Home - not logged in		**0%**	**18/12/24**	**22/12/24**
~ Club search bar	Imogen	0%	18/12/24	22/12/24
~ Club category search bar	Imogen	0%	18/12/24	22/12/24
Login page		**0%**	**18/12/24**	**22/12/24**
~ Username input	Jasmine	0%	18/12/24	22/12/24
~ Password input	Jasmine	0%	18/12/24	22/12/24
~ Create / register user	Jasmine	0%	18/12/24	22/12/24
~ Login submission	Jasmine	0%	18/12/24	22/12/24

Figure 5. Gantt chart timeline regarding each feature on each web page (part one).

Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 4

TASK	ASSIGNED TO	PROGRESS	START	END
Create user		**0%**	**18/12/24**	**22/12/24**
~ Username input	Imogen	0%	18/12/24	22/12/24
~ Password input	Imogen	0%	18/12/24	22/12/24
~ Email input	Imogen	0%	18/12/24	22/12/24
~ First name input	Imogen	0%	18/12/24	22/12/24
~ Last name input	Imogen	0%	18/12/24	22/12/24
~ Create user submission	Imogen	0%	18/12/24	22/12/24
Create club and admin account		**0%**	**22/12/24**	**26/12/24**
~ Club name input	Jasmine	0%	22/12/24	26/12/24
~ Club email input	Jasmine	0%	22/12/24	26/12/24
~ Admin username input	Jasmine	0%	22/12/24	26/12/24
~ Admin password input	Jasmine	0%	22/12/24	26/12/24
~ Admin user ID input	Jasmine	0%	22/12/24	26/12/24
~ Admin user password input	Jasmine	0%	22/12/24	26/12/24
~ Create club + admin account submission	Jasmine	0%	22/12/24	26/12/24

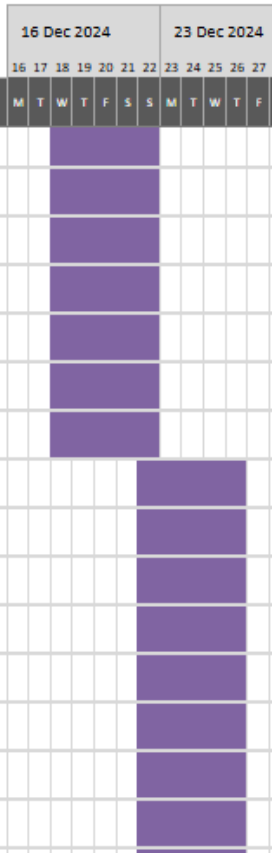


Figure 6. Gantt chart timeline regarding each feature on each web page (part two).

Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 4

TASK	ASSIGNED TO	PROGRESS	START	END
User profile		**0%**	**22/12/24**	**26/12/24**
~ User account view	Safica	0%	22/12/24	26/12/24
~ Viewer view	Safica	0%	22/12/24	26/12/24
~ Clubs and score details	Safica	0%	22/12/24	26/12/24
~ Competition details	Safica	0%	22/12/24	26/12/24
~ Details	Safica	0%	22/12/24	26/12/24
Home - logged in as normal user		**0%**	**22/12/24**	**26/12/24**
~ Competitions participated in	Jasmine	0%	22/12/24	26/12/24
~ Club search	Jasmine	0%	22/12/24	26/12/24
~ Club category leaderboard	Safica	0%	22/12/24	26/12/24
~ Greeting	Jasmine	0%	22/12/24	26/12/24
Club search		**0%**	**22/12/24**	**26/12/24**
~ Show what they have searched for	Jasmine	0%	22/12/24	26/12/24
~ Table containing club name and info	Jasmine	0%	22/12/24	26/12/24
Club leaderboard		**0%**	**22/12/24**	**26/12/24**
~ Column of scores		0%	22/12/24	26/12/24
~ Column of usernames (/+ full names)	Jasmine	0%	22/12/24	26/12/24
~ Column of competitions participated in	Jasmine	0%	22/12/24	26/12/24

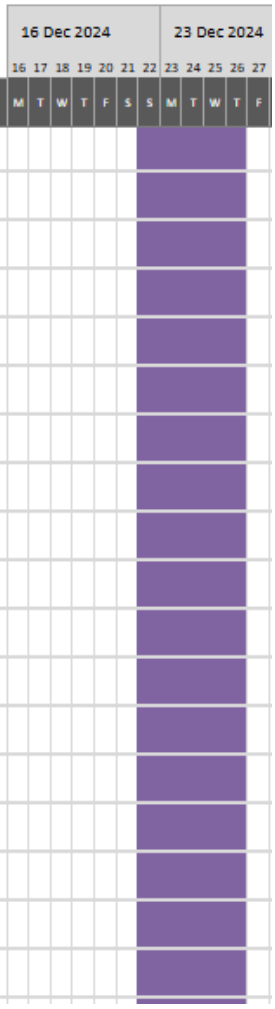


Figure 7. Gantt chart timeline regarding each feature on each web page (part three).

Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 4

TASK	ASSIGNED TO	PROGRESS	START	END
Home - logged in as admin		**0%**	**22/12/24**	**26/12/24**
~ Club competitions	Safica	0%	22/12/24	26/12/24
~ Club details	Safica	0%	22/12/24	26/12/24
~ Club leaderboard	Safica	0%	22/12/24	26/12/24
~ Club options (edit, add)	Safica	0%	22/12/24	26/12/24
Club page		**0%**	**22/12/24**	**26/12/24**
~ Club leaderboard	Safica	0%	22/12/24	26/12/24
~ Club info	Safica	0%	22/12/24	26/12/24
~ Club competitions	Safica	0%	22/12/24	26/12/24
Club category leaderboard		**0%**	**22/12/24**	**26/12/24**
~ Table with club info	Safica	0%	22/12/24	26/12/24
~ Table with category info	Safica	0%	22/12/24	26/12/24
Create competition		**0%**	**26/12/24**	**2/1/25**
~ Competitors's details input	Imogen	0%	26/12/24	2/1/25
~ Competition info input	Imogen	0%	26/12/24	2/1/25
~ Create competition submission	Imogen	0%	26/12/24	2/1/25

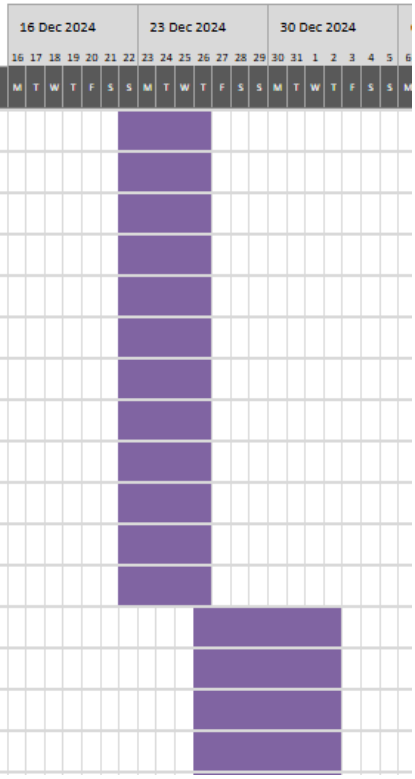
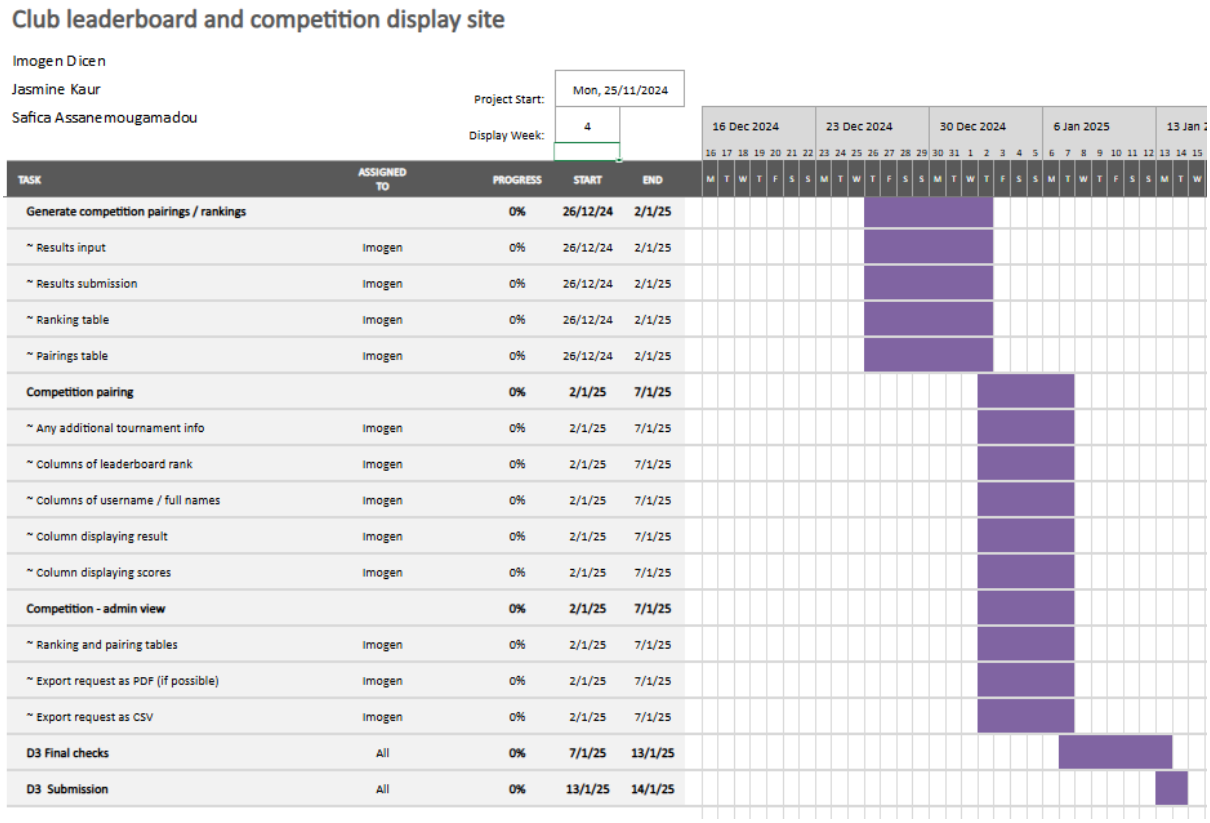


Figure 8. Gantt chart timeline regarding each feature on each web page (part four).



Club leaderboard and competition display site

Imogen Dicen
Jasmine Kaur
Safica Assanemougamadou

Project Start: Mon, 25/11/2024
Display Week: 4

16 Dec 2024 | 23 Dec 2024 | 30 Dec 2024 | 6 Jan 2025 | 13 Jan

TASK	ASSIGNED TO	PROGRESS	START	END
Generate competition pairings / rankings		**0%**	**26/12/24**	**2/1/25**
~ Results input	Imogen	0%	26/12/24	2/1/25
~ Results submission	Imogen	0%	26/12/24	2/1/25
~ Ranking table	Imogen	0%	26/12/24	2/1/25
~ Pairings table	Imogen	0%	26/12/24	2/1/25
Competition pairing		**0%**	**2/1/25**	**7/1/25**
~ Any additional tournament info	Imogen	0%	2/1/25	7/1/25
~ Columns of leaderboard rank	Imogen	0%	2/1/25	7/1/25
~ Columns of username / full names	Imogen	0%	2/1/25	7/1/25
~ Column displaying result	Imogen	0%	2/1/25	7/1/25
~ Column displaying scores	Imogen	0%	2/1/25	7/1/25
Competition - admin view		**0%**	**2/1/25**	**7/1/25**
~ Ranking and pairing tables	Imogen	0%	2/1/25	7/1/25
~ Export request as PDF (if possible)	Imogen	0%	2/1/25	7/1/25
~ Export request as CSV	Imogen	0%	2/1/25	7/1/25
D3 Final checks	All	**0%**	**7/1/25**	**13/1/25**
D3 Submission	All	**0%**	**13/1/25**	**14/1/25**

Figure 9. Gantt chart timeline regarding each feature on each web page (part five).

2.1.1 A look at the Gantt Chart – Safica

A Gantt chart is an essential tool for visualising the whole sequence of events, that includes the submission dates and deadlines for important tasks. It not only helps in planning and tracking the work, but it also guarantees that all the team members are on track with the project schedule. The Gantt chart for this project was created using a template from Microsoft Excel.

Planning Stage	Details
D2: Initial Planning and Design - Gantt Chart, ERDs, and Sitemap	The first important tasks were to create the Gantt Chart, Entity Relationship Diagrams (ERDs), and a sitemap (see Figure 1). Completing these core parts early was an essential since they serve as the basis for the project write-up, which includes introductions and discussions based on these topics. Moreover, the Gantt Chart helps the team members to have an idea of who is doing what tasks, ensuring there is no overlap in work, saving time while completing the project. The intention was to complete these tasks by the 11th of December 2024 to give enough time for a comprehensive review of the report and diagrams. This also allowed for peer feedback on each other's

	parts, ensuring that changes were able to be adjusted before the final submission.
User Interface Design - Sketches and Navigation	Sketches of the web application helped us to build the report's sitemap navigation system (see Figure 2). This stage was critical, despite not being part of the assessment brief, to identify important features of the web application that would be highlighted in the report. Mock-ups are to be completed prior to the web application's development. This method ensures that the team members have a clear view of the project's design and style, allowing for a better understanding of the development process. The user interface design phase is planned from the beginning of the project until the start of the implementation stage in D3.
D3: Implementation and Coding - SQL, Database Scripts and Code for Web Pages	D3 is broken into two parts including SQL, Database Scripts and Web page code (see Figures 3 to 9). Each web page is divided into sub-tasks according to the most significant elements of the project. The scheduling method includes starting with easier coding tasks and if finished early, the complicated jobs that take longer to complete can have more time to spent on them. Tasks were organised in the sequence in which users would interact with the site, ensures a logical and user-friendly development of the process. SQL queries and the database creation scripts are scheduled first as this is the basis of the web application, to allow us to interact with the database when coding with PHP. For each page, we plan to start off with the HTML code to have a basic structure, then we will use JavaScript and PHP to allow us to interact with our web pages and create, read, update and delete data in the database. Lastly, we will style the pages using CSS as functionality is our main concern regarding our project. The aim is to complete these tasks by the 7th of January 2025, giving just less than a week for script and CRUD (Create, Read, Update and Delete) operations testing. Peer comment will be sought during this period to make any final changes before the final submission.

2.1.2 A Further Explanation on How Tasks were Assigned in the Gantt Chart – Jasmine

Aspect considered for task assignment / Gantt chart event	**Explanation**
Subtasks	For D2, each member of the team was assigned a subtask from a main task. This allowed our team to contribute to various aspects of the project as we ensured that all tasks were fully developed by allowing

	every team member to help and improve upon each other's work. This promotes efficient teamwork by distributing the work among the team and ensuring that everyone stays engaged with each part of the project, which in return results in higher quality of work produced.
Experience & expertise	Tasks were assigned to the team member who was most familiar with that aspect of the project, which allowed the person with the most expertise in a particular area to take ownership of that task and ensure that the task was completed well. However, if a team member was interested in learning more about a specific part of the project, they were assigned that task, providing an opportunity to improve their skills and broaden their knowledge.
Holidays	We took into consideration the holiday period for the project so task timeframes were adjusted to allow for potential delays, which on the flip side also means that if we finish a task early, we can in return update the upcoming task deadlines to be earlier in schedule.
Finished before the actual submission deadline	All tasks are expected to be completed at least a day before the actual submission deadline. This ensures that team members can conduct thorough checks on each other's work, make any last-minute changes and review the project. This helps avoid any rushed work and gives a dedicated period to fix any last-minute mis happenings.
Team members focusing on a particular feature	For, D3 tasks are assigned based on specific features of the web application, with each team member focusing on a particular feature (e.g. user registration). This helps the team members become more familiar with specific code sections which helps in debugging and integration. Tasks are grouped by the specific web pages they belong to, ensuring that each team member will focus on their page and its corresponding features, reducing the likelihood of any errors occurring.
Checks for D3	Checks for D3 aren't included in the Gantt chart but they are scheduled informally within team meetings that will be had. These meetings serve as an opportunity to test each feature as it's developed, ensuring that everything works smoothly. During these meetings we can also help each other, share insights and identify any potential issues.

2.2 Website / Database Data Modelling – ERMs by Jasmine

These models help us plan, organise and document the data requirements for CompClub Hub. The process of designing the database involves: the Conceptual model, the Logical model and the Physical model. With this, we refined the structure of the database to ensure it meets the needs of all stakeholders.

2.2.1 Entity Relationship Model: Initial designs- Safica and Imogen

The Club Management System database is designed to help handle users, clubs, admin, competitions and memberships. It is intended to enable scalability, normalise and quick data retrieval during the interactions between the users and the administrators.

2.2.1.1.1 Conceptual Design

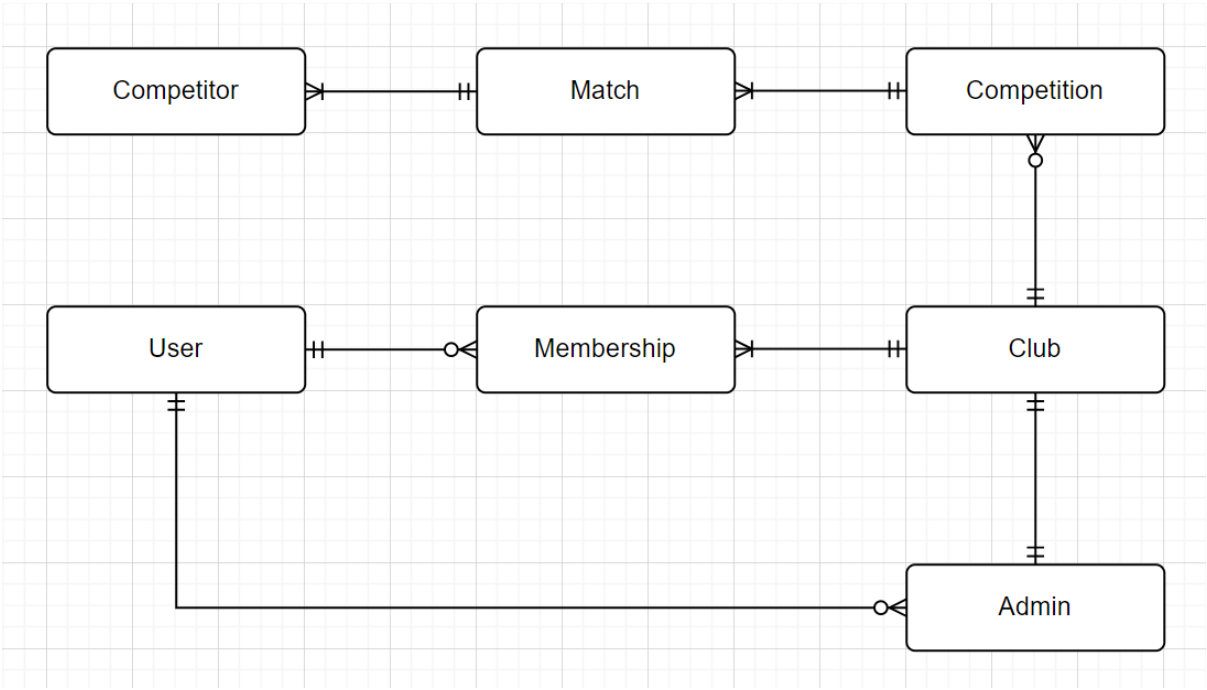


Figure 10. Conceptual design of ERD for CompClub Hub.

The conceptual design solely identifies the entities and their relationships (Cooper, E. 2024). In this case, the entity competitor represents a match player as they compete with other club members. Match, this represents an individual game in a competition. Competitions are organised by a club; the users that interact with the competitions via a club include users with memberships (club members) and admins. Membership, this links the user and club entities. Club, users can be members of the club and it is the club admin that arranges the events or matches which they take partake in. Admins represent the system's users who run, monitor and create the club, club tournaments and de-activate or activate club memberships.

In this table are descriptions of the relationships between entities:

Entities related	Relationship between entities
User & Membership	A user can have zero to many memberships (can be part of many different clubs). Each membership is unique and it belongs to one and only one user.
Membership & Club	A unique membership can belong to one and only one club. A club can have one to many memberships registered to it.
Club & Admin	A club can have one and only one admin. An admin (admin account) can manage one and only one club.
User & Admin	A user can have zero to many admin accounts (a user can manage one to many clubs). An admin account can only be linked to one and only one user (an admin account cannot be linked to more than one person as a club can have only one admin).
Club & Competition	A club can host zero to many competitions. A unique competition can be held by one and only one club.
Competition & Match	A competition can have one to many matches and a unique match can belong to one and only one competition.
Competitor & Match	A match can be played by one to many competitors, more specifically two. Unique pairs of competitors can participate in one and only one match in a competition (with the pairing system we wish to implement, competitors cannot compete with each other more than once in one competition) – we have decided to define the relationship like this to solve the many to many relationship between competitor and match.
Competitor & User	*In the version of the system we are implementing, there would seem to be a relationship between competitor and user as a user's ID is linked to the competitor entity participating in a competition. However, in further implementations of CompClub Hub, the competitor entity could become a team entity depending on the type of competition as many sport competitions such as badminton doubles or basketball require the competitors to participate in the competition as a team (multiple competitors). Therefore, we chose to ignore the relationship between competitor and user for the meantime.*

2.2.1.1.2 Logical Design

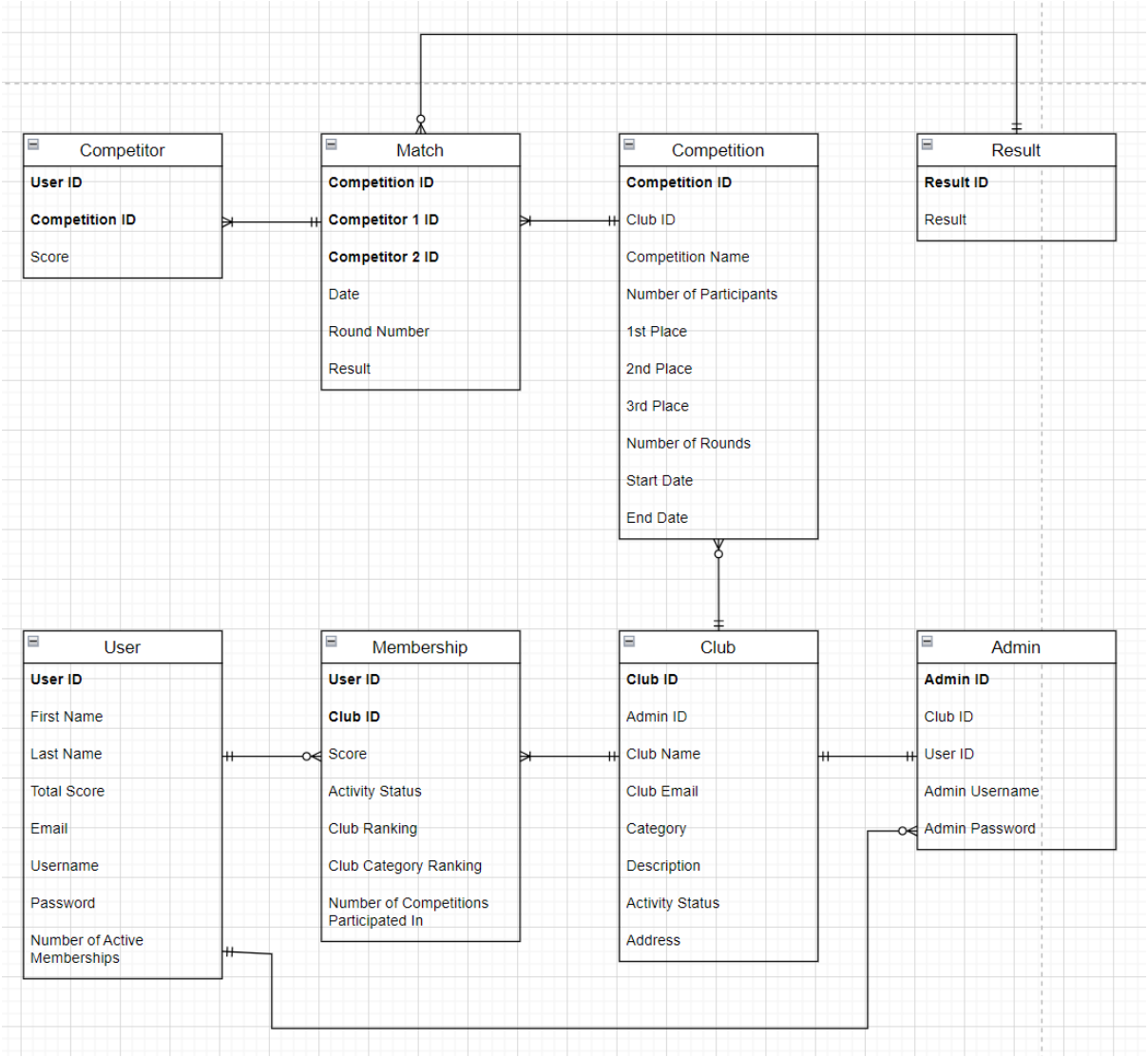


Figure 11. Logical design of ERD for CompClub Hub.

The logical design helps us understand the detailed structure of the database by showing how data is organised, stored and related (see Figure 11). It serves as a blueprint to ensure that all system requirements are met. The design organises data into entities, attributes and how each table links between them. This ensures the clarity and consistency while developing the system.

In the table below, you can find the explanations as to why we included each attribute for each entity:

Entities	**Attributes**
Competitor	**User ID:** helps find the users by their IDs to view their competitor profile. **Competition ID:** lets us know what competition the competitor has participated in. **Score:** stores a record of the number of points a competitor earns during a competition.
Match	**Competition ID:** identifies the competition the match is part of.

	Competitor 1 ID: first participant in the match, linked to the user ID of competitor. **Competitor 2 ID:** second participant in the match, also linked to the user ID of competitor. **Date:** when the match is held. **Round Number:** indicates the round number of the competition. **Result:** stores ID of match result.
Competition	**Competition ID:** each tournament has its own unique identification. **Club ID:** connects the competition to its club. **Competition Name:** the name of the competition. **Number of Participants:** total number of participants in the competition. **1st place, 2nd place, 3rd place:** these attributes store the (user IDs) of the competitors who have won 1st, 2nd, 3rd place in the competition. **Number of Rounds**: number of rounds in the competition. **Start Date:** starting date of the competition. **End Date:** the ending date of the competition.
Result	**Result ID:** each result has its own unique identification. **Result:** the result of the match such as a win, loss, or draw.
User	**User ID:** each user has their own unique identification ID. **First Name**: user's first name. **Last Name:** user's last name. **Total Score:** total score of all competitions they in of all clubs they're part of. **Email:** user's email. Helps contact the user via email if ever needed. **Username:** user's username. Used to login into the system. **Password:** user's password that is used to log into the system. **Number of Active Memberships:** count of current active club memberships.
Membership	**User ID:** each membership has its own unique identification. This lets us know who the membership is linked to. **Club ID:** lets us know which club the membership belongs to. **Score:** the user's total performance score in the club.

	Activity Status: this determines whether the membership is active or inactive. **Club Ranking:** the user's rank inside the club. **Club Category Ranking:** the user's rank inside the club category. **Number of Competitions Participated in:** the total number of competitions that the member has participated in.
Club	**Club ID:** each club has its own unique identification. **Admin ID:** connects the club to its admin as the club is managed by an admin and helps to identify who is managing the club. **Club Name:** the club's name. **Club Email:** the club's email. Used if it is needed to contact the club. **Category:** the type of club, such as tennis, chess, carrom etc. **Description:** a brief summary of the club's activity. **Activity Status:** this indicates if the club is active or not. **Address:** the location of the club.
Admin	**Admin ID:** each admin has their own unique identification. **Club ID:** this connects the admin to their managed club this helps us to identify which club the admin is managing. **User ID:** this connects the admin to their user profile. It is important as the user own an admin account which allows us to know the actual user behind the admin who can access all their details. **Admin Username:** admin's username to login. **Admin Password:** admin's password to login.

2.2.2 Entity Relationship Model: Final draft "physical design" - Imogen

Below (see Figure 12) is the final draft of our physical design of the CompClub Hub entity relationship diagram. As a physical design (Cooper, E. 2024), this diagram contains the entities, the relationships between all these entities, primary and foreign keys for each entity, and the entity field names and field types are shown.

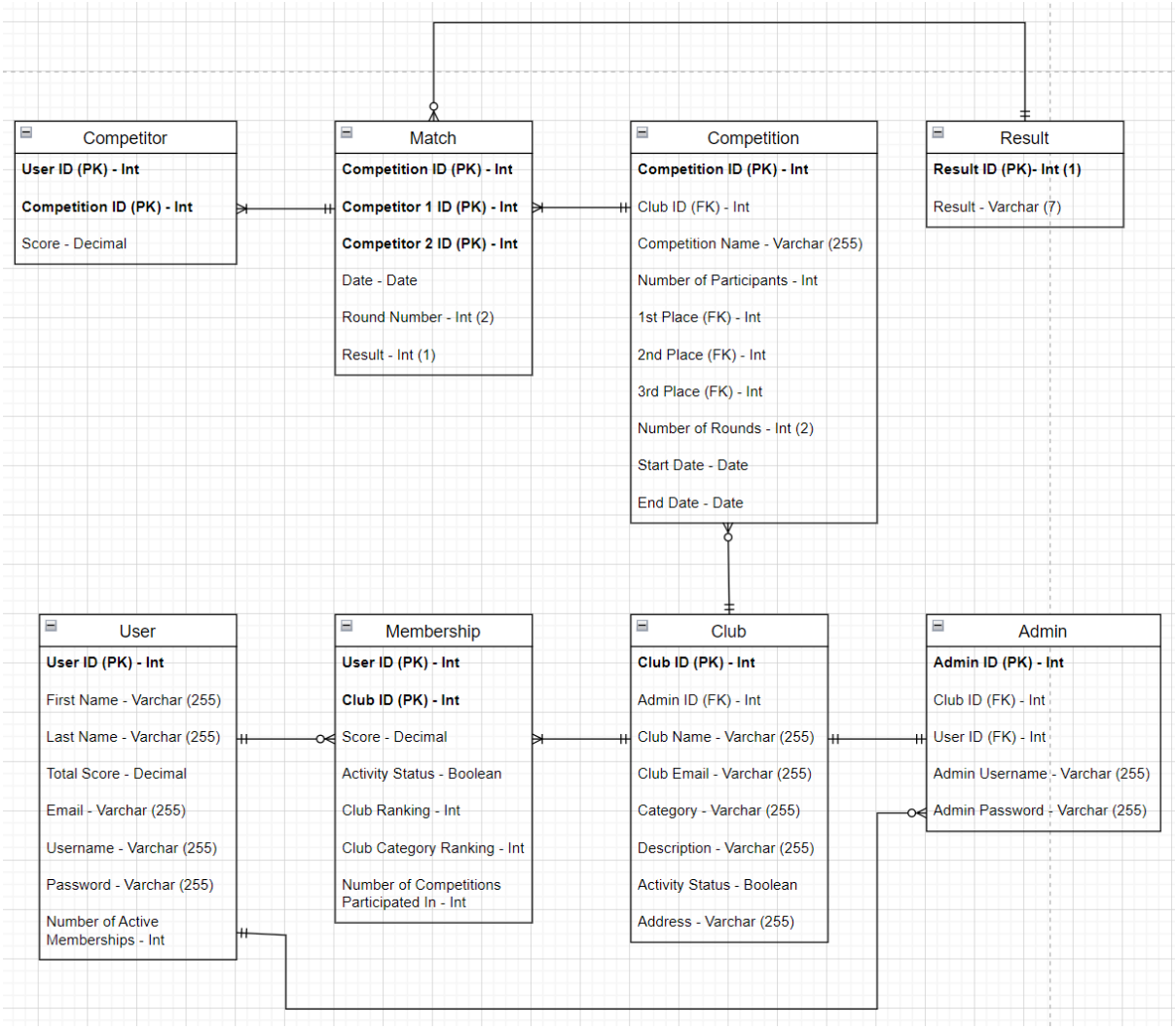


Figure 12. Physical design of ERD for CompClub Hub. (Note: in the diagram it is not specified whether the fields can remain null or not as all fields are expected to be filled in; they cannot be null. The exception to this is if a competitor is on a bye – Competitor 2 ID in Match could be null. For further information on this, see Appendix 1.)

In the table below are explanations as to why we have chosen specific types for each attribute field and whether they are keys or not:

Entity	Explanation of Attribute Types and Keys
User	**User ID**: this was chosen as primary key as it uniquely identifies each user instance. This is an integer so user ID can easily be incremented and automatically allocated to each new user created. **First Name, Last Name, Email, Username, Password:** these are typed as varchar to allow for non-alphanumeric characters to be used in names ('-' for double barrelled names) , emails ('@' and '.'), usernames and passwords (e.g. '#' or '&' could be used as a special character for passwords). **Total Score**: this was typed as decimal as a possible score is not only integer, but it could also be 0.5 for a draw.

	Number of Active Memberships: stored as an integer as it is a count of active memberships, a membership cannot be half (0.5) active.
Membership	**User ID & Club ID**: for explanations of field types, refer to the User and Club entities in this table. These two attributes were chosen to be the composite primary key as Membership is the bridge table between the User and Club tables (it solves the many to many relationship between user and club). **Score**: this was typed as decimal as a possible score is not only integer, but it could also be 0.5 for a draw. **Activity Status**: this is boolean as this could be either true (active) or false (inactive). **Club Ranking, Club Category Rankings**: these are stored as integers as a ranking cannot be a decimal, rank is always a whole number. **Number of Competitions Participated in**: stored as an integer as it is a count of the competitions the user has competed in.
Club	**Club ID**: this was chosen as primary key as it uniquely identifies each club instance. This is an integer so club ID can easily be incremented and automatically allocated to each new club created. **Admin ID**: for explanation of field type, refer to the Admin entity in this table. This is a foreign key as it references an attribute (Admin ID) from another table (the Admin table). **Club Name, Club Email, Category, Description, Address**: these are typed as varchar to allow for non-alphanumeric characters to be used in names (‘-‘ for double barrelled names) , emails (‘@’ and ‘.’). **Activity Status**: this is boolean as this could be either true (active) or false (inactive).
Admin	**Admin ID**: this was chosen as primary key as it uniquely identifies each admin instance. This is an integer so admin ID can easily be incremented and automatically allocated to each new admin created. **Club ID, User ID**: for explanations of field types, refer to the Club and User entities in this table. These are foreign keys as they reference attributes (Club ID and User ID) from another table (the Club and User tables). **Admin Username, Admin Password**: these are typed as varchar to allow for non-alphanumeric characters to be used in usernames and passwords (e.g. ‘#’ or ‘&’ could be used as a special character for passwords).
Competitor	**User ID, Competition ID**: for explanations of field types, refer to the User and Competition entities in this table. These two attributes were chosen to be the composite primary key as a competitor is defined as a user that competes in a competition.

<table>
<tr><td></td><td>Score: this was typed as decimal as a possible score is not only integer, but it could also be 0.5 for a draw.</td></tr>
<tr><td>Match</td><td>Competition ID, Competitor 1 ID, Competitor 2 ID: for explanations of field types, refer to the Competition and Competitor entities in this table. These three attributes were chosen to be the composite primary key as Match is the bridge table between the Competition and Competitor tables (it solves the many to many relationship between competition and competitor).

Date: stored as a date because this is the most convenient data type to store dates as.

Round Number: stored as an integer as it is the round the match is in in the competition (a round cannot be a decimal). This field is limited to a 2 digit integer as a competition is unlikely to have more than 99 rounds.

Result: for explanation of field type, refer to the Result entity in this table. This is a foreign key as it references an attribute (Result ID) from another table (the Result table). This field is limited to 1 digit integer as the number of possible result IDs this field could reference is up to 4, not 10 (which would make the field limit a 2 digit integer).</td></tr>
<tr><td>Competition</td><td>Competition ID: this was chosen as primary key as it uniquely identifies each competition instance. This is an integer so competition ID can easily be incremented and automatically allocated to each new competition created.

Club ID, 1st Place, 2nd Place, 3rd Place: for explanations of field types, refer to the Club and User entities in this table.

Competition Name: is of varchar type as it expected to be a string.

Number of Participants, Number of Rounds: stored as integer as these are the counts of participants and rounds in the competition.

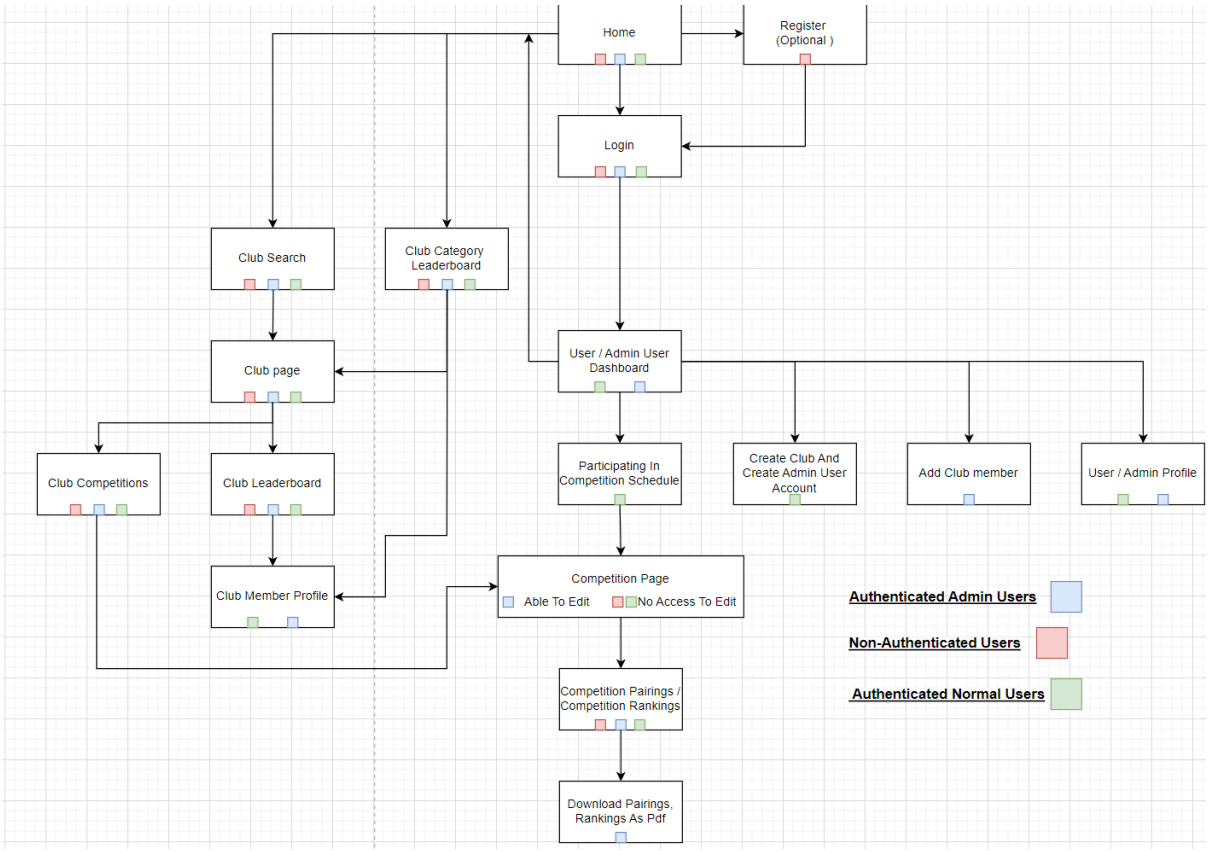
Start Date, End date: stored as date as these are the start and end dates of the competition.</td></tr>
<tr><td>Result</td><td>Result ID: this was chosen as primary key as it uniquely identifies each result instance. This is an integer so result ID can easily be incremented and automatically allocated to each new result created.

Result: stored as a varchar as result is a string with the ‘-‘ character, or even the ‘.’ Included. The field limit for this attribute is 7 characters as the longest possible result length is 7 characters long (see Result ID 3 in the table below).
<table>
<tr><th>Result ID</th><th>Result</th></tr>
<tr><td>1</td><td>1-0 (First competitor mentioned wins)</td></tr>
<tr><td>2</td><td>0-1 (Second competitor mentioned wins)</td></tr>
<tr><td>3</td><td>0.5-0.5 (Match is drawn)</td></tr>
<tr><td>4</td><td>0-0 (Match result is disregarded or match has just been created)</td></tr>
</table>
</td></tr>
</table>

(For a look into the DDL of these entity tables, refer to Appendix 2.)

2.3 Website Structure Modelling: Including Visual Sitemap – Sitemap by Safica

In this section, we cover CompClub Hub's navigational structure, with a sitemap diagram and further planning of the web application's user interface appearance using sketches and Figma mockup designs of our planned web pages.



2.3.1 An Explanation of the Web Application's Structure – Jasmine

Figure 13. CompClub Hub sitemap.

Our web application has different sections with varying permissions based on whether the user is authenticated or unauthenticated. Each section allows certain actions depending on the user's role e.g. admin. We colour coded the sitemap as it gives a clear indication of who has access to which web pages and features.

Red: web pages for non-authenticated users

Green: web pages for authenticated users with basic interaction privileges.

Blue: web pages for admin users (highest control level of the system)

Below is a table describing the access of different type of users according to the sitemap, in word format:

Pages / features	Non-authenticated users - Red	Admin users - Blue	Authenticated users - Green
Home	All users have access to the homepage.	All users have access to the homepage.	All users have access to the homepage
Register (optional)	Non-authenticated users can register.	They are already logged in so cannot access this feature.	They are already logged in so cannot access this feature.
Login	Non-authenticated users can log into to their accounts.	Admins can log into their accounts.	Authenticated users can log into their accounts.
Club category leaderboard	Accessible to all users.	Accessible to all users.	Accessible to all users.
Club search	All users can search for clubs in the system.	All users can search for clubs in the system.	All users can search for clubs in the system.
Club page	All users can view the club page. Non-authenticated users cannot see the full names of users but only their usernames.	All users can view club pages but admins have extra options thanks to their management role.	All users can view the club page.
Club competitions	All users can view competitions related to the clubs. Non-authenticated users cannot see the full names of users but only their usernames.	All users can view competitions related to the clubs.	All users can view competitions related to the clubs.
Club leaderboard	All users can view the leaderboard for different clubs. Non-authenticated users cannot see the full names of users but only their usernames.	All users can view the leaderboard for different clubs	All users can view the leaderboard for different clubs. A authenticated club user can progress their standing on the leaderboard by participating in a competition.
Club member profile	Non-authenticated users don't have access to these profiles.	Admin can view member profiles.	Only authenticated users (includes admins) can view member profiles.
User/Admin user dashboard	Non-authenticated users cannot access dashboards.	Admins have a personalised dashboard.	Authenticated users have a personalised dashboard.

User/Admin profile	Non-authenticated users do not have access to profile management.	Admin users can access and manage their profiles.	Authenticated users can access and manage their profiles.
Add club member	Non-authenticated users do not have this permission.	Only admins can add members to a club.	Normal users (authenticated) do not have this permission.
Create club and create admin user account	Non-authenticated users need to log in to have this privilege.	The relationship between admin and club is one to one so an admin cannot be related to more than one club. Therefore, admins cannot create another club or admin user account.	Authenticated normal users can create clubs which come with creating an admin account to manage that club.
Participating in competition schedule	Non-authenticated users need to log in, join a club and a club competition to have this privilege.	Admins cannot access this feature as only normal user accounts can join a competition and see this on their dashboard. To see this feature, an admin would have to log in to their own normal user account and must have joined a competition.	Authenticated normal users who are currently participating in a competition will see this schedule on their dashboard.
Competition page – access to edit	Non-authenticated users cannot edit competition pages.	Admin users have editing rights, so they're not affected by this restriction.	Authenticated users cannot edit competition pages.
Competition pairings/competition rankings	All users can view competition pairings and rankings. Non-authenticated users cannot see the full names of users but only their usernames.	All users can view competition pairings and rankings. Admins have additional controls e.g. generating pairings and rankings.	All users can view competition pairings and rankings.
Download pairings, ranking as PDF	Non-authenticated users don't have this permission.	Only admins can download pairings and ranking.	Authenticated users don't have this permission.

Everyone can access the homepage, from which there are 4 options: Register(optional), login, club search and Club category leaderboard.

Non-authenticated users can choose to register an account, which later allows them to login in their accounts.

Once users login, they have either a user dashboard or an admin dashboard, depending on their role. If it is an admin that is logged in, they can add a club member or access their user profile. An authorised user can create a club and create an admin user account. They are also able to participate in competitions schedule.

If the user did not register or login, they are still able to search up for clubs and view club category leaderboards but to go further from that, to view club member profiles, they would need to be authenticated users.

2.3.2 Additional Planning and Design (including page sketches by Imogen and mock ups by Safica) – Imogen

Regarding team allocation for the actual implementation of CompClub Hub, we have planned to tackle the project on a feature-by-feature basis (for more information about this, see the Gantt chart section). However, we have made sure to group the features that we work on within the same page(s) so that we are familiar with the environment (web application page / code scripts) of each feature.

If problems arise implementing a single feature, for example, I am finding it hard to implement the 'Email input' feature using CSS in the 'Create user' task (see Figure 14 below), and Jasmine might be having problems with implementing the 'Login submission' feature using PHP in the 'Login page' task, we could easily switch sub-tasks after briefing each other of the problems that are being faced and change the assigned names to these sub-tasks on the Gantt chart.

Login page		**0%**	**18/12/24**	**22/12/24**
~ Username input	Jasmine	0%	18/12/24	22/12/24
~ Password input	Jasmine	0%	18/12/24	22/12/24
~ Create / register user	Jasmine	0%	18/12/24	22/12/24
~ Login submission	Jasmine	0%	18/12/24	22/12/24
Create user		**0%**	**18/12/24**	**22/12/24**
~ Username input	Imogen	0%	18/12/24	22/12/24
~ Password input	Imogen	0%	18/12/24	22/12/24
~ Email input	Imogen	0%	18/12/24	22/12/24
~ First name input	Imogen	0%	18/12/24	22/12/24
~ Last name input	Imogen	0%	18/12/24	22/12/24
~ Create user submission	Imogen	0%	18/12/24	22/12/24

Figure 14. Snippet of Gantt chart.

The reason why we have grouped tasks and sub-tasks like this instead of splitting the tasks according to which coding language is needed to implement them is that the HTML, CSS, PHP and JavaScript code needed for each feature is interlinked with one another; splitting the tasks according based on coding language will make room for more error when switching between team members to complete the tasks.

To aid with the creation of the site map, I sketched out multiple pages that would be formed for our web application (see Figure 15 below). This also helped with figuring out what data would be associated with which features and the overall data flow between different pages in CompClub Hub.

Figure 15. Sketches of CompClub Hub pages.

Additionally, we also started mocking up Figma designs of the web pages to help with envisioning our end product, but also so we could more easily figure out specifically how we would style the HTML pages of code using CSS (see Figures 16 to 24 below).

Figure 16. Home page - unauthorised user view Figma mock-up.

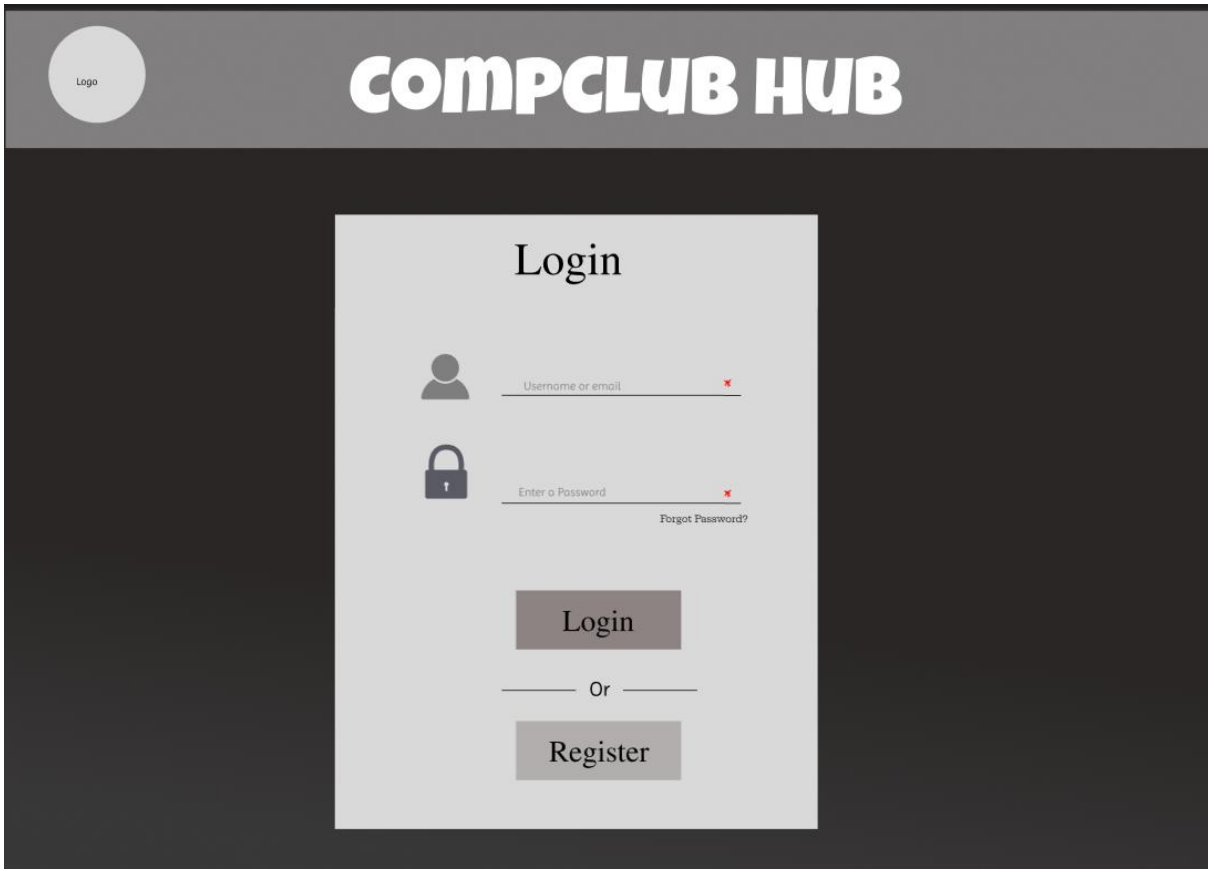


Figure 17. Login page - unauthorised user view Figma mock-up.

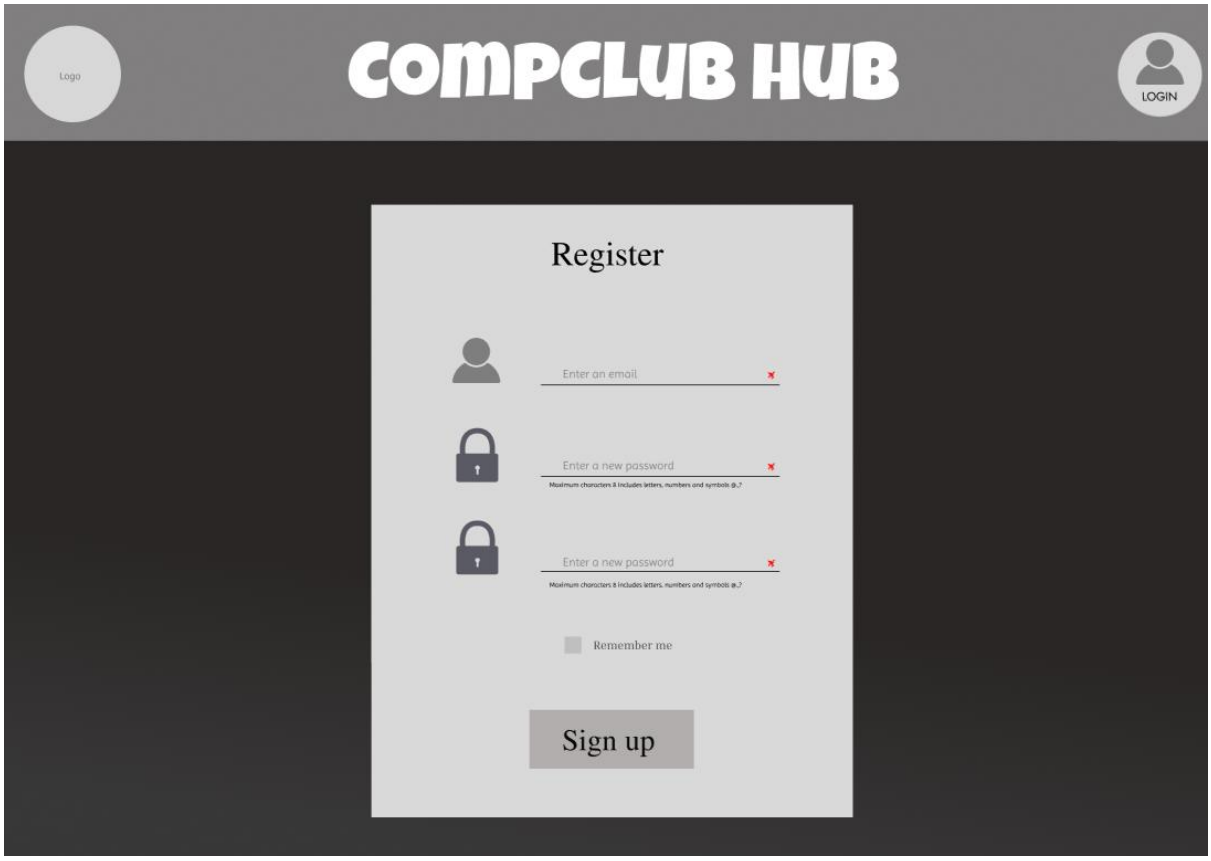


Figure 18. Registration page - unauthorised user view Figma mock-up.

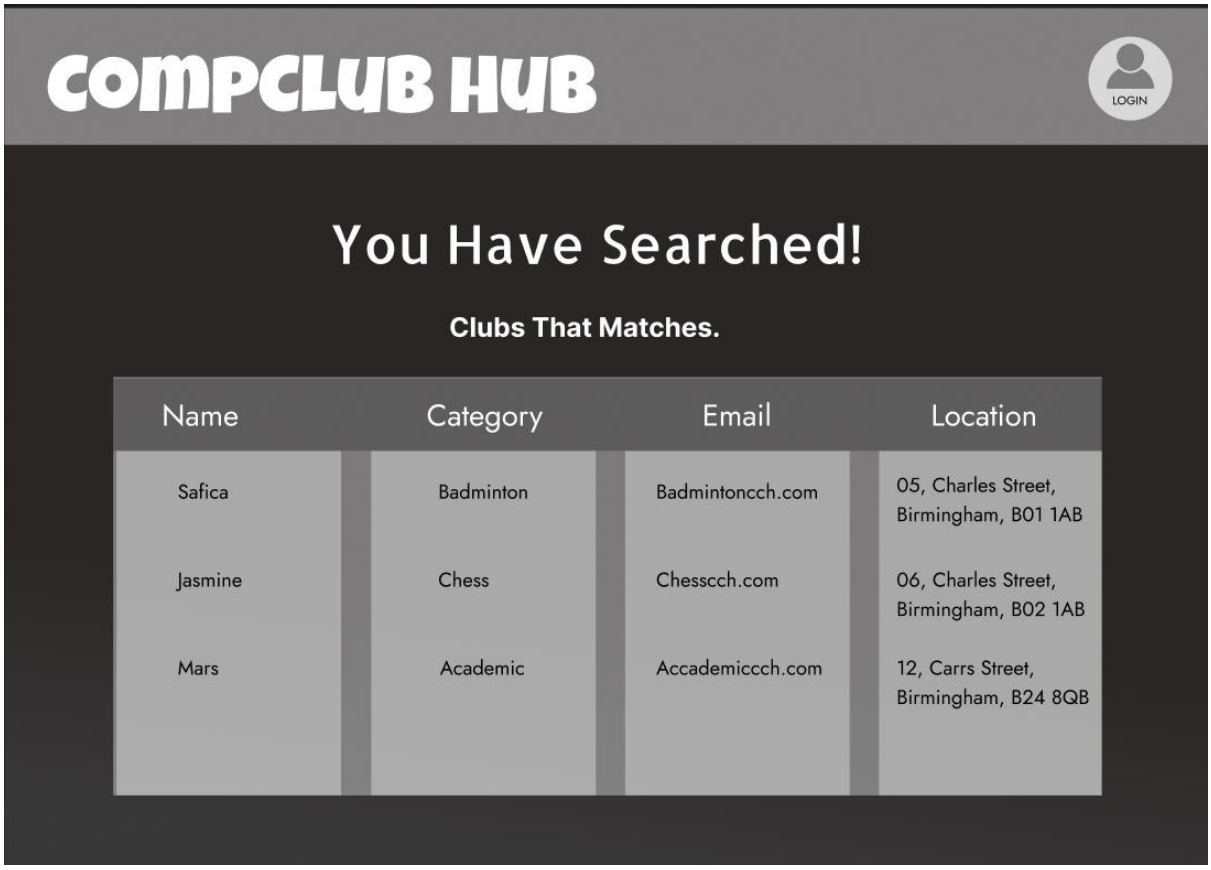


Figure 19. Club search - unauthorised user view Figma mock-up.

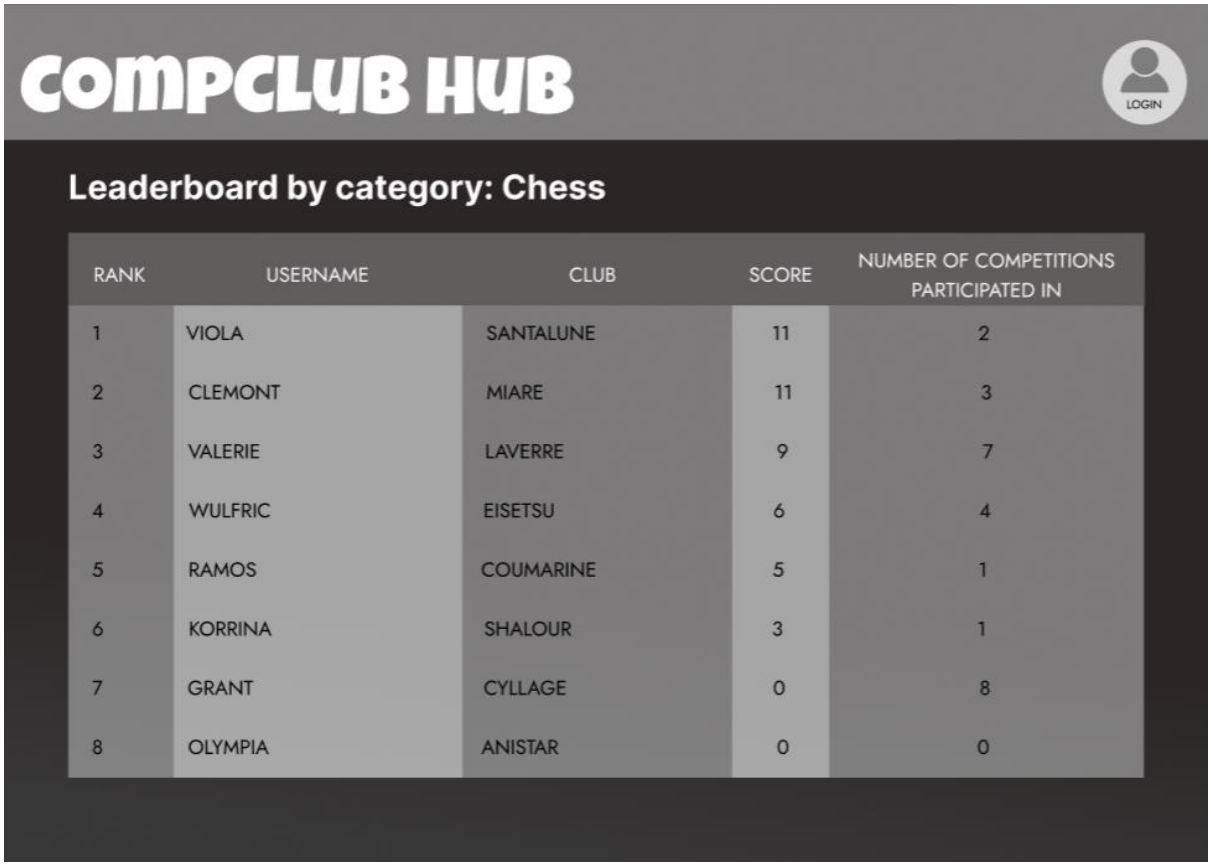


Figure 20. Leaderboard by category - unauthorised user view Figma mock-up.

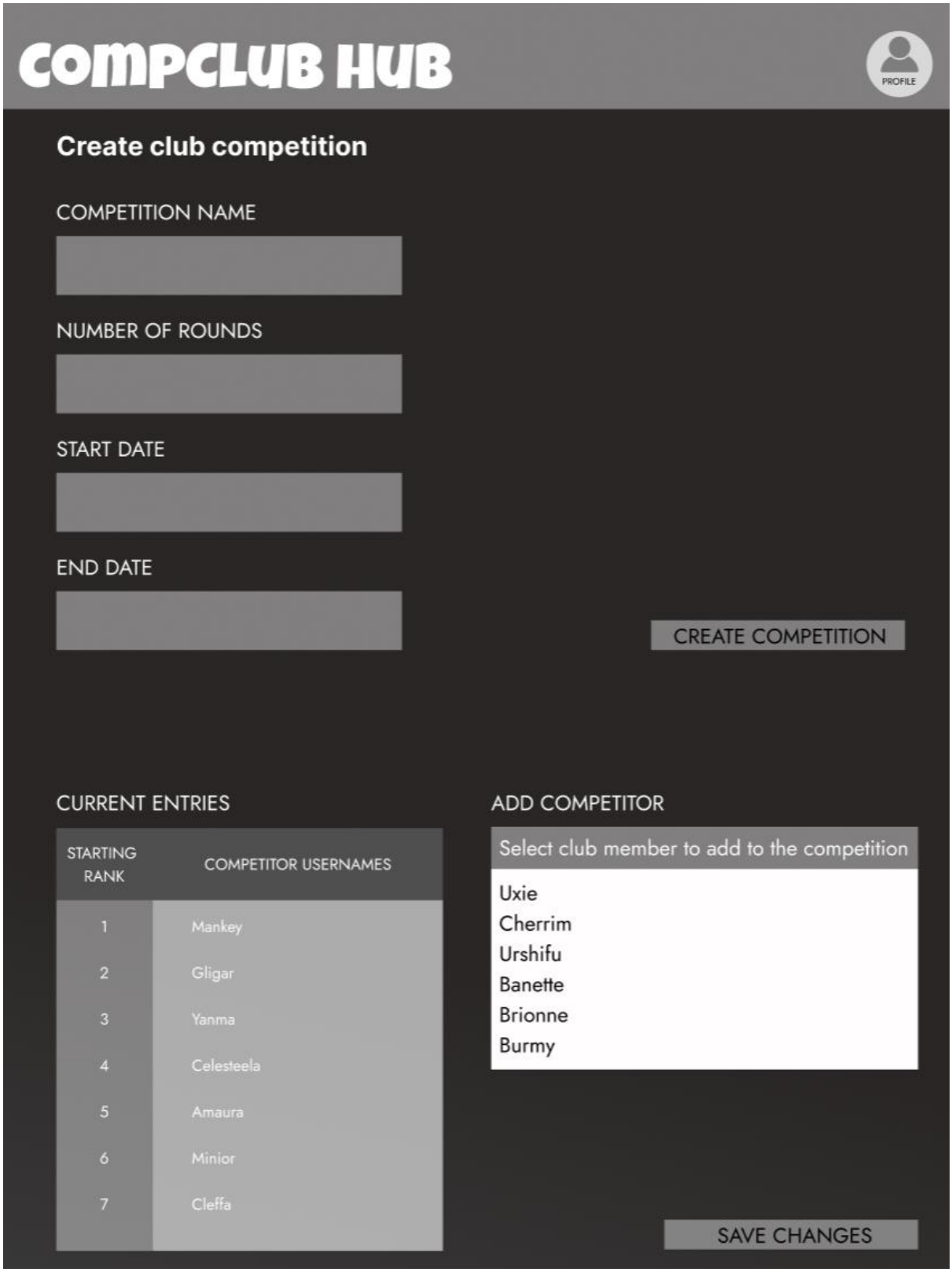


Figure 21. Create competition - admin view Figma mock-up.

Figure 22. Competition rankings - unauthorised user view Figma mock-up.

Figure 23. Competition pairings - unauthorised user view Figma mock-up.

Figure 24. Insert results - admin view Figma mock-up.

3 Appendix

3.1 Appendix 1: Competition pairing-system (Swiss-pairing) - Imogen

To create competition pairings, we will be using the Swiss-system. Specifically, we will be using the Dutch system which involves pairing competitors with similar scores together (Wikipedia Contributors, 2019). For an example, see the table below:

Starting Rank	Competitor ID	Score
1	1	0
2	2	0
3	3	0
4	4	0
5	5	0

This table shows a simple version of what the competition table would initially look like: a list of competitors sorted by their starting rank as everyone would be starting at a score of 0.

For the first round in a Swiss-system competition, very commonly used for chess tournaments, the number of competitors is counted and divided by two. As shown in the table, there are five competitors, so we disregard the bottom player (we give them a bye result – a whole point) as competitions are played as pairs. So then, we would have competitors 1 to 4. Dividing the ranking by two would have competitors 1 and 2 on the top half, and competitors 3 and 4 on the bottom half. These two halves are then matched together and you get the following pairings for the first round:

Starting Rank	Competitor ID 1	Score	Result	Starting Rank	Competitor ID 2	Score
1	1	0	?	2	2	0
3	3	0	?	4	4	0
5	5	0	1-0	null	null	null

If we were to say competitors 1 and 4 were to win their matches, the ranking table for round 1 would now look like this:

Ranking After Round 1	Starting Rank	Competitor ID	Score
1	1	1	1
2	4	4	1
3	5	5	1
4	2	2	0
5	3	3	0

To generate the next round's pairings, you would do the same as what was done for the first round pairings, but now group each section by points then divide by two (e.g. section out players ranked 1 to 3 as they all have a score of 1, disregard rank 3 to the section with scores 0, etc.) and this process is continued until the end of the competition:

Rank	Starting Rank	Competitor ID 1	Score	Result	Rank	Starting Rank	Competitor ID 2	Score
1	1	1	1	?	2	4	4	1
3	5	5	1	?	4	2	2	0
5	3	3	0	1-0		null	null	null

3.2 Appendix 2: SQL Queries, Defining the Database – Imogen

This section includes the ideal database table creation scripts. However, constraints will have to be added for foreign keys after creating the database tables.

```
CREATE TABLE `users` (
`userID` int NOT NULL AUTO_INCREMENT,
`firstName` varchar(255) NOT NULL ,
`lastName` varchar(255) NOT NULL,
`totalScore` decimal NOT NULL,
`email` varchar(255) NOT NULL,
`username` varchar(255) NOT NULL,
`password` varchar(255) NOT NULL,
`numActiveMemberships` int NOT NULL,
PRIMARY KEY (`userID`)
) ENGINE = InnoDB DEFAULT CHARSET=latin1;

CREATE TABLE `memberships` (
`userID` int NOT NULL,
`clubID` int NOT NULL,
`score` decimal NOT NULL,
`activityStatus` boolean NOT NULL,
`clubRank` int NOT NULL,
`clubCategoryRank` int NOT NULL,
PRIMARY KEY (`userID`, `clubID`),
) ENGINE = InnoDB DEFAULT CHARSET=latin1;

CREATE TABLE `clubs` (
`clubID` int NOT NULL AUTO_INCREMENT,
`admin` int NOT NULL,
`clubName` varchar(255) NOT NULL,
`clubEmail` varchar(255) NOT NULL,
`category` varchar(255) NOT NULL,
`description` varchar(255) NOT NULL,
`activityStatus` Boolean NOT NULL,
`address` varchar(255) NOT NULL
PRIMARY KEY (`clubID`),
) ENGINE = InnoDB DEFAULT CHARSET=latin1;

CREATE TABLE `admins` (
`adminID` int NOT NULL AUTO_INCREMENT,
`club` int NOT NULL,
`userID` int NOT NULL,
`username` varchar(255) NOT NULL,
```

```
`password` varchar(255) NOT NULL,
PRIMARY KEY (`adminID`),
) ENGINE = InnoDB DEFAULT CHARSET=latin1;

CREATE TABLE `competitions` (
`competitionID` int NOT NULL AUTO_INCREMENT,
`club` int NOT NULL,
`name` varchar(255) NOT NULL,
`numParticipants` int NOT NULL,
`1stPlace` int NOT NULL,
`2ndPlace` int NOT NULL,
`3rdPlace` int NOT NULL,
`numRounds` int NOT NULL,
`start` date NOT NULL,
`end` date NOT NULL,
PRIMARY KEY (`competitionID`),
) ENGINE = InnoDB DEFAULT CHARSET=latin1;

CREATE TABLE `matches` (
`competition` int NOT NULL,
`competitor1` int NOT NULL,
`competitor2` int,
`date` date NOT NULL,
`roundNum` int NOT NULL,
`result` int NOT NULL,
PRIMARY KEY (`competition`, `competitor1`, `competitor2`),
) ENGINE = InnoDB DEFAULT CHARSET=latin1;

CREATE TABLE `results` (
`resultID` int NOT NULL AUTO_INCREMENT,
`result` varchar(7) NOT NULL,
PRIMARY KEY (`resultID`)
) ENGINE = InnoDB DEFAULT CHARSET=latin1;

CREATE TABLE `competitors` (
`userID` int NOT NULL,
`competition` int NOT NULL,
`score` decimal NOT NULL,
PRIMARY KEY (`userID`, `competition`),
) ENGINE = InnoDB DEFAULT CHARSET=latin1;
```

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