Inspiring Excellence

# CSE370 : Database Systems
# Project Report
# Project Title : Online Game Center

| Group No : 14, CSE370 Lab Section : 15, Summer 2025 | | |
|---|---|---|
| **ID** | **Name** | **Contribution** |
| 23101052 | MD. Imteaj Rana | Frontend, Backend |
| 23101185 | MD.SAGEDUR RAHMAN | Frontend, Backend |
| 23201275 | Samin Yeasar Rubai | Frontend, Backend |

# Table of Contents

| Section No | Content | Page No |
|:---:|:---|:---:|

# Introduction

We have created an Online Game Center. We have used HTML, Tailwind CSS and JS (DOM) in the frontend, and PHP and MySQL in the backend of our project. Our project is basically a web platform where users visit and can play multiple multiplayer games. Users can participate in tournaments also. Users can book a timeslot in his account to play games and also can earn rewards by scoring as many points as he want.

By implementing the ER/EER diagrams and a schema diagram, we ensure optimal retrieval processes. Our project highlights the gaming experience of users who like to play short games to pass some leisure time.

# Project Features

| ID, Name | Features [3 per member] | |
|---|---|---|
| **23101052, MD. Imteaj Rana** | Ft 1 | User game library |
| | Ft 2 | Games |
| | Ft 3 | User Profile |
| | Ft 4 | Admin Account Deletion |
| **23101185, MD.SAGEDUR RAHMAN** | Ft 1 | Match History |
| | Ft 2 | Slot Booking and Cancellation |
| | Ft 3 | Game Filteration |
| | Ft 4 | Search by Title |
| **23201275, Samin Yeasar Rubai** | Ft 1 | Leaderboard |
| | Ft 2 | Reward Points |
| | Ft 3 | Tournament Registration History |
| | Ft 4 | Admin Password Change Access |

# ER/EER Diagram
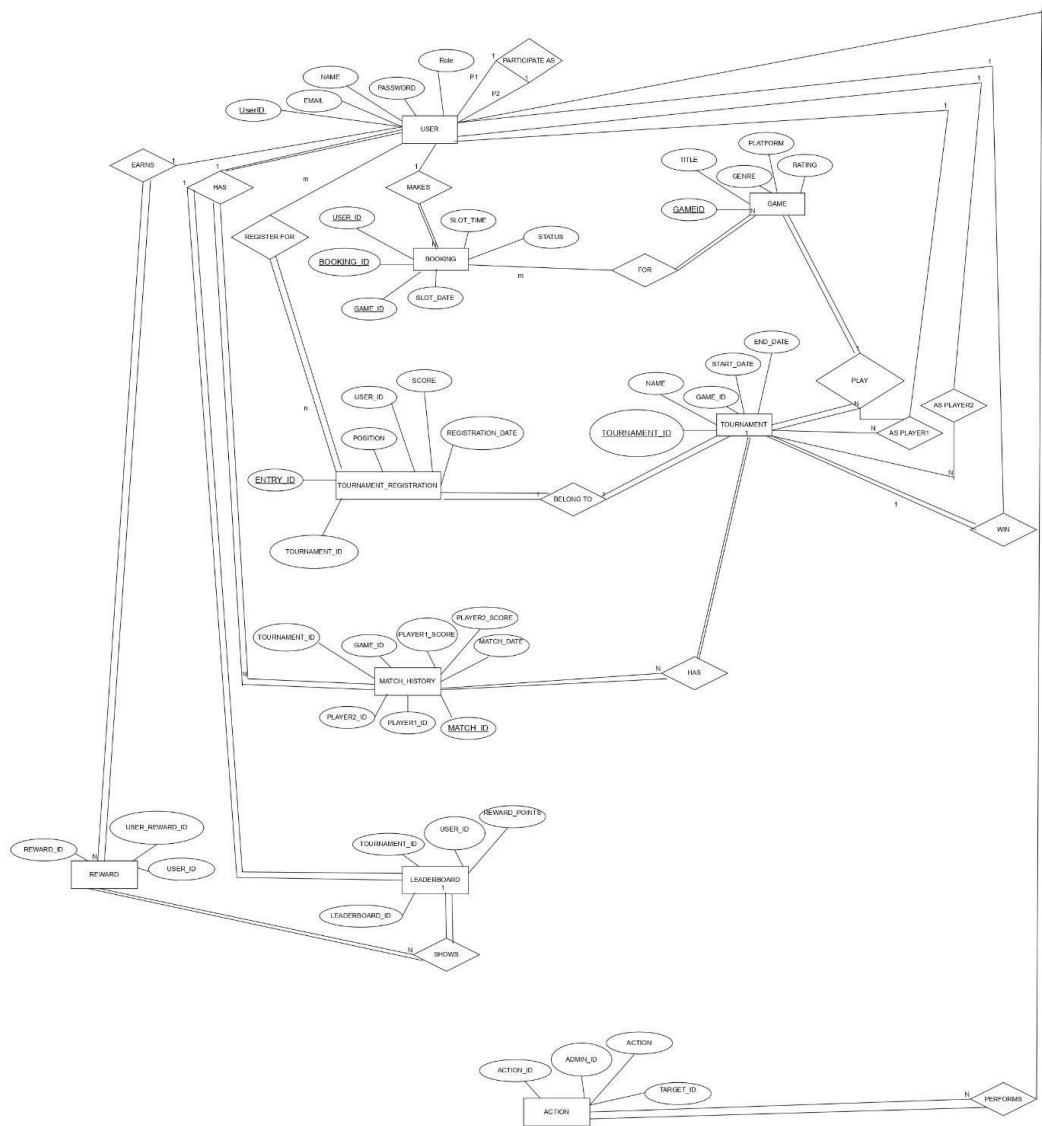


Fig : ER diagram
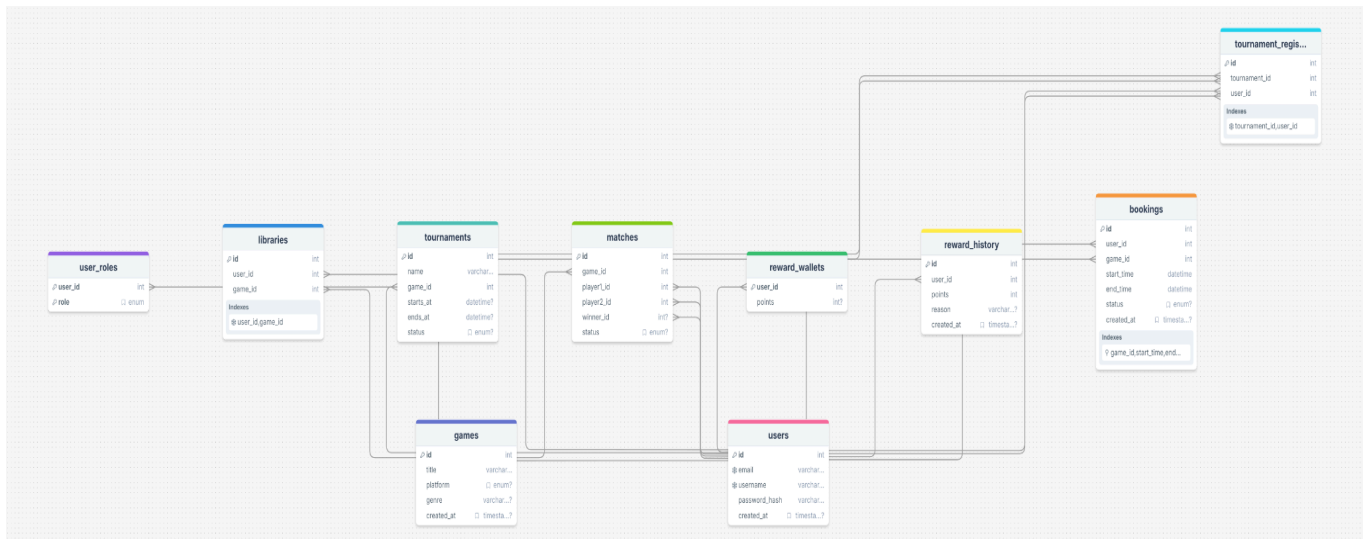
# Schema Diagram



Fig : Schema Diagram

# Normalization

a. Explain if your converted Schema is in 1NF or not. If not, decompose it to 1NF.

Ans: The schema is in 1NF because all attributes in every table are atomic with no repeating groups, multi-valued attributes, or nested relations. No decomposition is needed for 1NF.

b. Explain if your converted Schema is in 2NF or not. If not, decompose it to 2NF. Can there be any partial functional dependencies in your relational schema?

Ans: The schema is in 2NF because it is already in 1NF, and there are no partial functional dependencies. No decomposition is needed for 2NF.

c. Explain if your converted Schema is in 3NF or not. If not, decompose it to 3NF. Can there be any transitive dependencies in your relational schema?

Ans: The schema is in 3NF because it is already in 2NF, and there are no transitive functional dependencies. No decomposition is needed for 3NF.

# Frontend Development

We have used HTML, Tailwind CSS and JS (DOM) as our frontend framework. Through HTML and Tailwind we have built our pages and through JS we provided the action of the buttons.

**Contribution of ID : 23101052, Name : MD. Imteaj Rana**

1. HomePage : Designed and developed the homepage for easy navigation.
2. User Game Library : Created a page to display the games which the user added to his account and is able to play.
3. Games : Developed the page to show available games in the store which the user can add to his library.
4. User Profile : Developed the page for showing user dashboard, match history and tournament history section.
5. Tournament : Built a page to show the available tournaments so that the user can participate in.

**Contribution of ID : 23101185, Name : Md.sagedur Rahman**

1. Match History : Designed a section to visualize match history.
2. Slot Booking and Cancellation : Design it so that it can easily book slots for playing games preferred date and time and also cancel slots.
3. Game filtration : create it so that by searching by genre easily you can get your favorite type of genre.
4. Search by Title : Design it so that search by title easily can get actual game without any hustle

**Contribution of ID : 23201275, Name : Samin Yeasar Rubai**

1. Leaderboard : Designed to display the top player's rankings, scores, updated based on game results.
2. Reward points : Designed and developed to track and show points earned by users which increases when they play and score higher.
3. Tournament Registration History : Designed a section to keep a record of the tournaments each user has registered for and participated in.

# Backend Development

We have used MySql and PHP as our backend framework. Through MySql we have created our database, tables and inserting data in our database. Using PHP we are connecting the pages and database with api and establishing proper connection with our database.

### Contribution of ID : 23101052, Name : MD. Imteaj Rana

1. User game library : Developed the backend connections for user library and getting info from database when user adding any games from the games store.
2. Games : Built the backend for the games store and added some playable mini games which users can play and earn rewards which will show on leaderboard. The information for games are stored in the database.
3. User profile : Developed the backend work for user profile where the api gets username and user's email from the database and shows it on the dashboard.
4. Admin account deletion : Made the proper connections with the database so that whenever a user deletes his account it will not be stored in the database anymore.

### Contribution of ID : 23101185, Name : Md.Sagedur Rahman

1. Match History : Developed the backend for Match History, storing and retrieving player results using PHP and MySQL. Implemented
2. Slot Booking and Cancellation : Slot Booking and Cancellation features to manage game availability, prevent double booking, and allow users to cancel reservations.
3. Game filtration : For Search by Genre, implemented a secure PHP search with the LIKE operator, so when a user enters a keyword, the system matches it against the database and returns relevant game genres.
4. Search by Title : For Search by Title, implemented a secure PHP search with the LIKE operator, so when a user enters a keyword, the system matches it against the database and returns relevant game titles.

### Contribution of ID : 23201275, Name : Samin Yeasar Rubai

1. Leaderboard : Player Scores are stored and processed in the database where rankings are calculated and sent back to the frontend for display.

2. Reward Points : Developed to manage the allocation and updating of reward points in real time, ensuring they are accurately calculated, stored and retrieved when needed.

3. Tournament Registration History : Developed to store the registration details in the database and retrieved when requested.

4. Admin Password Change Access : Developed to validate the existing credentials, Connected through the database using PHP, updates the database to maintain system integrity and prevent unauthorized access.

## Source Code Repository

GitHub repository link :
https://github.com/md-imteaj-rana/CSE-370_Database_Systems_project.git

## Conclusion

In conclusion, the Online Game Center project successfully integrates frontend technologies like HTML, Tailwind CSS, and JavaScript with a robust backend using PHP and MySQL to create an engaging web platform for multiplayer gaming. By implementing features such as user libraries, tournament participation, reward systems, and efficient data management through normalized schemas, we have enhanced the leisure gaming experience for users. This project demonstrates effective database design principles and sets a foundation for future expansions, such as additional game integrations or mobile compatibility.

## References

N\A