



**CS 353**

**2024-2025 Fall Semester**

**Project Proposal**

**Group 8**

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## **1. Introduction**

Many use public pools, just like any facility that works with an entry registration system. Many people are registered to a pool system: Regulars, irregulars, people working in the facility, and admins. Managing a pool comes with many responsibilities, varying from registering users to the system, managing bookings of the lanes and pools, scheduling lessons, and generating reports to see details of this information. However, these attributes are hard to manage manually, as many active pool systems are currently used, posing a challenge. These challenges highlight the need for a robust, automated system to streamline pool activity management, helping users and administrators achieve smooth operations.

## **2. Description Of The Application**

In this project, we will create a pool facility system that serves many different users, such as member and nonmember swimmers, pool administrators, lifeguards, and coaches. In this application, all the swimmers can register for pool access and select lanes, book sessions, and register for swimming classes according to their level. Swimmers can also gain points that can be used to buy some items if they have a membership and they keep booking for the pool or registering for swimming classes. Swimmers can see their rating ranking among other swimmers in the system. Every swimmer can rate the swimming class coaches' instructor and see the coaches' overall rating. They can also comment on the swimming coaches' past performance. Swimmers and swimming coaches can see their swimming lesson schedules and available/unavailable daily time slots for accessing pools. Coaches can also see their ratings in the system. Administrators should be able to see coach ratings, feedback, swimmer points and rankings, available courses, and their course capacities. Admins can also generate reports for the demand of the pools with respect to their hours, most active members, and coach performances.

## **3. Functional Requirements**

### **Swimmer (Member):**

- Members can register and maintain personal profiles with contact information, swimming proficiency, and membership details.
- Can gain points by booking a time slot or attending a swimming session with a coach.
- Can see their ranking among other members according to their points.
- Can spend their points on items that may also affect their ranking.
- Can rate the coaches and comment about coach performance for the swimming lessons.

- Can see and book available pool lanes and swimming classes.
- Can schedule sessions with available coaches for personal training.

#### **Swimmer (Non-Member):**

- Register and maintain personal profiles with contact information and their swimming proficiency.
- Can schedule sessions with available coaches for personal training.
- Can rate the coaches and comment about coaches' performance for the swimming lessons.
- Non-members can browse available services and become members through the system.

#### **Lifeguards:**

- Register and maintain personal profiles with contact information and swimming proficiency.
- Access and manage personal work schedules.
- View upcoming certification expiries to maintain qualifications.
- View pool schedules to prepare for upcoming shifts.

#### **Coaches:**

- Register and maintain personal profiles with contact information and swimming proficiency.
- Manage and view personal profiles showcasing qualifications, specialities, and available times.
- View and manage booked sessions with swimmers.
- Cancel or reschedule sessions and notify swimmers of changes.

#### **Pool Administrator:**

- Generate detailed reports on membership statistics, revenue, and usage patterns.
- View reports on the most booked coaches and in-demand swimming sessions.
- Configure system-wide notifications for users about changes in schedule or availability.
- Configure operational settings, including pool opening hours, session durations, and available facilities.
- Ability to create, update, and delete user profiles for swimmers, lifeguards, and coaches.

- Can see the current ranking of the coaches according to their ratings and can check the current ranking of the users according to their points gained by attendance to the classes and other activities.

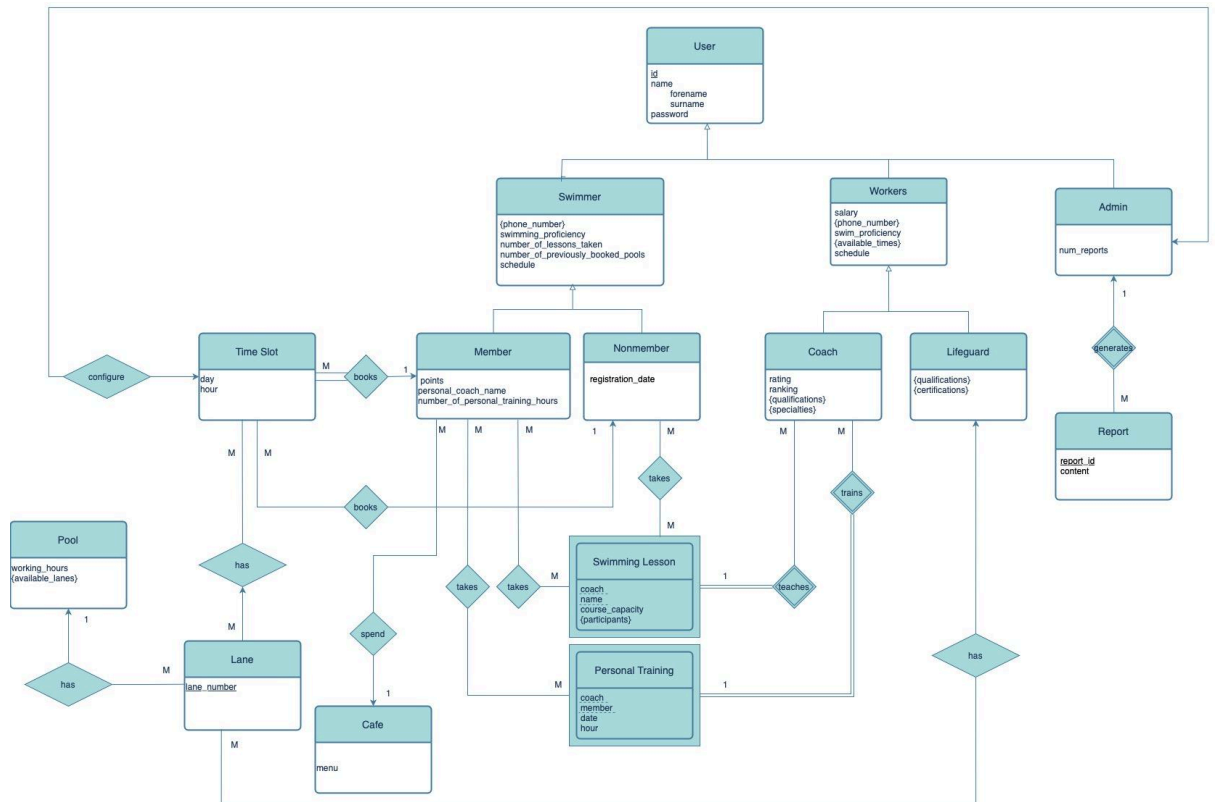
#### **4. Non-Functional Requirements**

- Mechanisms to recover from system crashes or errors without data loss.
- The system should be easy to update for new features.
- The system should store authentication information in hashed form in the database.
- The system code is clean and self-explanatory, with sufficient comments, which makes further maintenance work easier.
- The system should be secure for data protection.
- The system should be able to handle big data and should not cause any time loss.
- The system should handle multiple users simultaneously without significant slowdowns.
- Color-coded user-friendly interface for concise and intuitive usage of the system.

#### **5. Limitations**

- Only administrators can generate reports.
- Only the member swimmers can gain points for booking pools and registering sessions.
- Only the member swimmers can be in the swimmer ranking
- Only the award-granted members can access special kinds of drinks.
- Only the member swimmers can take personal training from the coaches.
- Swimmers can sign up for swimming classes from coaches.
- Swimmers register for pool access.
- Coaches can give personal training and can teach swimming lessons.

## 6. ER Diagram



## 7. References

- [1] Canva, "Canva: Herkes için Görsel Çalışma Seti," *Canva*. [https://www.canva.com/tr\\_tr/](https://www.canva.com/tr_tr/)