SPMS

SWIMMING POOL MANAGEMENT SOFTWARE

(SOFTWARE REQUIREMENT SPECIFICATION)

TEAM HEAVY CODER

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1. INTRODUCTION

This document specifies the software requirement for the project 'Swimming Pool Management Software'. This section describes the software and hardware requirements for the software.

1.1 Problem Definition

The software is intended to provide different types of users with the web portal to
->Book slots for the swimming pool.
->Apply for membership.
->Apply for participation in events.
->Buy tickets for the competitions .
->Apply for different periods of Swimming courses conducted by the Swimming pool management committee.
->Managing facilities for course coordinators and manager.

1.2. Purpose

This document aims to provide a comprehensive overview of the specifications for the Swimming Pool Management Software (SPMS). It will outline the purpose and full scope of the system's development, detailing its requirements, limitations, user interfaces, and integration with external applications.

1.3. Document conventions

The structure of this SRS follows a straightforward format. Important topics and specific points are highlighted and the rest of the document will be written in the Corbel body font.

1.4. Intended Audience

This document is written for those who want to manage a Swimming pool, and software developers, advanced practitioners, who intends to use react.js (frontend), node.js (backend) & MySQL for database management.

1.5. Additional Information

Section 2 of the SRS discusses the broad factors influencing the Swimming Pool Management Software, including user traits and project limitations. Following that, Section 3 delves into the intricate functional, performance, and system requirements of the software. It also includes supplementary details regarding appendices.

1.6. Contact information

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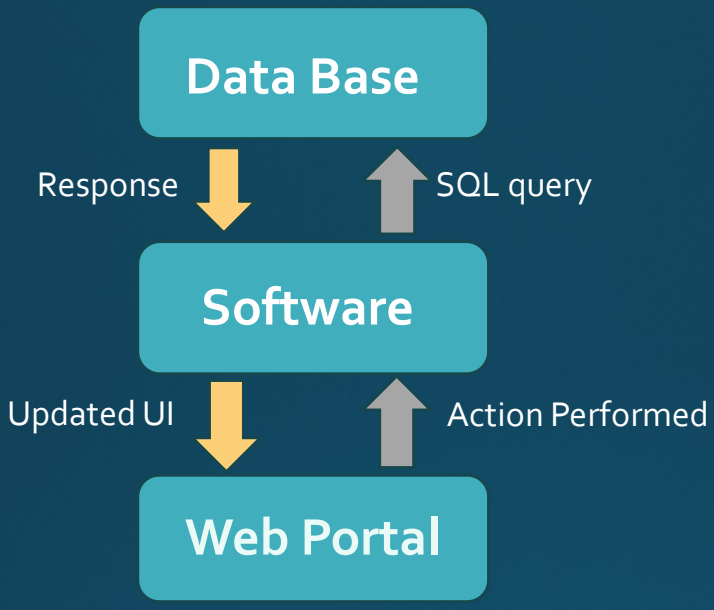
2.OVERALL DESCRIPTION

2.1. Product Perspective

The web portal will be used to access the various functions of the software and database is used to manage all the information. The manager, members, course-coordinators and other users will all have to go to the web portal to access their desired functions and the software will update the system database accordingly. Since this is a data-centric product it will need somewhere to store the data. For that, a database will be used. The web portal will communicate with the database and provide the details.



1.Block diagram

2.2 User Types and Characteristics

a) Non-Member : If someone creates a new account by signing-in, is classified as a non-member.

Characteristics

➔Can apply for membership.
➔Book swimming pool for private events.
➔Register in a course.
➔Participate in an event.
➔Can buy tickets for competitions.
➔ View notice board.

b) Member : A non-member becomes a member after getting approved by the manager followed by paying membership fee.

Characteristics

➔Can get maximum of 5hrs of pool time per week (choosing pool slots).
➔Cancel his/her membership.
➔Register in a course.
➔Participate in an event.
➔Can buy tickets for competitions.
➔Book swimming pool for private events.
➔View notice board.

c) Manager : Manager has the highest authority in Swimming Pool Management.

Characteristics

➔Can approve / disapprove the applications of non-members who applied for membership.
➔Adding / Removing course coordinators.
➔Adding extra special slots / extra weekly slots.
➔Organize an event.
➔Post notices.

d) Course-Coordinator : Course-Coordinator is a tutor to a specific swimming course and he is also a part of pool management committee (PMC).

Characteristics

➔Can cancel / re-schedule course classes.
➔Can take up desired non-overlapping courses.

2.3. Operating environment

This software operates on a MySQL server. For the user application to work these servers must be running all the time.

2.4. Product functions

By accessing the web portal, users can perform respective functions. It can be used to do the following activities:

-> Apply for membership.
-> Book Swimming Pool slots.
-> Enroll in swimming courses.
-> Participate in swimming competitions.
-> Pay Pool Fees.
-> Administrate the Pool by adding extra slots, competitions and slots Rescheduling Pool activities.
-> Notify about changes in Pool Time Table.
-> Give reminders to registered users for Pool activities.

2.5. Implementation constraints

-> The software will be constrained by the capacity of the database. Since the database is shared with applications it may be forced to queue incoming requests and there for increase the time it takes to fetch data.
-> If someone wants to update / make changes to the current software, react.js and node.js development environment must be used.

2.6. Assumptions and Dependencies

Theoretical

➔Pool Management Committee (PMC) has a manager and several course coordinators.
➔Manager does the job of event managers (to organize an event or to conduct a competition).
➔Any user (member or non-member) can book the pool for a maximum of 5 times per month.
➔If a member wants to cancel his membership he should notify to the manager.
➔To enroll in a course, the user must upload relevant documents along with some enrollment fee. These documents requirement is different for a member and a non-member.
➔ The manager can change the course fee and membership fee.

Technical

One presumption regarding the product software is its reliance on computers with sufficient performance capabilities. If the computer lacks adequate hardware resources due to allocation to other applications, the product may not function properly.

3. EXTERNAL INTERFACE REQUIREMENTS

3.1. User interfaces

Anyone who opens the portal, can see a Login page containing notices and Events that will take place in coming days. In order to apply for a membership (or) book pool (or) buy tickets (or) to participate in a competition, one must create an account.

3.1.1. Non-member

A non-member opens the portal to the swimming pool .He can apply for membership and courses and also can buy tickets for events from the welcome page itself.

3.1.2. Member

A member opens the portal to the swimming pool. He has to login using his User ID and password to open the member's page. He will have the option to view Pool Time Table, enroll in a swimming course, book Pool slots, book Pool for activities, pay fees, to participate in a competition, or to buy competition tickets he can do it from home page itself.

3.1.3. Course-Coordinator

A Course-Coordinator opens the portal to the swimming pool. He has to login using his ID and password to open the coordinator's page. He has the option to view Pool Time Table, set class timings/cancel classes/reschedule for his respective course.

3.1.6. Manager

A manager opens the portal to the swimming pool. He has to login using his ID and password to open the manager's page . He can modify the requirements for Membership and can manage the pool slots. In addition he has the options to approve non-members to get membership. He can add new course coordinators or remove the existing ones. His data is set in the software itself.

3.2. Hardware Interfaces

Hardware: Personal Computer/Laptop
Operating System: Windows, Linux

3.3. Software interfaces

The current software runs on local host and internet is needed to access the URLs if any.

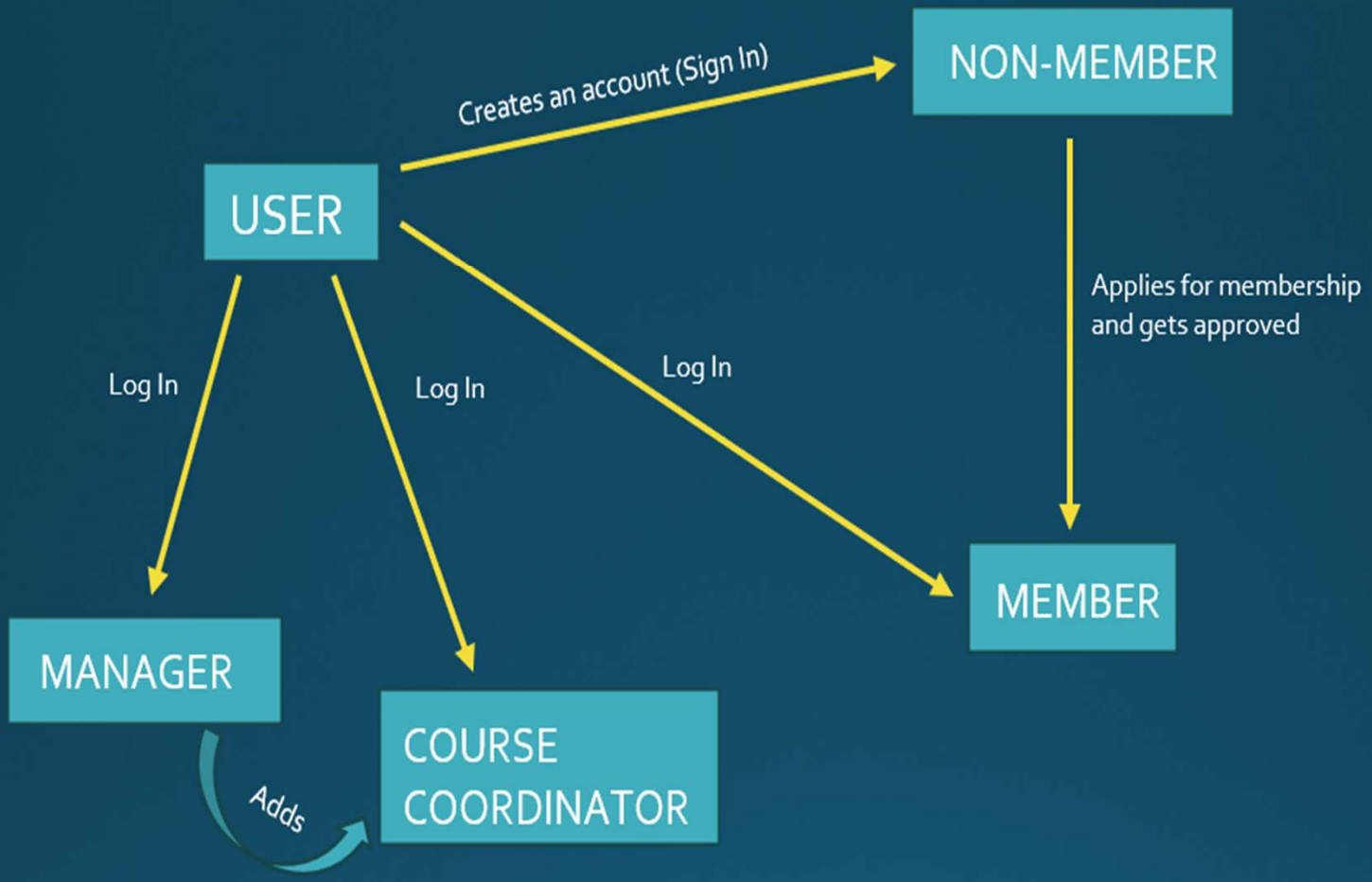
3.4. Communication protocols and interfaces

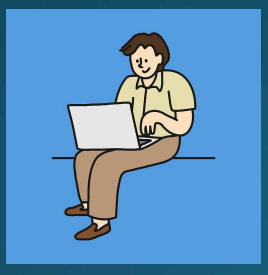
-> The application communicates with the database in order to get the information.
-> The communication between the database and the web portal consists of operation concerning Create, Read, Update & Delete (**CRUD**) data.

4. FUNCTIONAL REQUIREMENTS

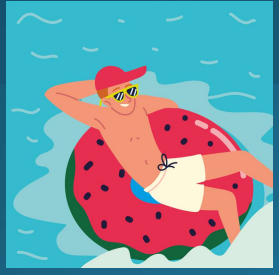
4.1. Case Diagrams

2.User case diagram





Non-Member

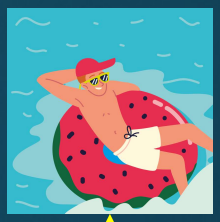


Member

Course-Coordinator

Manager

3. Case diagram : Non-member



Manager approves

Participate in an event / competition

Manager disapproves

Apply for membership

Buy tickets for an event / competition

Book pool for private events

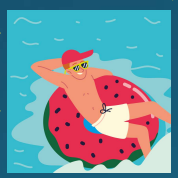
Enroll in a course

4. Case diagram : Member

Enroll in a course

can access the web portal to view Pool Calendar

Participate in event / competition



Can cancel his membership

Notifies Manager

Can buy tickets for an event

Can book swimming pool for private events

Can have pool time of 5hrs / week

Need to book slots

5. Case diagram : Course-Coordinator

- Can add additional courses under him
- Can complain in complaint box
- Can post in Notice board
- Cancel or Re-schedule class
  (Students enrolled in that course gets notified)
- can access the web portal to view Pool Calendar

5. Case diagram : Manager

- Post Notices
- Can approve or decline membership applications
- Can add extra weekly slots or special slot
- Can change membership fee
- Adds or removes course-coordinators
- Organizes events and sets entry fee

4.2. Specific Requirements

4.2.1. User Class Non-Member

Apply for membership:

Input:

A person desiring to be a member of the pool will apply for membership providing details like name, phone number, medical certificate , date of birth etc...

Output:

The applicant gets his computer generated member id and is notified about his fees.

Process:

The manager verifies the details provided by him and approves/disapproves his application. If it is approved, then the applicant becomes a member and gets his member id. The SPMS database adds the member id to the member list of the swimming pool.

Enroll in Course :

Input:

A person desiring to enroll in any swimming course will open the SPSM Application to see the list of courses and may apply for enrollment in a course by paying course fee.

Output:

He gets notified about the course classes.

Process:

His name is added into the students list of corresponding course coordinator who is taking the course.

Participate in Competition:

Input:

A person desiring to take part in any swimming competition will open the SPSM Application to see the list of competition and may apply for a competition providing additional documents like medical certificate.

Output:

After providing the necessary details the page will be redirected to participation fee payment depending on whether he has taken a course or not. If he has enrolled in any course, he can participate in the competition for free or else he should pay the participation fee.

Process:

Finally he gets notified about the competition and his name gets added to the participation list.

Spectate Competition:

Input:

A person desiring to spectate any competition opens the SPMS Application and buys tickets providing the number of tickets to be bought.

Output:

The person is given tickets of unique id on payment of required ticket prices.

Process:

Number of available tickets are checked via a computerized procedure and are given to the buyer if tickets are available and tickets prices are paid.

4.2.2. User Class Member

Book Pool for Party:

Input:

A member desiring to book the pool for party or any other event must visit the SPMS Application and enter the date and time duration for the party.

Output:

If the booking is successful, then that date and time will be reserved in pool calendar with the applicant's member id and no classes can be held on that date during that time.

Process:

Computerized checking is made if the booking can be granted to the applying member and if it is granted then a booking is made with that member id and the pool calendar is modified and all other pool activities on that day are cancelled and all stake holders are notified.

Enroll in Course:

Input:

If a member is desiring to enroll in any swimming course will open the SPSM Application to see the list of courses and may apply for enrollment in a course by paying course fee.

Output:

He gets notified about the course classes.

Process:

His name is added into the students list of corresponding course coordinator who is taking the course.

Participate in Competition:

Input:

A person desiring to take part in any swimming competition will open the SPSM Application to see the list of competition and may apply for a competition providing additional documents like medical certificate.

Output:

After providing the necessary details the page will be redirected to participation fee payment depending on whether he has taken a course or not. If he has enrolled in any course, he can participate in the competition for free or else he should pay the participation fee.

Process:

Finally he gets notified about the competition and his name gets added to the participation list.

Book Pool Slots:

Input:

A member desiring to book a pool slot must go to the SPSM Application and view the pool calendar and select suitable slots accordingly.

Output:

If his request is approved, then he gets access to that particular slot or else request is made to choose available slots.

Process:

Computerized procedure will check if the slot hours exceed 5 hours or not, if it is <=5 hours then in that slot he can use the pool.

Pay Membership fee:

Input:

A member desiring to pay the pool fees must login to the SPMS application and then upload the transaction receipt for verification.

Output:

If verification is success the membership status will be updated else reason for will be notified.

Process:

The SPMS database is updated accordingly. If the member doesn't pay membership fee up to one week at the start of new month then he would be demoted to a non member.

Cancel Membership:

Input:

A member desiring to cancel his membership must login to the SPSM application and click on the cancel membership option with an appropriate reason.

Output:

He will be logged out and when he enters his user id again he will be redirected to non-member home page.

Process:

The SPMS database is updated accordingly, removing his user id from the database and any swimming course/ pool slot/ pool event he had registered for. The manager is notified about the reason of cancellation

4.2.3. User Class Manager

Add Pool Slot:

Input:

A Pool Manager can enter the SPMS portal with his unique id and enter the slot to be added with its timings and details like start time and duration. There are two types of slots weekly slots and special slot.

Output:

This new slot will be displayed in the notice board.

Process:

The Computerized procedure checks if the slot timings are pre-occupied or not and if available, then it modifies the pool calendar. The SPMS database generates a new slot id and is updated accordingly.

Add / Remove Course Coordinator:

Input:

A Pool Manager can enter the SPMS portal with his unique id and add/remove a course coordinator. If he is adding a course coordinator then he will enter hos details like his user id, password, email, phone number. These details can be edited by the course coordinator himself. If he wants to remove a course coordinator, he will make sure that the course coordinator is taking no courses currently.

Output:

It shows course coordinator is added/removed successfully.

Process:

The course coordinator is added to removed from the database.

Arrange for Swimming Competitions:

Input:

Pool Manager can enter the SPMS portal with his unique id and enter the competition to be added with its timings and details.

Output:

A new competition id is generated and appears on the pool calendar and pool Application and it will displayed in the notice board.

Process:

The swimming courses or slots which were scheduled in that time will be cancelled and the corresponding members, students and course coordinators will get notified.

Put Notice in Portal:

Input:

Manager can enter the SPMS portal with his user id notice regarding pool matters.

Output:

A notice is put upon the SPMS Application.

Process:

The notice is made visible to everyone visiting the Application.

Modify Membership form:

Input:

The Manager will enter the SPMS Application with his unique id and go to the modify membership form option, and make the required changes like editing required documents, changing membership fee.

Output:

The membership form is modified.

Process:

The membership form is changed.

Approve Membership:

Input:

The Manager will enter the SPMS Application with his unique id and view the documents of a person who has applied for membership like medical certificate and approve/disapprove.

Output:

If the manger approves the applicant gets the membership.

Process:

On approval, the role of the applied non-member is changed to member.

4.2.4. User class Course Coordinator

Propose addition of Pool slot:

Input:

A course coordinator can enter the SPMS portal with his unique id and can add courses which he want to teach.

Output:

The course will also show the name of this course coordinator who opted to take it.

Process:

The courses without a course coordinator will now have a course coordinator and the courses table will get updated accordingly.

Propose cancel / reschedule Pool slot:

Input:

A course coordinator can enter the SPMS portal with his unique id and cancel / reschedule the class based on his availability or other appropriate reasons.

Output:

All the students enrolled in that course gets notified about cancellation or additional class.

Process:

Put Notice in Portal:

Input:

A member can enter the SPMS portal with his/her Pool Committee user id put notice regarding pool matters.

Output:

A notice is put upon the SPMS Application.

Process:

The notice is made visible to everyone visiting the Application.

5. OTHER NON-FUNCTIONAL REQUIREMENTS

5.1. Performance requirements

Any System with ability to normal process requests to database and perform computations is required for better performance. And coming MySQL server, for the performance of the software to be good, the server must be able to process a good number (nearly 100) of requests at a time.

5.2. Safety requirements

Software safety is established with error detection, like Software logic error and Support errors, and hardware errors are reported.

5.3. Security requirements

For the data to be secure, the database server must be set with password enabled users and Manager must be careful of his access. Security requirements include the server side security i.e., the server must not be publicly available and it must require authentication, for the data to be private.

5.4. Software quality attributes

The software is able to detect the internal errors in the software, and the software is OS independent. And the client/server interaction happens when there is a working internet connection without firewall