2023

"SPORTS CLUB SYSTEM"

TEAM MEMBERS:

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✦ Determine the methodology of your project and why.

In our system we have used the **spiral model**:

  Because of:

- Continuous customer involvement.
- Development risks are managed.
- Suitable for large, complex projects.
- It works well for extensible products.

✦ Our project talks about: A club management system project that provides and manages various club activities such as member registration, registration for various regular and vacation batches and more. The sports club management system software is a net built system that manages the entire club activities and provides respective functionality for various types of visitors. It allows normal users to avail for club membership, book the ground at for desired days and even enroll for various activities in the club

Software minimized these laborious efforts and integrates all functions into a single platform .Sports team management, team bookings, players list, coaches, etc.

Club Management System helps users manage, sports teams, it generates invoices, processes payments and tracks members. Key features include account relationship management, gallery management and membership analytics, Attendance reporting provides data on which classes are attracting the most members and which classes are not attracting members. The attendance manager allows members and staff to check in using mobile devices. It allows users to customize their class schedule and provide weekly class support to members. Invoice management helps users keep track of membership fees and notifies members when payment is due. Token-based invoicing allows members to pay their membership fees without logging into their account

✦ The tasks that's our project presents:

1. User and Admin Account: It has two login accounts member login and admin login. Admin can check and verify various member details. He can approve or disapprove ground booking requests.

2. Have an Administrator: A club administrator or organizer is responsible for the schedule, member contacts, club budget, travel plans, event networking efforts, assistant tasks and more...

3. Get a Coach: Every sports club needs a good coach, Make sure the coach is committed, available, excited about the sport, and skilled at the game.

4. Member registration: The users may registry for club membership or not, they can be our visitors so in our system we have TWO types of customer register and non register, the non register can take a look on the site but not with the full function that it is allowed for the register.

5. Ground booking for events: Users can book ground for various events (marriage, show, etc.)

6. Cricket vacation and regular batch registration: Users may register for vacation and regular batch of cricket coaching.

7. Book amount calculation according to period of booking: The amount for booking the ground is calculated and given by the system depending upon the number of days.

8. Having a Schedule: Everyone on our team has a life. Be courteous of people's time—set up a schedule for practices, open play, games, and tournaments. Share a digital spreadsheet you can easily update with cancellations, announcements, and changes of location that might occur.

9. HAVING DATABASE: Every system has his own Database, so in our club we have a huge data base that is contain the whole data about our customers

10. Club news update: Admin may post news about club such as "club events, updates or news". This news is displayed to all the users.

❖ Functional Requirements:

User and Admin Account Management:

- Functionality: The system should have two types of accounts - member and admin.

Features:

- Users can log in to their accounts.
- Admin can verify and manage member details.
- Admin can approve or disapprove ground booking requests.

Administrator Features:

- Functionality: A club administrator or organizer should be able to manage various aspects of the club.

Features:

- Schedule management.
- Member contacts management.
- Club budget management.
- Event networking efforts.

Member Registration:

- Functionality: Users can register for club membership.

Features:

- Two types of customers - registered and non-registered.
- Non-registered users have limited access to site functions.

Ground Booking:

- Functionality: Users can book the ground for various events.
- **Features:** Specify the purpose of the event (marriage, show, etc.).

Amount Calculation for Ground Booking:

- Functionality: The system calculates the booking amount based on the number of days.
- **Features:** Automatic calculation of the amount.

Schedule Management:

- Functionality: The system should support scheduling for practices, open play, games, and tournaments.

Features:

- Digital spreadsheet for easy updates.
- Notifications for cancellations, announcements, and location changes.

❖ Non-functional Requirements:

- **Performance:**

  The system should handle a large number of simultaneous users without performance degradation.

- **Security:**

  Data in the database should be secure and only accessible to authorized personnel.

- **Usability:**

  The user interface should be intuitive, making it easy for members and admins to navigate and use the system

- **Reliability:**

  The system should be available and reliable, minimizing downtime.

- **Scalability:**

  The system should be able to scale to accommodate future growth in the number of users and data.

- **Compatibility:**

  The system should be compatible with different devices and browsers for a seamless user experience.

- **Data Backup:**

  Regular backups of the database should be performed to prevent data loss.

- **Audit Trail:**

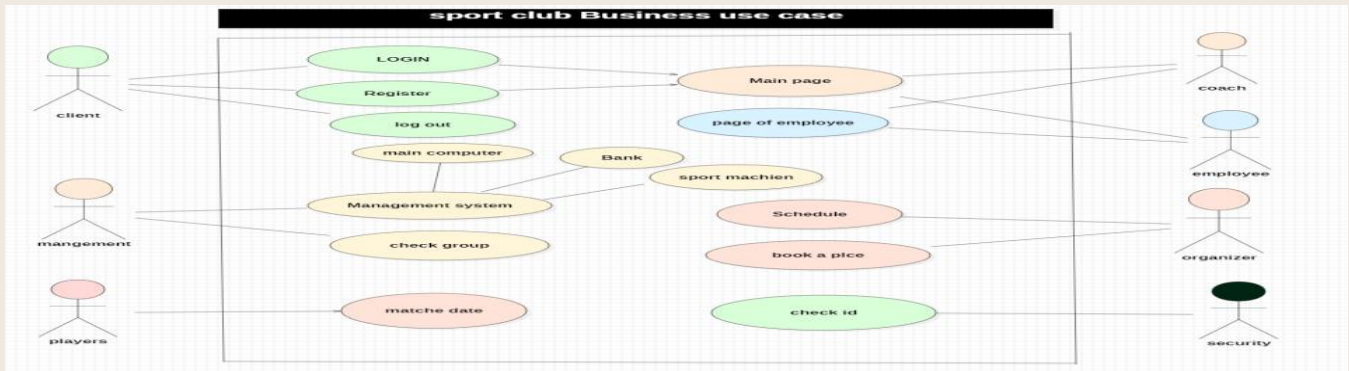 Maintain an audit trail for tracking changes made by administrators.

- **Accessibility:**

  Ensure that the system is accessible to users with disabilities.

- **Notification System:**

  Implement a notification system to alert users of important updates or events

❖ Business use case:

➤ Actors:

- o **Admin:** Manages system settings, user data, and access rights.
- o **Employee:** Staff working within the sports facility, responsible for various operational tasks.
- o **Coach:** Conducts training, schedules sessions, and interacts with Players.
- o **Players:** Engage in sports activities, training, and facility utilization.
- o **Security:** Monitors and ensures safety within the sports facilities.
- o **Organizer:** Manages events, tournaments, and related logistics.
- o **Client:** Represents external entities or partners associated with the sports center.
- o **Management:** Holds administrative roles, overseeing operations and decision-making.

➤ Use Cases:

REGISTER:

- o **Actors involved:** Admin, Employee
- o **Description**: New users (Players, Clients) register in the system.

Landing Page:

- o **Actors involved:** Admin, Employee
- o **Description:** Provides an overview of available services, facilities, and information for visitors and users.

Matches Date:

- o **Actors involved:** Admin, Employee, Players
- o **Description:** Displays upcoming sports events, games, or tournaments.

Main Page:

- o **Actors involved:** Admin, Employee, Players
- o **Description:** Central navigation hub offering access to various system functionalities.

Update Subscription & Cancel Subscription

- o **Actors involved**: Admin, Employee, Players
- o **Description:** Enables users to modify, upgrade, downgrade, or cancel subscriptions.

Management System:

- o **Actors involved**: Admin, Employee, Management
- o **Description:** Administers the overall sports management system, including configurations and updates.

Sport Machine:

- o **Actors involved**: Employee, Players

- o **Description:** Utilization of sports machines available within the facility for workouts or training.

Schedule & Book a Place:

- o **Actors involved:** Employee, Players
- o **Description:** View and book available slots for sports facilities or training sessions.

Page of Employee:

- o **Actors involved:** Admin, Employee
- o **Description:** Provides information about staff members associated with the sports center.

❖ USE CASE

➢ Actors:

Admin: Manages the sports management system, user data, and settings.

Visitor: A person exploring the sports management system without logging in.

Customer (Players): Individuals who actively engage in sports activities offered by the system.

➢ Use Cases and Interactions:

Register: Visitor: Arrives at the landing page and chooses to register by providing personal details to become a registered player/customer.

Admin: Oversees and manages the registration process, ensuring data security and user verification.

➢ Landing Page:

Visitor: Explores the landing page to discover information about available sports activities, facilities, and membership options.

Admin: Updates and maintains the landing page content to attract potential customers, showcasing services, and promotions.

➢ **Matches Date:**

Customers: Access the matches date section to view upcoming games, tournaments, or events to participate in or spectate.

Admin: Updates the matches date section regularly, providing accurate and up-to-date information about scheduled sports events.

➢ **Main Page:**

Customers: After logging in, access the main page to explore different sections like updating subscriptions, checking schedules, or booking facilities.

Admin: Ensures the main page is user-friendly, functional, and provides necessary options for customers to navigate through various features of the system.

➢ **Update Subscription & Cancel Subscription:**

Customers: Have the option to modify their subscription plans, upgrade, downgrade, or cancel as per their preferences or changing needs.

Admin: Manages subscription plans, processes customer requests related to subscription changes, and handles cancellation procedures.

➢ **Sport Machine:**

Customers: Utilize the sports machines available within the facilities for workouts, training, or recreational purposes.

Admin: Oversees the maintenance and proper functioning of the sports machines, ensuring customer safety and satisfaction.

➢ **Schedule & Book a Place:**

Customers: Access the schedule to plan training sessions, view available slots, and book sports facilities or training sessions.

Admin: Manages the scheduling system, updates availability, and oversees the booking process to ensure efficient usage of sports facilities.

➢ **Page of Employee:**

Customers: Explore the employee page to view information about trainers, coaches, or staff associated with the sports center.

Admin: Manages and updates the employee profiles, ensuring that customers have access to accurate information about the expertise and availability of staff members

❖ Activity Diagram:
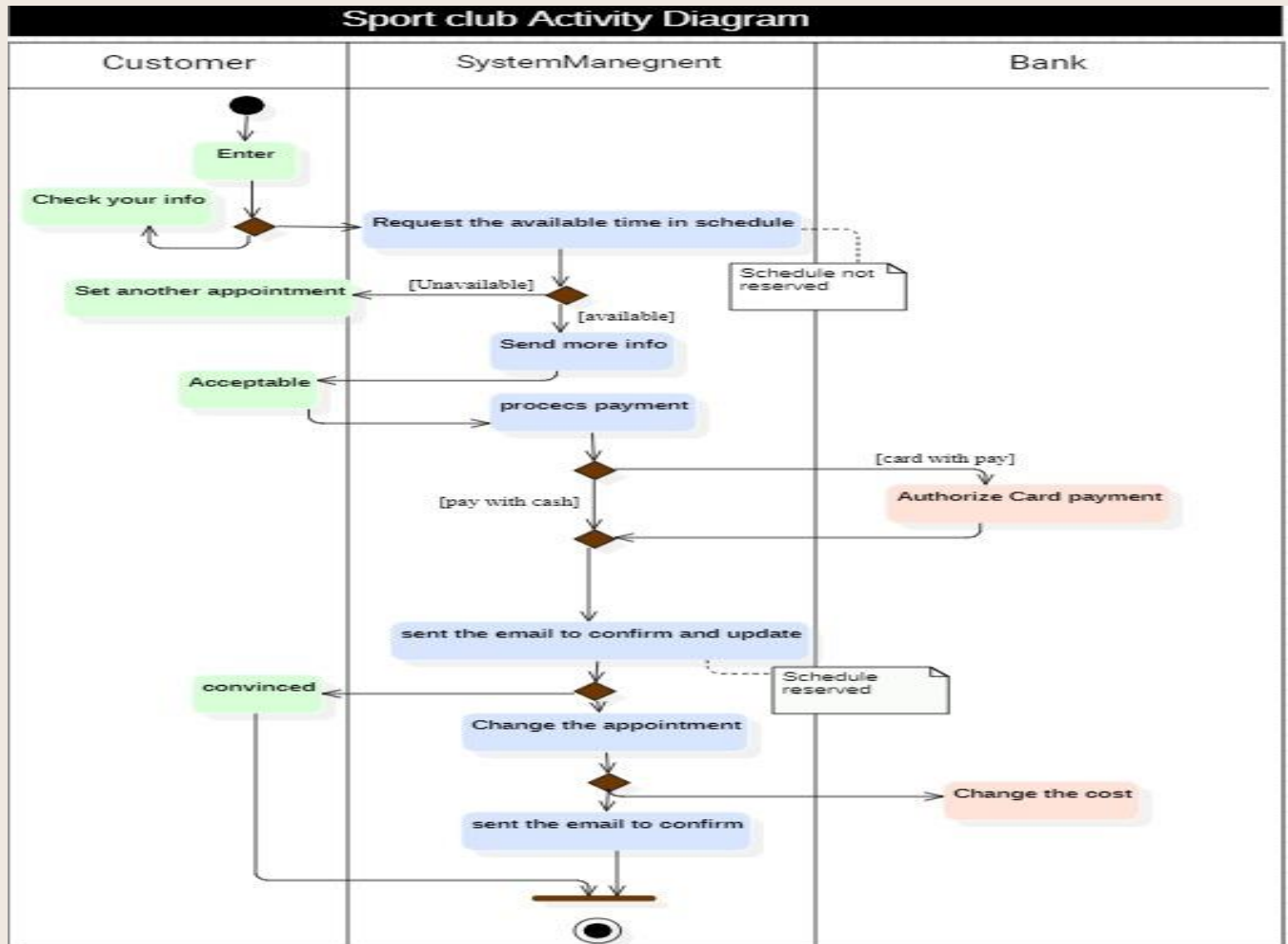
- **Customer Checks their Info**: The customer enters their information

- **Set Another Appointment**: The customer chooses an available time for their appointment.

- **System Manages Available Time:** The system checks the available time slots in the schedule.

- **Schedule Appointment**: The customer accepts an available time slot.

- **Customer Pays:** The customer proceeds to pay for the appointment.

- **Bank Processes Payment:** The bank processes the customer's payment, whether it's with cash or a card.

- **System Manages Payment:** The system updates the appointment status to confirm.

- **Confirmation Email:** The system sends a confirmation email to the customer with their appointment details.

❖ State Chart Diagram:
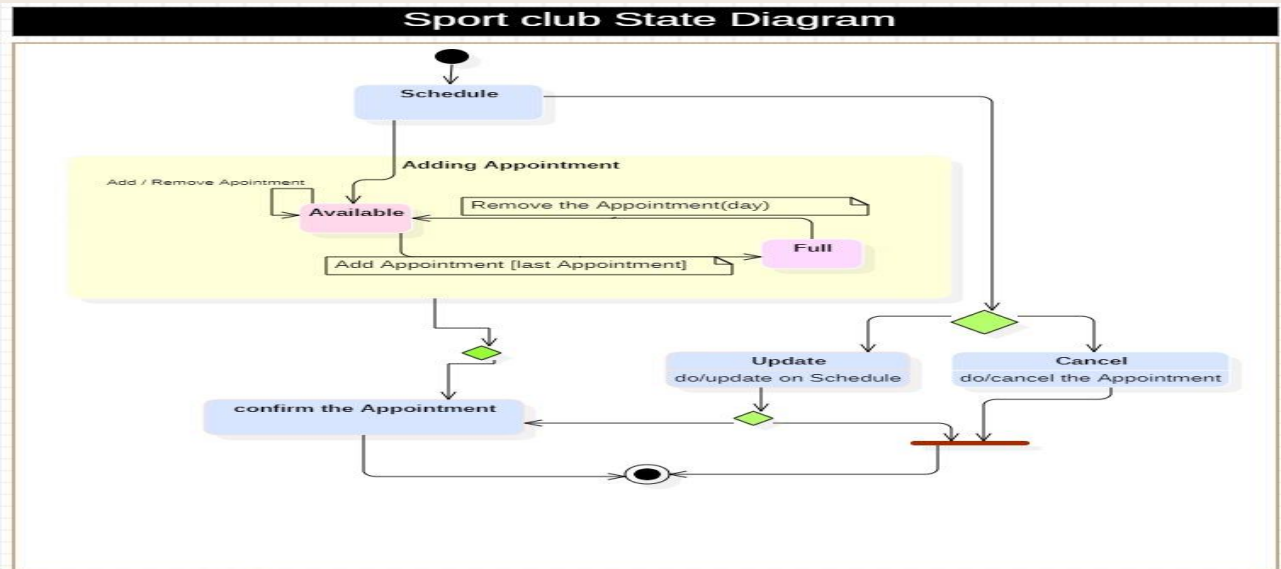
- **Adding Appointments:**

  a. First, check if there are any available slots for the desired day. If there are available slots, proceed to step (b).

  b. Add the appointment to the desired day and time. After adding the appointment, proceed to step (c).

  c. Confirm the appointment.

  d. Check if the schedule is full. If it is, proceed to step (e). If it's not, return to step (1) to add more appointments.

 e. If the schedule is full, perform a full update on the schedule.

- **Removing Appointments:**

  a. Select the day on which the appointment needs to be removed.

  b. Remove the appointment from the desired day.

  c. Check if the schedule is full after removing the appointment. If it's not, proceed to step (d).

  d. If the schedule is not full, perform a full update on the schedule.

- **Updating the Schedule:**

  a. Do a full update on the schedule to reflect the latest changes.
  b. If the update is successful, the schedule will be updated with the new appointments and the schedule will be ready for use.

Class Diagram:

UMLClass Diagram Sports Club
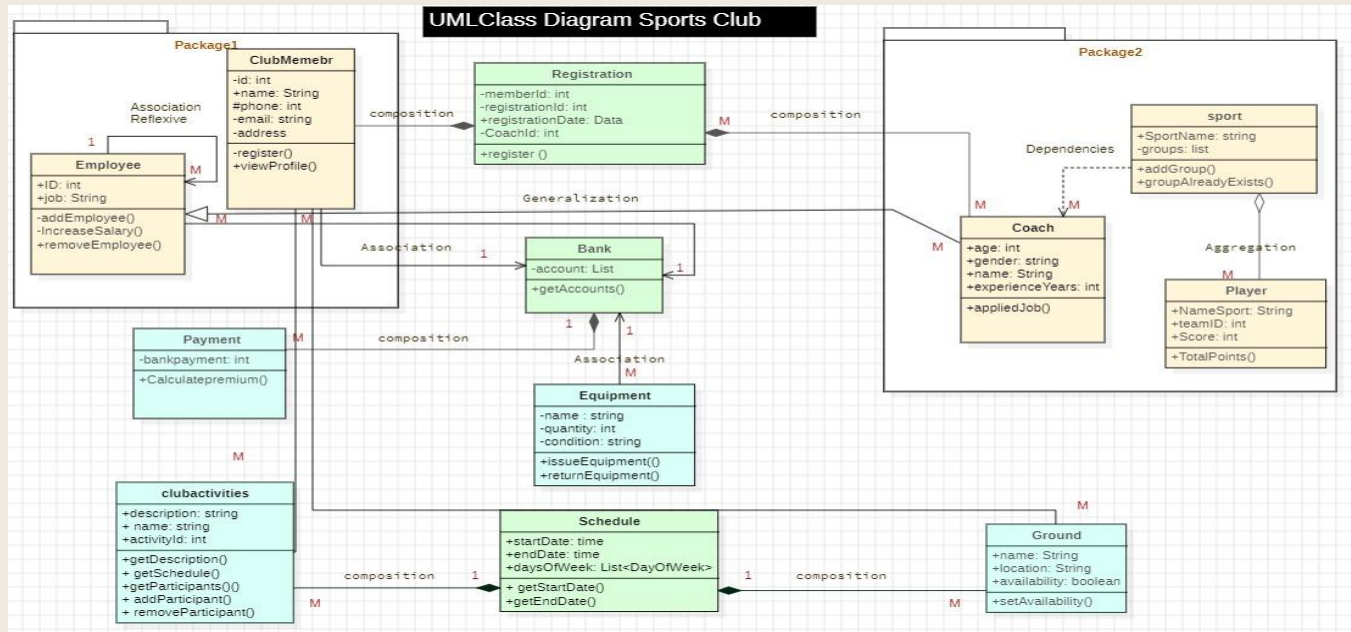
> ### Package 1
> - **class**(Club Member)(attributes -id: int , -name: String ,phone: int ,email: string ,address: string) , //methods: registering() ,viewing profile() .
> - **class**(Employee)(attributes-id: int , job: String)
>   //methods: addEmployee (), removeEmployee (), increaseSalary (),
>   - Association Reflexive because the club admin is considered an employee

> ### Package2
> - **class** (sport) ;attributes :(SportName:string ,groupsList)
>
>   //methods addGroup (), groupAlreadyExists ().
>
> - **class** (Coach) attributes -age:int name:String experienceYears:int //methods appliedList:add()
> - **class**(Player) attributes(Name:String -team:int -score:int)
>   //methods TotalPoints ()
> - **class**(Registration)attributes(memberId:int -registrationId:int- registrationIdDate:int- coachId:int)
>   //methods register
> - **class**(Payment)attributes (bankpayment:int)
>   //methods Calculatepremium ()
> - **class**(clubactivities) attributes (description : string,name:string-activityid)
>   //methods getDescription () getSchedule () addParticipant () getParticipant () removeParticipant ()

- **class**(Bank)attributes (account : List)
  //methods getAccounts ()
- **class**(Equipment)attributes (name : string -quantity :int -condition :string)
  //methods issueEquipment() returnEquipment()
- **class**(Schedule)attributes(startDate: time -endDate: time)
  //methods daysOfWeek: String getEndDate ()

- coach subclass employee and The relationship between (ClubMemebr and Registration)-(payment and Bank)-(clubactivities and Schedule)-(Ground and Schedule)-(coach and Registration) **composition**
- (clubMemebr and Bank)-(Employee And Bank)-(Equipment and bank)Association: **Unidirectional**
- (ClubMember and Schedule)-(ClubMember and Clubactivities)-(ClubMember and Ground) Association: **Bidirectional**
- (sport and player) **Aggregation** Because they are in the same Package
- (sport and coach)**Dependencies** Because there is no sport without coach

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❖ Object Diagram.
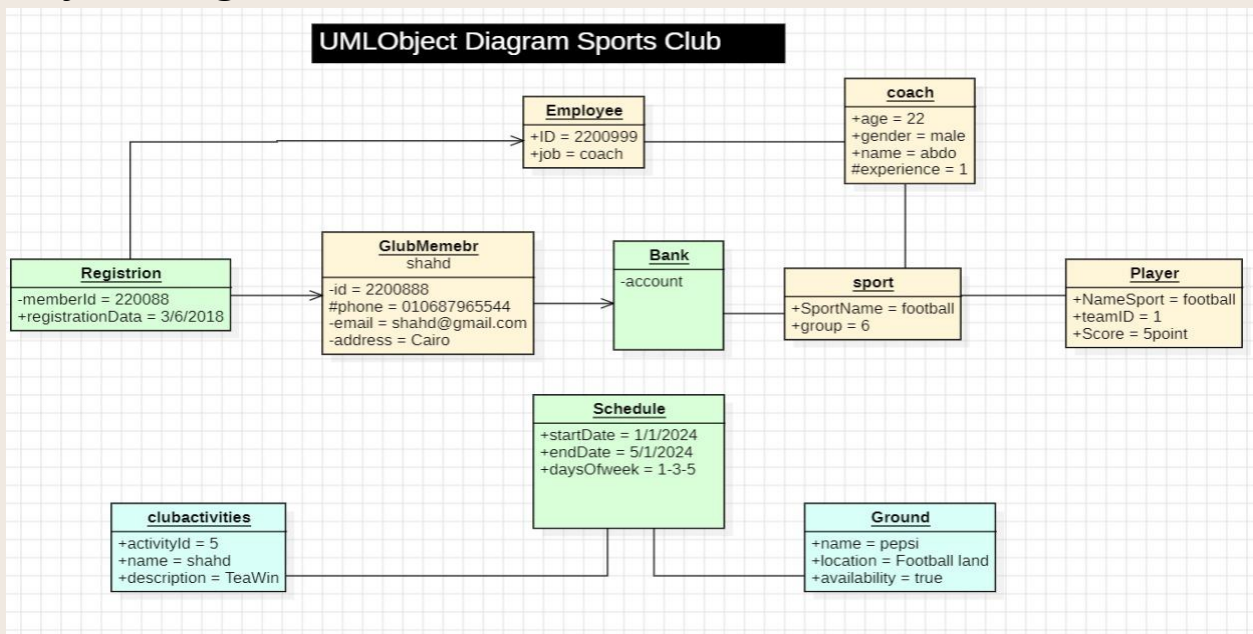
Club Member is a class representing a member of the club. Each member has an ID, phone number, email, and address.

The example provided has a club Member with an ID of 2200888, name Shahd, phone number 010687965544, email shahd@gmail.com, and address Cairo.

Employee is a subclass of Club Member, specifically for employees working at the club. It has additional attributes, such as job position and ID. The example provided has an Employee with an ID of 2200999, job position as coach, and name Abdu.

Bank is another class that represents a bank account associated with the club member. Each Bank account has an account number. The example provided does not show a specific bank account.

Schedule is a class that represents a coaching schedule. Each schedule has a start date, end date, and a list of days of the week on which coaching sessions take place. The example provided has a Schedule with a start date of 1/1/2024, end date of 5/1/2024, and days of the week 1-3-5.

Coach is a subclass of Employee, specifically for employees who are coaches. It has additional attributes, such as age, gender, and name. The example provided has a Coach with an ID of 2200999, age of 22, gender male, and name Abdu.

Sport is a class that represents a sport that can be practiced at the club. Each sport has a name and a group. The example provided has a Sport with the name "football" and group 6.

Ground is a class that represents a specific location where sports activities can take place. Each ground has a name, location, and availability status. The example provided has a Ground with the name "Pepsi", location "Football land", and availability status as true.

Player is a class that represents a player participating in the sports club activities. Each player has a name, sport, team ID, and score. The example provided has a Player with the name "football", sport "football", team ID 1, and score 5 points.

This diagram helps illustrate the structure and relationships of the various objects within the sports club system.
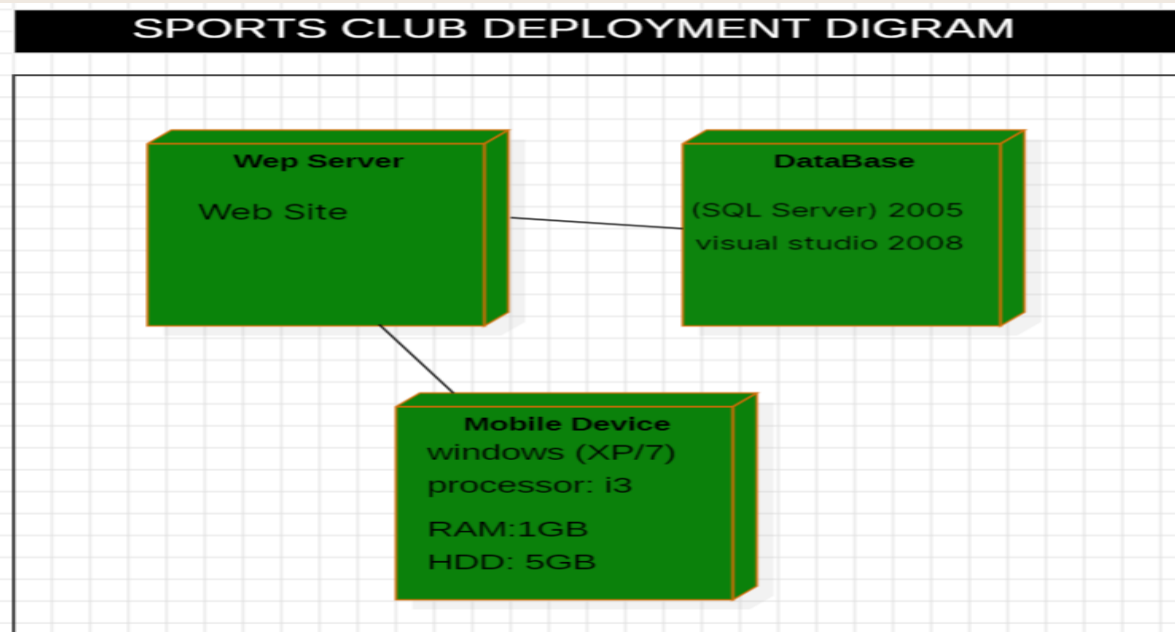

❖ Sequence Diagram.

- ➢ **Login Page:** The first interaction is with the Login Page. Club Members need to enter their valid credentials (Username and Password) to access the club's website. This stage involves checking if the user has provided valid information to login to the platform. If the information is correct, the user proceeds to the next stage. If not, an error message is displayed, and the user must re-enter the correct information.

- ➢ **Welcome Page:** If the login is successful, the user is greeted with a welcome message. On the WELCOME TO OUR SITE page, the Club Member can choose to register for a sports club, get an account schedule, or schedule an activity.

- ➢ **Registration:** If the Club Member chooses to register, they need to provide their information, such as name, contact details, and sport preference. The system will validate this data and display an appropriate message depending on the success or failure of the registration. Once registered, the Club Member can schedule activities or view the club's schedule; this stage allows users to register for membership. If the user's information is valid, they are considered registered members. Otherwise, an error message is displayed, and the user must re-enter the correct information.

- ➢ **Schedule and Activities:** the Club Member needs to select a date and time range. The system will calculate the premium based on the Club Member's chosen activity and duration. Registered members can view the available sports club activities and check their schedules. They can also select an activity to join.

- ➢ **Payment and Availability**: If the payment is successful, the Club Member will receive a confirmation message and will be able to access the scheduled activity, if the Club Member's account schedule needs to be updated, the Club Member can contact their bank and provide them with the necessary details. The bank will then update the Club Member's account schedule; The Club Member can also view their scheduled activities by logging into the website and selecting the appropriate option. To join a sports club activity, registered members need to make a payment and confirm their availability.

- ➢ **Sports and Coaches:** This stage involves the addition of new sports clubs and assigning coaches to those clubs. If a coach applies for a job, the application is either accepted or rejected based on the provided information.

❖ Component Diagram:

Sports Club Component Diagram
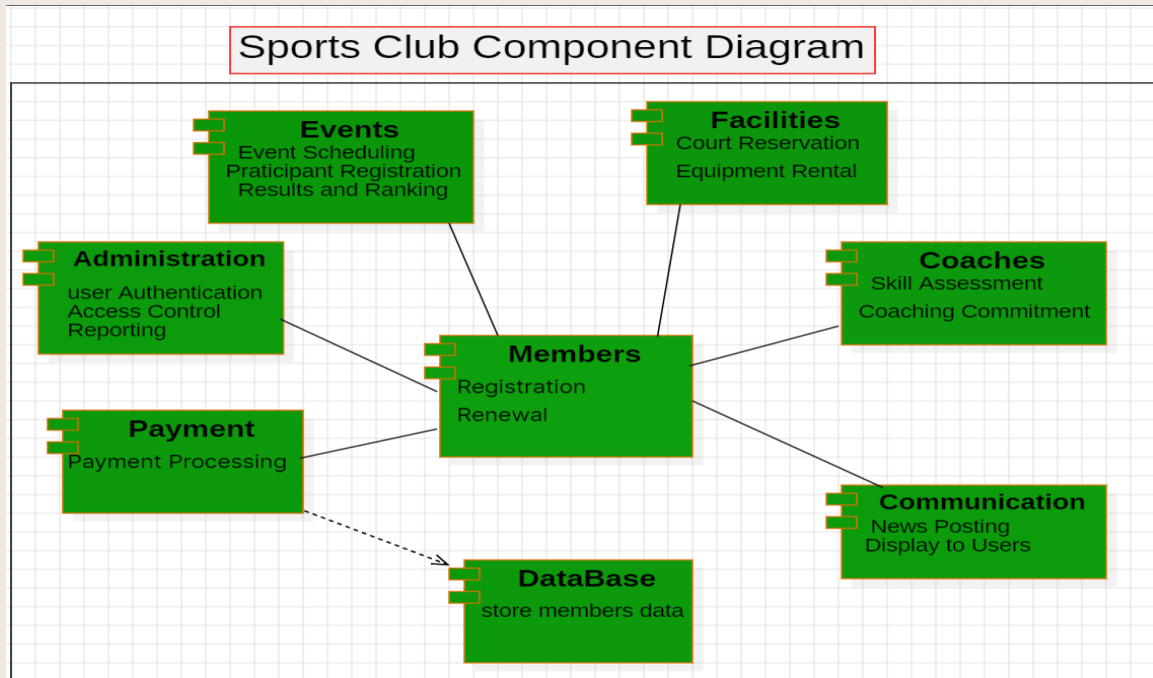
❖ The Component Diagram for the sports club system illustrates the structural organization of key units such as user accounts, administration, and the reservation system.

❖ The Component Diagram is employed to clarify the relationships and interactions between system components, exemplified by the communication between event management and user accounts.

❖ The organizational chart of the sports club system, as depicted in the Component Diagram, showcases its major components and their interactions, aiding in a comprehensive understanding of the system's overall structure.

❖ The Component Diagram highlights key sections like member management, coaching, and the reservation system, providing a clear analysis and comprehension of the system's components

❖ Deployment Diagram:

SPORTS CLUB DEPLOYMENT DIGRAM

Wep Server
Web Site

DataBase
(SQL Server) 2005
visual studio 2008

Mobile Device
windows (XP/7)
processor: i3
RAM:1GB
HDD: 5GB

❖ The diagram illustrates the physical distribution of software components and services on actual devices, with the sports club's application hosted on the "Web Server."

❖ The connected lines between the "Web Server" and "Cloud Storage" depict how mobile devices interact with the application online, enhancing member engagement with the system.

❖ The "Database Server" represents the storage location for sports club-related data, such as member details and events, showcasing how data flows between the server and the database.