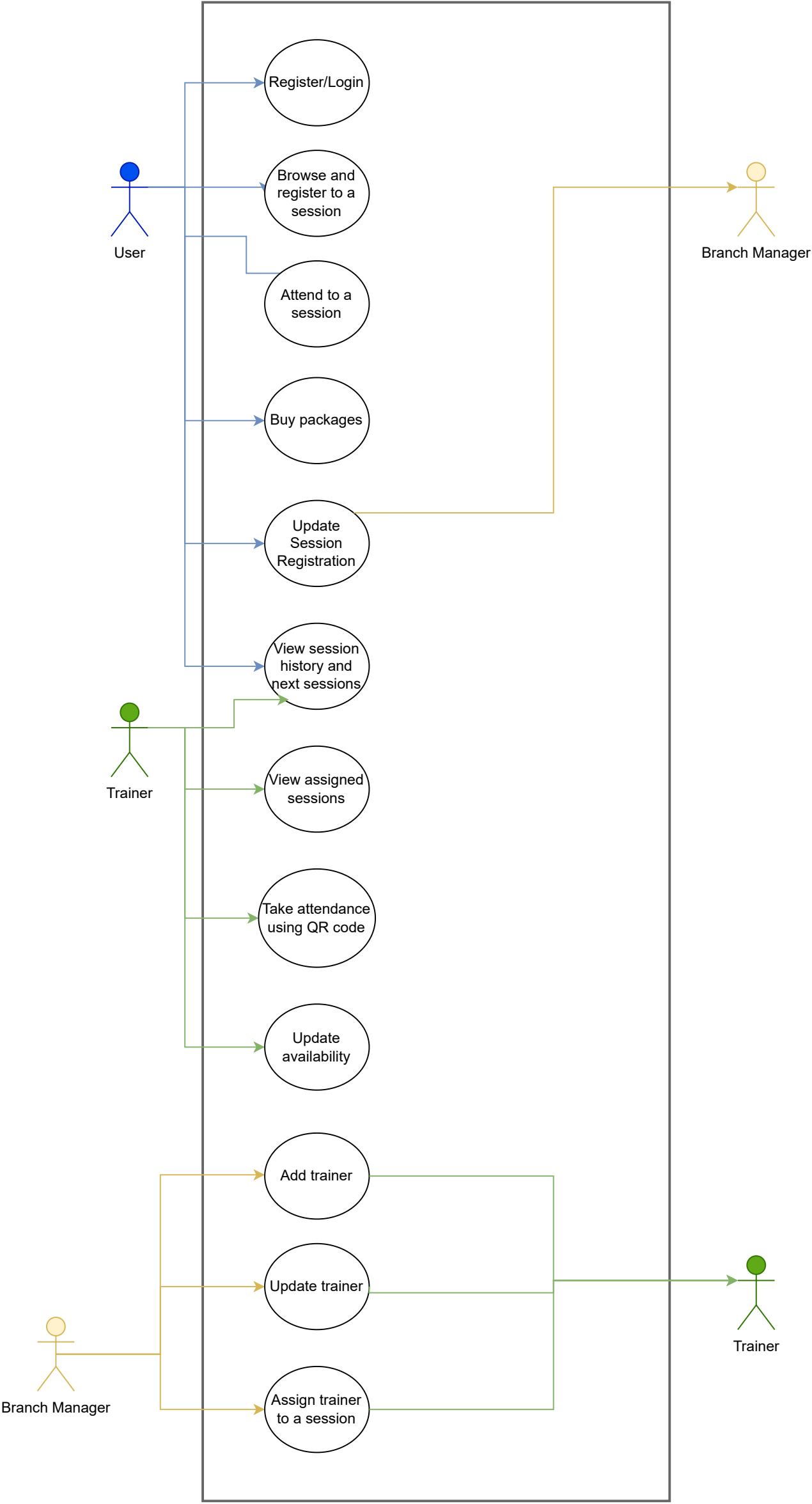# CSE 343 – SOFTWARE ENGINEERING

Assignment 1 – MinFit Use Cases

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1. Use Case Diagram

2. Use Cases

3. Challenges

MinFit web/mobile App

- User
- Branch Manager
- Trainer

Use cases:
- Register/Login
- Browse and register to a session
- Attend to a session
- Buy packages
- Update Session Registration
- View session history and next sessions
- View assigned sessions
- Take attendance using QR code
- Update availability
- Add trainer
- Update trainer
- Assign trainer to a session

System	MinFit Mobile App
Use Case	Register
Actors	User
Data	Personal information, credentials
Stimulus	New user wants to create a new account in the system
Response	System creates new account with the data in the system's database
Comments	Every account has to register to use the application, registration needs personal info and additional verification like sms and email verification or MinFit's private login code.

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System	MinFit Mobile App
Use Case	Login
Actors	User, Trainer, Branch Manager
Data	Personal information, credentials
Stimulus	User, Trainer or Branch Manager wants to login their account to use the app
Response	System evaluates the login information and if the information is authorized allows the user, trainer or branch manager to use the app
Comments	Every account has to login the app for personalized user experience and to be authorized

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System	MinFit Mobile App
Use Case	Browse Sessions
Actors	User
Data	Session schedules, availability of sessions, user preferences
Stimulus	User wants to see the the sessions according to his/her preferences
Response	System displays available and non-available sessions according to user's preferences
Comments	The user should see the all the sessions according to his/her prefences with a good looking user interface and personal recommendations which the app gives.

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System	MinFit Mobile App
Use Case	Register a session
Actors	User
Data	Session schedules, availability of sessions, user session choice
Stimulus	User wants to register to a session
Response	System checks if the session that user wants to register is avaliable for the user. If avaliable (a user can register max 3 sessions a week), system registers the user to that session else it doesn't. System displays a message according to user's registration status
Comments	The system should handle the traffic for registering to sessions smoothly and it has to make necessary authoritazions

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System	MinFit Mobile App
Use Case	Attend to a session
Actors	User
Data	User's registered sessions, location details (for in-person sessions), online session links (for online sessions)
Stimulus	User wants to attend to a session
Response	The system provides the user with access to the session, either by confirming their attendance at a physical location or by providing a link/access to a online session
Comments	The user can attend to online or in-person sessions which is good. The app can hold the record of the attendence of the user and can punish the user

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System	MinFit Mobile App
Use Case	Buy packages
Actors	User
Data	Package details (pricing, package choice), payment information, user account details
Stimulus	User wants to buy packages to attend extra sessions or gain additional benefits
Response	The system presents different package options. The user selects a package and completes the payment process using their preferred payment method. The system confirms the purchase and updates the user's account with the package benefits
Comments	This is where the app makes money. The app should handle the payment without problems and should give a good and friendly user interface to charm the user

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System	MinFit Mobile App
Use Case	Update session registration
Actors	User
Data	User's current session registrations, availability of alternative sessions, user preferences
Stimulus	The user needs to change their registration for a session due to a schedule conflict or a change in preference
Response	The system presents available alternatives in the same week based on the user's criteria. The user selects a new session, and the system updates the registration and confirms the change. If the branch manager confirms the system can postpone the user's registrated session to the next weeks
Comments	Updating the session dates contributes the app as flexibility and increases the user's satisfaction which is very good for the app. It can have some checks to prevent overbooking

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System	MinFit Mobile App
Use Case	View sessions history and next sessions
Actors	User, Trainer
Data	Records of past session attendance, schedule of upcoming registered sessions
Stimulus	The user or trainer wants to review their past session activity or view upcoming sessions
Response	The system displays a history of attended sessions and a list of upcoming sessions, providing details like dates, times, and session content
Comments	This use case is important for user engagement and helps in tracking fitness progress. It might also include performance metrics like how much time did the sessions last or how much calorie burned etc.

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System	MinFit Mobile App
Use Case	*View assigned sessions*
Actors	*Trainer*
Data	*Trainer's session schedule, details of assigned sessions (time, location, session type)*
Stimulus	*The trainer wants to view their schedule for upcoming sessions*
Response	*The system provides an overview of the trainer's upcoming sessions, including any recent changes or special instructions*
Comments	*This use case aids trainers in time management and session preparation. It should be updated in real-time to reflect any schedule changes*

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System	MinFit Mobile App
Use Case	*Take attendance using QR code*
Actors	*Trainer*
Data	*Session attendance records, QR codes associated with each session*
Stimulus	*The trainer wants to take the attendance for the session he/she is at*
Response	*The trainer scans the QR code presented by each attendee or at the session location. The system records attendance and updates the session records*
Comments	*This use case makes convenient the attendance process and reduces manual errors. It requires the system to generate and recognize QR codes efficiently*

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System	*MinFit Mobile App*
Use Case	*Update availability*
Actors	*Trainer*
Data	*Trainer's availability schedule, session calendar*
Stimulus	*The trainer wants to update their available times for taking sessions*
Response	*The trainer inputs their available times into the system. The system updates the trainer's profile and session schedule availability accordingly. This information is then used for assigning sessions*
Comments	*This use case is crucial for session scheduling. It must be flexible to accommodate changes in the trainer's schedule and should reflect in real-time to avoid scheduling conflicts*

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System	*MinFit Mobile App*
Use Case	*Add trainer*
Actors	*Branch Manager*
Data	*New trainer personal and professional details, credentials, qualifications*
Stimulus	*The branch manager wants to add a new trainer to the MinFit system*
Response	*The branch manager enters the new trainer's details into the system, which creates a new trainer profile. The trainer is then able to access the system and be assigned to sessions*
Comments	*This process is for expanding the staff and it is good to have some verification steps for accurracy like registering*

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System	MinFit Mobile App
Use Case	Update trainer
Actors	Branch Manager
Data	Existing trainer profile, updated information (contact details, qualifications, etc.)
Stimulus	The branch manager wants to update information for an existing trainer in the system
Response	The branch manager accesses the trainer's profile and updates the necessary information. The system saves these changes and reflects them in the trainer's profile
Comments	The system might need to validate changes for security and accuracy

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System	MinFit Mobile App
Use Case	Assign trainer to a session
Actors	Branch Manager
Data	Trainer availability, session schedule, trainer profile
Stimulus	The branch manager wants to assign a trainer to a session
Response	The branch manager reviews the list of available trainers and their profiles along with the upcoming session details. Using the system, the branch manager matches trainers to sessions based on compatibility, availability, and session requirements. The system updates the session details to reflect the assigned trainer
Comments	This process basically about branch manager assigning a trainer based on trainer's availability and schedule to a session. Which gives a good power to branch manager to operate the sessions and schedule

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Challenges

Technical Challenges

1. **System Integration**: Ensuring seamless integration of the mobile app with existing databases and backend systems, including real-time data synchronization.

2. **Scalability and Performance**: Designing the app to handle a growing number of users and sessions without performance degradation, especially during peak usage times.

3. **Data Security and Privacy**: Protecting sensitive user data, including personal information and payment details, against unauthorized access and breaches.

4. **Reliability**: Ensuring the app is reliable and available, particularly for critical features like session registration and attendance tracking.

User Experience Challenges

1. **Intuitive Design**: Creating a user-friendly interface that accommodates users of varying tech-savviness, with clear navigation and accessibility features.

2. **Personalization**: Offering a personalized experience, such as recommending sessions based on user preferences and history.

Operational Challenges

1. **User Adoption**: Encouraging users to effectively transition to and regularly use the new app, especially for features like package purchases and session registration.

2. **Real-Time Updates**: Ensuring that session changes, trainer assignments, and other updates are reflected in real-time to avoid scheduling conflicts and misinformation.

Managerial Challenges

1. **Session and Trainer Management**: Enabling branch managers to efficiently manage session schedules and trainer assignments, including handling last-minute changes.

2. **Regulatory Compliance**: Adhering to legal and industry standards, particularly regarding user data handling and financial transactions.

3. **Reporting and Analytics**: Providing comprehensive reporting tools for branch managers to monitor app usage, session attendance, and user engagement.

Challenges Specific to Use Cases

1. **Session Registration Traffic Management**: Handling high traffic and server load during peak registration times to prevent system crashes or slowdowns.