

CCAS.4.3: Project

Milestone 1

Malak Hesham - 202200011

Malak Ehab - 202200069

Zeina Shebl - 202200080

Mariam Sherif - 202200825

CCAS.4.3 Software Engineering

Dr. Samar Hesham

Fall 2025

Milestone 1:

Introduction:

This Gym Management System focuses on automating key gym operations such as client management, training and nutrition planning, and coach allocation. The system is developed to enhance usability and efficiency while maintaining high performance, strong security measures, and room for future growth.

Functional Requirements:

ID	Requirement	Category (MoSCoW)	Justification
REQ_001	The system shall allow users to create a member account with full profile details such as name, contact information, DoB etc...	Must Have	So that the user can create an account with saved information
REQ_002	The system shall allow admins to create, update, and delete client profiles containing training and coaching information	Must Have	To manage the members' training data
REQ_003	The system shall allow clients to purchase or renew memberships online or at reception.	Must Have	To enable direct sales and convenience

REQ_004	The system shall allow clients to view their nutrition and training programs assigned by their coaches	Must Have	To allow them to stay on track during their fitness journey
REQ_005	The system should allow coaches to assign nutrition plans to clients and update them periodically.	Should Have	To enhance their fitness goals
REQ_006	The system should allow coaches to record and monitor clients' progress metrics (weight, reps, PRs).	Should Have	To maintain performance tracking
REQ_007	The system should support secure online payment gateway integration.	Should Have	For convenience and to enhance payment options
REQ_008	The system should send automated notifications for booking confirmations and membership expiries.	Should Have	To keep the users informed
REQ_009	The system could provide visualization charts for progress tracking (e.g., weight trend graph).	Could Have	To motivate the clients
REQ_010	The system could allow clients to set personal fitness goals (weight loss,	Could Have	Enhances personalization and user motivation

	muscle gain, etc.) within their profile.		
REQ_011	The system could provide recommended classes for clients based on their goals.	Could Have	Improves user engagement
REQ_012	The system could notify clients about seasonal offers, new equipment, or new classes.	Could Have	To promote gym events and activities
REQ_013	The system will not include predictive analytics or machine learning forecasting tools.	Won't Have	Hard to make predictions if clients are not consistent
REQ_014	The system will not include online classes or workout video videos	Won't Have	To motivate people to actually go to the gym instead of work out at home
REQ_015	The system will not include social networking features between clients	Won't Have	Not essential to core operations of the system

Non Functional Requirements:

ID	Requirement	Category (MoSCoW)	Justification
NFREQ_001	Website pages must load within 3 seconds	Must Have	Slow pages reduce user satisfaction and may cause members to leave the site
NFREQ_002	Support at least 100 concurrent users	Must Have	Ensures the system can handle peak gym hours
NFREQ_003	System uptime must be at least 99%	Must Have	Members rely on the site for schedules, bookings, and payments
NFREQ_004	Passwords must be securely stored	Must Have	Protects member accounts
NFREQ_005	Website must be responsive on different sized devices	Must Have	Users access gym services using different devices
NFREQ_006	Daily automated backups must be performed	Should Have	Ensures data can be restored in case of failure
NFREQ_007	Search results should load within 2 secs	Should Have	Enhances user experience and efficiency

NFREQ_008	System should support future module expansion (e.g., nutrition plans)	Should Have	Allows long-term scalability with no redesign
NFREQ_009	Tooltips/help messages should be provided for main actions	Could Have	Improves usability for new users
NFREQ_010	Accessibility compliance (WCAG)	Won't Have	Not prioritized due to project scope

Use Case Scenarios:

1) Member Registration

Actor: Admin

Goal: Add a new member to the system

Preconditions: Admin is logged in

Main Flow:

1. Admin selects "Add Member."
2. Admin enters the member's personal details.
3. Admin saves the profile.

Postconditions: A new member profile is created and stored in the database.

2) Viewing recommended classes

Actor: Member

Goal: To discover classes that match their goals

Preconditions: Member must be logged in and have their goals set

Main Flow:

1. Member opens "Recommended Classes."

2. System analyzes goals and available classes.
3. System displays suitable recommendations.
4. Member views class details.

Postconditions: Member has successfully received personalized class recommendation

3) Coach assigning a training plan

Actor: Coach

Goal: To assign a new or update an existing training plan

Preconditions:

1. Coach is logged in
2. Member account exists

Main Flow:

4. Coach searches for a member profile.
5. Open "Training Plan" section.
6. Coach creates or edits the training plan (exercises, sets, reps, frequency).
7. Click 'save changes'.
8. System notifies the member.

Postconditions: The training plan is saved to the user's profile

4) Member Booking a Class

Actor: Member

Goal: Book a training class/session

Preconditions: Member has an active subscription

Main Flow:

1. Member logs into their account.
2. Member views available classes and schedules.
3. Member selects a class.
4. System confirms booking and updates class capacity.

Postconditions: Class is added to the member's schedule.

5) Member Viewing Their Nutrition Plan

Actor: Member

Goal: Access assigned nutrition plan

Preconditions: Nutrition plan must be assigned by the coach

Main Flow:

1. Member logs in.
2. Member navigates to the “Nutrition Plan” section.
3. System displays the daily/weekly plan.
4. Member downloads or views details.

Postconditions: Member successfully views their nutrition plan.

