Gym & Class Management System

Assignment # 1

By Azka Maryam-BSE233077

Ayesha Malik-BSE233105

Abdul Hadi-BSE233222

Lecturer Ms. Hina Rashid

Introduction to Database System

Capital University of Science & Technology

Gym & Class Management System

Database Planning

The planning process for the database involves identifying the core entities and their relationships. For this project, we focused on entities such as members, instructors, classes, equipment, schedules, and attendance. Planning included deciding what data each entity should store and how they interact with each other. The main goal is to create an efficient structure that supports class management, attendance tracking, and equipment monitoring.

Mission Statement & Objectives

Mission Statement

To develop a comprehensive database management system that efficiently handles gym memberships, class schedules, instructor profiles, and equipment inventory, while providing insightful analytics on class popularity and member attendance.

Objectives

- Manage gym member profiles, membership types, and attendance records.

- Maintain accurate class schedules and track class popularity.

- Store and monitor equipment inventory and maintenance history.

- Manage instructor profiles and availability.

- Enable fitness progress tracking for members (future enhancement).

- Integrate class reminder notifications for users (future enhancement).
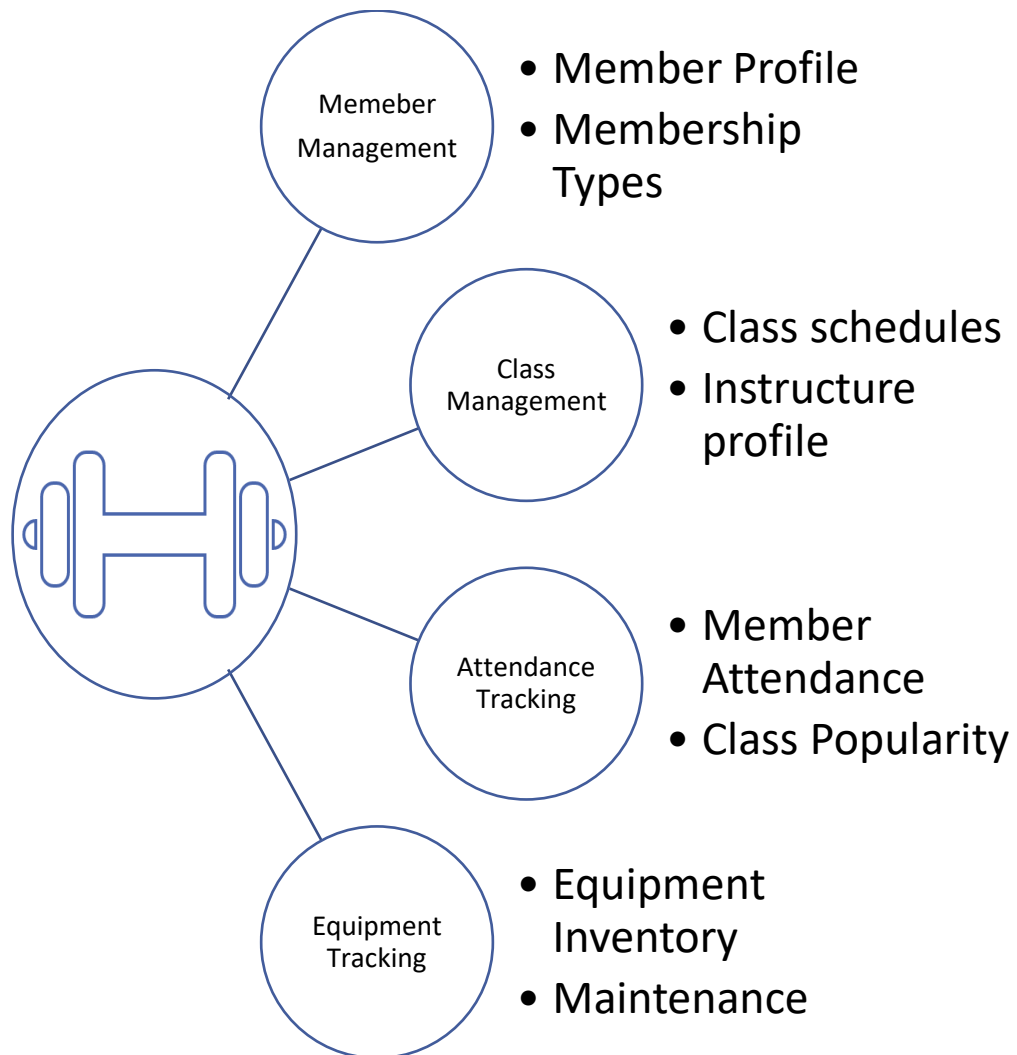
System Definition

Scope

This system is designed for gym owners and staff to manage day-to-day operations like member registrations, class schedules, instructor profiles, and equipment inventory. It allows tracking member attendance and analysing class popularity, helping gym managers optimize their resources. Future expansions include fitness progress tracking and reminder notifications for members.

Purpose

To centralize and streamline gym operations, reducing manual workload and providing valuable insights through class popularity data, member activity tracking, and equipment management.

System Boundary Diagram

- Member Profile
- Membership Types

- Class schedules
- Instructure profile

- Member Attendance
- Class Popularity

- Equipment Inventory
- Maintenance

(Circles: Memeber Management, Class Management, Attendance Tracking, Equipment Tracking)

User Views and Data Cross-reference

USER VIEW	DATA USED
MEMBER MANAGEMENT	Member profiles Membership types
CLASS MANAGEMENT	Class schedules Instructor profiles
ATTENDANCE TRACKING	Member attendance Class popularity
EQUIPMENT TRACKING	Equipment inventory Maintenance

Requirement Collection and Analysis

Requirement-Gathering:
For this project, requirements were collected through interviews with gym managers and instructors and surveys completed by members. During interviews, gym managers highlighted a growing need for automated scheduling and attendance tracking, particularly as membership numbers increase. This reflects the wider trend among gyms in Pakistan and globally, where digital systems are increasingly essential for managing large customer bases. A study from the International Health, Racquet & Sports club Association (IHRSA) shows that fitness facilities worldwide are adopting similar digital solutions to improve member experience and operational efficiency.

In Pakistan, gym owners often find it challenging to maintain equipment inventories and track class popularity manually. To address this, features like equipment inventory management and analytics for class popularity were prioritized, allowing gyms to identify popular classes and optimize resources. This aligns with a survey by the Pakistan Fitness Federation (PFF), which indicated that many gym owners seek automated systems to better manage high-demand classes and monitor equipment usage.

Analysis:
The data collected was analysed to prioritize the main features of the system, including member profile management, class schedules, attendance, and equipment inventory. Insights gained from gym managers showed a high demand for fitness progress tracking and class reminders to keep members engaged and consistent in their attendance. Worldwide, gyms that use similar features have reported increased customer satisfaction and retention, as digital tracking helps members monitor their fitness journey and stay motivated.