



AMCS2084 Mini Project (202509)

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Programme	DSF2S2				
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Date of submission	28 December 2025				
Student's name	Final Documentation (30 marks)	Software Modelling (30 marks)	Prototype (30 marks)	Meeting with Supervisor (10 marks)	Total 100%
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3. Yong Hao Cheng					
Remarks:					

Declaration Form

Semester:	202509 semester	Course Code & Title:	AMCS2084 Mini Project
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Signature(s):	1. <i>Ian</i>	2. <i>Rowan</i>	3. <i>yong</i>
Name(s):	1. Ian Chin Kar Le	2. Rowan Yee Xiao Peng	3. Yong Hao Cheng
Date:	22 December 2025		

Assessment Rubrics

1. Final Documentation (CLO1 – 30 marks)

Criteria	Excellent	Good	Satisfactory	Weak / Incomplete	Marks
Background of Study	5 marks Clear, well-written, strong real-world relevance	4 marks Clear but limited context	3 marks Basic background	1–2 marks Unclear / irrelevant	/5
Problem Statement	5 marks Specific, well-defined, justified	4 marks Clear but lacks depth	3 marks General problem	1–2 marks Vague / incorrect	/5
Objectives & Scope	6 marks Clear, measurable, well-aligned	4–5 marks Mostly clear	3 marks General objectives	1–2 marks Poorly defined	/6
Feasibility Study	8 marks Technical, economic & operational well analysed	6–7 marks Two aspects covered	4–5 marks One aspect only	1–3 marks Weak / missing	/8
Gantt Chart / Timeline	6 marks Complete, realistic, well-structured	4–5 marks Mostly logical	3 marks Basic timeline	1–2 marks Missing / unrealistic	/6
Subtotal (CLO1) Group Marks					/30

2. Software Modelling (CLO3 – 30 marks)

Criteria	Excellent	Good	Satisfactory	Weak / Incomplete	Marks
Functional Requirements	6 marks Complete, clear, structured	4–5 marks Mostly complete	3 marks Basic list	1–2 marks Incomplete	/6
Non Functional Requirements	4 marks Relevant & measurable	3 marks Reasonable coverage	2 marks Basic mention	0–1 marks Missing	/4

DFD / ERD	10 marks Accurate, logical, well-labelled	7–9 marks Minor errors	4–6 marks Basic diagrams	1–3 marks Incorrect/missing	/10
Database Design	5 marks Normalized, proper relationships	4 marks Mostly correct	3 marks Basic tables	1–2 marks Poor design	/5
Interface Design (UI/UX)	5 marks User-friendly, consistent	4 marks Clear but basic	3 marks Minimal design	1–2 marks Poor/missing	/5
Subtotal (CLO3) Group Marks					/30

3. Prototype (CLO2 – 30 marks)

Criteria	Excellent	Good	Satisfactory	Weak / Incomplete	Max
System Functionality	10 marks Fully functional, all requirements met	7–9 marks Minor issues	4–6 marks Core functions only	1–3 mark Not functional	/10
Module Implementation	6 marks Clear ownership, well-implemented module	4–5 marks Mostly correct	3 marks Limited contribution	1–2 marks No clear module	/6
Source Code Quality	6 marks Clean, structured, commented	4–5 marks Understandable	3 marks Basic structure	1–2 marks Poor quality	/6
Testing (Test Cases & Results)	8 marks Complete test cases with screenshots	6–7 marks Adequate testing	4–5 marks Limited tests	1–3 marks Missing	/8
Subtotal (CLO2) Individual Marks					/30

4. Meeting with Supervisor (CLO4 – 10 marks)

Criteria	Excellent	Good	Satisfactory	Weak / Incomplete	Max
In-Class Engagement	3 marks Consistently attentive and engaged during class supervision.	2 marks Generally attentive and participates during class supervision.	1 mark Occasionally attentive but largely passive during supervision.	0 mark Rarely attentive or disengaged during class supervision.	/4
Responsibility in Task Progress	4 marks Consistently completes assigned tasks on time and shows clear progress during supervision.	3 marks Completes assigned tasks with minor guidance and acceptable progress.	2 marks Partial task completion with frequent reminders.	0–1 mark Tasks not completed or no progress shown.	/3
Professional Behaviour & Self-Discipline	3 marks Demonstrates responsible, disciplined, and professional behaviour throughout class sessions.	2 marks Generally responsible with minor lapses in discipline.	1 mark Occasionally shows lack of discipline or focus during class.	0 mark Unprofessional behaviour or lack of self-discipline during class sessions.	/3
Subtotal (CLO4) Individual Marks					/10

Report Topics	Suggested No. of Page(s)	Remarks
a) Cover Page	1	Refer to Appendix 1
b) Table of Content	1	-
c) Final Assessment Declaration	1	Refer to Appendix 2
d) System planning	5	Project proposal - Problem statement - Objectives and scope - Feasibility study - Gantt chart or project timeline
e) System analysis	5	- Functional & non-functional requirements - DFD <u>and</u> ERD (UML if applicable) - or others if applicable
f) System design	Depends on system's complexity	- Database design - Interface design - Data dictionary - or others if applicable
g) System development	Depends on system's complexity	- Source code - Description of implementation tools and methods
h) System testing	Depends on system's complexity	- Test plan and test cases - Test results and debugging records - or others if applicable
i) User Manual	Depends on system's complexity	Screen captures system UI and descriptions
j) References	1	APA Referencing
k) Assessment Rubrics	1	Refer to Appendix 3

1.0 System Planning

- 1.1 Background of Study
- 1.2 Problem Statement
- 1.3 Objective
- 1.4 Scope of Study
- 1.5 Project Feasibility
 - 1.5.1 Technical Feasibility Study
 - 1.5.2 Social and Operational Feasibility Study
 - 1.5.3 Economic Feasibility Study
- 1.6 Project Timeline

1.1 Background of Study

In many organizations nowadays, many processes are still being managed manually using paper forms, spreadsheets, or with basic communication tools such as WhatsApp and email. In the fitness industry, this reliance on traditional methods often leads to issues such as missing information, delays in processing, human error, and difficulties in maintaining accurate records. As the volume of classes and client data increases, manual management becomes inefficient and unable to meet modern operational needs.

The health and fitness industry has been undergoing a significant digital transformation, rapidly shifting towards digital management tools such as app-based booking, remote training, and personalized client portals. In this competitive and evolving industry, our client, KP Fitness, a single-location, growing local fitness center, hopes to stay relevant against other competitors. Thus, they need a dedicated, modern web-based application system to manage their primary revenue sources, which are class reservation and memberships.

Therefore, we have proposed to develop the KP Fitness Class Reservation System aims to address these identified problems by providing a structured and user-friendly platform. This comprehensive, centralized, and intelligent platform integrates key functionalities such as three-tier user authentication, real-time class management, and automated reporting features, which help streamline operations and improve client loyalty. This project is expected to provide a more systematic, accurate, and convenient solution compared to the existing manual processes, which will surely help KP Fitness solve their operational challenges and grow their business.

1.2 Problem Statement

We have identified that the current existing system used by KP Fitness consists of several critical limitations and problems that the proposed system must address and solve in order to improve the overall business performance.

1. Manual Booking Conflicts: Scheduling and reservations are handled manually via spreadsheets, messaging apps like WhatsApp, and phone calls. This led to frequent double-bookings and reservation errors due to solely reliance on staff memory to mark down everything manually.
2. Inefficient Payment Processing: Membership tracking and payments are done manually or through disconnected systems. This results in delayed billing cycles, difficulty in managing non-renewal issues, and a time-consuming reconciliation process for administrative staff.
3. Poor Real-Time Visibility: Clients lack immediate, real-time views of the fitness class availability and capacity. This forces the clients to contact staff for confirmations, creating communication bottlenecks and decreasing the perceived quality of customer service.
4. Lack of Data Insight: Management team lacks centralized data, making it difficult to generate accurate and timely reports on class popularity, trainer performance, or membership retention rates. This absence of data hinders strategic business decisions.
5. Limited User Engagement: The lack of integrated digital features like automated reminders, personalized recommendations, or health tracking system led to limited user engagement and potentially low client retention.

1.3 Project Objectives

Project Objectives (SMART)

1. Reservation: To develop a fully functional, role-based reservation module that allows clients to book, view, and cancel class sessions in real-time, with the measurable goal of reducing reservation errors to zero within the system.
2. Authentication: To implement a secure three-tier user authentication system (Admin, Trainer, Client), ensuring that access privileges strictly align with roles.
3. Billing: To integrate a basic payment tracking system that registers a client's specific subscription type (monthly/yearly/one-time) and allows administrators to view billing histories and manage auto-renewal status.
4. Usability: To design a clean, responsive User Interface (UI) accessible across desktop devices, requiring minimal training for end-users to enhance operational efficiency.
5. Report Generation: To generate useful reports or summaries that can assist administrators in monitoring system performance, making important business decisions, and evaluating the system usage.

1.4 Scope of Study

The proposed system focuses on developing a web-based application designed for the KP Fitness Class Reservation System. This system will be accessible to three distinct types of registered users: Administrator, Trainer, and Client.

Role-Specific Scope and Functions:

- The Administrator will have full system control, including user management (CRUD for all users), class scheduling and content management, managing membership and payment status, generating all system reports (attendance, popularity), and maintaining system configurations.
- For Trainers, the system provides functionality such as login authentication, profile management, viewing their assigned class schedule, updating class attendance records, and viewing relevant client health metrics (Age, Height, Weight) for class preparation.
- For Clients, the system allows functionality such as account registration, secure login, profile management, viewing the real-time class schedule, making and canceling class reservations, viewing personal health metrics (BMI), and tracking personal membership status.

The system will be developed using HTML, CSS, JavaScript, and PHP as the server-side language, with MySQL as the primary database. The system will run on a web browser environment and is hosted on a local server using XAMPP.

Core Technical Inclusions:

- User Roles and Access: Full implementation of the three roles (Admin, Trainer, Client) with distinct dashboard views and Role-Based Access Control (RBAC).
- Core Functions: Real-time class scheduling, session booking, dynamic capacity updates, subscription and auto-renewal status tracing for membership, and administrative reporting.
- Advanced Features: Implementation of the Trainer Management module and AI-Assisted Scheduling (via a rule-based algorithm).

Exclusions (System Limitations):

- Complex Financial Integration: The system will simulate payment processing (recording successful transactions locally) and will not integrate with live external banking APIs (e.g., Stripe or PayPal).
- Membership Plan: the system does support tiered membership structures (e.g., 8-Class Pass vs. Unlimited Monthly), allowing for upgrades and downgrades.
- External Mobile App Development: The project focuses solely on the responsive web application accessible via a standard web browser.
- Deep AI/ML Modeling: The use of AI components will be simulated using simple rules and logic, rather than requiring the development and training of complex machine learning models, ensuring technical feasibility within the project timeline.
- Real-time Communication: Real-time features such as live chat or push notifications are excluded.

1.5 Feasibility Study

A Feasibility Study is conducted to determine whether the proposed system is viable and justifiable from a technical, operational, economic standpoint.

1.5.1 Technical Feasibility Study

The development of the proposed KP Fitness Class Reservation System is technically feasible based on the availability of required hardware, software, and technical skills. The system will be built as a web-based application using commonly available technologies and development tools.

1. **Hardware Requirements:**

The project requires only basic computing hardware such as a laptop or desktop with a minimum of 8GB RAM and a modern processor to run development tools such as XAMPP and Visual Studio Code. Users only need a standard Internet-enabled device such as laptop or desktop to access the system through a web browser. No specialized hardware is required.

2. **Software Requirements:**

The system will be developed using open-source, industry-standard technologies such as HTML, CSS, JavaScript, and PHP. MySQL will be used as the database system, while XAMPP/Apache will serve as the local development server. Additional tools such as VS Code, GitHub, and browser developer tools will be utilized to support development, debugging, and version control.

3. **Technical Skills Required:**

The project required skills in web development, database design, UI/UX, and system testing are already covered in related coursework, and additional knowledge can be obtained through documentation and online tutorials. The chosen technologies for PHP/MySQL are also mature and well-documented. Therefore, the required technical competencies can be achieved within the development timeline.

4. **System Architecture Feasibility:**

The system will adopt a standard Client-Server Architecture (or Three-Tier Architecture) where the PHP backend handles all logic and database interactions. This architecture is straightforward to implement and fully supported by the chosen stack.

5. **Availability of Tools & Technologies:**

All tools required for development are free, widely available, and compatible with the developer's environment. This ensures that the system can be developed, tested, deployed, and maintained without incurring high costs or requiring specialized resources.

Based on these factors, the development of the KP Fitness Class Reservation system is considered Technically Feasible.

1.5.2 Social and Operational Feasibility Study

Social Feasibility Study

The proposed KP Fitness Class Reservation System is socially feasible because the target users (Admin, Trainer, Client) are already familiar with using digital platforms and web applications in their daily activities. The system introduces a more structured, efficient, and transparent way of managing tasks, which is expected to be well-received by users, leading to greater satisfaction and improved communication.

The system reduces manual workload, minimizes errors, and improves communication between users, trainers, and administrators. This leads to greater satisfaction and smoother operations during peak hours. As most users already possess devices like laptops and desktops with internet access, no major challenges in system adoption are expected.

Overall, the project brings positive social impact by promoting digitalization, improving user experience, and supporting a more organized workflow within the business.

Operational Feasibility Study

The implementation of the KP Fitness Class Reservation System is Operationally Feasible as it aligns with and significantly improves the current workflow. The web-based design ensures accessibility, ease of use, and fast processing of tasks compared to the existing manual methods.

The interface is user-friendly, allowing users, trainers, and administrators to operate the system with minimal training needed. The system automates repetitive tasks such as manual booking and record tracking, enhancing efficiency and reducing errors.

Maintenance of the system is manageable as the chosen technologies used (e.g., PHP, MySQL, HTML, CSS) are widely supported and easy to update. Administrators can manage users and trainers, update content, and monitor business activities without requiring advanced technical knowledge.

Given these factors, the KP Fitness Class Reservation System is sustainable, reliable, and capable of supporting long-term operations within the business.

1.5.3 Economic Feasibility Study

Economic feasibility evaluates whether the proposed system is financially practical, cost-effective, and capable of delivering long-term economic value. This study compares the total development and operational costs against the expected financial benefits derived from improved efficiency, reduced manual workload, and enhanced productivity. To determine the system's financial viability, several financial indicators including Cost and Benefit Analysis, Return on Investment (ROI), and Payback Period are analyzed. A system is considered economically feasible when its benefits outweigh its associated costs and yields positive financial returns over its operational lifetime.

The system involves two major categories of cost:

Development Costs (One-Time Cost)

These are incurred during the creation and implementation of the system.

Hardware cost	Use of existing laptops and devices for development.
Software cost	Development tools such as VS Code, XAMPP, and MySQL (open-source).
Labour cost	Estimated time and effort required to design, develop, and test the system. (6 weeks)
Training cost	Resources used for learning technologies or methodologies.
Deployment cost	Hosting setup

Table 1

Total Development Cost: RM 30,000

Operational and Maintenance Costs (Recurring Cost)

These costs occur after the system is deployed.

Maintenance Cost	Updates, bug fixes, enhancements.
Hosting Cost	Annual web hosting or server cost.
Support Cost	User support and simple system administration.

Table 2

Yearly Maintenance Cost: RM 6,000

Summary of Cost Categories

Cost Category	Description	Cost (RM)
Development Cost	One-time cost for system creation	30,000
Annual Maintenance Cost	Recurring cost for updates, hosting, support	6,000/year
Total Cost Over 5 Years	RM 30,000 + (6,000 × 5 years)	60,000

Table 3

Benefit Identification:

The system provides significant financial and operational benefits, including:

1. Reduced administrative workload (Tangible Benefit).
2. Elimination of manual documentation and reduced paper costs (Tangible Benefit).
3. Faster processing time and increased data accuracy (Tangible Benefit).
4. Improved company image and customer loyalty (Intangible Benefit).

Financial Projections:

- **Estimated Monthly Benefit / Savings:** RM 12,000
- **Estimated Annual Benefit:** RM 12,000 * 12 = RM 144,000 per year
- **Total Benefit over 5 Years:** RM 144,000 * 5 = RM 720,000

Financial Techniques and Calculations

Indicator	Formula	Calculation (5-Year)	Result
Net Profit (NP)	Total Benefit - Total Cost	720,000 - 60,000	RM 660,000
Payback Period (PP)	Initial Investment / Annual Net Benefit*	30,000 / (144,000 - 6,000)	0.22 years (2 and a half months)
Return on Investment (ROI)	(Net Profit / Total Investment) * 100%	(660,000/60,000) * 100%	1100%

Table 4

*Annual Net Benefit = Annual Benefit - Annual Maintenance Cost
= 144,000 - 6,000 = 138,000.

Conclusion:

Based on the analysis of cost, benefit, payback period, and ROI, the development of the KP Fitness Class Reservation System is highly Economically Feasible. The system achieves a payback period of only 0.22 years, demonstrating rapid cost recovery and immediate financial value. The extraordinarily high ROI of 1100% further confirms that the system is extremely cost-effective and delivers substantial long-term economic gains. The implementation of the system is therefore financially justified and highly recommended.

1.6 Project Timeline (Gantt Chart)

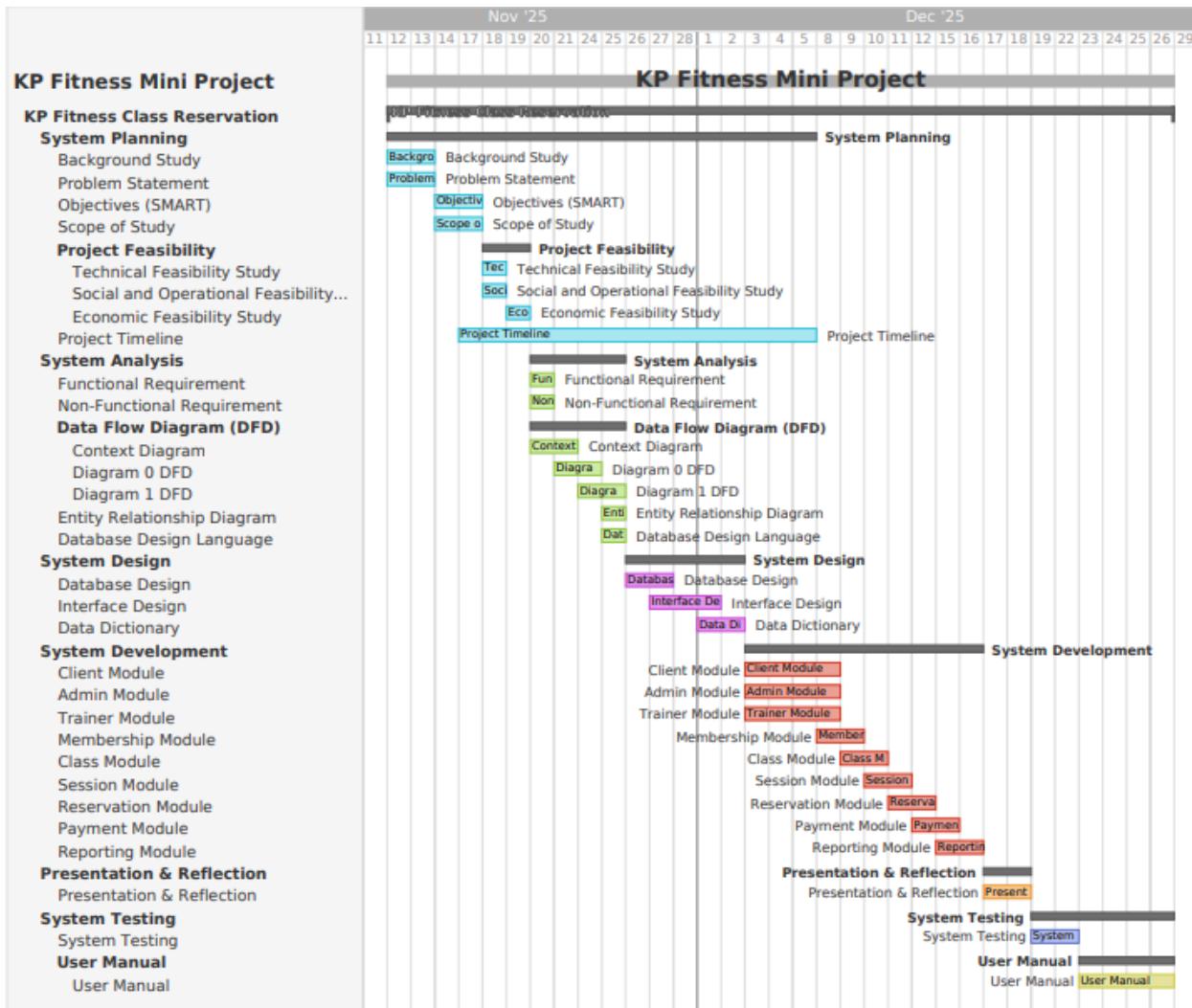


Figure 1

2.0 System Analysis

- 2.1 Functional Requirements
- 2.2 Non-Functional Requirements
- 2.3 Data Flow Diagram
- 2.4 Entity Relationship Diagram
- 2.5 Database Design Language

2.1 Functional Requirements

- 2.1.1 The system shall allow new users to register and log in securely, and enforce the appropriate Role-Based Access Control (RBAC).
- 2.1.2 The system shall allow Admins to create a specific class Session (defining Date, Time, Location, Max Capacity) and assign a Trainer.
- 2.1.3 The system shall allow an authenticated Client with an active membership to book an available slot for a specific Session and immediately update the Session's capacity.
- 2.1.4 The system shall allow Admins to view a Client's record and manually update their Membership Status (e.g., Active, Expired) and payment date.
- 2.1.5 The system shall allow Admins to manage a Trainer's profile information (Bio, Contact) and assign them to available class Sessions.
- 2.1.6 The system shall allow Admins to generate a report summarizing the attendance and popularity (total bookings) for all classes over a selected period.
- 2.1.7 The system shall allow clients to generate workout plans based on their Age, Height, Weight, and Goals.
- 2.1.8 The system shall provide an automated Chatbot accessible to all users, capable of answering common inquiries regarding class schedules, membership pricing, and facility location.
- 2.1.9 The system shall allow Clients to rate completed sessions, providing a score (1-5) and optional comments, which are stored for quality assurance.

2.2 Non-functional Requirements

- 2.2.1 The system shall confirm a successful class reservation or cancellation request rapidly during peak usage with confirmation message displayed and database updated within < 1.0 second.
- 2.2.2 The system shall enforce Role-Based Access Control (RBAC) to ensure unauthorized users cannot access privileged features. (Trainer and Client users must receive an “Access Denied” error message when attempting to access the Admin Report Generation page.)
- 2.2.3 The system shall provide the user interface must be fully responsive and usable on all laptop and desktop devices. (The Class Schedule page must display correctly and allow booking without horizontal scrolling on a screen width of 320 pixels.)
- 2.2.4 The system shall prevent booking failures or double-bookings when multiple users reserve the same remaining slot simultaneously. (All users simultaneously attempt to book the last remaining slot, exactly 1 successful booking and 4 “Capacity Full” errors are recorded in the database.)
- 2.2.5 The system shall store all user passwords using a secure, one-way hashing algorithm. (All user passwords in the USER table must be stored as bcrypt (or equivalent secure PHP hash) strings; original text passwords must not be retrievable.)
- 2.2.6 The core logic of the system must be fully compatible with the chosen software environment. (The system must run successfully on the specified PHP version without deprecation warnings and use the required MySQL version.)
- 2.2.7 The system shall handle automated notifications reliably.

2.3 Data Flow Diagram (DFD)

The Data Flow Diagram (DFD) visually models the information flow, demonstrating how data is processed, transformed, and stored within the KP Fitness Class Reservation system using the structured systems analysis approach.

2.3.1 Context Diagram

The Context Diagram defines the system's boundary, illustrating the entire KP Fitness Class Reservation system as a single process (Process 0) and showing its primary interactions with the three external entities (Admin, Trainer, Client).

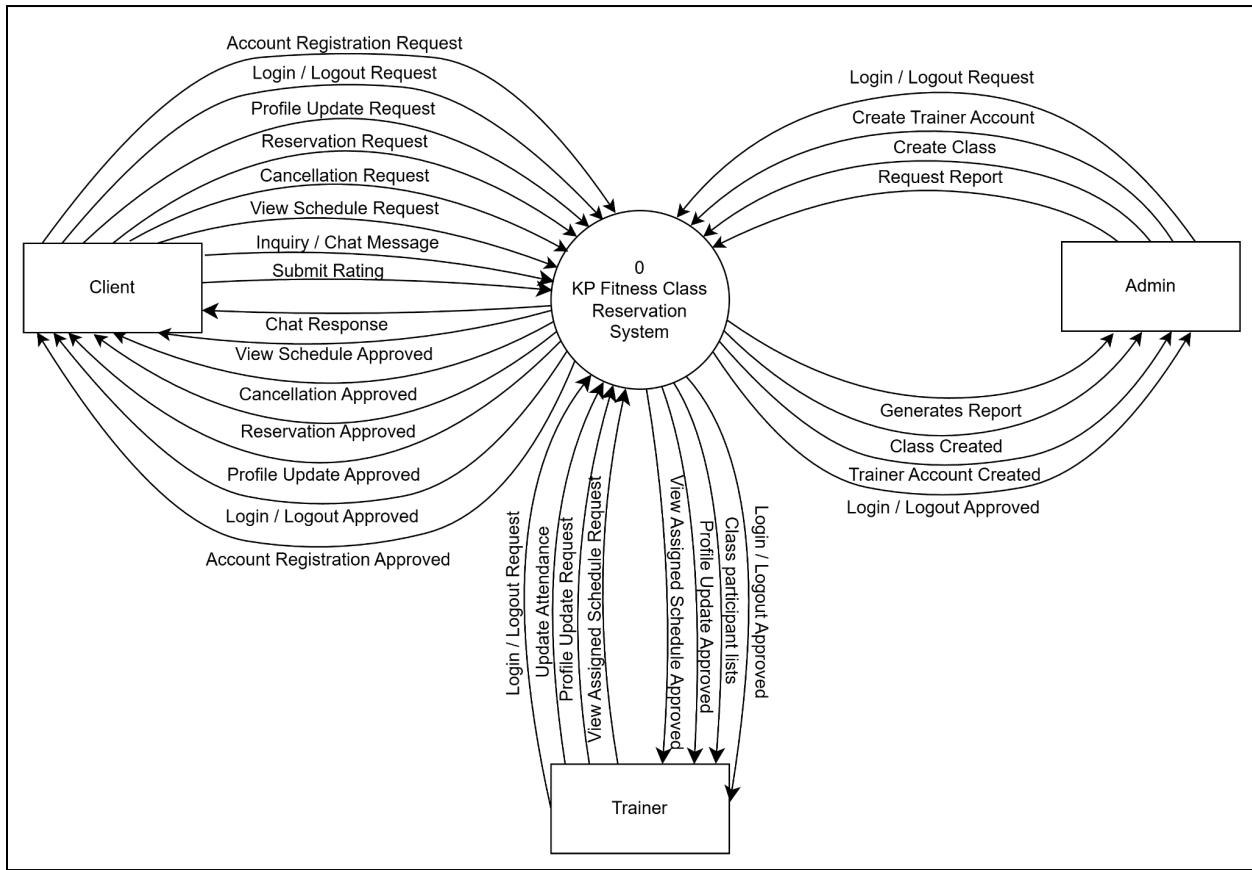


Figure 2

2.3.2 Diagram 0 DFD

https://drive.google.com/file/d/1pRrKPeR7Zc28bjW_D7_JuB77g7qvJrld/view?usp=sharing

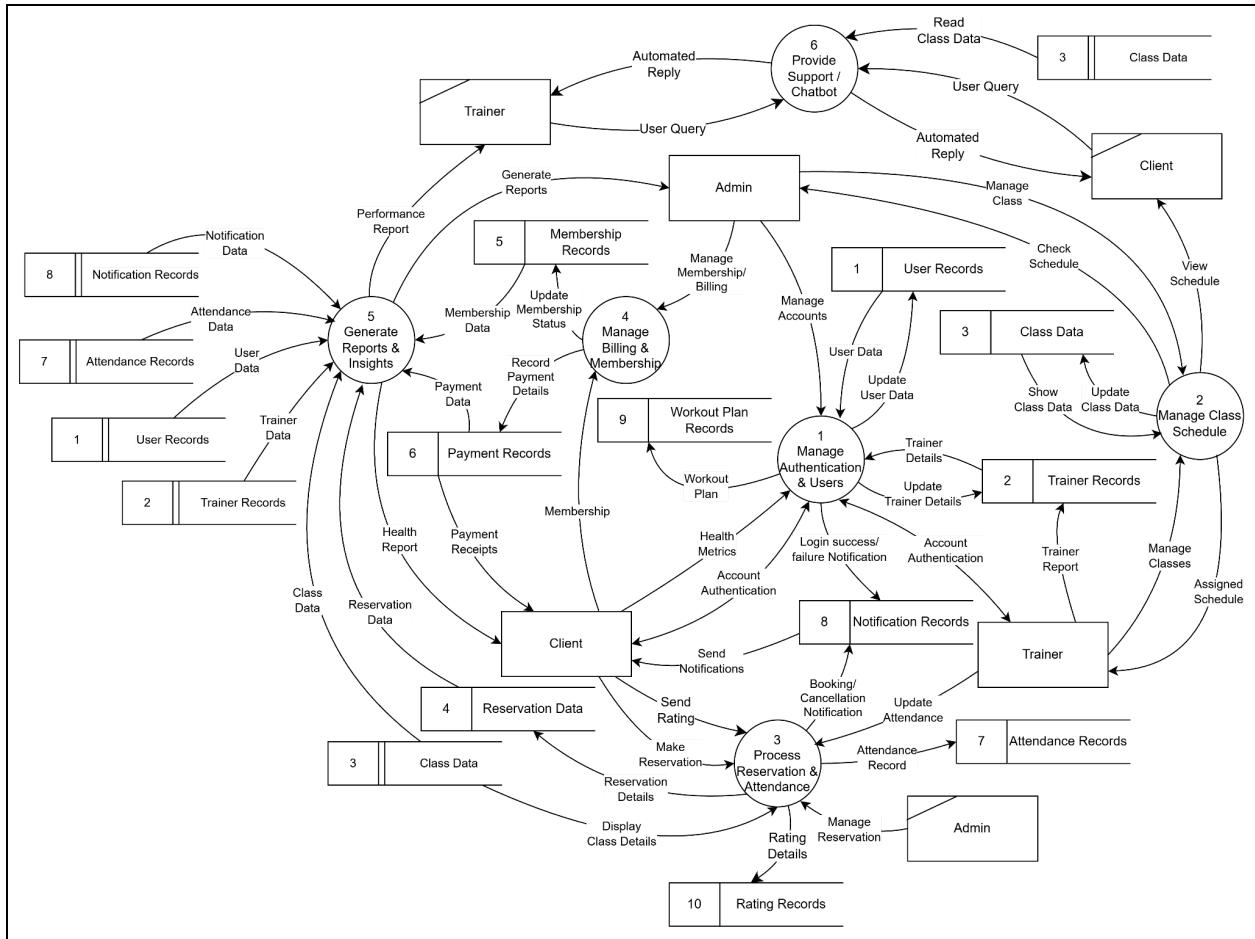


Figure 3

Figure shows the Level 0 DFD breaking the system down into its five primary functional sub-processes, showing the flow of data moves between these processes and the persistent data stores.

2.3.3 Diagram 1 DFD: Process Reservation and Attendance

DFD 1: Process 2 - Manage Class Schedule

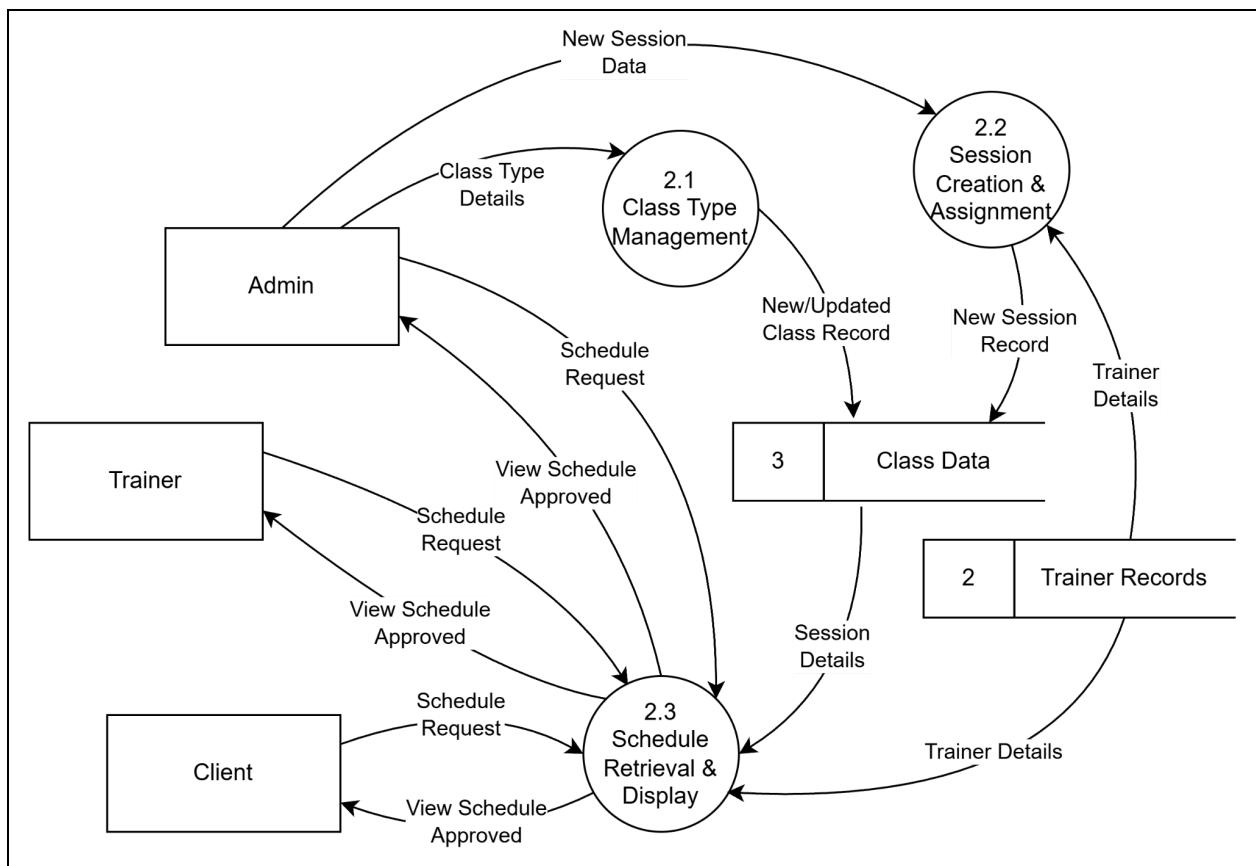


Figure 4

Figure shows the Level 1 DFD breaking down the Process 2, Manage Class Schedule, of the system into smaller sub-processes to manage class schedules and allowing Admin, Trainer, and Client to view schedules.

DFD 1: Process 3 - Client Reservation Flow

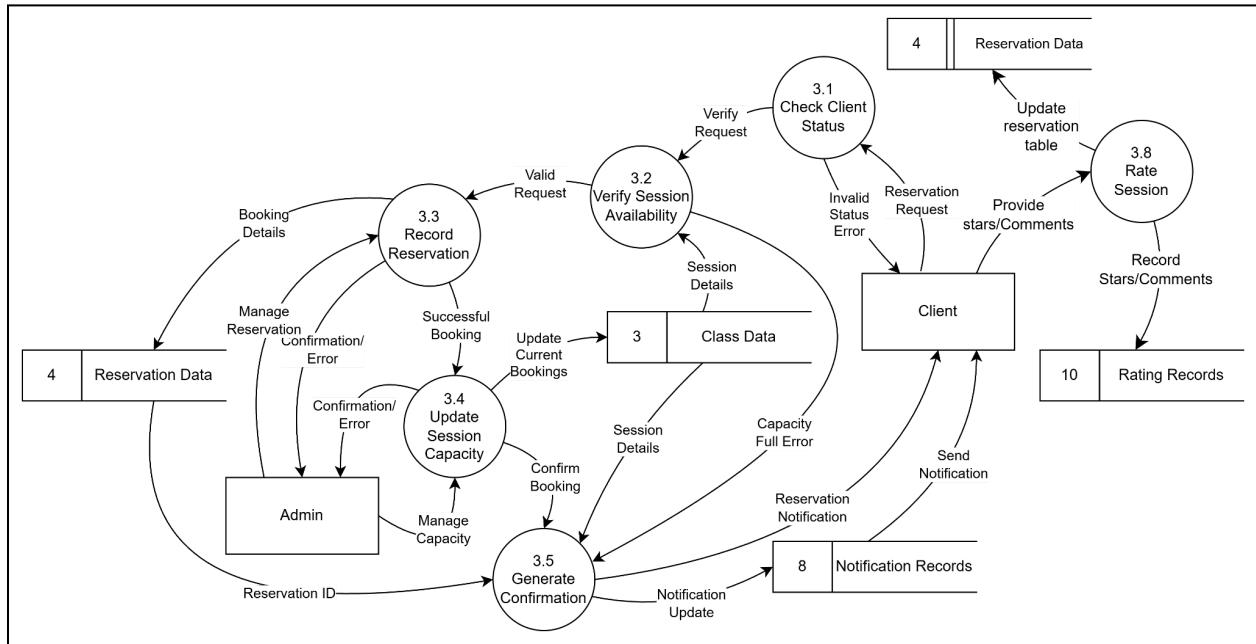


Figure 5

Figure shows the Level 1 DFD breaking down the Process 3, Process Reservation and Attendance, into first part, smaller sub-processes, Client Reservation Flow, showing Client's booking process and the Admin's override capabilities.

DFD 1: Process 3 - Trainer Attendance Flow

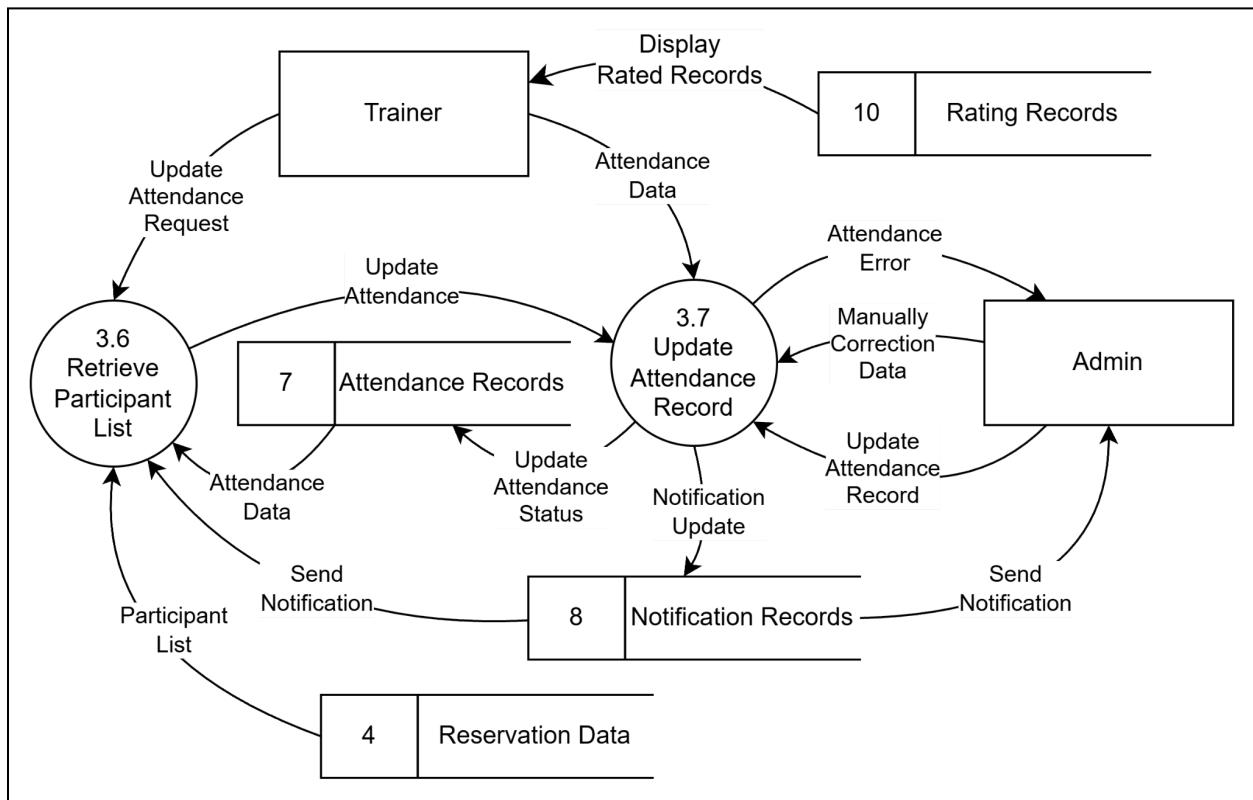


Figure 6

Figure shows the Level 1 DFD breaking down the Process 3, Process Reservation and Attendance, into second part, smaller sub-processes, Trainer Attendance Flow, showing the process of Trainer and Admin updating attendance.

DFD 1: Process 4 - Manage Billing and Membership

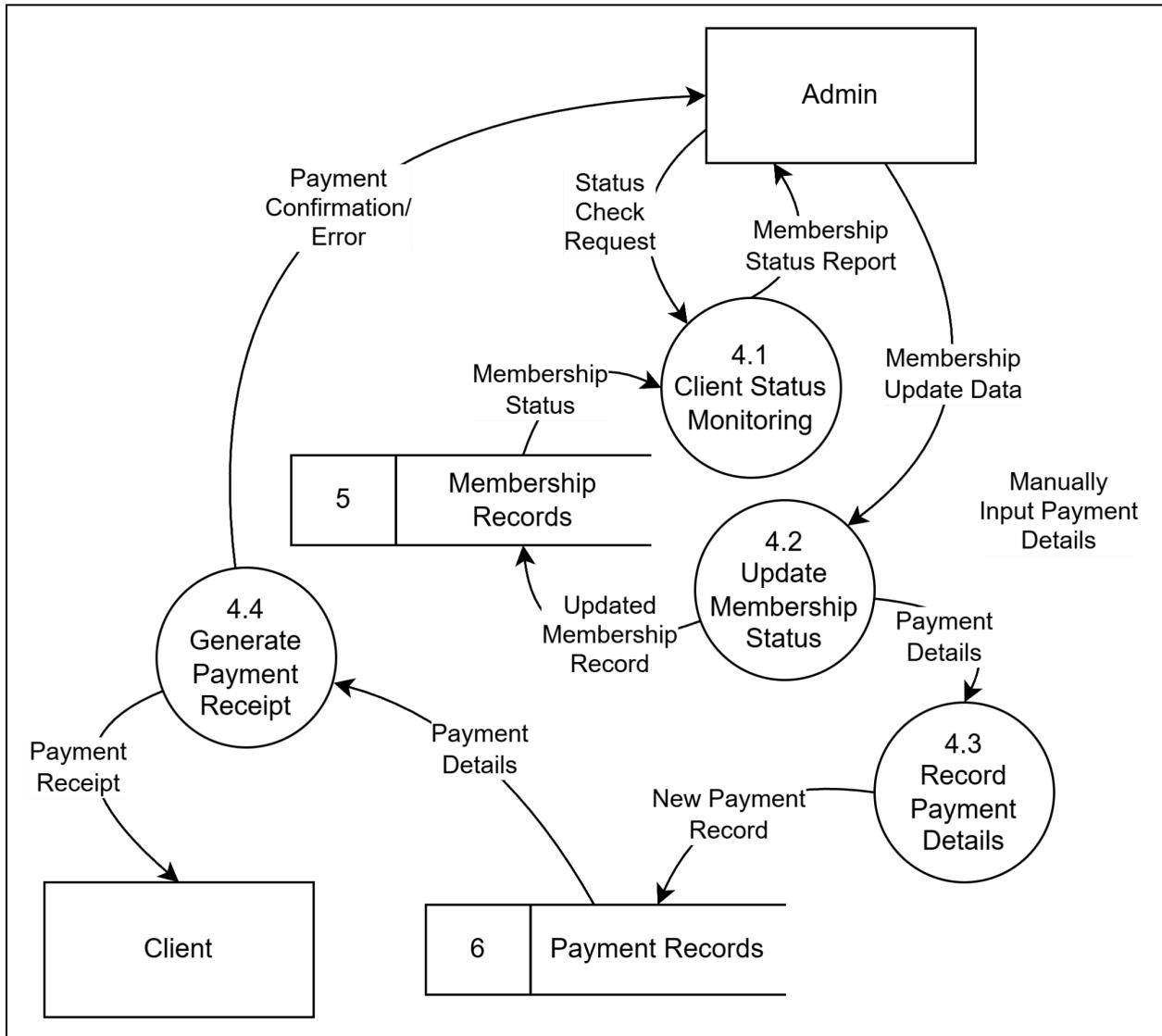


Figure 7

Figure shows the Level 1 DFD breaking down the Process 4, Managing Billing and Membership, into smaller sub-processes to show the system's management of subscriptions and payments.

DFD 1: Process 5 - Generate Reports and Insights Analysis

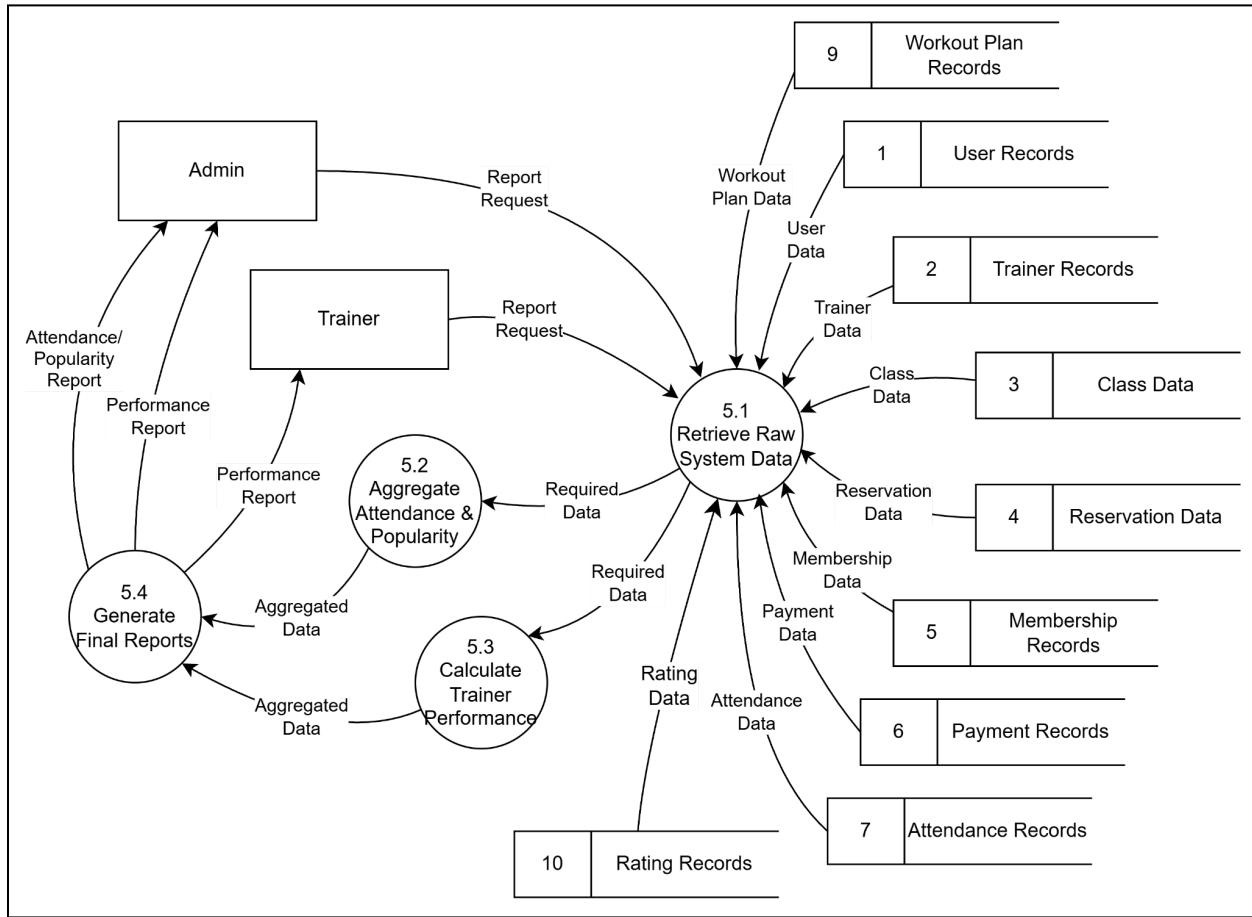


Figure 8

Figure shows the Level 1 DFD breaking down the Process 5, Generate Reports and Insights Analysis, into smaller sub-processes to show the required data processing pipeline for generating the insights necessary for KP Fitness to make strategic business decisions.

2.4 Entity Relationship Diagram (ERD)

The Entity-Relationship Diagram (ERD) provides the conceptual model of the MySQL database, illustrating the entities (tables) and the relationships that define the data structure.

2.4.1 Entities and Key Attributes

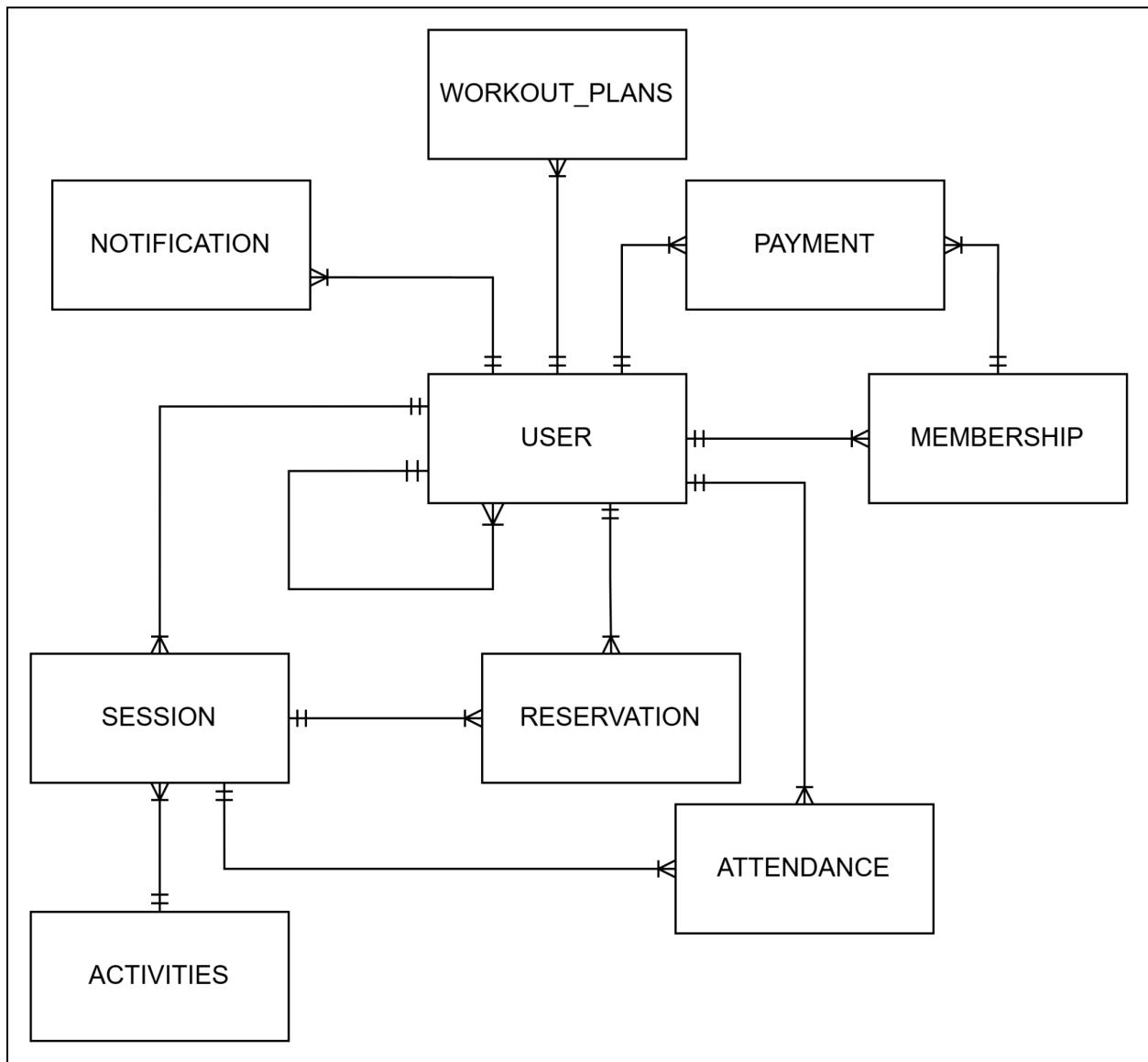


Figure 9

2.5 Database Design Language (DBDL)

The Database Design Language (DBDL) formally expresses the data structures defined in the ERD in a text format suitable for translating into MySQL schema definition scripts.

DBDL Notation Key:

1. **Users** (UserID, FullName, Email, Phone, Password, Role (enum: 'admin', 'trainer', 'client'), DateOfBirth, Height, Weight, Gender, Specialist, WorkingHours, JobType, ProfilePicture, MembershipID*, MembershipStartDate, MembershipEndDate, TrainerID*, CreatedAt, UpdatedAt, IsActive, AutoRenew, NextMembershipID*)
2. **Membership** (MembershipID, PlanName, Type (enum: 'monthly', 'yearly', 'onetime'), Cost, Duration, Benefits, IsActive, CreatedAt)
3. **Class_Categories** (CategoryID, CategoryName)
4. **Activities** (ClassID, CategoryID*, ClassName, Description, Duration, MaxCapacity, Price, Specialist, DifficultyLevel (enum: 'beginner', 'intermediate', 'advanced'), IsActive, CreatedAt)
5. **Sessions** (SessionID, SessionDate, StartTime, EndTime, Room, ClassID*, TrainerID*, CurrentBookings, Status (enum: 'scheduled', 'ongoing', 'cancelled', 'completed'), SessionCode, CreatedAt)
6. **Reservations** (ReservationID, BookingDate, Status (enum: 'booked', 'cancelled', 'attended', 'no_show', 'Rated'), PaidAmount, Is_Recurring, Recurrence_ID, Parent_Reservation_ID, UserID*, SessionID*, CheckInTime)
7. **Attendance** (AttendanceID, SessionID*, UserID*, AttendanceDate, Status (enum: 'present', 'absent', 'late'), Notes)
8. **Payments** (PaymentID, UserID*, MembershipID*, PaymentDate, Amount, PaymentMethod (enum: 'credit_card', 'debit_card', 'touch_n_go', 'cash', 'bank_transfer'), Status (enum: 'pending', 'completed', 'failed', 'refunded'), TransactionID, PaymentType (enum: 'Membership', 'Booking'), Description)
9. **Ratings** (RatingID, ReservationID*, UserID*, TrainerID*, RatingScore, Comment, CreatedAt)
10. **Notifications** (NotificationID, UserID*, Title, Message, Type (enum: 'info', 'warning', 'success', 'error'), IsRead, CreatedAt)
11. **Workout_Plans** (PlanID, UserID*, PlanName, Age, Height, Weight, Goal (enum: 'bulking', 'cutting', 'endurance', 'strength', 'general_fitness'), FitnessLevel (enum: 'beginner', 'intermediate', 'advanced'), PlanDetails (JSON/Text), IsActive, CreatedAt)
12. **System_Settings** (SettingKey, SettingValue, Description, UpdatedAt)

3.0 System Design

3.1 Database Design

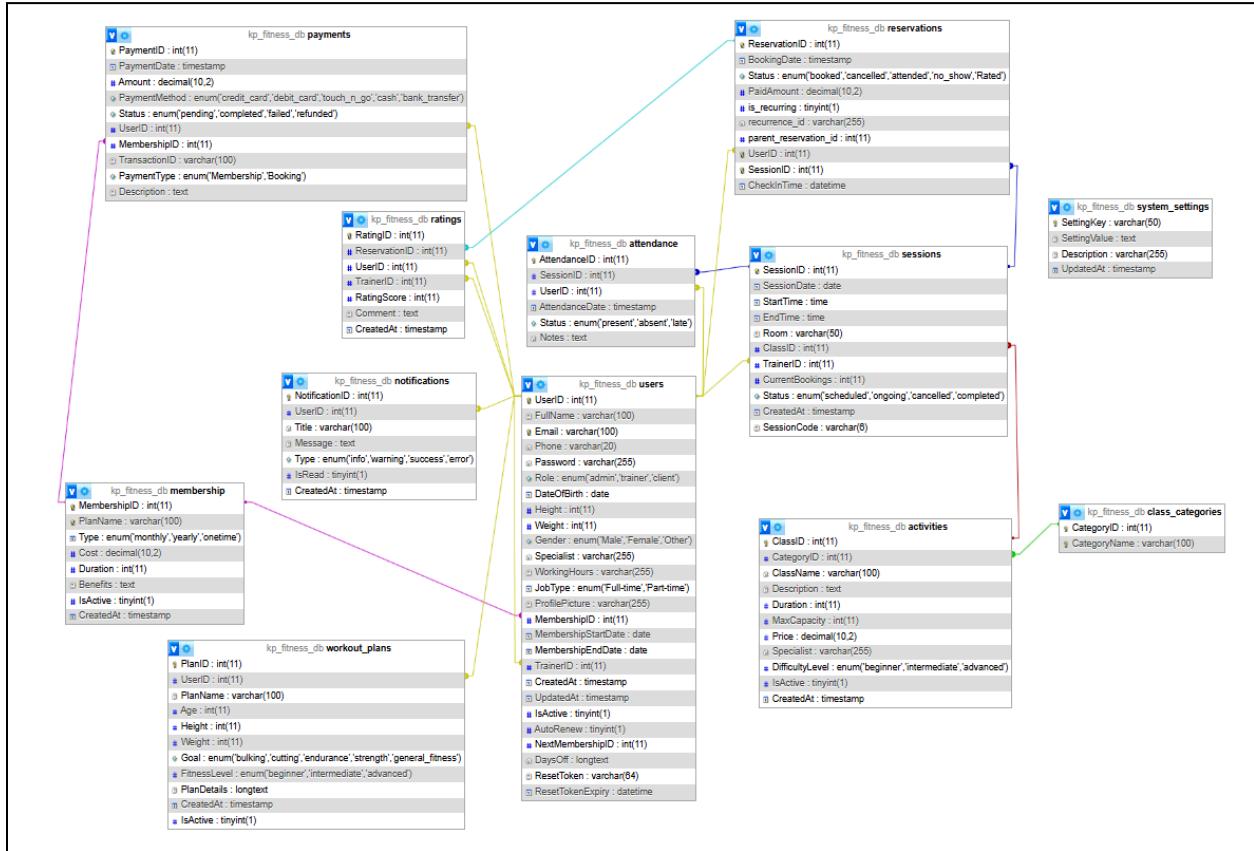
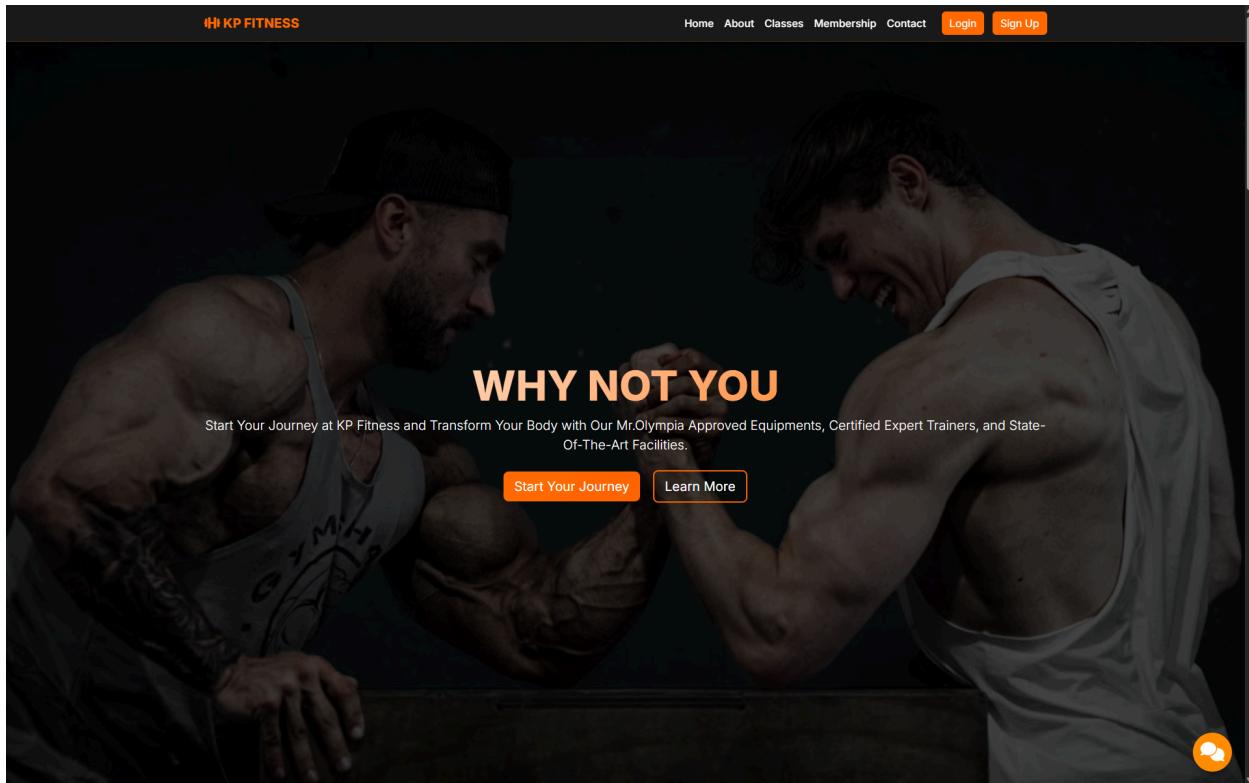


Figure 10

3.2 User Interface Design

3.2.1 Index Interface Design

3.2.1.1 Homepage



3.2.1.2 About & Contact page

KP FITNESS

Home About Classes Membership Contact [Login](#) [Sign Up](#)

About KP Fitness

Empowering lives through fitness, technology, and community since 2020.

Our Story

KP Fitness was founded with a simple yet powerful mission: to make fitness accessible, enjoyable, and effective for everyone. What started as a small local gym has evolved into a comprehensive fitness ecosystem that combines cutting-edge technology with expert training.

We believe that fitness is not just about physical transformation, but about building confidence, discipline, and a supportive community. Our state-of-the-art facility features specialized zones for various fitness needs.

200+ Active Members 8+ Expert Trainers



Mission & Vision

Mission: To empower individuals to unlock their inner strength and achieve holistic well-being through innovative fitness solutions, expert guidance, and a supportive community environment.

Vision: To become the leading fitness destination that seamlessly integrates technology, expertise, and community to create transformative fitness experiences for people of all fitness levels.

Meet Our Expert Team

 JD John Doe Head Trainer	 SM Sarah Miller Yoga Specialist	 MJ Mike Johnson HIIT Expert	 AL Amy Lee Pilates Instructor
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Get in Touch

Have questions? Reach out to our team and we'll get back to you ASAP.

staff@kpfit.com
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3.2.1.3 Classes page

The screenshot shows the 'Our Classes' section of the KP FITNESS website. At the top, there is a navigation bar with links for Home, About, Classes, Membership, Contact, Login, and Sign Up. Below the navigation bar, the title 'Our Classes' is centered. The page features five categories of classes arranged in two rows: Cardio, Strength, Mind & Body in the top row, and HIIT & Circuit, Combat in the bottom row. Each category has a corresponding icon and a brief description.

- Cardio**
High-energy classes to improve your stamina and heart health.
Includes: Zumba, Spin Cycling
- Strength**
Build muscle and strength with resistance training.
Includes: BodyPump, Weight Training
- Mind & Body**
Improve flexibility, balance, and mental focus.
Includes: Yoga, Pilates, Tai Chi
- HIIT & Circuit**
Intense intervals for maximum calorie burn.
Includes: Bootcamp, Metabolic Conditioning
- Combat**
Empower yourself with martial arts-inspired workouts.
Includes: Boxing

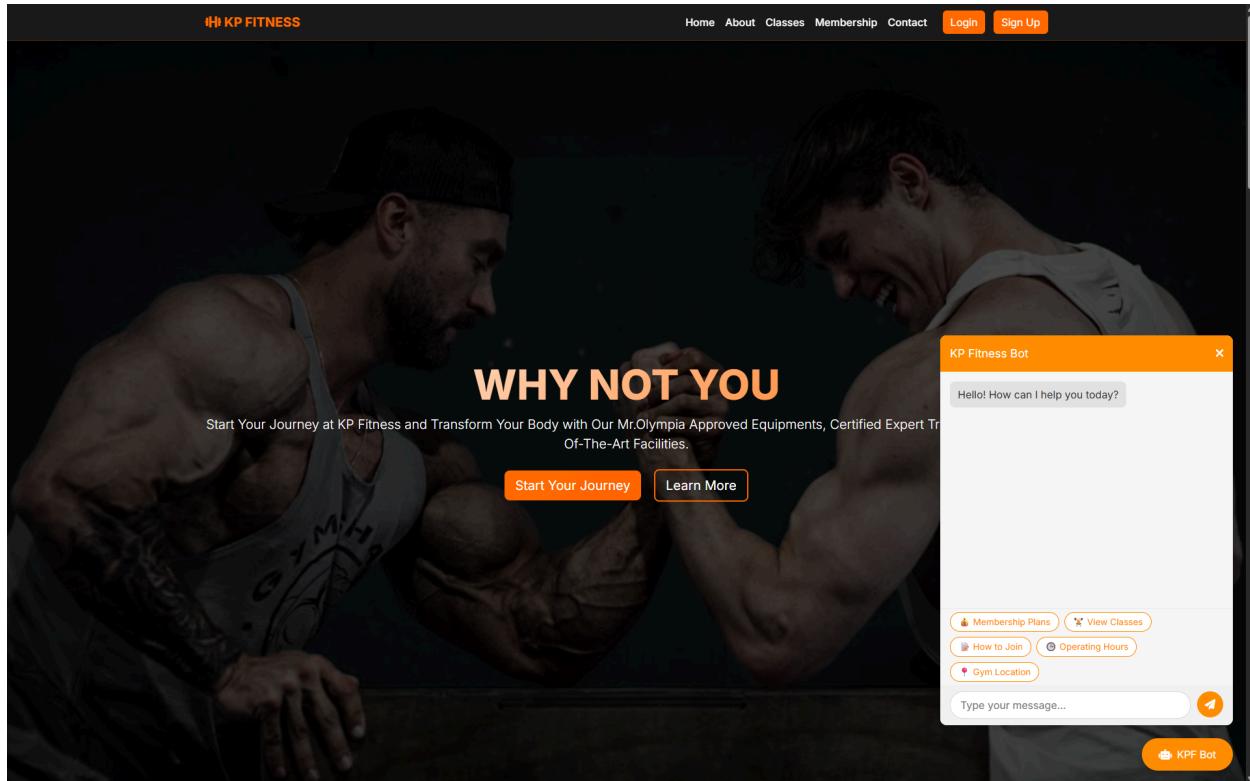
3.2.1.4 Membership page

The screenshot shows the 'Membership Plans' section of the KP FITNESS website. At the top, there is a navigation bar with links for Home, About, Classes, Membership, Contact, Login, and Sign Up. Below the navigation bar, the title 'Membership Plans' is centered. Three membership options are displayed in cards: '8 Class Membership' (RM 199.00), 'Unlimited Monthly' (RM 289.00), and 'Annual Membership' (RM 2,899.00). Each card includes a 'JOIN TODAY' button and a list of benefits. The 'Unlimited Monthly' plan is labeled 'MOST POPULAR', and the 'Annual Membership' plan is labeled 'HUGE SAVINGS'.

- 8 Class Membership**
RM 199.00
+Autopay every 4 weeks
- Unlimited Monthly**
RM 289.00
+Autopay every 4 weeks
- Annual Membership**
RM 2,899.00
+One time purchase

8 Class Membership	Unlimited Monthly	Annual Membership
RM 199.00 +Autopay every 4 weeks	RM 289.00 +Autopay every 4 weeks	RM 2,899.00 +One time purchase
JOIN TODAY	JOIN TODAY	JOIN TODAY
<ul style="list-style-type: none">✓ 8 Classes per Cycle✓ Cancel Anytime✓ Expert Coaches✓ Full Gym Access✓ Basic AI Planner✓ Standard Booking	<ul style="list-style-type: none">✓ Unlimited Classes✓ Access to all Perks✓ Priority booking✓ Free fitness assessment✓ Full AI Planner (All Goals & Levels)✓ Save Unlimited Workout Plans✓ 2-Week Recurring Booking	<ul style="list-style-type: none">✓ Two months FREE✓ Unlimited Classes✓ Priority booking✓ Save RM 233/year✓ Access to all Perks✓ Full AI Planner (All Goals & Levels)✓ Save Unlimited Workout Plans✓ 2-Week Recurring Booking

3.2.1.5 Homepage Chatbot



3.2.2 Admin Interface Design

3.2.2.1 Admin Dashboard

The screenshot displays the Admin Dashboard with a dark-themed header and sidebar. The sidebar on the left includes a 'Dashboard' button (highlighted in orange) and links for User Management, Activity Management, Session Scheduling, Reports, Real-Time Activity, and Notifications.

The main content area features a title 'Admin Dashboard' and four summary cards:

- Total Users:** 313
- Trainers:** 11
- Clients:** 302
- Active Activities:** 11
- Sessions This Month:** 570
- Revenue This Month:** RM 7,346.00

Below these cards is a section titled 'Quick Actions' containing five buttons:

- Manage Users
- Manage Activities
- Schedule Sessions
- View Reports
- Real-Time Activity

At the bottom of the dashboard, there are links for 'View Main Site' and 'Sign out'.

3.2.2.2 User Management

Admin

- Dashboard
- User Management**
- Activity Management
- Session Scheduling
- Reports
- Real-Time Activity
- Notifications

User Management

Create New Trainer

Full Name

Email

Password

Gender

Specialist

Working Hours e.g. 9AM - 5PM

Job Type

Create Trainer

All Users

Administrators
Manage system admins
1 Users

Trainers
Manage fitness trainers
11 Users

Clients
Manage gym members
302 Users

[View Main Site](#)

[Sign out](#)

3.2.2.3 Activity Management

Admin

- Dashboard
- User Management
- Activity Management**
- Session Scheduling
- Reports
- Real-Time Activity
- Notifications

[View Main Site](#)

[Sign out](#)

[Logout](#)

Activity Management

Create New Activity

Category: -- Select Category --

Activity Name:

Difficulty Level: Beginner

Duration (minutes):

Max Capacity:

Description:

Create Activity

Existing Activities

Name	Category	Duration	Capacity	Difficulty	Status	Actions
Tai Chi	Cardio	45 mins	20	Intermediate	Active	Edit Deactivate Delete
Zumba	Cardio	45 mins	25	Beginner	Active	Edit Deactivate Delete
Spin Cycling	Cardio	45 mins	20	Intermediate	Active	Edit Deactivate Delete
Boxing	Combat	50 mins	12	Intermediate	Active	Edit Deactivate Delete
Bootcamp	HIIT_Circuit	45 mins	20	Advanced	Active	Edit Deactivate Delete
Metabolic Conditioning	HIT_Circuit	45 mins	20	Advanced	Active	Edit Deactivate Delete
Yoga	MindAndBody	60 mins	20	Beginner	Active	Edit Deactivate Delete
Pilates	MindAndBody	60 mins	20	Beginner	Active	Edit Deactivate Delete
Tai Chi	MindAndBody	60 mins	20	Beginner	Active	Edit Deactivate Delete
BodyPump	Strength	50 mins	15	Intermediate	Active	Edit Deactivate Delete
Weight Training	Strength	50 mins	15	Beginner	Active	Edit Deactivate Delete

3.2.2.4 Session Scheduling

Admin

- Dashboard
- User Management
- Activity Management
- Session Scheduling**
- Reports
- Real-Time Activity
- Notifications

Session Scheduling

Schedule New Session

Activity: Select an activity... Trainer: Select a trainer... Date: mm/dd/yyyy Start Time: --:-- End Time: --:-- Room: e.g., Studio A

Schedule Session

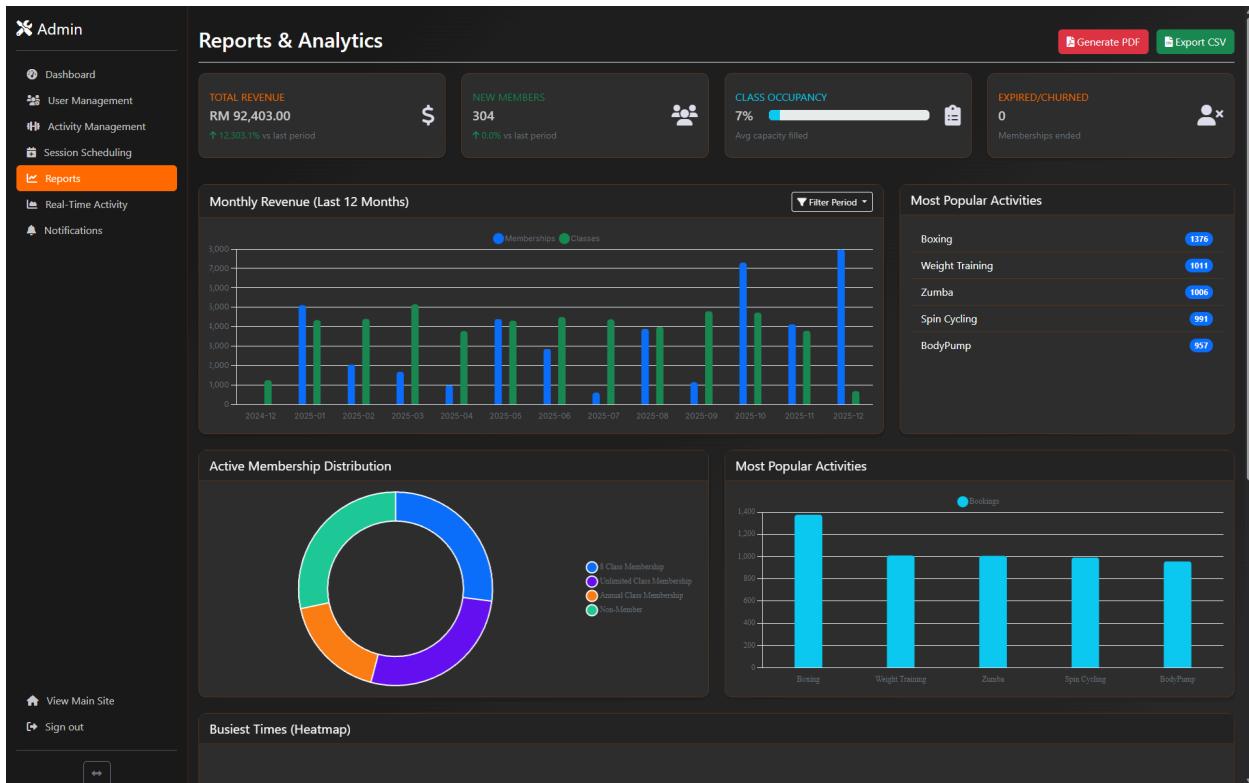
Scheduled Sessions

From Date: mm/dd/yyyy To Date: mm/dd/yyyy Reset

Date	Day	Sessions
30 Nov	Sun, 2025	20 Sessions
1 Dec	Mon, 2025	20 Sessions
2 Dec	Tue, 2025	16 Sessions
3 Dec	Wed, 2025	20 Sessions
4 Dec	Thu, 2025	20 Sessions
5 Dec	Fri, 2025	20 Sessions
6 Dec	Sat, 2025	12 Sessions
7 Dec	Sun, 2025	20 Sessions
8 Dec	Mon, 2025	20 Sessions
9 Dec	Tue, 2025	16 Sessions
10 Dec	Wed, 2025	20 Sessions
11 Dec	Thu, 2025	20 Sessions
12 Dec	Fri, 2025	20 Sessions
13 Dec	Sat, 2025	12 Sessions
14 Dec	Sun, 2025	20 Sessions
15 Dec	Mon, 2025	20 Sessions

[View Main Site](#) [Sign out](#)

3.2.2.5 Reports (need update coding)



3.2.2.6 Real-Time Activity (need update coding)

The screenshot shows the 'Real-Time Activity (Last 24 Hours)' dashboard. On the left, a sidebar menu includes Admin, Dashboard, User Management, Activity Management, Session Scheduling, Reports, and Real-Time Activity (which is selected and highlighted in orange). Below the sidebar are links to View Main Site and Sign out.

The main content area displays four cards:

- New Registrations:** Shows 1 new registration with a plus icon and a user icon.
- Memberships Purchased:** Shows 3 memberships purchased with a minus icon and a credit card icon.
- New Bookings:** Shows 54 new bookings with a calendar icon.
- Sessions Completed:** Shows 0 sessions completed with a checkmark icon.

Below these cards are two charts:

- New User Registrations:** A line chart showing a single data point at 1.0 on the y-axis, corresponding to the 1 new registration.
- Membership Types Purchased:** A donut chart showing the distribution of membership types:
 - Unlimited Class Membership (Blue): Approximately 40%
 - Annual Class Membership (Teal): Approximately 30%
 - Non-Member (Yellow): Approximately 30%

At the bottom of the dashboard, there is a bar chart for 'New Bookings' showing activity between 09:00 and 11:00. The chart has a single teal bar reaching the 50 mark on the y-axis.

3.2.2.7 Notification

The screenshot shows the 'Notifications' page. The sidebar includes Manage Users, Real-Time Activity, and Schedule Sessions. The main content area features a central 'Notifications' card with an orange header and a white body. It displays the message 'No notifications' and a blue button labeled 'Mark all as read'.

3.2.2 Trainer Interface Design

3.2.2.1 Trainer Dashboard

The screenshot displays the 'Trainer Dashboard' with a dark theme. On the left, a sidebar shows navigation links: 'Dashboard' (highlighted in orange), 'My Schedule', 'Attendance', 'Notifications', and 'My Profile'. The main area features a 'Welcome back, Test1!' message and a training overview. Key statistics include '0 Classes Today', '0 Total Bookings', '0 Sessions Completed', and 'N/A Average Rating'. Below these are 'Quick Actions' buttons for 'Take Attendance', 'View Schedule', 'Attendance History', and 'My Profile'. Two tables are present: 'Today's Schedule' (empty) and 'Upcoming Classes' (empty). A footer contains links for 'View Main Site', 'Sign out', and a 'KPF Bot' button.

Trainer Dashboard

Welcome back, Test1!

Ready to inspire your clients today? Here's your training overview.

0 Classes Today

0 Total Bookings

0 Sessions Completed

N/A Average Rating

Quick Actions

Take Attendance

View Schedule

Attendance History

My Profile

Today's Schedule

TIME	CLASS	ROOM	BOOKINGS	ACTION
No classes scheduled for today.				

Upcoming Classes

DATE & TIME	CLASS
No upcoming classes found.	

[View Main Site](#)

[Sign out](#)

KPF Bot

3.2.2.2 My Schedule

Trainer

- Dashboard
- My Schedule**
- Attendance
- Notifications
- My Profile

My Schedule

December 2025

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

[View Main Site](#)

[Sign out](#)

KPF Bot

3.2.2.3 Attendance

The screenshot shows a dark-themed web application interface for 'Attendance Management'. On the left, a vertical sidebar titled 'Trainer' contains navigation links: Dashboard, My Schedule, **Attendance** (which is highlighted in orange), Notifications, and My Profile. Below these are links to View Main Site and Sign out, along with a small double arrow icon. At the bottom right of the sidebar is a yellow 'KPF Bot' button. The main content area has a header 'Attendance Management' with a date selector set to 12/20/2025. A blue bar below the header says 'Sessions for 20/12/2025'. The main table has columns: Time, Class, Room, Bookings, Status, and Action. A message at the bottom of the table states 'No sessions scheduled for this date.'

3.2.2.4 Notifications

The screenshot shows the 'Notifications' section of a web application. On the left, there's a sidebar with a user icon and the text 'Trainer'. Below this are several menu items: 'Dashboard' (with a person icon), 'My Schedule' (with a calendar icon), 'Attendance' (with a clock icon), 'Notifications' (which is highlighted with an orange background and a bell icon), and 'My Profile' (with a person icon). At the bottom of the sidebar are links for 'View Main Site' (with a house icon) and 'Sign out' (with a sign-out icon). In the center, the main content area has a dark header with the title 'Notifications' and a 'Mark All Read' button. Below the header is a navigation bar with tabs: 'All' (selected), 'Bookings', 'Cancellations', 'Ratings', and 'System'. The main content area contains a message: 'You have no notifications at the moment.' with a small bell icon next to it. At the bottom right of the main area is a button labeled 'KPF Bot' with a small robot icon.

3.2.2.5 My Profile

The screenshot shows the 'My Profile' section of a web application. On the left, a sidebar menu lists 'Dashboard', 'My Schedule', 'Attendance', 'Notifications', and 'My Profile' (which is highlighted with an orange background). The main content area features a placeholder profile picture with an orange edit button. Below it, the 'My Profile' heading is centered above a form. The form fields include:

- Full Name: Test1
- Email: Test1@demo.com
- Password: (redacted)
- Contact: (redacted)
- Gender: Male
- Date of Birth: (redacted)
- Height (cm): (redacted)
- Weight (kg): (redacted)

At the top right of the form is an 'Edit Profile' button. At the bottom left of the sidebar are links for 'View Main Site' and 'Sign out'. At the bottom right is a 'KPF Bot' button.

3.2.2.6 Attendance History

Trainer Dashboard

Welcome back, Test1!

Ready to inspire your clients today? Here's your training overview.

Quick Actions

Attendance History (Last 30 Days)

No class records found for the last 30 days.

Take Attendance

Close

Today's Schedule

TIME	CLASS	ROOM	BOOKINGS	ACTION
No classes scheduled for today.				

Upcoming Classes

DATE & TIME	CLASS
No upcoming classes found.	

View Main Site

Sign out

KPF Bot

The screenshot shows the 'Trainer Dashboard' interface. At the top left is a sidebar with a user icon and the text 'Trainer'. Below it is a navigation menu with links: 'Dashboard' (highlighted in orange), 'My Schedule', 'Attendance', 'Notifications', and 'My Profile'. The main content area has a title 'Welcome back, Test1!' and a subtitle 'Ready to inspire your clients today? Here's your training overview.' Below this is a row of four summary cards: 'Classes Today' (0), 'Total Bookings' (0), 'Sessions Completed' (0), and 'Average Rating' (N/A). A modal window titled 'Attendance History (Last 30 Days)' is open in the center, displaying the message 'No class records found for the last 30 days.' with a 'Close' button. To the left of the modal is a 'Quick Actions' section with a 'Take Attendance' button. Below the modal are two tables: 'Today's Schedule' (empty) and 'Upcoming Classes' (empty). At the bottom are links for 'View Main Site' and 'Sign out', and a 'KPF Bot' button.

3.2.2.7 Trainer Chatbot

Trainer Dashboard

Welcome back, Test1!

Ready to inspire your clients today? Here's your training overview.

Quick Actions

Today's Schedule

TIME	CLASS	ROOM	BOOKINGS	ACTION
No classes scheduled for today.				

Upcoming Classes

DATE & TIME				
No upcoming classes.				

Trainer Assistant

Hello Test1! I'm here to assist with your schedule.

Actions

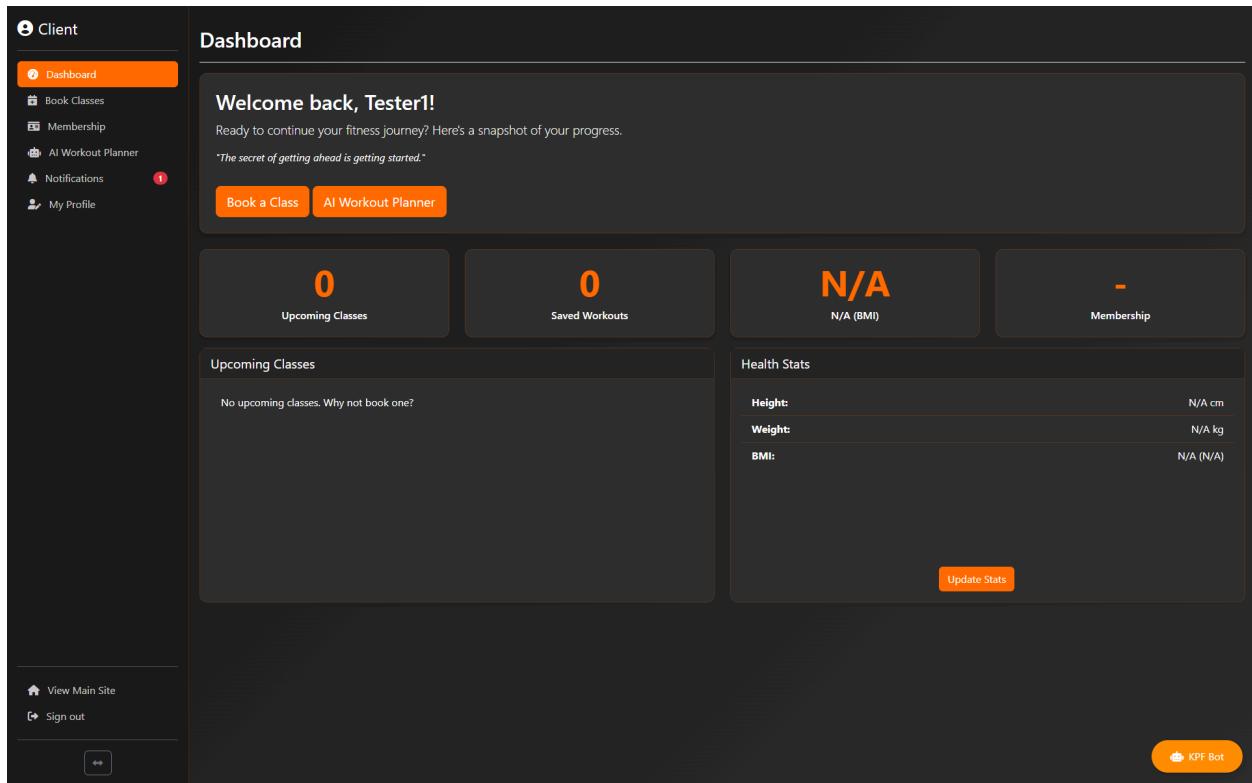
- Today's Schedule
- Next Class Attendees
- Mark Attendance

Type your message...

KPF Bot

3.2.3 Client Interface Design

3.2.3.1 Client Dashboard



The screenshot shows the client dashboard interface. On the left is a sidebar with a user icon and the word "Client". Below it is a navigation bar with "Dashboard" (highlighted in orange), "Book Classes", "Membership", "AI Workout Planner", "Notifications" (with a red notification dot), and "My Profile". At the bottom of the sidebar are links for "View Main Site" and "Sign out", along with a "KPF Bot" button.

The main area is titled "Dashboard" and features a welcome message: "Welcome back, Tester1! Ready to continue your fitness journey? Here's a snapshot of your progress." Below this is a quote: "The secret of getting ahead is getting started." Two orange buttons are present: "Book a Class" and "AI Workout Planner".

Below the welcome message are four summary cards:

- Upcoming Classes:** Shows 0 upcoming classes. A message says "No upcoming classes. Why not book one?"
- Saved Workouts:** Shows 0 saved workouts.
- N/A (BMI):** Shows N/A (BMI) with a minus sign.
- Membership:** Shows a dash (-).

At the bottom right of the dashboard is an "Update Stats" button.

3.2.3.2 Book Classes

Client

- Dashboard
- Book Classes**
- Membership
- AI Workout Planner
- Notifications
- My Profile

Class Booking

My Schedule

No bookings found. Book a Class now!

Booking History

Date	Class	Status	Action
No booking history.			

[View Main Site](#)

[Sign out](#)

[KF Bot](#)

3.2.3.3 Membership

The screenshot shows the 'Membership' screen of the KPF Client app. On the left is a vertical navigation bar with icons for Dashboard, Book Classes, **Membership** (which is highlighted with an orange background), AI Workout Planner, Notifications, and My Profile. The main content area has a dark header 'Membership'. Below it is a section titled 'Current Membership Plan' which displays the message 'You do not have an active membership plan.' and a 'Subscribe Membership' button. Another section titled 'Payment History' shows a table with columns Date, Payment, Description, Amount, Status, and Details. A note at the bottom of this section says 'No payment history found.' At the bottom of the screen are links for 'View Main Site', 'Sign out', and a small square icon. In the bottom right corner is an orange button labeled 'KPF Bot' with a robot icon.

3.2.3.4 AI Workout Planner

Client

- Dashboard
- Book Classes
- Membership
- AI Workout Planner**
- Notifications
- My Profile

AI Workout Planner

Create Your Plan

Plan Name
e.g., Summer Shred

Primary Goal
General Fitness

Fitness Level
Beginner (3 Days/Week)

Customize your Workout Days (Override defaults)

Workout Days (select at least 3)
 Mon Tue Wed Thu Fri Sat Sun

Generate Plan

Generated Plan

Fill out the form and click "Generate Plan" to create your personalized workout schedule.



Your Saved Plans

You have no saved workout plans yet.

[View Main Site](#)

[Sign out](#)



3.2.3.5 Notifications

The screenshot shows the 'Notifications' section of the KP Fitness Client interface. On the left is a sidebar with icons for Dashboard, Book Classes, Membership, AI Workout Planner, Notifications (which is highlighted with an orange bar), and My Profile. Below the sidebar are links for 'View Main Site' and 'Sign out'. On the right, the main area has a header with 'Notifications' and a 'Mark All Read' button. Below the header are three tabs: 'All' (selected), 'Bookings', and 'System'. The main content area displays three notifications:

- Action Required: Complete Profile**
Please complete your profile details to access all features. [Click here to setup now.](#) 21/12/2025 1:12 AM
- Welcome to KP Fitness!**
Your account has been created successfully. Explore our features and book your first class! 21/12/2025 1:12 AM
- Action Required: Complete Profile**
Please complete your profile details to access all features. [Click here to setup now.](#) 21/12/2025 1:12 AM

In the bottom right corner, there is a 'KPF Bot' button.

3.2.3.6 My Profile

The screenshot shows the 'My Profile' section of the KPF Client application. On the left, there's a sidebar with a navigation menu:

- Client
- Dashboard
- Book Classes
- Membership
- AI Workout Planner
- Notifications
- My Profile** (highlighted with an orange border)

The main content area is titled 'My Profile' and contains the following fields:

- Full Name: Tester1
- Email: Tester1@demo.com
- Password: (redacted)
- Contact: e.g. 01X-XXX XXXX
- Gender: Select Gender
- Date of Birth: mm/dd/yyyy
- Height (cm): (empty field)
- Weight (kg): (empty field)

At the top right of the profile form is a 'Edit Profile' button. At the bottom right is a 'KPF Bot' button. On the far left, below the sidebar, are two links: 'View Main Site' and 'Sign out'. A small double arrow icon is also present.

3.2.3.7 Client Chatbot

The screenshot shows the KP Fitness Client Dashboard. On the left is a sidebar with a navigation menu:

- Client
- Dashboard (selected)
- Book Classes
- Membership
- AI Workout Planner
- Notifications
- My Profile

The main area is titled "Dashboard" and features a welcome message: "Welcome back, Tester1! Ready to continue your fitness journey? Here's a snapshot of your progress. 'The secret of getting ahead is getting started.'". Below this are two orange buttons: "Book a Class" and "AI Workout Planner".

Four summary cards are displayed:

- Upcoming Classes: 0
- Saved Workouts: 0
- N/A (BMI): N/A
- Membership: -

The "Upcoming Classes" section contains the message: "No upcoming classes. Why not book one?".

A "Health Stats" section is present but shows no data.

A floating chatbot window titled "KP Fitness Bot" is open, displaying the message: "Hello Tester1! How can I help you today?". It includes input fields for "Type your message..." and a send button, and buttons for "My Next Class", "Book Class", "My Membership", and "Workout Plan".

At the bottom left of the dashboard are links: "View Main Site" and "Sign out".

3.2.4 Sign Up

Create Your Account

Full Name

Email Address

Password

Confirm Password

I agree to the [Terms and Conditions](#)

Register

Already have an account? [Login here](#)

3.2.5 Login page

Member Login

Email Address

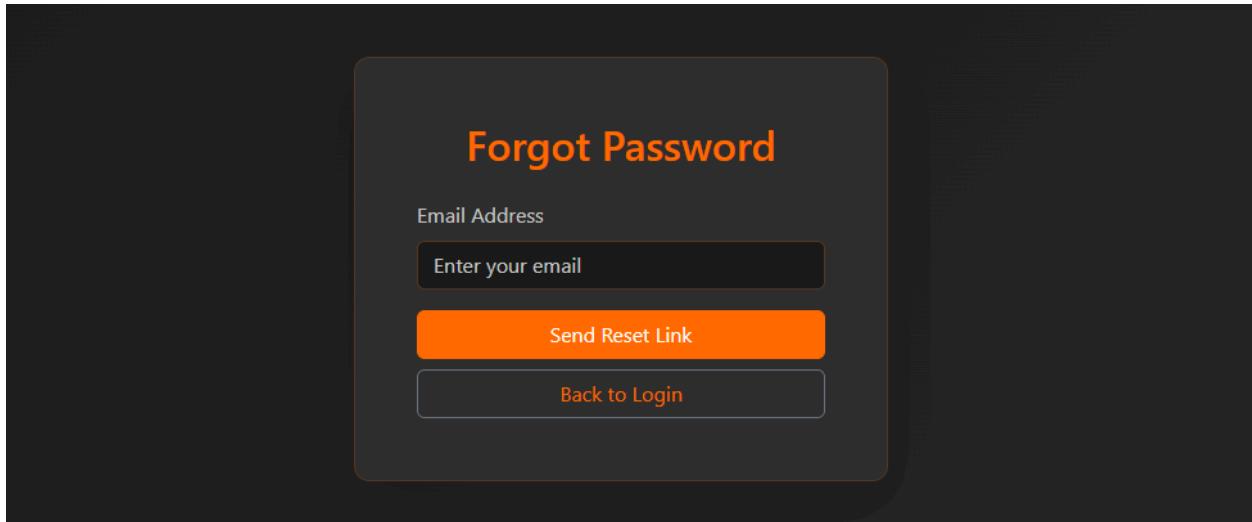
Password

[Forgot Password?](#)

Login

Don't have an account? [Register here](#)

3.2.6 Forgot Password page



Report Design

Monthly Revenue Report

Monthly Revenue Breakdown			
Month	Membership Revenue	Class Revenue	Total Revenue
December 2024	RM 0.00	RM 1,345.00	RM 1,345.00
January 2025	RM 5,114.00	RM 4,350.00	RM 9,464.00
February 2025	RM 2,067.00	RM 4,410.00	RM 6,477.00
March 2025	RM 1,683.00	RM 5,155.00	RM 6,838.00
April 2025	RM 1,000.00	RM 3,780.00	RM 4,780.00
May 2025	RM 4,403.00	RM 4,315.00	RM 8,718.00
June 2025	RM 2,866.00	RM 4,505.00	RM 7,371.00
July 2025	RM 618.00	RM 4,380.00	RM 4,998.00
August 2025	RM 3,901.00	RM 4,000.00	RM 7,901.00
September 2025	RM 1,148.00	RM 4,805.00	RM 5,953.00
October 2025	RM 7,299.00	RM 4,730.00	RM 12,029.00
November 2025	RM 4,137.00	RM 3,795.00	RM 7,932.00
December 2025	RM 6,681.00	RM 665.00	RM 7,346.00
TOTAL	RM 40,917.00	RM 50,235.00	RM 91,152.00

Top Performing Classes

Top Performing Classes

CLASS NAME	TOTAL BOOKINGS	PERFORMANCE
Boxing	1369	<div style="width: 100%; background-color: orange;"></div>
Weight Training	1007	<div style="width: 80%; background-color: orange;"></div>
Zumba	1002	<div style="width: 80%; background-color: orange;"></div>
Spin Cycling	981	<div style="width: 75%; background-color: orange;"></div>
BodyPump	952	<div style="width: 70%; background-color: orange;"></div>

Membership Distribution

Membership Distribution

PLAN NAME	ACTIVE MEMBERS	SHARE
8 Class Membership	43	27.2%
Unlimited Class Membership	43	27.2%
Annual Class Membership	27	17.1%
Non-Member	45	28.5%

3.3 Data Dictionary

3.3.1 Activities

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	ClassID	int(11)		No	None		AUTO_INCREMENT	Change Drop More	Change Drop More
2	CategoryID	int(11)		No	None			Change Drop More	Change Drop More
3	ClassName	varchar(100)	utf8mb4_general_ci	No	None			Change Drop More	Change Drop More
4	Description	text	utf8mb4_general_ci	Yes	NULL			Change Drop More	Change Drop More
5	Duration	int(11)		No	None			Change Drop More	Change Drop More
6	MaxCapacity	int(11)		No	20			Change Drop More	Change Drop More
7	Price	decimal(10,2)		No	25.00			Change Drop More	Change Drop More
8	Specialist	varchar(255)	utf8mb4_general_ci	Yes	NULL			Change Drop More	Change Drop More
9	DifficultyLevel	enum('beginner', 'intermediate', 'advanced')	utf8mb4_general_ci	Yes	beginner			Change Drop More	Change Drop More
10	IsActive	tinyint(1)		Yes	1			Change Drop More	Change Drop More
11	CreatedAt	timestamp		No	current_timestamp()			Change Drop More	Change Drop More

Figure : Data Dictionary for Activities

3.3.2 Attendance

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	AttendanceID	int(11)		No	None		AUTO_INCREMENT	Change Drop More	Change Drop More
2	SessionID	int(11)		No	None			Change Drop More	Change Drop More
3	UserID	int(11)		No	None			Change Drop More	Change Drop More
4	AttendanceDate	timestamp		No	current_timestamp()			Change Drop More	Change Drop More
5	Status	enum('present', 'absent', 'late')	utf8mb4_general_ci	Yes	present			Change Drop More	Change Drop More
6	Notes	text	utf8mb4_general_ci	Yes	NULL			Change Drop More	Change Drop More

Figure : Data Dictionary for Attendance

3.3.3 Class_Categories

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	CategoryID	int(11)		No	None		AUTO_INCREMENT	Change Drop More	Change Drop More
2	CategoryName	varchar(100)	utf8mb4_general_ci	No	None			Change Drop More	Change Drop More

Figure : Data Dictionary for Class Categories

3.3.4 Membership

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	MembershipID	int(11)		No	None		AUTO_INCREMENT	Change Drop More	Change Drop More
2	PlanName	varchar(100)	utf8mb4_general_ci	No	None			Change Drop More	Change Drop More
3	Type	enum('monthly', 'yearly', 'onetime')	utf8mb4_general_ci	No	None			Change Drop More	Change Drop More
4	Cost	decimal(10,2)		No	None			Change Drop More	Change Drop More
5	Duration	int(11)		No	None			Change Drop More	Change Drop More
6	Benefits	text	utf8mb4_general_ci	Yes	NULL			Change Drop More	Change Drop More
7	IsActive	tinyint(1)		Yes	1			Change Drop More	Change Drop More
8	CreatedAt	timestamp		No	current_timestamp()			Change Drop More	Change Drop More

Figure : Data Dictionary for Membership

3.3.5 Notification

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	NotificationID	int(11)			No	None		AUTO_INCREMENT	Change Drop More
□ 2	UserID	int(11)			No	None			Change Drop More
□ 3	Title	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
□ 4	Message	text	utf8mb4_general_ci		No	None			Change Drop More
□ 5	Type	enum('info', 'warning', 'success', 'error')	utf8mb4_general_ci		Yes	info			Change Drop More
□ 6	IsRead	tinyint(1)			Yes	0			Change Drop More
□ 7	CreatedAt	timestamp			No	current_timestamp()			Change Drop More

Figure : Data Dictionary for Notification

3.3.6 Payments

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	PaymentID	int(11)			No	None		AUTO_INCREMENT	Change Drop More
□ 2	PaymentDate	timestamp			No	current_timestamp()			Change Drop More
□ 3	Amount	decimal(10,2)			No	None			Change Drop More
□ 4	PaymentMethod	enum('credit_card', 'debit_card', 'touch_n_go', 'cash')	utf8mb4_general_ci		Yes	credit_card			Change Drop More
□ 5	Status	enum('pending', 'completed', 'failed', 'refunded')	utf8mb4_general_ci		Yes	pending			Change Drop More
□ 6	UserID	int(11)			No	None			Change Drop More
□ 7	MembershipID	int(11)			No	None			Change Drop More
□ 8	TransactionID	varchar(100)	utf8mb4_general_ci		Yes	NULL			Change Drop More
□ 9	PaymentType	enum('Membership', 'Booking')	utf8mb4_general_ci		Yes	Membership			Change Drop More
□ 10	Description	text	utf8mb4_general_ci		Yes	NULL			Change Drop More

Figure : Data Dictionary for Payments

3.3.7 Ratings

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	RatingID	int(11)			No	None		AUTO_INCREMENT	Change Drop More
□ 2	ReservationID	int(11)			No	None			Change Drop More
□ 3	UserID	int(11)			No	None			Change Drop More
□ 4	TrainerID	int(11)			No	None			Change Drop More
□ 5	RatingScore	int(11)			No	None			Change Drop More
□ 6	Comment	text	utf8mb4_general_ci		Yes	NULL			Change Drop More
□ 7	CreatedAt	timestamp			No	current_timestamp()			Change Drop More

Figure : Data Dictionary for Ratings

3.3.8 Reservations

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	ReservationID	int(11)		No	None	AUTO_INCREMENT		Change Drop More	
□ 2	BookingDate	timestamp		No	current_timestamp()			Change Drop More	
□ 3	Status	enum('booked', 'cancelled', 'attended', 'no_show')	utf8mb4_general_ci	Yes	booked			Change Drop More	
□ 4	PaidAmount	decimal(10,2)		Yes	NULL			Change Drop More	
□ 5	is_recurring	tinyint(1)		No	0			Change Drop More	
□ 6	recurrence_id	varchar(255)	utf8mb4_general_ci	Yes	NULL			Change Drop More	
□ 7	parent_reservation_id	int(11)		Yes	NULL			Change Drop More	
□ 8	UserID	int(11)		No	None			Change Drop More	
□ 9	SessionID	int(11)		No	None			Change Drop More	
□ 10	CheckInTime	datetime		Yes	NULL			Change Drop More	

Figure : Data Dictionary for Reservations

3.3.9 Sessions

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	SessionID	int(11)		No	None	AUTO_INCREMENT		Change Drop More	
□ 2	SessionDate	date		No	None			Change Drop More	
□ 3	StartTime	time		Yes	NULL			Change Drop More	
□ 4	EndTime	time		Yes	NULL			Change Drop More	
□ 5	Room	varchar(50)	utf8mb4_general_ci	Yes	NULL			Change Drop More	
□ 6	ClassID	int(11)		No	None			Change Drop More	
□ 7	TrainerID	int(11)		No	None			Change Drop More	
□ 8	CurrentBookings	int(11)		Yes	0			Change Drop More	
□ 9	Status	enum('scheduled', 'ongoing', 'cancelled', 'complet...')	utf8mb4_general_ci	Yes	scheduled			Change Drop More	
□ 10	CreatedAt	timestamp		No	current_timestamp()			Change Drop More	
□ 11	SessionCode	varchar(6)	utf8mb4_general_ci	Yes	NULL			Change Drop More	

Figure : Data Dictionary for Sessions

3.3.10 System_Settings

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	SettingKey	varchar(50)	utf8mb4_general_ci	No	None			Change Drop More	
□ 2	SettingValue	text	utf8mb4_general_ci	Yes	NULL			Change Drop More	
□ 3	Description	varchar(255)	utf8mb4_general_ci	Yes	NULL			Change Drop More	
□ 4	UpdatedAt	timestamp		No	current_timestamp()	ON UPDATE CURRENT_TIMESTAMP()		Change Drop More	

Figure : Data Dictionary for System Settings

3.3.11 Users

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	UserID 🔑	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	FullName 🎵	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
3	Email 🎵	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
4	Phone	varchar(20)	utf8mb4_general_ci		Yes	NULL			Change Drop More
5	Password	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
6	Role	enum('admin', 'trainer', 'client')	utf8mb4_general_ci		No	client			Change Drop More
7	DateOfBirth	date			Yes	NULL			Change Drop More
8	Height	int(11)			Yes	NULL			Change Drop More
9	Weight	int(11)			Yes	NULL			Change Drop More
10	Gender	enum('Male', 'Female', 'Other')	utf8mb4_general_ci		Yes	NULL			Change Drop More
11	Specialist	varchar(255)	utf8mb4_general_ci		Yes	NULL			Change Drop More
12	WorkingHours	varchar(255)	utf8mb4_general_ci		Yes	NULL			Change Drop More
13	JobType	enum('Full-time', 'Part-time')	utf8mb4_general_ci		Yes	NULL			Change Drop More
14	ProfilePicture	varchar(255)	utf8mb4_general_ci		Yes	NULL			Change Drop More
15	MembershipID 🎵	int(11)			Yes	NULL			Change Drop More
16	MembershipStartDate	date			Yes	NULL			Change Drop More
17	MembershipEndDate	date			Yes	NULL			Change Drop More
18	TrainerID 🎵	int(11)			Yes	NULL			Change Drop More
19	CreatedAt	timestamp			No	current_timestamp()			Change Drop More
20	UpdatedAt	timestamp			No	current_timestamp()	ON UPDATE CURRENT_TIMESTAMP()		Change Drop More
21	IsActive	tinyint(1)			Yes	1			Change Drop More
22	AutoRenew	tinyint(1)			Yes	0			Change Drop More
23	NextMembershipID	int(11)			Yes	NULL			Change Drop More
24	DaysOff	longtext	utf8mb4_bin		Yes	NULL			Change Drop More
25	ResetToken	varchar(64)	utf8mb4_general_ci		Yes	NULL			Change Drop More
26	ResetTokenExpiry	datetime			Yes	NULL			Change Drop More

Figure : Data Dictionary for Users

3.3.12 Workout_Plans

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	PlanID 🔑	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	UserID 🎵	int(11)			No	None			Change Drop More
3	PlanName	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
4	Age	int(11)			Yes	NULL			Change Drop More
5	Height	int(11)			Yes	NULL			Change Drop More
6	Weight	int(11)			Yes	NULL			Change Drop More
7	Goal	enum('bulking', 'cutting', 'endurance', 'strength')	utf8mb4_general_ci		No	None			Change Drop More
8	FitnessLevel	enum('beginner', 'intermediate', 'advanced')	utf8mb4_general_ci		No	None			Change Drop More
9	PlanDetails	longtext	utf8mb4_bin		No	None			Change Drop More
10	CreatedAt	timestamp			No	current_timestamp()			Change Drop More
11	IsActive	tinyint(1)			Yes	1			Change Drop More

Figure : Data Dictionary for Workout Plans

4.0 System Implementation

4.1 Source code

4.2 Description of Implementation Tools and Methods

5.0 System Testing

5.1 Test Plan

The system testing phase ensures that the KP Fitness Class Reservation System functions according to the specified requirements. The following test cases cover all functions of the core modules including Authentication & User Management, Admin Module, Trainer Module, Client Module, and Homepage (Index) Module.

5.2 Test Cases

5.2.1 Module 1: Authentication & User Management

Test Case ID		Auth_01_ClientRegister		
Test Case Name		Client Register	Test Case Description	Verify new client can successfully register
Pre-conditions:		Test Data:		
1	User is on the Registration page.	1	Full Name: Client1	
2	Email address is unique (not already registered)	2	Email: Client1@example.com	
		3	Password: Client123	
		4	Confirm Password: Client123	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to Registration page (Sign up)	Display sign up module “Create Your Account”.	Same as expected	Pass
2	Enter valid Name, Email, Password, and Confirm Password	Fields accepts valid input data with password in hidden format	Same as expected	Pass
3	Check “I agree to	Users must agree	Same as expected	Pass

	Terms”	with terms before sign up.		
4	Click the “Register” button.	The system creates an account, logs users in. Display “Complete Your Profile” pop-up window.	Same as expected	Pass

Test Case ID		Auth_02_AdminLogin		
Test Case Name		Admin Login	Test Case Description	Verify admin can login with valid credentials
Pre-conditions:			Test Data:	
1	User is on the Login page.	1	Email: admin@kpfitness.com	
2	Admin account exists.	2	Password: admin123	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to Login page	Display login module “User Login”.	Same as expected	Pass
2	Enter valid Admin Email and Password	Fields accepts valid input data with password in hidden format	Same as expected	Pass
3	Click “Login”	The system authenticates users and redirects to Admin Dashboard.	Same as expected	Pass

Test Case ID		Auth_03_TrainerLogin		
Test Case Name		Trainer Login	Test Case Description	Verify trainers can login with valid credentials
Pre-conditions:			Test Data:	
1	User is on the Login page.	1	Username: john.doe@kpfitness.com	
2	Trainer account exists.	2	Password: trainer123	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to Login page	Display login module “User Login”.	Same as expected	Pass
2	Enter valid Trainer Email and Password	Fields accepts valid input data with password in hidden format	Same as expected	Pass
3	Click “ Login ” button	Trainer successfully logged in and the trainer dashboard is displayed	Same as expected	Pass

Test Case ID		Auth_04_ClientLogin		
Test Case Name		Client Login	Test Case Description	Verify client can login with valid credentials
Pre-conditions:		Test Data:		
1	User is on the Login page.		1	Email: Client1@example.com
2	Client account exists.		2	Password: Client123
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to Login page	Login module is displayed	Same as expected	Pass
2	Enter valid Client Email and Password	Fields accepts valid input data with password in hidden format	Same as expected	Pass
3	Click " Log in " button	Client successfully logged in and the Client dashboard is displayed	Same as expected	Pass

Test Case ID		Auth_05_InvalidLogin		
Test Case Name		Invalid Login	Test Case Description	Verify login fails with incorrect password
Pre-conditions:		Test Data:		
1	User is on the Login page.		1	Email: admin@kpfitness.com
			2	Password: WrongPassword
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Enter valid Email but invalid Password	Allow user to enter credentials	Same as expected	Pass
2	Click "Login"	The system denies access and displays an "Invalid email or password" error message.	Same as expected	Pass

Test Case ID		Auth_06_ForgotPassword		
Test Case Name		Forgot Password	Test Case Description	Verify user can recover account if forgot password
Pre-conditions:			Test Data:	
1	User is on the Login page.	1	Email: Client1@example.com	
		2	Password: WrongPassword	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click “Forgot Password?”	Redirect user to Forgot Password page	Same as expected	Pass
2	Enter user email, click “Send Reset Link”	Allow user to enter email, click “Send Reset Link” to continue the process	Same as expected	Pass
3	Click “Reset Password”	Redirect user to a Reset Password page, allow user to enter new password and confirm new password	Same as expected	Pass
4	Click “Reset Password” button	Display “Password reset successfully” message and show a “Login” link.	Same as expected	Pass
5	Click “Login” link	Redirect back to the login page to login account.	Same as expected	Pass

5.2.2 Module 2: Admin Module

Test Case ID		Admin_01_CreateTrainer		
Test Case Name		Create Trainer	Test Case Description	Verify Admin can create a new Trainer account
Pre-conditions:			Test Data:	
1	Logged in as Admin		1	Name: Trainer Mike
2	On User Management page		2	Email: mike@kpfitness.com
			3	Password: mike123
			4	Specialist: HIIT
			5	Gender: Male
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Enter New Trainer details	Allow to enter details	Same as expected	Pass
2	Click “Create Trainer”	Display message “successfully created Trainer”	Same as expected	Pass
3	Click “Trainer” folder to check created Trainer	A new Trainer account is created and appears in the Trainer list.	Same as expected	Pass

Test Case ID		Admin_02_CreateActivity		
Test Case Name		Create Activity	Test Case Description	Verify Admin can create a new Class Activity
Pre-conditions:			Test Data:	
1	Logged in as Admin	1	Category: Mind & Body	
2	On Activity Management page	2	Activity Name: Advanced Yoga	
		3	Difficulty: Advanced	
		4	Duration: 60 mins	
		5	Max Capacity: 20	
		6	Description: High intensity yoga	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to Activity Management	Display Activity Management page	Same as expected	Pass
2	Enter Category, Activity Name, Difficulty Level, Duration, Max Capacity, and Description.	Allow user to enter details	Same as expected	Pass
3	Click "Create New Activity"	Activity is saved to the database and listed in the Activity table.	Same as expected	Pass

Test Case ID		Admin_03_ScheduleSession		
Test Case Name		Schedule Session	Test Case Description	Verify Admin can schedule a session for a class
Pre-conditions:			Test Data:	
1	Logged in as Admin	1	Activity: Advanced Yoga	
2	Activity "Advanced Yoga" exists	2	Date: 25-12-2025	
3	Trainer exists	3	Time: 10:00 AM - 11:00 AM	
		4	Trainer: Trainer Mike	
		5	Room: Studio A	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to Session Scheduling	Display Session Scheduling page	Same as expected	Pass
2	Select Activity, Trainer, Date, Time, and Room	Allow user to select details	Same as expected	Pass
3	Click "Schedule Session"	The session is successfully scheduled and appears in the calendar.	Same as expected	Pass

Test Case ID		Admin_04_GenReport		
Test Case Name		Generate Report	Test Case Description	Verify Admin can generate attendance report
Pre-conditions:			Test Data:	
1	Logged in as Admin	1	Data Range: Last 30 Days	
2	Historical data exists	2		
<hr/>				
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “Reports”	Display Reports & Analytics page	Same as expected	Pass
2	Click “Generate PDF” / “Export CSV”	Display reports in pop-up window for PDF / allow admin download as CSV	Same as expected	Pass
3	Click “Save as PDF” (Generate PDF)	Download the PDF report	Same as expected	Pass

Test Case ID		Admin_05_RealTime		
Test Case Name		Real-Time Activity	Test Case Description	Verify Admin can view activity in real time.
Pre-conditions:			Test Data:	
1	Logged in as Admin	1		
2	System is active and running	2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “Real-Time Activity”	Display Real-Time Activity page	Same as expected	Pass
2	Click “Details”	Display real-time details in a pop-up window.	Same as expected	Pass

Test Case ID		Admin_06_AdmNotif		
Test Case Name		Admin Notification	Test Case Description	Verify Admin can View Notification
Pre-conditions:			Test Data:	
1	Logged in as Admin	1		
2	On any page of Admin Interface	2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click on “Notifications”	Display a pop-up Notification window with notifications (if have any)	Same as expected	Pass
2	Click “Mark all as read”	Allow users to mark all notifications as read, removing Notification bubbles.	Same as expected	Pass

5.2.3 Module 3: Trainer Module

Test Case ID		Trainer_01_ViewSchedule		
Test Case Name		View Schedule	Test Case Description	Verify Trainer can view their assigned schedule
Pre-conditions:			Test Data:	
1	Logged in as Trainer Mike	1	N/A	
2	Admin has assigned a session to Trainer Mike	2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “My Schedule”	Opens up calendar	Same as expected	Pass
2	Check the calendar for the assigned date	The assigned “Advanced Yoga” session is visible on the calendar	Same as expected	Pass

Test Case ID		Trainer_02_MarkAttendance		
Test Case Name		Schedule Session	Test Case Description	Verify Trainer can mark client attendance
Pre-conditions:		Test Data:		
1	Logged in as Trainer		1	Client: John Doe
2	Session has registered clients		2	Status: Present
3	Session time has passed or is active			
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “Attendance”	Opens up list of upcoming/started sessions	Same as expected	Pass
2	Select the specific session	Opens up list of clients	Same as expected	Pass
3	Locate Client John Doe	Client name is visible	Same as expected	Pass
4	Change status to “Present” using the switch button	Switch button is pointed to the right for present	Same as expected	Pass
5	Save/Update Attendance	The attendance record is updated in the database.	Same as expected.	Pass

Test Case ID		Trainer_03_AttendanceHistory		
Test Case Name		Verify View Attendance History Functionality	Test Case Description	Verify that the Trainer can successfully view the history of classes, including dates, times, and client bookings.
Pre-conditions:		Test Data:		
1	Logged in as Trainer	1		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click on the "Attendance History" button on the main dashboard.	The "Attendance History" pops up, displaying a list of dates with the number of classes for each day	Same as expected	Pass
2	Click on the expand arrow	expands to show all past sessions	Same as expected	Pass

Test Case ID		Trainer_04_Notification		
Test Case Name		Trainer Notification	Test Case Description	Verify Trainer can View Notification
Pre-conditions:			Test Data:	
1	Logged in as Trainer	1		
2	On any page of Trainer Interface	2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click on “Notifications”	Display a pop-up Notification window with notifications (if have any)	Same as expected	Pass
2	Click “Mark all as read”	Allow users to mark all notifications as read, removing Notification bubbles.	Same as expected	Pass

Test Case ID		Trainer_05_Chatbot		
Test Case Name		Trainer Chatbot	Test Case Description	Verify Trainer can ask chatbot for support
Pre-conditions:			Test Data:	
1	Logged in as Trainer	1		
2	On any page of Trainer Interface	2		
<hr/>				
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click on “KPF Bot” shown at bottom right	Display a pop-up Chat window with “Quick Action” choices and text box.	Same as expected	Pass
2	Click “Today’s schedule” in the chat	Chatbot generates the trainer’s current schedule with details.	Same as expected	Pass

5.2.4 Module 4: Client Module

Test Case ID		Client_01_BookClass1		
Test Case Name		Book Class (Non-member)	Test Case Description	Verify Client can successfully book a class without Membership
Pre-conditions:			Test Data:	
1	Logged in as Client	1	Session: Advanced Yoga	
2	On Book Classes page	2	Date: 23-12-2025	
3	Session has available slots	3	Time: 10:00 AM	
		4	Payment Method: Credit Card	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click “Book a Class” button	Display a pop-up window, showing a calendar for booking.	Same as expected	Pass
2	Click on Date 23/12	Display Classes for selected date at “Available Classes” with Activity Name, Trainer Name, Session Time, and Available Slot.	Display Classes did not contain details for Session Time.	Fail
3	Click “Book” button to book “Advanced Yoga” class	Display a confirmation message to confirm the booking request.	Same as expected	Pass
4	Click “Ok” to confirm booking request	Pop up the Payment Method window, complete	Same as expected	Pass

		payment to book class		
5	Select “Credit Card” and Click “Pay Now”.	Display “Processing your payment” and “Payment successful”. Display a “Booking Successful” message	Same as expected	Pass

Test Case ID		Client_02_BookClass2		
Test Case Name		Book Class (Member)	Test Case Description	Verify Client can successfully book a class with Membership
Pre-conditions:			Test Data:	
1	Logged in as Client	1	Session: Advanced Yoga	
2	On Book Classes page	2	Date: 23-12-2025	
3	Session has available slots	3	Time: 10:00 AM	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click “Book a Class” button	Display a pop-up window, showing a calendar for booking.	Same as expected	Pass
2	Click on Date 23/12	Display Classes for selected date at “Available Classes” with Activity Name, Trainer Name, Session Time, and Available Slot.	Display Classes did not contain details for Session Time.	Fail
3	Click “Book” button to book “Advanced Yoga” class	Display a confirmation message to confirm the booking request.	Same as expected	Pass
4	Click “Ok” to confirm booking request	Display a “Booking Successful” message	Same as expected	Pass

Test Case ID		Client_03_ViewBookingHistory		
Test Case Name		View Booking History	Test Case Description	Verify Client can view booking history
Pre-conditions:			Test Data:	
1	Logged in as Client		1	Past booking records
2	On Book Classes page		2	Cancel booked class
3	Past Bookings exist		3	Rate stars & Comment
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “Book Classes”	Display “Book Classes” page, has “Booking History” displayed under “My Schedule”	Same as expected	Pass

Test Case ID		Client_04_CancelBooking		
Test Case Name		Cancel Booking	Test Case Description	Verify client can cancel an existing booking
Pre-conditions:			Test Data:	
1	Logged in as Client	1	Past booking records	
2	On Book Classes page	2		
3	Client has a booked session	3		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “Book Classes”	Display “Book Classes” page, display “Booking History”	Same as expected	Pass
2	Click on “Cancel” button when Status is “Booked”	Display a pop-up window to confirm user action for cancelling the session.	Same as expected	Pass
3	Click on “Cancel Booking” button	Booking is cancelled. Status updates to Cancelled. Slot is freed up. Display a “Booking Cancelled” message.	Same as expected.	Pass

Test Case ID		Client_05_RateClass		
Test Case Name		Rate Class	Test Case Description	Verify clients can Rate attended classes.
Pre-conditions:		Test Data:		
1	Logged in as Client	1	Past booking records	
2	On Book Classes page	2	Rate stars & Comment	
3	Past Bookings exist	3		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “Book Classes”	Display “Book Classes” page, display “Booking History”	Same as expected	Pass
2	Click on “Rate” button when Status is “Attended”	Display a pop-up window “Rate your Class”. Allow users to rate their past session with 1-5 stars and input comments.	Same as expected	Pass
3	Rate with 1-5 stars and Enter Comment. Click “Submit Rating” to rate the session.	Display a “Successful rating session” message. Changed status from “Attended” to “Rated” and removed the “Rate” button.	Same as expected	Pass

Test Case ID		Client_06_MembershipPlan		
Test Case Name		Membership Plan	Test Case Description	Verify client can purchase a membership plan
Pre-conditions:		Test Data:		
1	Logged in as Client Without any active plan (or upgrading)		1	Plan: Unlimited Monthly
2			2	Payment Method: Credit Card
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “Membership”	Display membership page, contain “Current Membership Plan” and “Payment History” section	Same as expected	Pass
2	Click “Subscribe Membership”	Displays a pop-up window showing 3 types of membership	Same as expected	Pass
3	Select “Unlimited Monthly” plan and click “ JOIN TODAY”	Pop up the Payment Method window to complete payment.	Same as expected	Pass
4	Select “Credit Card” and click “Pay Now” to complete payment.	Display “Processing your payment” and “Payment successful”	Same as expected	Pass

Test Case ID		Client_07_CheckMemberStatus		
Test Case Name		Check Membership Status	Test Case Description	Verify System tracks membership status correctly
Pre-conditions:			Test Data:	
1	Client has an active membership		1	N/A
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Client navigates to “Membership”	Displays Membership page	Same as expected	Pass
2	Check “Current Plan” and “Expiry Date”	Correct Plan Name and valid Expiry Date are displayed	Same as expected	Pass

Test Case ID		Client_08_PaymentHistory		
Test Case Name		Payment History	Test Case Description	Verify client can view payment history
Pre-conditions:		Test Data:		
1	Logged in as Client		1	Past Payment
2	Had past Booking payment or Membership payment		2	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “Membership”	Display membership page, contain “Current Membership Plan” and “Payment History” section	Same as expected	Pass
2	Click “Details” in Payment History to view payment in Details	Displays a pop-up window showing Payment Details	Same as expected	Pass

Test Case ID		Client_09_WorkoutPlan1		
Test Case Name		AI Workout Plan (Non-member)	Test Case Description	Verify that the AI Workout Planner generates a workout routine, and allows the user to save and view the plan without high tier membership.
Pre-conditions:			Test Data:	
1	Logged in as Client	1	Plan Name: Testing1	
2	On the AI Workout Planner page	2	Workout Days: Mon, Wed, Fri	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “AI Workout Planner”	AI Workout Planner is displayed with some features locked	Same as expected	Pass
2	Input Plan Name and select Workout Days (3 days Max)	Allow user to enter plan name and ticks small tick box to select days	Same as expected	Pass
3	Click “ Generate Plan ”	Display a basic workout plan matching the selected days.	Same as expected	Pass
4	Click “ Save Plan ”	The generated plan is saved and displayed in the “Your Saved Plans” section.	Same as expected	Pass
5	Click “View Plan” from “Your Saved Plans”	Display Saved plan in “Generated Plan” section.	Same as expected	Pass

Test Case ID		Client_10_WorkoutPlan2		
Test Case Name		AI Workout Plan (Member)	Test Case Description	Verify that the AI Workout Planner correctly accepts user criteria (Goal, Level, Days), generates a tailored workout routine, and allows the user to save and view the plan with high tier membership.
Pre-conditions:			Test Data:	
1	Logged in as Client	1	Plan Name: Testing1	
2	On the AI Workout Planner page	2	Primary Goal: General Fitness	
3	Has activated high tier membership	3	Fitness level: Advanced (5 Days/Week)	
		4	Workout Days: Mon, Tue, Wed, Fri, Sat	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to " AI Workout Planner "	AI Workout Planner is displayed	Same as expected	Pass
2	Input Plan name, Select Primary Goal and Fitness Level. Select Workout Days. Edit workout days.	Allow users to input plan name and select goal and fitness level. Workout days are auto-selected, but allow editing.	Same as expected	Pass
3	Click " Generate Plan "	A structured workout plan is displayed matching the criteria	Same as expected	Pass
4	Click " Save Plan "	Plan is saved and moved to the bottom	Same as expected	Pass

5	Click “View Plan” from “Your Saved Plans”	Display Saved plan in “Generated Plan” section.	Same as expected	Pass
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Test Case ID		Client_11_Notification		
Test Case Name		Client Notifications	Test Case Description	Verify booking notification or system related notification is sent upon booking or updating profile
Pre-conditions:			Test Data:	
1	Client books a class (Trigger)	1	N/A	
2	Client update profile (Trigger)	2		
3		3		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Client completes / cancelled booking	New notification is added	Same as expected	Pass
2	Client updates profile	New notification is added	Same as expected	Pass
3	Check the “Notifications” icon/page.	Display all New notification related to bookings or system	Same as expected	Pass
4	Click on notification / click on “Mark All Read” button	Mark the notification as read, remove/reduce the amount of notification	Same as expected	Pass

Test Case ID		Client_12_MyProfile		
Test Case Name		Client My Profile	Test Case Description	Verify Clients can view and edit profile details and change password.
Pre-conditions:			Test Data:	
1	Logged in as Client	1	N/A	
2	On the My Profile page	2		
3		3		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Navigate to “My Profile”	Display my profile page	Same as expected	Pass
2	View profile details	Allow users to view account profile details and profile picture	Same as expected	Pass
3	Click on “Camera” icon	Allow users to add or change profile pictures.	Same as expected	Pass
4	Click on “Edit Profile”	Allow users to edit their profile details, name, contact, gender, data of birth, height, and weight.	Same as expected	Pass
5	Click “Save Changes” or “Cancel”	Save changes or Cancel changes made to the profile.	Same as expected	Pass
6	Click “Change Password” button	Display a pop-up window “Change Password”, allow users to change	Same as expected	Pass

		password by entering “Current Password”, “New Password” and “Confirm New Password”.		
7	Click “Change Password” (Change Password window)	Successfully changed the user password and updated the database with the new password.	Same as expected	Pass

Test Case ID		Client_13_Chatbot		
Test Case Name		Client AI Chatbot / Assistant	Test Case Description	Verify Client can access support with AI Chatbot / Assistant
Pre-conditions:			Test Data:	
1	Logged in as Client	1		
2	On any page of Client Interface	2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click on “KPF Bot” at bottom right	Display a pop-up Chat window with “Quick Action” choices and text box.	Same as expected	Pass
2	Select a “Quick Action” or input a message	Chatbot generates a response after a few seconds.	Same as expected	Pass

5.2.5 Module 5: Homepage Module

Test Case ID		Homepage_01_About		
Test Case Name		User can navigate About KP Fitness in 1 click	Test Case Description	Verify about button on dashboard scrolls down to About section
Pre-conditions:			Test Data:	
1	On the home page	1		
2		2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click “About” on the dashboard	Scrolls down to “About KP Fitness” Section of the home page	Same as expected	Pass

Test Case ID		Homepage_02_Classes		
Test Case Name		User can navigate Classes in 1 click	Test Case Description	Verify about button on dashboard scrolls down to “Our Classes” section
Pre-conditions:			Test Data:	
1	On the home page	1		
2		2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click “About” on the dashboard	Scrolls down to “Our Classes” Section of the home page	Same as expected	Pass

Test Case ID		Homepage_03_Membership		
Test Case Name		User can navigate Membership Plans in 1 click	Test Case Description	Verify about button on dashboard scrolls down to Membership Plans section
Pre-conditions:			Test Data:	
1	On the home page		1	
2			2	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click "Membership" on the dashboard	Show "Membership Plans" Section of the home page	Same as expected	Pass

Test Case ID		Homepage_04_Contact		
Test Case Name		User can navigate Contact in 1 click	Test Case Description	Verify about button on dashboard scrolls down to the bottom of the page showing KP Fitness Contacts
Pre-conditions:			Test Data:	
1	On the home page		1	
2			2	
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click "Contact" on the dashboard	Scrolls down to "Get In Touch" Section of the home page	Same as expected	Pass

Test Case ID		Homepage_05_Login		
Test Case Name	User can Login with a single click	Test Case Description	Verify Login button able to bring user to login screen	
Pre-conditions:		Test Data:		
1	On the home page	1		
2		2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click "Login" on the dashboard	Opens up Login screen to user	Same as expected	Pass

Test Case ID		Homepage_06_SignUp		
Test Case Name	User can Sign Up with a single click	Test Case Description	Verify Sign Up button able to bring user to Sign Up screen	
Pre-conditions:		Test Data:		
1	On the home page	1		
2		2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click "Sign Up" on the dashboard	Opens up Sign Up screen to user	Same as expected	Pass

Test Case ID		Homepage_07_Chatbot		
Test Case Name		Homepage AI Chatbot / Assistant	Test Case Description	Verify User can access support with AI Chatbot / Assistant
Pre-conditions:			Test Data:	
1	On the home page	1		
2		2		
Step #	Step Details	Expected Results	Actual Results	Remarks (Pass/Fail/Not Executed)
1	Click on “KPF Bot” at bottom right	Display a pop-up Chat window with “Quick Action” choices and text box.	Same as expected	Pass
2	Select a “Quick Action” or input a message	Chatbot generates a response after a few seconds.	Same as expected	Pass

6.0 User Manual