



Year 2 Semester 2 2025

IT Project

GYM Management System

(ZFit)

Information Technology Project

IT2080

Group ID:

ITP25_B2_W225

Group Details:**Campus : Malabe****Group Number : ITP25_B2_W225**

	IT Number	Student Name	Student E-mail Address	Contact Number
1	IT 23 5621 10	H R G N Karunathilaka	IT23562110@my.sliit.lk	0764891241
2	IT 23 5418 70	N M B M L B Nawaratne	IT23541870@my.sliit.lk	0763541666
3	IT 23 5804 80	K B P Kavisika	IT23580480@my.sliit.lk	0718827129
4	IT 23 7536 62	O A I De Silva	IT23753662@my.sliit.lk	0740357412
5	IT 23 7414 78	B Dhayabari	IT23741478@my.sliit.lk	0770772330

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1. Product Backlog(1,2,3)

ID	Description	Priority	Story Points
PB1	As a member, I want to register and log in so that I can manage my profile and access gym services.	High	5
PB2	As a member, I want to browse membership packages and subscribe so that I can select the most suitable plan.	High	8
PB3	As a member, I want to view and renew my membership so that I can continue using the gym without interruption.	High	5
PB4	As a system, I want to generate a unique QR code for each member so that attendance and access can be tracked.	High	8
PB5	As a member, I want to check in using my QR code so that my attendance is logged automatically.	High	5
PB6	As a member or trainer, I want to log workout details (exercise, sets, reps, weights) so that progress can be recorded.	High	5
PB7	As a member, I want to set fitness goals and update progress so that I can monitor improvements over time.	Medium	8
PB8	As a member, I want to view workout history, attendance, and progress in charts so that I can track performance clearly.	High	13
PB9	As a member, I want to book, cancel, and reschedule gym sessions or classes so that I can manage my schedule flexibly.	High	8
PB10	As a member, I want to view my booking history so that I can review my past and upcoming sessions.	Medium	5
PB11	As a member, I want to make payments and receive receipts so that I have proof of transactions	High	8
PB12	As a manager or staff, I want to view and filter payment history so that I can monitor financial activities.	High	8
PB13	As a staff or manager, I want to create and manage member accounts so that I can update records when needed.	High	5

PB14	As a manager, I want to create and customize membership offerings so that members have different options.	High	8
PB15	As a manager, I want to add, update, and remove inventory items so that stock is accurate.	High	8
PB16	As a manager, I want to receive low stock and maintenance alerts so that resources are managed properly.	High	13
PB17	As a trainer, I want to be assigned to members so that I can provide personalized guidance.	Medium	5
PB18	As a manager, I want to generate reports (attendance, bookings, progress, revenue) so that I can analyze performance.	High	13
PB19	As a member, I want to receive notifications (renewals, bookings, updates) so that I stay informed.	Medium	5
PB20	As a system, I want to prevent double booking of the same resource so that scheduling conflicts are avoided.	High	8
PB21	As a member, I want to use multiple payment methods (cash, card, bank transfer, PayHere) so that I have flexibility.	High	8

4.Sprint Planning (3 Sprint of 2 Weeks Each)

Sprint 1

- **Focus:** Set up the project, database, and authentication. Develop the basic CRUD (Create, Read, Update, Delete) operations and data models for each core component.
- **Outcome:** A working backend with core APIs. Basic frontend structure. Users can register/login. Admins can view basic lists of members, inventory, etc.
- **Total Story Points:** 34

Module	Tasks (Mapped to Product Backlog)	Ref.	Priority	Story Points
Project Setup	1. Initialize Git repo & agree on branching strategy. 2. Set up shared Node.js/Express backend with TypeScript. 3. Design and implement core MongoDB database schema. 4. Set up Next.js frontend project.	N/A	High	13
User & Membership Management	1. Implement User Registration & Login API (JWT + Bcrypt). 2. Build API endpoints for basic member profile CRUD operations.	PB1, PB13	High	10
Inventory Control	1. Build API endpoints for adding, viewing, and listing inventory items.	PB15	High	8
Payment & Invoice Management	1. Design database schema for invoices and transactions. 2. Build API endpoints for creating and listing invoices.	PB11, PB12	High	3
Total				34

Sprint 2

- **Focus:** Add complex business logic, connect components together, and implement key features like payment integration and double-booking prevention.
- **Outcome:** An integrated system where core workflows are functional. Members can book and pay. Inventory and progress are tracked.

Total Story Points: 42

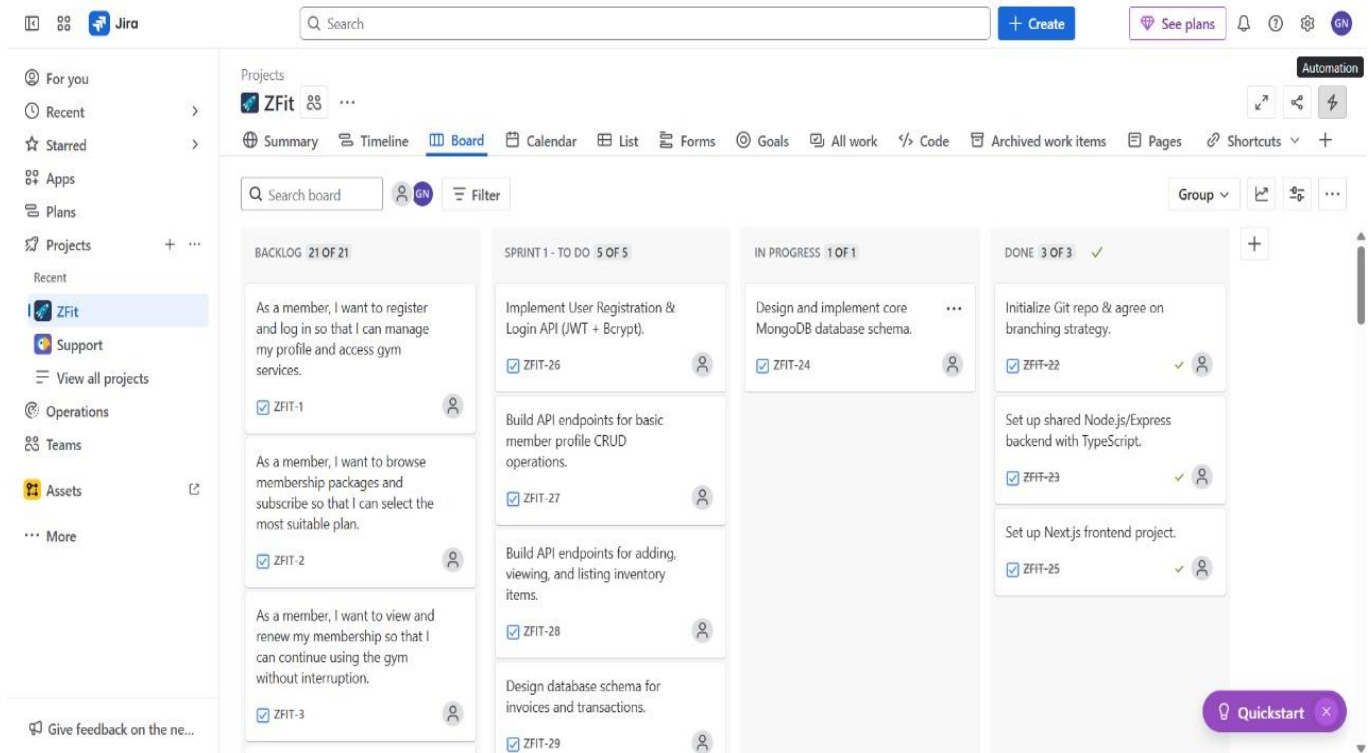
Module	Tasks (Mapped to Product Backlog)	Ref	Priority	Story Points
Integration	1. Major integration of frontend with the new APIs from Sprint 2. 2. Comprehensive testing of cross-component features.	N/A	High	8
User & Membership Management	1. Implement membership tier system with access rules. 2. Develop membership renewal logic and notifications.	PB2, PB3	High	13
Inventory Control	1. Implement low-stock alert system. 2. Develop inventory update logic.	PB16	PB16	5
Payment & Invoice Management	1. Integrate PayHere payment gateway for card payments.	PB11, PB21	High	8
Reservation & Booking Management	1. Implement double-booking prevention logic. 2. Build booking cancellation and rescheduling features.	PB9, PB20	High	8
Total				42

Sprint 3

- **Focus:** Finalize all features, implement reporting, enhance the UI/UX, conduct final testing, and prepare for deployment.
- **Outcome:** The fully developed, tested, and deployable product as specified in the proposal.
- **Total Story Points:** 44

Module	Tasks (Mapped to Product Backlog)	Ref	Priority	Story Points
Testing & Polish	1. Final End-to-End Testing & Bug Fixing. 2. Code review and optimization. 3. Preparation of final presentation and demo.	N/A	High	8
User & Membership Management	1. QR Code generation and integration for member check-in.	PB4, PB5	High	13
Member Progress Tracking	1. Build detailed progress dashboard with charts. 2. Implement notification system for goal milestones.	PB7, PB8, PB19	Med	13
Reservation & Booking Management	1. Build booking reports. 2. Implement email/SMS reminders for upcoming bookings.	PB10, PB18, PB19	Med	10
Total				44

5.

[View board](#)

6. Provide a sprint plan showing the tasks allocated for each member.

Sprint	Member	Module	Tasks
Sprint 1 (Weeks 1–2)	IT23562110	User & Membership Management	Implement user registration & secure login (JWT); Set up authentication & session handling (PB1)
	IT23541870	Inventory Control	Develop system to add, update, and remove inventory items; Create basic inventory management UI (PB15)
	IT23580480	Payment & Invoice Management	Develop system to create and list invoices; Design payment transaction schema (PB11, PB12)
	IT23753662	Progress Tracking	Design database schema for workout logs and goals; Build API for basic workout logging (PB6)
	IT23741478	Booking Management	Design database schema for resources and bookings; Build API to list available resources (PB9)
Sprint 2 (Weeks 3–4)	IT23562110	User & Membership Management	Implement membership browsing and subscription; Add membership renewal logic (PB2, PB3)
	IT23541870	Inventory Control	Implement low stock and maintenance alerts; Integrate inventory updates with sales (PB16)
	IT23580480	Payment & Invoice Management	Integrate PayHere gateway for card payments; Implement payment status tracking (PB21)
	IT23753662	Progress Tracking	Build progress dashboard with charts; Implement goal setting and tracking (PB7, PB8)
	IT23741478	Booking Management	Implement booking, cancellation, and rescheduling; Prevent double-booking of resources (PB9, PB20)

Sprint 3 (Weeks 5–6)	IT23562110	User & Membership Management	Generate unique QR codes for members; Enhance security; Build member reports (PB4, PB18)
	IT23541870	Inventory Control	Build comprehensive inventory reports; Finalize UI and system alerts (PB18)
	IT23580480	Payment & Invoice Management	Implement multiple payment methods (cash, bank transfer); Build financial reports (PB21, PB18)
	IT23753662	Progress Tracking	Implement notifications for goal milestones; Finalize UI for tracking dashboard (PB19)
	IT23741478	Booking Management	Implement booking notifications and reminders; Build booking reports (PB10, PB19)