



**Year 2 Semester 2 2025**

**IT Project**

**GYM Management System**

**(ZFit)**

**Information Technology Project**

**IT2080**

**Group ID:**

**ITP25\_B2\_W225**

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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
<b>Project Setup</b>	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
<b>User &amp; Membership Management</b>	1. Implement User Registration & Login API (JWT + Bcrypt). 2. Build API endpoints for basic member profile CRUD operations.	PB1, PB13	High	10
<b>Inventory Control</b>	1. Build API endpoints for adding, viewing, and listing inventory items.	PB15	High	8
<b>Payment &amp; Invoice Management</b>	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
<b>Integration</b>	1. Major integration of frontend with the new APIs from Sprint 2. 2. Comprehensive testing of cross-component features.	N/A	High	8
<b>User &amp; Membership Management</b>	1. Implement membership tier system with access rules. 2. Develop membership renewal logic and notifications.	PB2, PB3	High	13
<b>Inventory Control</b>	1. Implement low-stock alert system. 2. Develop inventory update logic.	PB16	PB16	5
<b>Payment &amp; Invoice Management</b>	1. <b>Integrate PayHere payment gateway</b> for card payments.	PB11, PB21	High	8
<b>Reservation &amp; Booking Management</b>	1. Implement double-booking prevention logic. 2. Build booking cancellation and rescheduling features.	PB9, PB20	High	8
<b>Total</b>				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. <b>QR Code generation and integration</b> 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
<b>Total</b>				44

5.

The screenshot shows the Jira software interface with the following details:

- Project:** ZFit
- Columns:**
  - BACKLOG:** 21 OF 21 tasks. Examples include: "As a member, I want to register and log in so that I can manage my profile and access gym services." (ZFIT-1), "As a member, I want to browse membership packages and subscribe so that I can select the most suitable plan." (ZFIT-2), and "As a member, I want to view and renew my membership so that I can continue using the gym without interruption." (ZFIT-3).
  - SPRINT 1 - TO DO:** 5 OF 5 tasks. Examples include: "Implement User Registration & Login API (JWT + Bcrypt)." (ZFIT-26) and "Build API endpoints for basic member profile CRUD operations." (ZFIT-27).
  - IN PROGRESS:** 1 OF 1 task. Example: "Design and implement core MongoDB database schema." (ZFIT-24).
  - DONE:** 3 OF 3 tasks. Examples include: "Initialize Git repo & agree on branching strategy." (ZFIT-22), "Set up shared Node.js/Express backend with TypeScript." (ZFIT-23), and "Set up Next.js frontend project." (ZFIT-25).
- Search Bar:** Search for "Search" at the top center.
- Header Buttons:** + Create, See plans, Notifications, Help, and GN.
- Automation:** A section with icons for automation features.
- Filter:** Options to Group, Sort, and Filter tasks.
- Bottom Right:** Quickstart button.

[View board](#)

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

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

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