**✅ 1. Project Summary**

**Goal**: Build a Gym Management System for gym owners to track:

* 🧑‍🤝‍🧑 Members and their details
* 💳 Membership payments and fees
* 📆 Active memberships and upcoming renewals
* 📊 Basic analytics and dashboard

Optional but expandable later:

* Attendance tracking
* Workout plans
* Trainers & scheduling
* Notifications

**🧩 2. Core Features (MVP Scope)**

**👤 Member Management**

* Add/edit/delete member
* Fields: Name, Phone, Email, Plan Type, Start Date, End Date, Notes

**💰 Payment Management**

* Add payment for a member
* View all payments (filter by month, member, etc.)
* Track due/overdue fees

**📊 Dashboard**

* Total members
* Active members
* Fees collected this month
* Upcoming renewals (next 7 days)

**🔐 Authentication**

* Admin login (username/password)
* Protected routes (only accessible after login)

**⚙️ 3. Tech Stack and Tools**

| **Part** | **Tech/Tool** |
| --- | --- |
| Frontend | React + Vite + TailwindCSS |
| Backend | FastAPI (Python) |
| Database | PostgreSQL (via pgAdmin) |
| Auth | JWT (FastAPI backend) |
| API Comm | Axios (React frontend) |
| Deployment (later) | Railway / Render / Local |

**🧱 4. System Architecture**

[ React Frontend (Vite) ]

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[Axios API]

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[ FastAPI Backend ]

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[ PostgreSQL DB (via SQLAlchemy) ]

**🗂️ 5. Entities & Database Schema (Basic)**

**🧑‍💼 Members Table**

| **Field** | **Type** |
| --- | --- |
| id | UUID / Int |
| name | Text |
| phone | Text |
| email | Text (optional) |
| plan\_type | Text (Monthly, etc.) |
| start\_date | Date |
| end\_date | Date |
| notes | Text (optional) |

**💸 Payments Table**

| **Field** | **Type** |
| --- | --- |
| id | UUID / Int |
| member\_id | FK to Members |
| amount | Numeric |
| date | DateTime |
| method | Text (Cash/UPI/Card) |
| notes | Text (optional) |

**🔐 Admin Table**

| **Field** | **Type** |
| --- | --- |
| id | Int |
| username | Text |
| password\_hash | Text (bcrypt) |

**🎨 6. UI Pages (Frontend)**

| **Page** | **Purpose** |
| --- | --- |
| /login | Admin login |
| /dashboard | Key stats: members, payments, upcoming renewals |
| /members | List/add/edit/delete members |
| /payments | Add/view payments |
| /settings (optional) | Update gym info, change password |

**🛠️ 7. Development Plan (Phased)**

**Phase 1: Backend**

* Set up FastAPI project with PostgreSQL
* Create DB models & routers: Member, Payment, Admin
* Auth with JWT
* Basic CRUD APIs with pagination/filtering

**Phase 2: Frontend**

* Setup React + Vite + Tailwind project
* Build login, dashboard, members, payments pages
* Connect to FastAPI using Axios
* Form validations + loading states

**Phase 3: Polish & Test**

* Error handling
* Mobile responsiveness
* Optional: Export to CSV, date filters