Unified Mentor: Gym Management Application - Project Report

1. Introduction:

The Unified Mentor project addresses the challenges faced by gyms in managing member data, payments, and communication. Traditional paper-based systems are inefficient, prone to errors, and inconvenient for both gym owners and members. This web application provides a centralized, digital platform to streamline these processes, offering a user-friendly experience for all stakeholders. It simplifies administration, improves member engagement, and lays the groundwork for future expansion.

2. Problem Statement:

Many gyms rely on paper receipts, leading to storage issues and potential loss. Members often misplace their receipts, causing problems with payment verification. Gym owners struggle with manually distributing notifications about schedules and closures. This project aims to solve these issues by creating a digital solution.

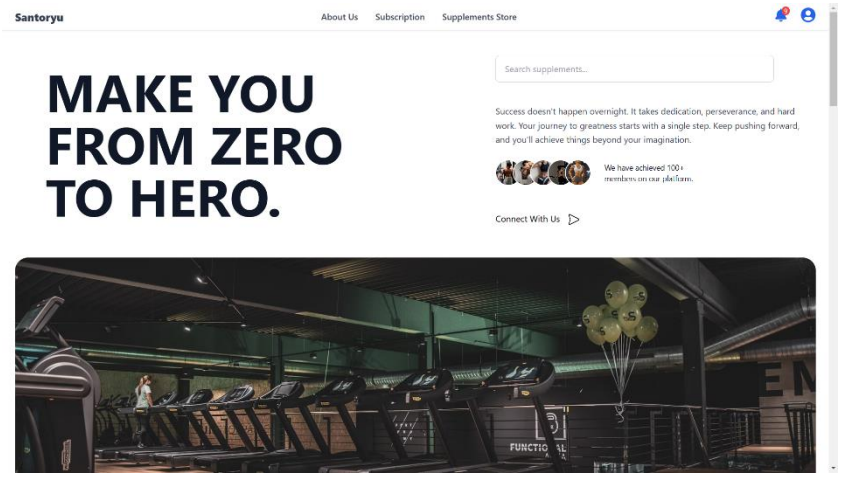
3. Project Goals:

- Digitize gym membership management.
- Automate payment tracking and notifications.
- Improve communication between gym owners and members.
- Provide a convenient platform for members to access their information.
- Enable efficient management of supplements and diet plans.

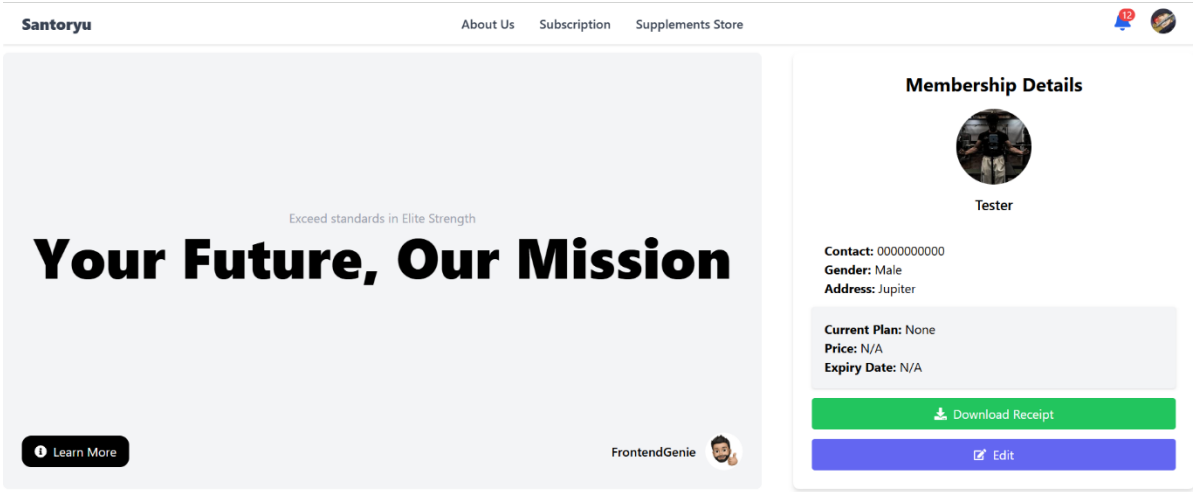
4. Modules and Functionality:

The application is designed with three distinct interfaces:

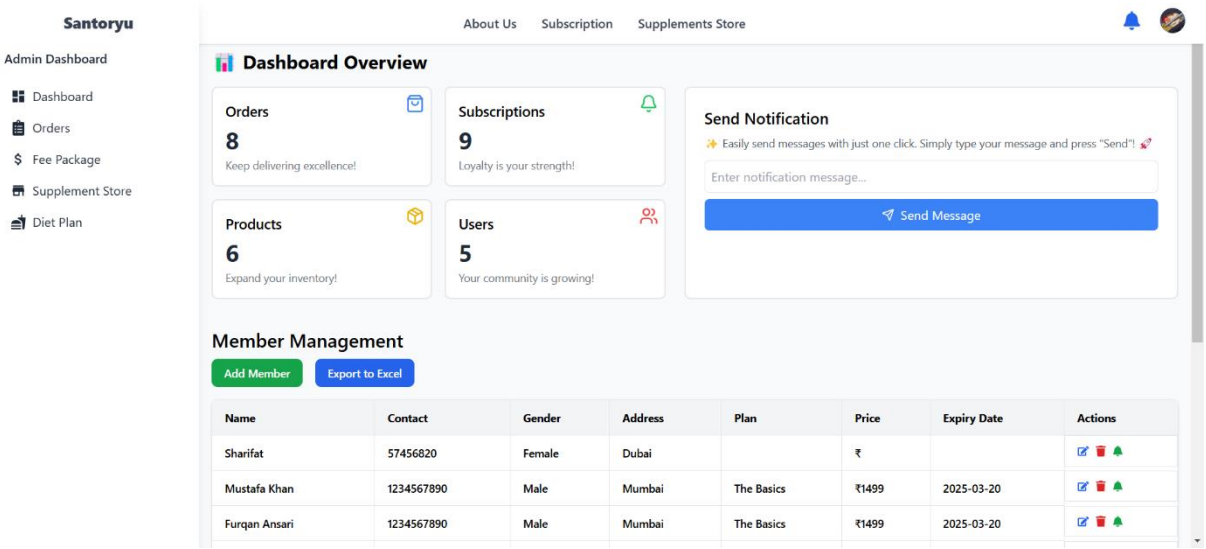
- **Public Interface (Users):**
    - Register an account.
    - Explore gym services and offerings.
    - Contact the gym.



- **Member Interface:**
    - Secure login.
    - View automatically generated bills after plan subscription.
    - Purchase gym plans & Order supplements
    - Access personalized diet plans.
    - Submit feedback.



- **Admin Interface:**
    - Secure login (role-based access control).
    - Member Management & Supplement store management.
    - Subscription Plan Assignment.
    - Automated notifications (renewals, holidays, etc.)
    - Data report export to Excel.
    - Diet plan management.



5. Technology Stack:

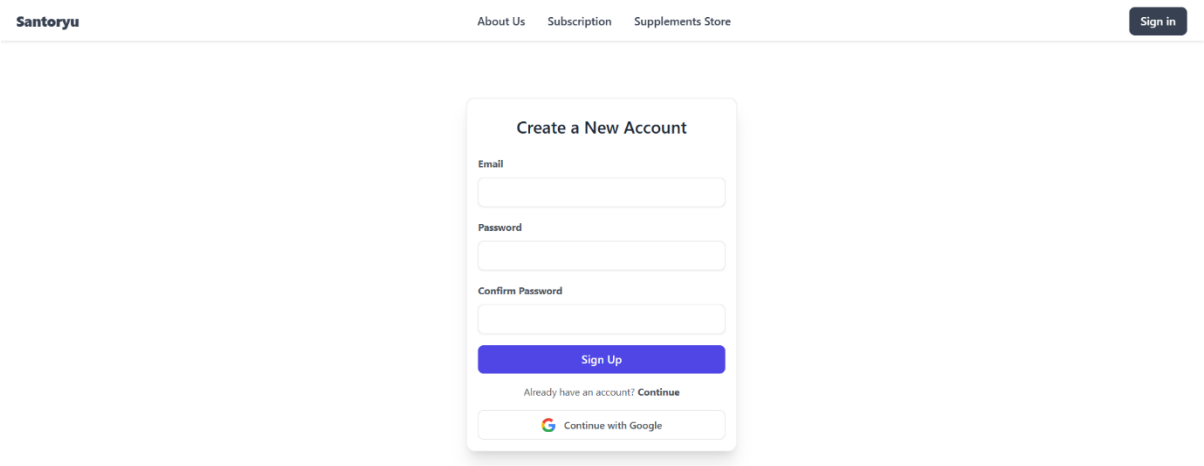
- **Frontend:** React.js.
- **Backend:** Firebase (Authentication, Database, Hosting, Cloud Functions).
- **Authentication:** Google Auth0.
- **Other Libraries:** React Router, React Icons, Framer Motion, React Hook Form.
- **Payment Gateway:** Razorpay
- **Deployment:** Netlify

6. Development Workflow and Experience:

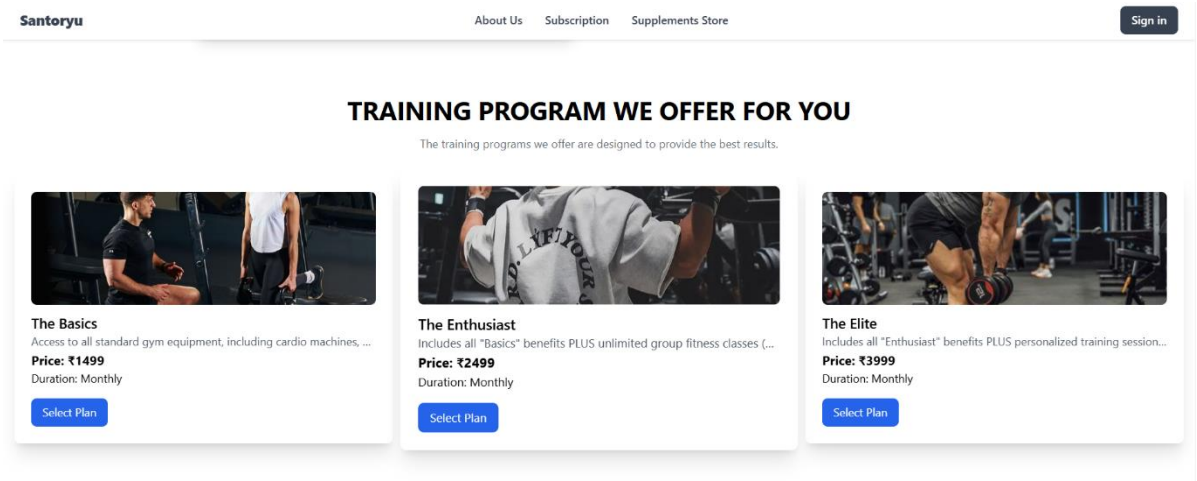
- **Modular Design:** The application was developed using a modular approach, promoting code reusability, maintainability, and scalability. This also facilitated parallel development and testing.
- **Testing:** Thorough testing was conducted at each stage of development. Personal testing ensured core functionality, while peer reviews with friends helped identify and resolve usability issues.
- **Portability:** The chosen technology stack ensures cross-platform compatibility, allowing the application to run on various operating systems.
- **Version Control:** Git was used for version control, and the project repository is hosted on GitHub as ("Unified Mentor"). This facilitated collaboration, tracked changes, and enabled easy rollback if needed.
- **Deployment:** The frontend was deployed on Netlify for its ease of use and CDN capabilities. The backend, leveraging Firebase services, was deployed directly on the Firebase platform.

7. Use Cases:

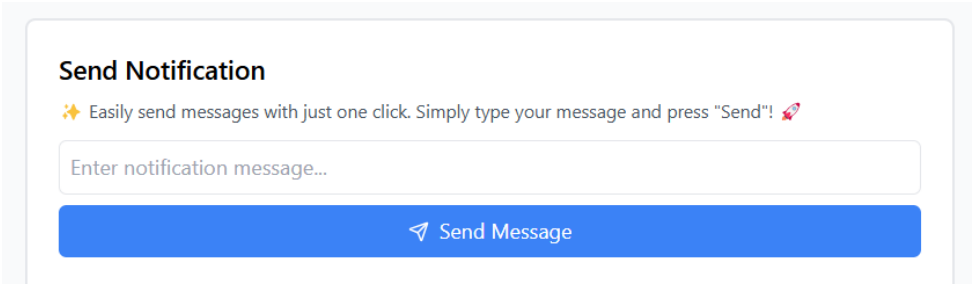
1. **New Member Registration:** A new user visits the public interface, explores the gym's offerings, and decides to register. They fill out the registration form, creating an account. The admin is notified of the new registration.



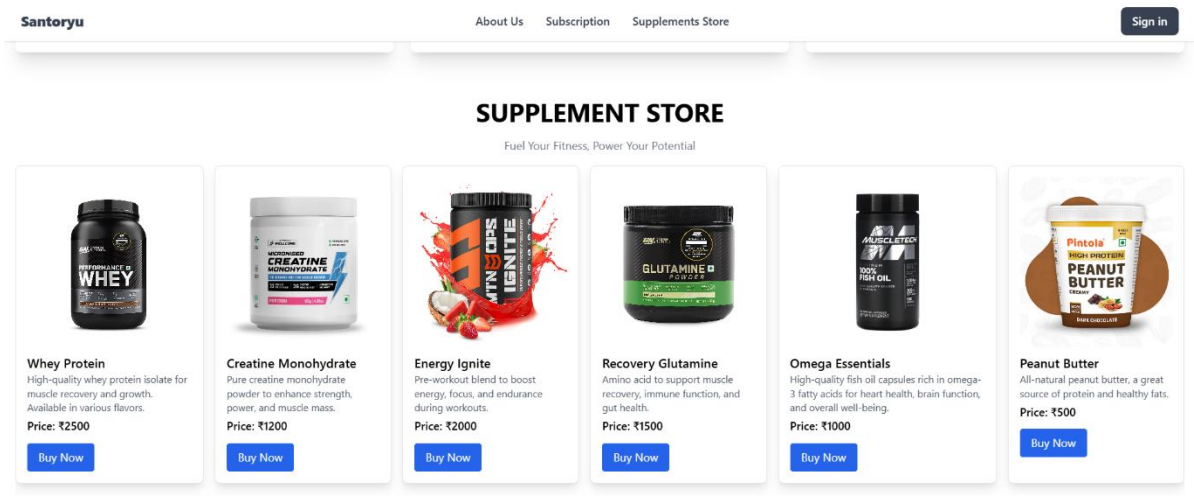
Plan Purchase and Bill Generation: A registered member logs in, browses available gym plans, and purchases a monthly subscription. The system automatically generates a digital bill, which the member can view and download. The admin receives a notification of the new purchase.



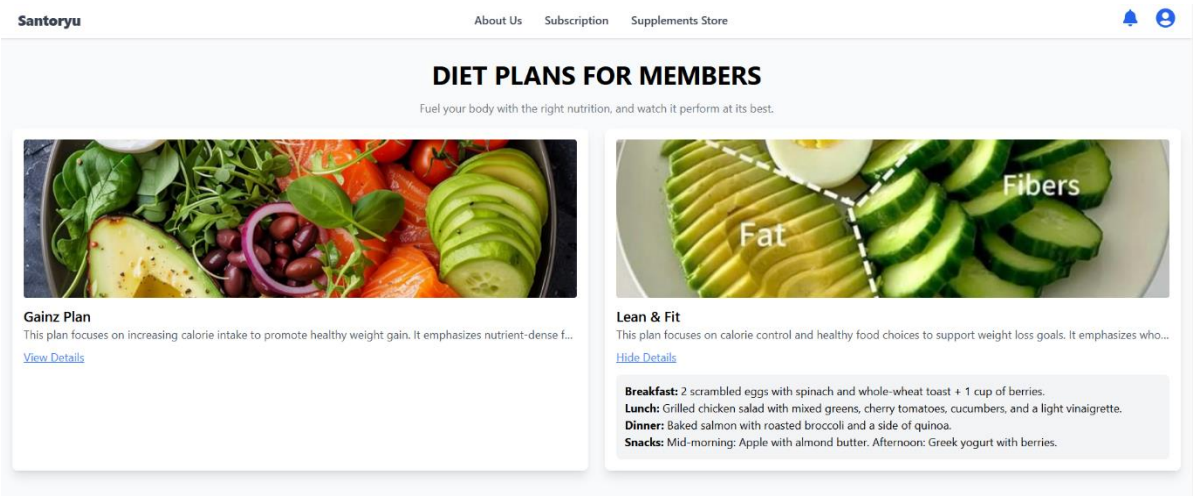
2. **Admin Custom Notification:** The admin logs in to the admin panel, navigates to the notification section, and schedules a holiday notification for all members. The system automatically sends email or in-app notifications to all members about the upcoming holiday.



3. **Supplement Order:** A member logs in, browses the supplement store, adds items to their cart, and places an order. The system updates the inventory and generates an order confirmation. The admin receives a notification of the new order.



4. **Diet Plan Access:** A member logs in and accesses their personalized diet plan, which was previously created and assigned by the admin. The member can view the diet plan details and download it for offline access.



8. Challenges and Solutions:

- Managing user roles in Unified Mentor presented several key challenges. Implementing granular access control across three user interfaces (public, member, admin) required careful database permission design and backend logic. Integrating authentication (Firebase/Auth0) with role-based authorization demanded custom logic to restrict access to protected resources. UI/UX design had to dynamically adapt to different roles, simplifying member views while empowering admin panels. Data security was paramount, necessitating robust Firebase security rules and input validation. Creating an intuitive admin interface for role management, along with thorough testing of access restrictions, was crucial. Finally, ensuring scalability and handling edge cases, like role changes during login, added complexity to the development process.

9. Future Enhancements:

- Implementation of a trainer interface for managing client workouts and progress.
- Advanced reporting and analytics for gym owners.
- Mobile app development (iOS and Android).
- Integration with fitness trackers and wearables.

10. Links:

- **GitHub Repository:** https://github.com/Ansari-Furkan-26/Unified-Mentor
- **Portfolio:** https://frontendgenie.netlify.app/
- **LinkedIn:** https://www.linkedin.com/in/furqanansari/
- **Deployed Project (Frontend):** https://santoryu.netlify.app/

11. Conclusion:

The “Santoryu” project successfully delivers a comprehensive gym management solution. The application effectively addresses the identified problems by digitizing processes, automating communication, and providing a user-friendly experience. The modular design, robust technology stack, and thorough testing ensure a stable, maintainable, and scalable platform for future enhancements. This project demonstrates a practical application of modern web development technologies to solve a real-world problem.