**PROJECT REPORT**

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**FLEX GYM**

***A desktop application to make gym portable***

**Introduction:**

FLEX GYM Desktop Application is a comprehensive software solution designed to streamline the operations of a fitness center. The application incorporates a robust database system and provides distinct interfaces tailored for four different types of users: Member, Trainer, Gym Owner, and Admin. This report outlines the development process, including the creation of an Entity-Relationship Diagram (ERD), design of the relational schema, and the implementation of user interfaces.

**Entity-Relationship Diagram (ERD):**

Before commencing the development of the FLEX GYM application, an ERD was crafted to visualize the entities and their relationships within the system. The ERD served as a blueprint for database design and ensured the efficient organization of data. Key entities identified in the ERD included Members, Trainers, Gym Owners, Gym Facilities, Membership Plans, and Payments. Relationships between these entities were established to represent the associations and dependencies in the system.

**Relational Schema:**

Based on the ERD, a relational schema was devised to translate the conceptual model into a structured database design. The relational schema outlined the tables, attributes, and relationships necessary to represent the system's data. Each entity identified in the ERD corresponded to a table in the relational schema, with attributes defining the properties of each entity. Relationships between entities were realized through primary and foreign keys, ensuring data integrity and consistency within the database.

**User Interfaces:**

FLEX GYM Desktop Application features distinct user interfaces tailored to meet the specific needs of different user roles:

1. Member Interface:

The member interface of the gym application fulfills several key requirements to enhance user experience and fitness management. Firstly, it ensures seamless registration and login processes for users, enabling secure account creation and access to all features. Secondly, users can create personalized workout plans tailored to their goals, with forms provided for detailed input on exercises, sets, reps, and rest intervals. Thirdly, users can access a variety of existing workout plans categorized by criteria such as user-created, shared, or curated by trainers, with filtering options based on attributes like workout goal and experience level. Additionally, users can manage their nutrition through customized diet plans, with options to view nutritional values and specify allergens, as well as select from existing diet plans based on attributes like diet type and purpose. Furthermore, the interface facilitates booking personal training sessions with trainers, allowing users to receive personalized guidance, and feedback mechanisms are implemented to rate trainers based on user experiences, ensuring quality service provision.

2. Trainer Interface:

The Trainer Interface of the gym application offers a comprehensive set of features fulfilling various requirements. Firstly, it enables trainers to register and log in, allowing them to manage their accounts and professional services across multiple gyms. Appointment management tools facilitate efficient scheduling and coordination of training sessions with clients.

Trainers can create customized workout plans and diet plans tailored to individual client needs, with forms provided for easy input of details such as exercises, meal options, and nutritional guidelines. Detailed reports for both workout and diet plans aid in tracking client progress and adherence, empowering trainers to make informed adjustments as necessary.

Additionally, trainers can view feedback from gym members, with ratings aggregated across all gyms as well as specific ratings for each gym. These functionalities collectively empower fitness professionals to deliver personalized guidance, monitor progress, and streamline administrative tasks, ultimately enhancing client satisfaction and efficiency.

3. Gym Owner Interface

: The Gym Owner Interface facilitates seamless registration and account creation, with the registration request subject to Admin approval before addition to the database. It offers a straightforward login process for secure access to administrative personnel.

Gym owners can access detailed reports on members, including membership details and behavior analysis, as well as comprehensive reports on trainers, encompassing performance, ratings, clientele, and personal information, aiding in decision-making and staff development.

The interface allows gym owners to add new trainers with requisite details, streamlining staff expansion. Additionally, administrators possess the ability to manage accounts by removing or deleting both member and trainer accounts, ensuring user base integrity and compliance with gym policies.

4. Admin Interface:

The fulfilled requirements for the Admin Interface encompass a secure login feature for administrators to access sensitive management functions. Additionally, comprehensive reports on the performance metrics of different gyms, including membership growth, financial performance, and customer satisfaction, are provided to aid administrators in identifying high-performing gyms and those in need of support.

The interface allows administrators to review and approve registration requests from prospective gym locations, examining ownership information, facility specifications, and business plans.

Moreover, administrators have the capability to revoke memberships of existing gyms, ensuring compliance with franchise standards and handling transitions for affected members while maintaining data integrity. Overall, the admin interface empowers gym administrative staff with robust tools to effectively manage operations, ensuring quality service and member satisfaction.

**Conclusion:**

FLEX GYM Desktop Application represents a comprehensive solution for managing fitness center operations efficiently. By integrating a robust database system and designing user-friendly interfaces for different user roles, the application enables seamless communication, streamlined workflows, and enhanced user experiences.

The development process, from conceptualization to implementation, involved careful planning, rigorous analysis, and iterative design to deliver a versatile and feature-rich software solution tailored to the needs of fitness enthusiasts, trainers, gym owners, and administrators.