Group 30
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MMTD Gyms

Track | Compare | Optimize

I. Requirement Analysis

Introduction

Purpose

Our database application is geared towards effectively storing the information of all aspects of a high-class gym allowing for integration between local customers and business, allowing for optimal business decisions and client satisfaction. Allocating distinct resources aimed helping gym members reach their monthly goals ensures a business model that is competitive to the modern gym, incentivizing customers to continuously visit. Customers would be able to track their fitness goals over the course of time integrating data from different lifestyle facets allow for personal growth - the mission of MMTD Gym.

Functionality

Our database will allow users to customize their gym goals, through analysis of monthly evaluations by specialized trainers and tracking nutritional values through foods offered at our gyms. Through this analysis, customers will be able to optimize their performance on a regular basis, receiving monthly feedback on their fitness journey. Track. Compare. Optimize.

Scope and special requirements

Our gyms will only be located in Canada.

Website Referenced

- *https://creately.com/diagram/example/i2gntons1/Gym%20Database%20Management%20System%20*
- *https://gymrealmmanager.com/*

Database description

Entities and their attributes

Gym(streetAddr, city, province, maxNumEmployees, budget)

Client(e-mail, name, address, subscriptionDate, membershipStatus)

Goal(e-mail, goalName, goalWeightNumber) (e-mail foreign key ref Client)

FoodType(name, calories, fat, protein, carbohydrates, inStock, price)

Employee:(eID, name, salary, jobTitle, hireDate, streetAddr, city, province) (streetAddr, city, province ref Gym)

Services: (serviceID, date, ServiceType*)

Class(eID, name, maxParticipants, date, duration) (eID foreign key ref Employee)

We had multiple chances to combine relations without being redundant.

- Membership was combined into the Client table.
- Hired was combined into Employee table.
- Teaches was combined into Classes table.
- Establishes was combined into Goals table.

* ServiceTypes include “Sauna”, “Tanning Bed, “Fitness Center ”,etc.

Relationships

Purchases(name, quantity) (name refs FoodType)

ClassEnrolment(name, eid) (name refs Classes) (eid refs Client)

Stocks(foodName, streetaddr, city, province, inserts) (foodName ref FoodType) (streetaddr, city, province ref Gym)

Uses(e-mail, serviceID) (e-mail refs Client) (serviceID refs Services)

Offers(streetaddr, city, province, serviceID) (streetaddr, city, province refs Gym) (serviceID refs Services)

Enrolls(e-mail, className, eid) (e-mail ref Client) (className ref Classes) (eid ref Employee)

Evaluates(goalName, e-mail, eid, goalReached) (eid ref Employee) (e-mail ref Client) (goalName ref Goal)

Books(e-mail, eid) (eid ref Employee) (e-mail ref Client)

Entities

Gym: A gym entity is a unique branch of MMTD gyms. It is identified by its unique address in Canada, and stores the maximum number of Employees at the specific gym, as well as a financial budget the gym can spend in a fiscal year.

Client: A client is a current or past member of one of MMTD gyms. The database keeps track of the clients using a unique email address. The additional attributes of this entity set is the name and address of the client.

Class: A class is an activity proposed to a group of clients. The class is taught by a trainer, and is limited to only one trainer. The class has the following attributes: employee ID, name, maximum amount of participants, date, and duration.

Goal: The goal entity allows for clients to establish monthly goals, whose names will be stored in the entity, while the numeric value will be stored in the relationship - allowing for clients to make several goals. Goals will have a goal name.

FoodType: Food is bought by the gym and sold to the clients. It has several attributes including calories, fat, protein, carbohydrates, inStock. When a client buys food or when the gym restocks, the amount in stock is updated accordingly.

Employee: An employee is hired by the gym. It has several attributes such as name, salary and jobTitle. They are the core of the gym making sure it functions properly.

Trainer: A trainer is a subclass of employee, thus having all their properties. They have personal training sessions with clients and perform monthly evaluations of their clients based on their goals.

Service: A service is provided by the gym, and used by the client. Each unique service will have a serviceID, service type, such as “massage” or “sauna”, and the date of reservation.

Relationships

Books: A client books a trainer. This is a one-to-many relationships, as a client can book only one trainer. However, a trainer can train multiple clients.

Membership: A client purchases a membership from the Gym. This is a one-to-many relationship. The client can purchase a maximum of one membership. However, a membership can be purchased by numerous clients. Membership stores the following as attributes: the date when the client purchased their membership, and their membership status (expired, regular, or premium).

Offer: A gym offers services. This is a many-to-one relationship. A gym can offer multiple services. However, those services can be offered by only one gym.

Evaluates: A client is evaluated by a trainer based on the client's goals. This is a ternary, many-to-many relationship between client, goals and trainer. However, a goal can only be evaluated by at most one trainer. A client can have multiple evaluations to track their monthly goals.

Purchases: A client purchases an amount of a type of food. This is a many-to-many relationship. Clients can purchase multiple types of food. Types of food can be purchased by multiple clients. Purchases has one attribute: the quantity bought.

Uses: A client uses services. We have a many-to-many relationship. A client can use different services, and services can be used by multiple clients.

Enrolls: A client enrolls in a class. This is a many-to-many relationship. A client can enroll in several classes. Similarly, a class can be taken by various clients.

Teaches: A trainer teaches a class. This is a many-to-one relationship, as a trainer can teach various classes. On the other hand, a class can be taught by a maximum of one trainer.

Hires: A gym hires an employee. Since a gym can hire multiple employees, but an employee can be hired by only one gym, we have a many-to-one relationship.

Stocks: A gym buys food and puts it in stock. This is a many-to-many relationship since a gym offers many different types of food, but food can only belong to at most a gym. Stocks keep how much of the food was "inserted" in the gym as an attribute.

Establish: A client can establish their goals after every evaluation. This is a many-to-one relationship. A client is allowed to establish different goals. Those goals are established by only one client. Establish has the goal weight number as an attribute.