GYM MANAGEMENT SYSYTEM

Data and Applications

Project Phase-1

Mini world description:

In our project we chose the **GYM MANAGEMENT** as our mini-world. The system deals with the new and existing customers of a gym and helps to manage the gym very easily.

PURPOSE:

Generally, gym these days keep physical reports of its customers and this therefore creates a lot of chaos for its managers. Using our database, the managers' work can be decreased drastically. Also, we track the performance of each customer's by noting which machine he/she works out on. Gyms also sell many fitness items like protein supplements, sports apparel, energy drinks, and sports shoes to its customers. The management of these items and the selling procedure is also managed by this project.

USERS:

The users of the database include both **MANAGERS** of the GYM and the members of the gyms. Members of gym can be either **TRAINERS or MEMBERS**.

USE:
MANAGERS can use the system to fulfil the "Purpose" section. But in addition to that, the MEMBERS of the gym can get detailed report of their GYM EXPENDITURE and their progress when they need.

Database Requirements:

ENTITY TYPES:

- Members
- Trainers
- Machines
- Gym Courses
- Gym Products

WEAK ENTITIES:

- Companion
- Feedback

DESCRIPTION OF ENTITIES and THEIR ATTRIBUTES:

1. **MEMBERS:**

   ATTRIBUTES:

   - **MEMBER ID** (Primary Key, Direct attribute)
   - Name (Composite attribute)
     - First name
     - Middle name
     - Last name

- Address (Multi-valued attribute)
- Weight (Direct attribute)
- Gender (Direct attribute)
- Age (Direct attribute)

2. TRAINERS:

ATTRIBUTES:

- **TRAINER ID** (Primary Key, Direct attribute)
- Name (Composite attribute)
  - First name
  - Middle name
  - Last name
- Address (Multi-valued attribute)
- Weight (Direct attribute)
- Gender (Direct attribute)
- Age (Direct attribute)
- Salary (Direct attribute)

3. MACHINES:

ATTRIBUTES:

- **MACHINE ID** (Primary Key, Direct attribute)
- Brand/company (Direct attribute)
- Avg calorie consumption / hour (Direct attribute)
- Electricity consumption (Direct attribute)

4. COURSE:

ATTRIBUTES:

- **COURSE ID** (Primary Key, Direct attribute)
- Trainers dealing (**Derived** attribute)
- Fees (Direct attribute)
- Duration (Direct attribute)

5. GYM PRODUCTS:

ATTRIBUTES:

- **PRODUCT ID** (Primary Key, Direct attribute)
- Cost (Direct attribute)

6. COMPANION:

Helps the member but not part of GYM.

Deals at most one member.

ATTRIBUTES:

- Member dealing (Derived Attribute)

7. FEEDBACK:

Deals at most one member.

ATTRIBUTES:

- Member dealing (Derived Attribute)

RELATIONSHIP TYPE:

- Member A **works on** machine M **under** trainer T for **R hours taking** course C. ***(n=4)**
- Member A **takes** course C.
- Trainer T **trains** member M.
- Trainer T **specializes** machine M.
- Trainer T **takes** course C.
- Member M **buys** product P.

SUBCLASS:

1.The trainers are of three level of experience:

- Level 1 – Relatively new trainer
- Level 2 – Moderately experienced trainer
- Level 3 – Highly experienced trainer

2.The gym products are of four types:

- Clothes
- Shoes
- Food / supplements
- Energy Drinks

Functional Requirements:

IINSERTION FUNCTION:

- **ADD MEMBER:**
  - Adds a new specific "Member" entity.
  - Arguments: All the attributes.

- **ADD TRAINER:**
  - Similar to previous one.

- **ADD ITEM:**
  - Adds an item to inventory.

MODIFY FUNCTION:

- **CHANGE WIEGHT:**
  - Arguments: Member Id/Trainer Id and New weight.

- **CHANGE COURSE FEE:**
  - Arguments: Course Id, new cost.

- **CHANGE ITEM COST:**
  - Arguments: Product Id, new cost.

DELETE FUNCTION:

- **DELETE MEMBER:**
  - Arguments: Member Id.

REPORTS:

- **CALORIE BURNED REPORT:**
  - Calculating the energy burnt by the member in a particular month.
  - It uses the hours spent and calories burnt per hour as inputs to give outputs.

- **TOTAL EXPENSES ON A PURCHASE:**
  - Basically, prints an invoice after a purchase.
  - It takes member id and the product ids of items purchased.

Thanks,
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