

CCINFOM Database Design Mock Exam

CASE STUDY 1: Academy Gym Membership

Background of the Case

Easton Magic Academy has always been committed to providing its students, faculty, and staff with high-quality facilities. However, its gym management system is outdated and relies heavily on paper records for managing memberships, gym access, and equipment reservations. This approach is inefficient, leading to lost records, delays in processing membership renewals, and difficulties in tracking equipment availability. To streamline its operations and enhance user experience, the academy is introducing a database system that will digitize and automate these processes.

Members

When individuals register for gym membership, the gym administrator collects personal information, which includes the full name, academy ID, date of birth, contact number, email address, and gender. Members must specify their affiliation (student, faculty, staff) and their department if applicable. Each member's ID serves as their access code to the gym facilities. To prioritize safety, every member must provide at least one emergency contact, which includes the contact's full name, relationship to the member (which may be a mother, father, or guardian), and phone number. The system maintains each member's status as active or inactive based on their current subscription.

Membership Types

The academy's gym offers a variety of membership plans to accommodate the diverse needs of its users. The available types include standard, premium, and family memberships, each having different membership fees depending on the chosen plan. The system tracks each member's history, including the start and expiration dates of their membership. This ensures that renewals are processed smoothly, and members are notified in advance when their subscriptions are due for renewal.

Gym Access Logs

The gym's new system maintains detailed access logs to monitor the usage of the facilities. Every time a member swipes their ID to enter, the system records the timestamp, member ID, and access status (granted or denied). These logs help the gym staff analyze usage patterns and manage facility availability. If a member's access is denied—typically due to an expired membership but can be because of other reasons such as the gym being at its maximum capacity—the system captures the occurrence. However, the specific reason as to why access was denied does not have to be documented. This helps maintain efficient access control while ensuring that only authorized members can use the facilities.

Equipment Reservations

To optimize the use of gym equipment, the system includes a reservation feature. Members can reserve equipment such as treadmills, free weights, or studio rooms in advance. Each reservation entry includes a reservation ID, along with the member ID, equipment ID, and the date and timestamps of the booking. The system tracks whether the equipment is currently available, reserved, or under maintenance. This helps reduce waiting times and ensures fair access to popular equipment, enhancing the overall member experience.

Equipment Maintenance

Regular maintenance is crucial to keep the gym's equipment in good working order and to provide a safe environment for members. The database maintains detailed maintenance records for each piece of equipment, which include the equipment ID, the date of the maintenance check, and a description of any issues that were identified. The system also tracks the current maintenance status, which could be completed, scheduled, or pending. By having a clear schedule for maintenance, the gym can minimize downtime and ensure that all equipment is available and safe for use.

