

Gruppe 1

Sunday, 24 November 2024 02:29

I want to practice data modeling for a relational database. For this I need a small application which has a few 1:1, 1:n and m:n associations and around 5-8 entities in total. Can you write me a short description of such an application in a random field and make sure I can extract all information regarding entities and relationships from your description? Be creative and make sure to also include some interviews of stakeholders of the application to help understand the desired functionality. Make sure you don't list the entities and associations, as i want to figure them out from the generated text.

Application Concept: Library Study Room Booking System

A university library wants to develop an application to manage the reservation of study rooms, monitor student usage, and optimize room allocation based on demand. The library has several study rooms with different features (e.g., capacity, whiteboards, or projectors). Students need to book these rooms for group studies or personal use.

Background:

- Each study room has unique identifiers, capacity, and a set of features.
- Students log in with their university credentials to make a booking.
- Study rooms can only be reserved for specific time slots, with restrictions to avoid overlap.
- A student can only have one active booking at a time, but a study room can have multiple bookings across the day.
- The library wants to track room usage statistics and student feedback to improve services.

Interviews with Stakeholders:

1. Librarian's Perspective:

- "We want the system to ensure fair access to study rooms. For instance, a student shouldn't hog the same room every day during peak hours. It would also be great if the system showed which rooms are most used and which are often empty."
- "If a room is booked, but no one shows up within 15 minutes, we'd like to release the reservation so others can use it."

2. Student's Perspective:

- "It's frustrating when I book a room but forget to bring a whiteboard marker or adapter. It would be helpful if the system showed the features of each room before I book."
- "Sometimes, I need to study alone, but other times, I'm in a group. The system should let me choose a room based on the size of my group."
- "I'd love to leave feedback about the room—like if it was too hot, too cold, or the equipment didn't work properly."

3. IT Department's Perspective:

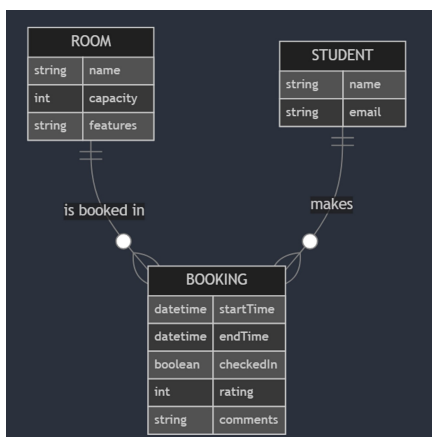
- "The system needs to integrate with the university's student database for authentication. Students should only see available rooms during their booking process."
- "We'll need periodic reports showing peak usage times and underutilized rooms so we can make adjustments like adding or reassigning rooms."

Example Workflow:

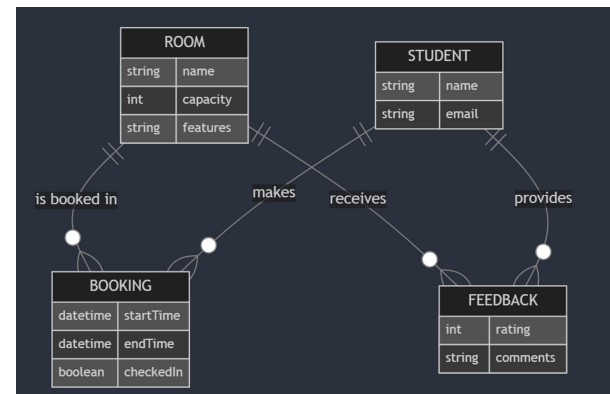
- A student logs in, views the list of available rooms, and selects one based on size and features.
- The student chooses a 2-hour time slot for their booking.
- Upon arrival at the library, the student checks in at a kiosk or mobile app to confirm their presence.
- After the session, the student can provide feedback on their experience.

Additional Notes:

- Study room feedback will only be visible to librarians, not other students.
- Students can cancel a booking up to 30 minutes before the reserved time.



```
erDiagram
    ROOM {
        string name
        int capacity
        string features
    }
    STUDENT {
        string name
        string email
    }
    BOOKING {
        datetime
        datetime endTime
        boolean checkedIn
    }
    FEEDBACK {
        int rating
        string comments
    }
    ROOM ||--o{ BOOKING : "is booked in"
    STUDENT ||--o{ BOOKING : "makes"
    BOOKING ||--o{ FEEDBACK : "receives"
    STUDENT ||--o{ FEEDBACK : "provides"
```



```
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    ROOM {
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        int capacity
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    STUDENT {
        string name
        string email
    }
    BOOKING {
        datetime startTime
        datetime endTime
        boolean checkedIn
        int rating
        string comments
    }
    ROOM ||--o{ BOOKING : "is booked in"
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```