

FlyNext Database Design Documentation

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Introduction

This document describes the database design for the FlyNext hotel booking system. The design includes the following models: **User**, **Hotel**, **Room**, **Booking**, **Payment**, **Notification**, **City**, and **Airport**. Each model contains attributes that are explained below. The schema supports features such as user roles, hotel ownership, room bookings, payment tracking, and notifications.

Model Explanations

1. User

- **id:** Unique identifier for each user. It is auto-incremented.
- **firstName:** The user's first name.
- **lastName:** The user's last name.
- **email:** Unique email address for user identification.
- **password:** A hashed password for secure authentication.
- **profilePicture:** (Optional) A link or file path to the user's profile picture.
- **phone:** (Optional) The user's phone number.
- **role:** Enumerated type indicating the user's role (VISITOR, USER, HOTEL-OWNER). Defaults to USER.
- **bookings:** A one-to-many relationship; a user can have multiple bookings.
- **hotels:** A one-to-many relationship for hotel owners who can own multiple hotels.
- **notifications:** A one-to-many relationship; a user can receive many notifications.
- **createdAt:** Timestamp indicating when the user record was created.
- **updatedAt:** Timestamp that is automatically updated whenever the record is modified.

2. Hotel

- **id:** Unique identifier for each hotel. Auto-incremented.
- **name:** The name of the hotel.
- **logo:** (Optional) An image URL or file path for the hotel's logo.
- **address:** The physical address (street, etc.) of the hotel.
- **location:** A string representing the city and country where the hotel is located.
- **starRating:** An integer representing the quality rating of the hotel.

- **images:** A JSON field that stores an array of image URLs for the hotel.
- **ownerId:** (Optional) Foreign key that links to the User who owns the hotel.
- **owner:** (Optional) The relationship object that associates the hotel with a User.
- **rooms:** A one-to-many relationship; a hotel can have multiple rooms.
- **bookings:** A one-to-many relationship; a hotel can receive multiple bookings.
- **notifications:** A one-to-many relationship; notifications specific to the hotel.

3. Room

- **id:** Unique identifier for each room. Auto-incremented.
- **type:** The type of room (e.g., "Double"). Defaults to "Double".
- **amenities:** A JSON field storing an array of strings representing room amenities.
- **pricePerNight:** A float value indicating the cost per night. Defaults to 100.0.
- **images:** A JSON field storing an array of image URLs for the room.
- **available:** A boolean flag indicating whether the room is available. Defaults to true.
- **hotelId:** Foreign key linking the room to a specific hotel.
- **hotel:** The relationship object linking this room to its hotel.
- **bookings:** A one-to-many relationship; a room can have multiple bookings (at different times).

4. Booking

- **id:** Unique identifier for each booking. Auto-incremented.
- **userId:** Foreign key linking the booking to the User who made it.
- **hotelId:** (Optional) Foreign key linking to the Hotel being booked.
- **roomId:** (Optional) Foreign key linking to the Room that was booked.
- **bookStatus:** Enumerated type indicating the booking status (PENDING, CONFIRMED, CANCELLED, UNKNOWN). Defaults to PENDING.
- **flightStatus:** Enumerated type indicating flight status (SCHEDULED, CANCELLED, DELAYED, DEPARTED, LANDED). Defaults to SCHEDULED.
- **flightBookingInfo:** (Optional) A field for flight details if the booking includes a flight.
- **checkIn:** (Optional) The check-in date.
- **checkOut:** (Optional) The check-out date.
- **createdAt:** Timestamp indicating when the booking was created.
- **user:** The relationship linking the booking to a User.
- **hotel:** (Optional) The relationship linking the booking to a Hotel.
- **room:** (Optional) The relationship linking the booking to a Room.
- **payment:** (Optional) A one-to-one relationship linking the booking to its Payment.
- **reference:** (Optional) A string reference (e.g., booking reference code) for the booking.

5. Payment

- **id:** Unique identifier for each payment. Auto-incremented.
- **bookingId:** Unique foreign key linking the payment to a specific booking.
- **booking:** The relationship linking the payment to its booking.
- **cardNumber:** The payment card number used for the transaction.
- **expiryDate:** The expiration date of the payment card.
- **amount:** The amount charged for the booking.
- **status:** Enumerated type for payment status (PENDING, SUCCESS, FAILED). Defaults to PENDING.
- **createdAt:** Timestamp indicating when the payment was created.
- **updatedAt:** Timestamp that updates when the payment record is modified.

6. Notification

- **id:** Unique identifier for each notification. Auto-incremented.
- **message:** The text content of the notification.
- **isRead:** Boolean flag that indicates whether the notification has been read. Defaults to false.
- **createdAt:** Timestamp for when the notification was created.
- **updatedAt:** Timestamp that updates when the notification record is modified.
- **userId:** (Optional) Foreign key linking the notification to a specific User.
- **user:** The relationship linking the notification to the User.

7. City

- **id:** Unique identifier for each city. Auto-incremented.
- **name:** The name of the city.
- **country:** The country where the city is located.

8. Airport

- **id:** Unique identifier for each airport (in this schema, it is a string).
- **code:** A unique code representing the airport.
- **name:** The full name of the airport.
- **city:** A string representing the city where the airport is located.
- **country:** A string representing the country where the airport is located.