Figure 1: Car Rental system usecase diagram
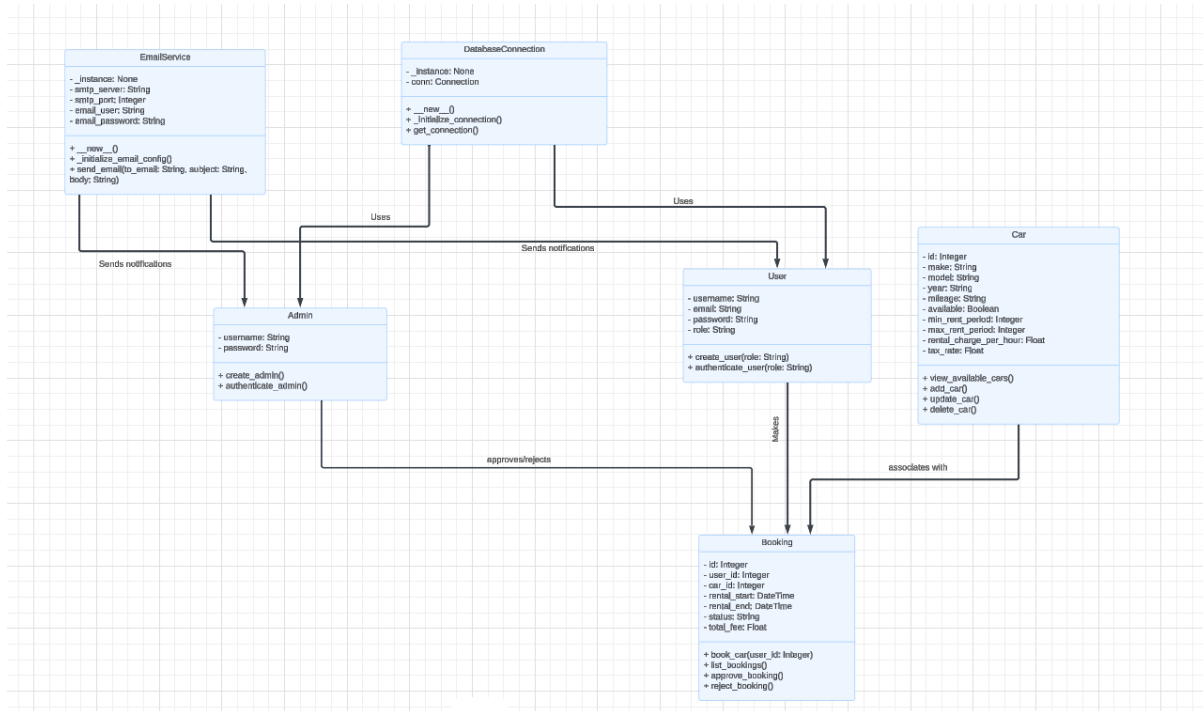
EmailService
- _instance: None
- smtp_server: String
- smtp_port: Integer
- email_user: String
- email_password: String

+ __new__()
+ _initialize_email_config()
+ send_email(to_email: String, subject: String, body: String)

DatabaseConnection
- _instance: None
- conn: Connection

+ __new__()
+ _initialize_connection()
+ get_connection()

Car
- id: Integer
- make: String
- model: String
- year: String
- mileage: String
- available: Boolean
- min_rent_period: Integer
- max_rent_period: Integer
- rental_charge_per_hour: Float
- tax_rate: Float

+ view_available_cars()
+ add_car()
+ update_car()
+ delete_car()

User
- username: String
- email: String
- password: String
- role: String

+ create_user(role: String)
+ authenticate_user(role: String)

Admin
- username: String
- password: String

+ create_admin()
+ authenticate_admin()

Booking
- id: Integer
- user_id: Integer
- car_id: Integer
- rental_start: DateTime
- rental_end: DateTime
- status: String
- total_fee: Float

+ book_car(user_id: Integer)
+ list_bookings()
+ approve_booking()
+ reject_booking()

Uses

Uses

Sends notifications

Sends notifications

Makes
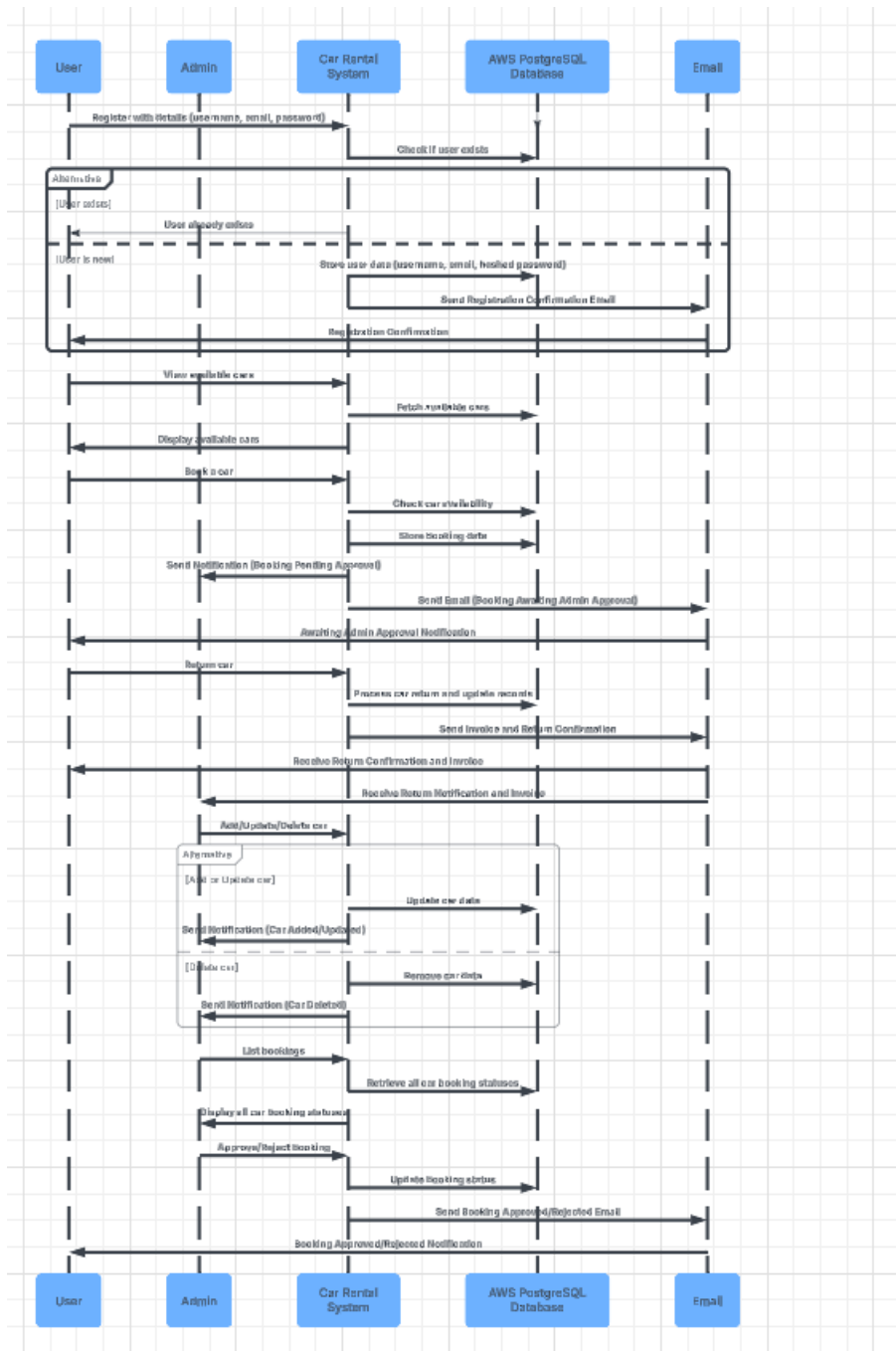
approves/rejects

associates with

Figure 2: Car Rental system Class diagram

Figure 3: Car Rental system Sequential diagram