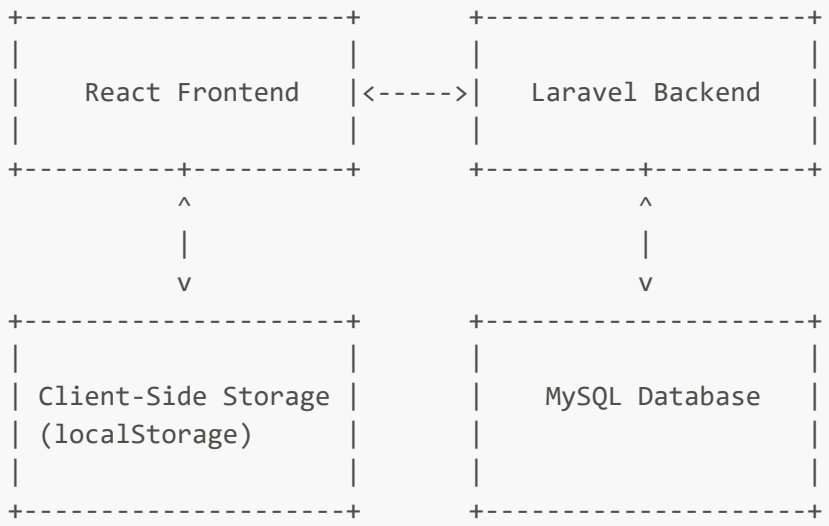
RS-Express Bus Booking System - Architecture Diagrams

System Components Diagram



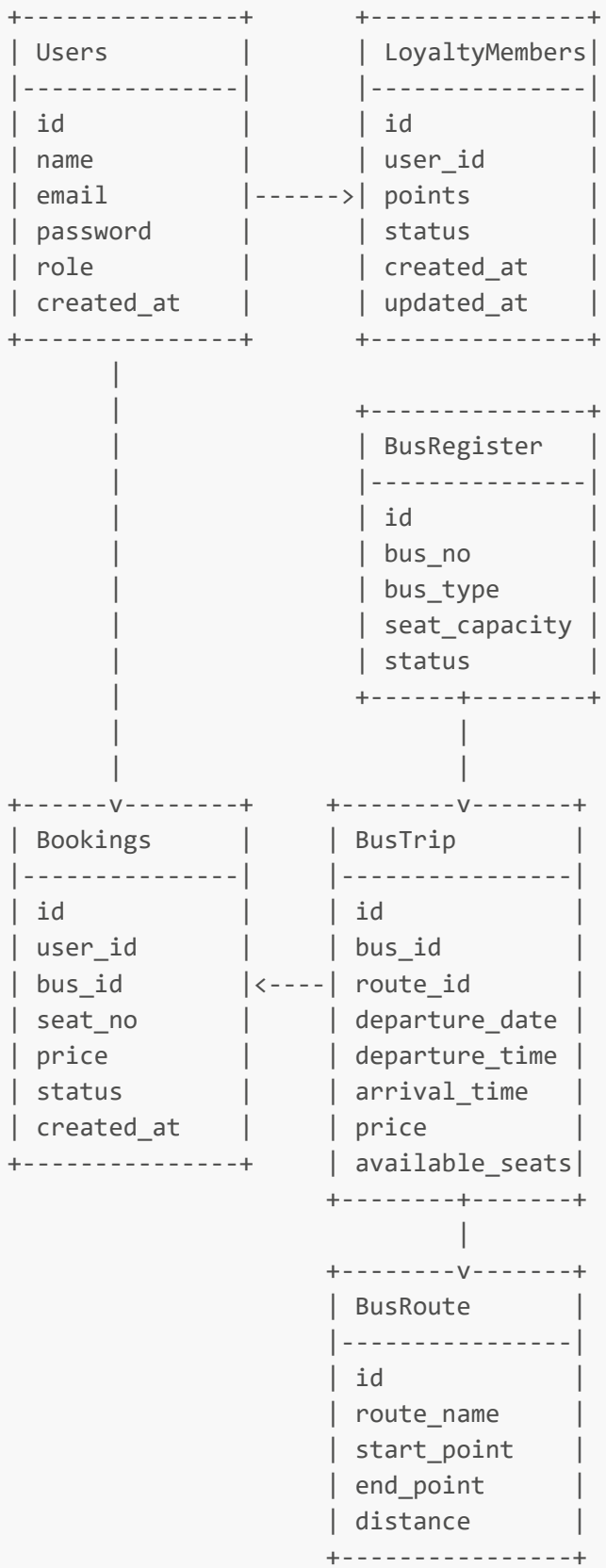
Frontend Component Hierarchy

```
App.js
├── AuthContext
├── PermissionsContext
├── Navbar
│   ├── UserProfileDropdown
│   └── ResponsiveMenu
├── Public Routes
│   ├── HomePage
│   │   └── SearchForm
│   ├── Login
│   ├── SignUp
│   ├── BusList
│   │   └── BusCard (multiple)
│   └── SeatBooking
│       ├── SeatMap
│       └── BookingForm
└── Protected Routes
    ├── PrivateRoute (wrapper)
    ├── PassengerDashboard
    │   ├── BookingHistory
    │   └── UserProfile
    └── AdminRoutes
        ├── DashboardPage
        │   ├── RevenueStats
        │   └── BookingSummary
        ├── BusManagement
        │   ├── BusRegisterPage
        │   └── BusRoutePage
        ├── BookingManagement
        │   ├── BookingListPage
        │   └── CancellationsPage
        └── UserManagement
            └── UserListPage
```

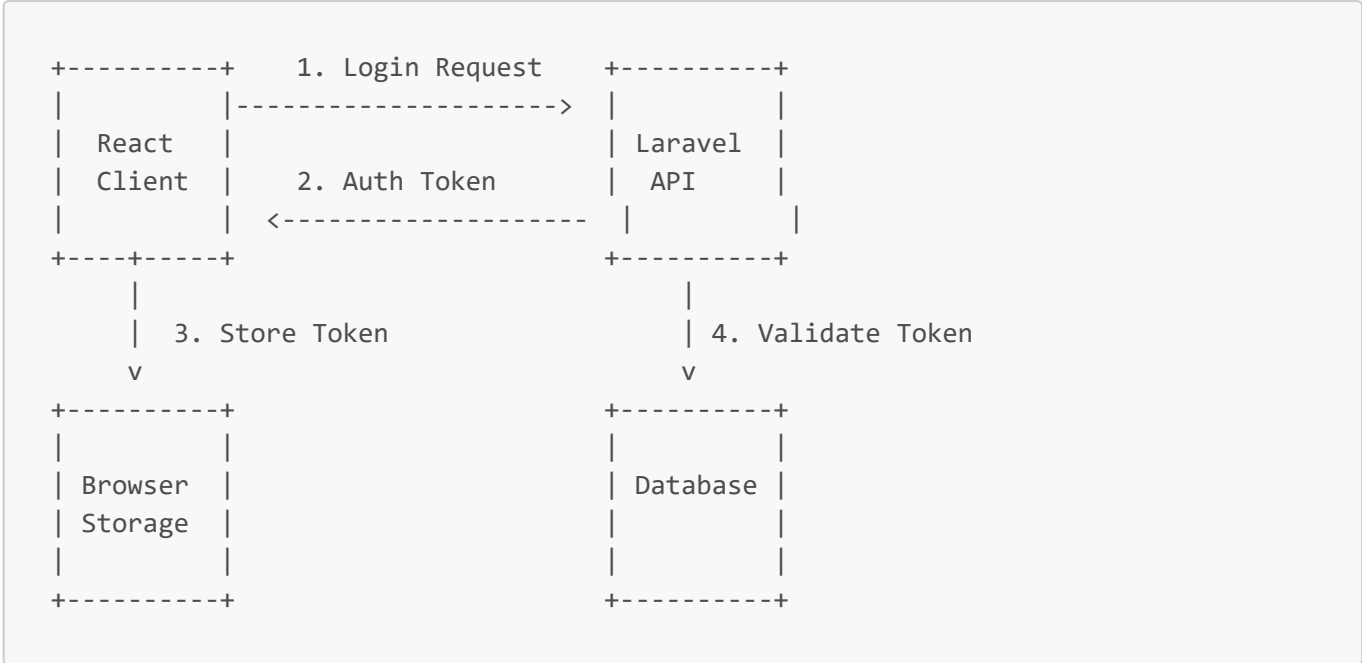
Backend Structure

```
Laravel Application
├── Routes
│   ├── api.php
│   ├── web.php
│   └── auth.php
├── Controllers
│   ├── AuthController
│   ├── BookingController
│   ├── BusController
│   └── UserController
├── Models
│   ├── User
│   ├── Booking
│   ├── BusRegister
│   ├── BusRoute
│   └── BusTrip
├── Middleware
│   ├── Authenticate
│   └── CheckRole
└── Services
    ├── BookingService
    └── LoyaltyService
```

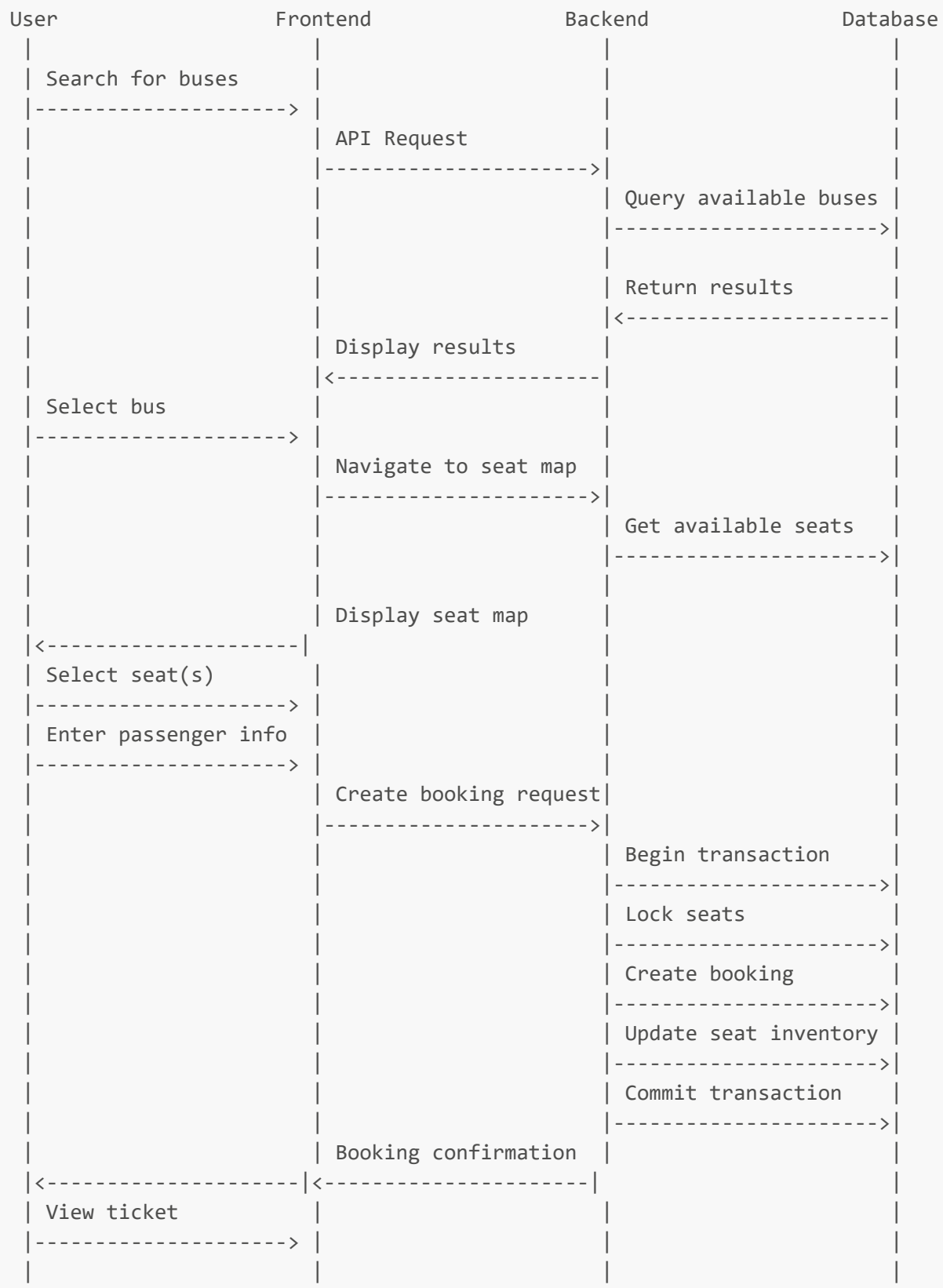
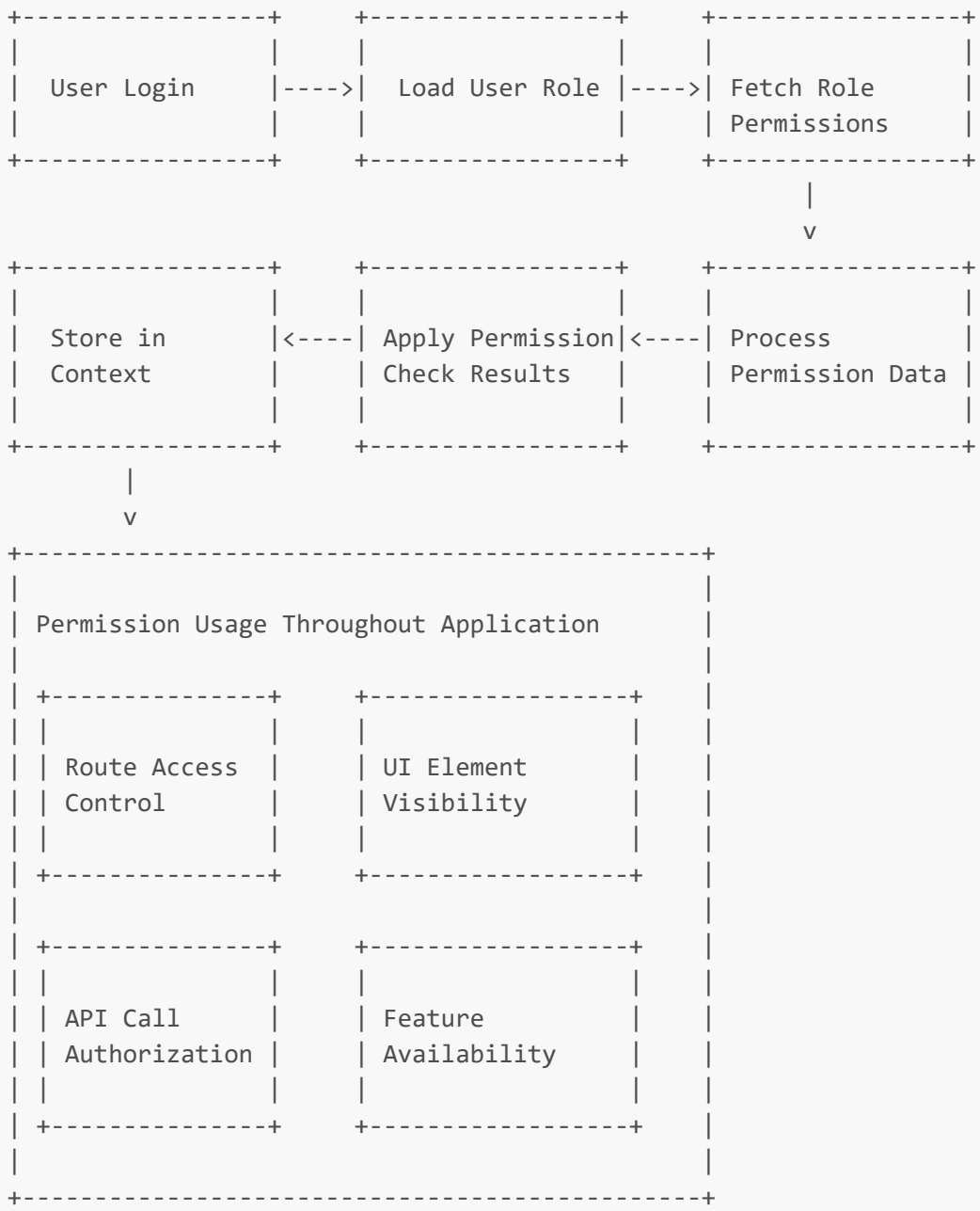
Database Schema



Authentication Flow



Booking Process Flow



Permission System