



Low Level Design Document

Introduction

This Low Level Design (LLD) document outlines the core backend architecture for **Eventify - Event Management Backend**. The system provides RESTful APIs for user authentication and event CRUD operations, built with Node.js, Express, and PostgreSQL.

1. System Components

Component	Description	Key Responsibilities
API Server	Express.js application	Route requests, handle responses
Auth Module	JWT-based authentication	User login, registration, auth
Event Module	Event CRUD logic	Create, read, update, delete events
Database Layer	PostgreSQL with ORM/Query builder	Data persistence, schema management

2. Class/Interface Overview

Class/Interface	Description	Key Methods/Attributes
UserController	Handles user endpoints	register() , login()
EventController	Handles event endpoints	createEvent() , getEvents() , updateEvent() , deleteEvent()
AuthMiddleware	JWT validation middleware	authenticate()
UserModel	User DB model	id , email , passwordHash
EventModel	Event DB model	id , title , description , date , ownerId

3. Data Structure Overview

Model	Fields
User	id: UUID , email: string , passwordHash: string
Event	id: UUID , title: string , description: string , date: Date , ownerId: UUID

4. Algorithms / Logic

User Registration/Login:



```
POST /register:
  - Validate input
  - Hash password
  - Store user in DB
  - Return JWT
```

```
POST /login:
  - Validate input
  - Verify password
  - Return JWT
```

Event CRUD (Authenticated):

```
POST /events:
  - Auth middleware
  - Validate input
  - Create event with ownerId
```

```
GET /events:
  - Auth middleware
  - Return events for user
```

```
PUT /events/:id:
  - Auth middleware
  - Check event ownership
  - Update event
```

```
DELETE /events/:id:
  - Auth middleware
  - Check event ownership
  - Delete event
```

5. Error Handling

Scenario	Handling Approach
Invalid input/data	400 Bad Request, error message
Authentication failure	401 Unauthorized
Authorization failure	403 Forbidden
Resource not found	404 Not Found
Database/server error	500 Internal Server Error

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