Personal Expense Tracker API

Project Overview

You will build a RESTful API for tracking personal expenses using Express.js, demonstrating key Node.js architectural advantages like non-blocking I/O, event-driven programming, and modular design.

Core Features to Implement

1. User Management

- User registration and login
- JWT-based authentication middleware
- Password hashing with bcrypt

2. Expense Operations

- Create, read, update, delete expenses
- Categorize expenses (food, transport, entertainment, etc.)
- Date-based filtering and searching

3. Reporting & Analytics

- Monthly/weekly expense summaries
- Category-wise breakdowns
- Simple data visualization endpoints

Technical Requirements

Express.js Principles Students Will Learn:

- Middleware usage (authentication, logging, error handling)
- Route organization and modular routing
- Request/response handling
- Template engines or JSON APIs
- Static file serving

What to expect:

- **Non-blocking I/O**: Database operations won't block the server
- **Event-driven**: Using EventEmitter for notifications when expenses exceed budgets
- **Modular system**: Separate modules for auth, database, utilities
- **NPM ecosystem**: Integrating various packages
- **Single-threaded efficiency**: Handling multiple concurrent requests