Best practices

Code Organization

1. **Follow MVC Pattern**
   - Models: Data structures and database operations
   - Controllers: Business logic and request handling
   - Routes: Endpoint definitions
2. **Use Middleware Chains**
   - Authentication → Validation → Business Logic
   - Keep middleware focused and reusable
3. **Error Handling**
   - Always use try-catch blocks
   - Return consistent error formats
   - Log errors with context
4. **Validation**
   - Validate all inputs with JSON schemas
   - Use AJV for schema validation
   - Sanitize user inputs

Security

1. **Environment Variables**
   - Never commit `.env` files
   - Use strong secrets and passwords
   - Rotate credentials regularly
2. **Authentication**
   - Always verify JWT tokens
   - Implement rate limiting
   - Use HTTPS in production
3. **SQL Injection Prevention**
   - Use Sequelize parameterized queries
   - Never concatenate SQL strings
   - Validate and sanitize inputs
4. **XSS Prevention**
   - Sanitize HTML inputs
   - Use Content Security Policy headers
   - Escape output data

Performance

1. **Database Optimization**
   - Add indexes on frequently queried columns
   - Use connection pooling
   - Implement caching with Redis
2. **API Response Time**
   - Cache expensive operations
   - Use pagination for lists
   - Optimize database queries (avoid N+1)
3. **File Handling**
   - Compress images before storage
   - Clean up temp files regularly
   - Use CDN for static assets
4. **Monitoring**
   - Log slow queries
   - Monitor memory usage
   - Track API response times

Development Workflow

1. **Version Control**
   - Use feature branches
   - Write descriptive commit messages
   - Review code before merging
2. **Testing**
   - Write tests for new features
   - Test edge cases
   - Perform integration testing
3. **Documentation**
   - Keep API docs updated
   - Document complex business logic
   - Write clear code comments
4. **Code Quality**
   - Use consistent naming conventions
   - Follow JavaScript best practices
   - Use ESLint for code linting

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