

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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