

Perfect 📖 Since you already have **5+ years in Laravel/PHP**, I'll structure these **Node.js notes** as if you're an **experienced developer transitioning to Node**, with a focus on **core fundamentals, advanced concepts, and interview-focused topics**.

Let's start with the **Index (Table of Contents)**.



Node.js Notes for Experienced Developers

Index

1. Introduction to Node.js

- What is Node.js?
- Event-driven & non-blocking I/O model
- Difference between Node.js and traditional backend frameworks

2. Node.js Architecture

- Single-threaded event loop
- Libuv & background threads
- Callbacks, Promises, and Async/Await in the event loop

3. Core Modules in Node.js

- `fs` (File System)
- `http` & `https`
- `path`, `os`, `events`
- `stream` & `buffer`

4. Package Management

- npm & yarn basics
- package.json & package-lock.json
- Semantic Versioning (semver)

5. Asynchronous Programming

- Callbacks & callback hell
- Promises
- Async/Await
- Error handling

6. Express.js Framework

- Introduction to Express
- Routing & Middleware
- Request & Response cycle
- Error handling in Express

7. Database Integration

- Connecting Node with MySQL & PostgreSQL
- MongoDB with Mongoose
- ORM/ODM vs Query Builders

8. Authentication & Security

- JWT authentication
- OAuth & session-based auth
- Preventing common vulnerabilities (XSS, CSRF, SQL injection)

9. Node.js Design Patterns

- Singleton
- Factory Pattern
- Middleware Pattern
- Observer Pattern (Events)

10. Scaling & Performance

- Clustering & Worker Threads
- Load balancing strategies
- Caching (Redis)

11. Testing in Node.js

- Unit testing with Jest/Mocha
- Supertest for API testing
- Best practices in testing

12. Error Handling & Debugging

- try/catch vs async error handling
- Logging with Winston/Morgan
- Debugging with Node Inspector

13. Building RESTful APIs

- REST principles in Node
- CRUD with Express
- API versioning & documentation (Swagger/Postman)

14. Event-Driven Programming

- EventEmitter in Node
- Custom Events
- Real-time apps with Socket.io

15. Microservices & Message Queues

- Microservices with Node.js

- RabbitMQ, Kafka basics
- Pub/Sub with Redis

16. Deployment & DevOps

- PM2 for process management
- Dockerizing Node apps
- CI/CD pipelines for Node projects

17. GraphQL with Node.js

- Intro to GraphQL
- Apollo Server setup
- Queries, Mutations & Subscriptions

18. Interview-Focused Questions

- Difference between process & thread in Node
- How does the event loop work?
- What are streams in Node?
- How do you scale Node.js apps?
- Common performance bottlenecks

👉 Do you want me to now **start expanding each topic one by one** (starting from **1. Introduction to Node.js**), like proper **detailed notes**, or do you prefer **short bullet-style notes** for interview revision?