Full-Stack Development Guide

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1. Lecture Flow
Frontend (Client-Side)
- **HTML, CSS, JavaScript** (Basics of Web Development)
- **Frontend Frameworks/Libraries** (React.js, Vue.js, Angular)
- **State Management** (Redux, Context API)
- **Responsive Design** (CSS Flexbox, Grid, Bootstrap, Tailwind)
- **APIs & Fetching Data** (AJAX, Fetch API, Axios)

Backend (Server-Side)
- **Backend Languages** (Python, Node.js, Java, PHP)
- **Web Frameworks** (Django, Express.js, Spring Boot)
- **Authentication & Authorization** (JWT, OAuth, Sessions)
- **RESTful APIs & GraphQL**
- **Error Handling & Debugging**

Databases
- **SQL Databases** (PostgreSQL, MySQL)
- **NoSQL Databases** (MongoDB, Firebase)
- **ORMs** (Sequelize, Mongoose, Django ORM)
- **Database Optimization & Indexing**

DevOps & Deployment
- **Version Control** (Git, GitHub/GitLab)
- **Containerization** (Docker, Kubernetes)
- **Cloud Services** (AWS, Firebase, Heroku, Netlify)
- **CI/CD Pipelines**

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2. Full-Stack Development Handbook
- **MVC Architecture** (Model-View-Controller)
- **Microservices vs Monolithic Architecture**
- **Web Security Basics** (CORS, CSRF, XSS, SQL Injection)
- **Performance Optimization** (Lazy Loading, Caching, Code Splitting)
- **Testing** (Unit Testing, Integration Testing, Jest, Cypress)
- **API Development Best Practices** (REST vs GraphQL, CRUD Operations)

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3. Interview Questions
Frontend Questions:
1. What are the differences between `let`, `var`, and `const`?
2. Explain the Virtual DOM and how React uses it.
3. How does CSS Flexbox work?
4. What is event delegation in JavaScript?

Backend Questions:
5. What is the difference between synchronous and asynchronous programming?
6. Explain middleware in Express.js or Django.
7. What is JWT and how does it work?
8. What are the differences between SQL and NoSQL databases?

Database Questions:
9. What is indexing in databases, and why is it important?
10. What is ACID compliance in relational databases?

DevOps & Deployment Questions:
11. How does Docker work?
12. What is the difference between CI/CD and DevOps?

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4. Assignments
Beginner Assignment:
☑ Build a **To-Do List App** with HTML, CSS, JavaScript, and local storage.

Intermediate Assignment:
☑ Create a **User Authentication System** using Node.js, Express.js, and MongoDB.

Advanced Assignment:
☑ Develop a **Full-Stack Blogging Platform** with React.js, Django, and PostgreSQL.

This guide provides a structured approach to mastering Full-Stack Development. Keep practicing, and happy coding!