



# TRAINING TRAINS

IT Services and IT Consultancy \ Internship-Inplant Training \ Software Training Institute

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உங்கள் கடை மற்றும் வியாபாரத்திற்கு ஏற்ற **Website & Andriod App** மற்றும் **Software** மிகச்சிறந்த முறையில் செய்து கொடுக்கப்படும்.

Expertise : **AI, Machine Learning & Data Science \ Cybersecurity & Ethical Hacking**  
**IoT, Blockchain & Cloud Computing \ Full Stack Web & Mobile Development**  
**Digital Marketing & SEO**

**W3 App Developers** 332, MULLAMPARAPPU, N.G.PALAYAM POST  
ERODE - 638 115 **DomainHostly.COM**

## 📌 Basic Level (30+ Exercises)

**Objective:** Master the foundational skills of front-end and back-end development.

### HTML/CSS/JavaScript

- Create a personal portfolio using HTML and CSS.
- Build a responsive navigation bar using Flexbox.
- Develop a to-do list using vanilla JavaScript.
- Design a form and validate inputs using JS.
- Create a CSS grid-based layout for a landing page.

### Git & GitHub

- Initialize a Git repo and track changes.
- Create branches and push code to GitHub.
- Use pull requests and code reviews.
- Resolve merge conflicts.
- Maintain project documentation in README.

### Basic Node.js & Express

- Set up a simple web server using Express.
- Handle GET and POST requests.
- Create basic RESTful routes.
- Serve static HTML pages using Express.
- Read and write files using Node.js.

### Database Basics (MongoDB/MySQL)

- Install MongoDB and run CRUD operations.
- Connect Node.js with MongoDB using Mongoose.
- Design a simple schema and seed data.
- Perform queries and update operations.
- Create a basic login form with MySQL database.

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## 📌 Intermediate Level (40+ Exercises)

**Objective:** Develop dynamic full-stack applications and REST APIs.



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## React.js Frontend

- Build a React app with functional components.
- Use `useState` and `useEffect` hooks.
- Implement client-side routing using React Router.
- Connect frontend to backend API.
- Create a form and manage state using hooks.

## Express API Development

- Create a CRUD API using Express and MongoDB.
- Add middleware for error handling.
- Implement JWT-based user authentication.
- Use environment variables with `dotenv`.
- Protect routes using middleware.

## MongoDB/Mongoose Advanced

- Define schemas with validation and default values.
- Use population to handle related documents.
- Add indexing to optimize queries.
- Implement aggregate functions for reports.
- Handle file uploads with `multer` and store metadata in DB.

## API Testing & Documentation

- Test REST APIs with Postman.
- Use Swagger to document APIs.
- Implement unit testing using Mocha/Chai.
- Set up API versioning.
- Use Postman scripts for automation.

## □ Advanced Level (40+ Exercises)

**Objective:** Build, deploy, and scale production-grade full-stack applications.

## Next.js & Advanced React

- Build SSR applications using Next.js.
- Use `getStaticProps` and `getServerSideProps`.



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- Implement dynamic routing and API routes in Next.js.
- Integrate with third-party APIs (e.g., Stripe, Google Maps).
- Add internationalization (i18n) support.

## Advanced Node.js and Microservices

- Create scalable services using Node.js.
- Set up microservices architecture with Docker.
- Use RabbitMQ or Kafka for async communication.
- Implement rate limiting and throttling.
- Add caching using Redis.

## DevOps & Deployment

- Dockerize full-stack applications.
- Deploy to cloud platforms like Heroku, Vercel, or AWS.
- CI/CD integration with GitHub Actions.
- Set up NGINX as reverse proxy.
- Automate deployment scripts using shell.

## Security & Optimization

- Implement OAuth with Google or GitHub.
- Sanitize inputs to prevent XSS and SQL injection.
- Use `helmet` and `rate-limiter` in Express.
- Optimize frontend bundle size using code-splitting.
- Compress assets and enable lazy loading.

## Project Ideas

- E-commerce web app with payment integration.
- Social media platform with authentication and chat.
- Job portal with resume upload and admin panel.
- Online code editor with live preview.
- Multi-tenant SaaS dashboard with analytics.