**Weekly Progress Report**

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Domain: Full Stack Web Development

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**I. Overview**

In **Week 3**, I focused on expanding the **ServiceHub Marketplace** project by strengthening both the frontend and backend architecture, working on database integration, and continuing my study of advanced Java concepts like **JDBC** and **Java 8 functional programming features**. This week’s work sets a strong base for the next phase of development, where more features and modules will be connected and tested.

**II. Achievements**

**1. Frontend Development**

* Finalized the React project structure with Vite and TypeScript, ensuring a fast and type-safe development environment.
* Implemented client-side routing with React Router and connected initial pages like Login, Dashboard, and Service Listings.
* Designed the basic UI layout using Tailwind CSS, ensuring the site is responsive and follows a mobile-first approach.
* Started integrating Radix UI components for modals, dialogs, and popovers to make reusable components for forms and menus.
* Added icon support using Lucide React, tested basic icons for buttons and navigation.
* Tested basic animations using Framer Motion for smooth transitions on page load and component changes.

**2. Backend Development**

* Set up Node.js with Express.js for the REST API server.
* Configured CORS and dotenv to manage environment variables securely.
* Drafted and tested CRUD APIs for user signup, login, and service posting.
* Connected backend APIs to the frontend using Axios and verified data flow with Postman.
* Wrote basic middleware for request validation and error handling.

**3. Database & Data Handling**

* Connected the backend to PostgreSQL using Sequelize ORM.
* Drafted models for main entities: User, Service, and Booking.
* Wrote sample queries and tested CRUD operations on local database.
* Parallelly, revised JDBC concepts in Java: learned about Simple Statements, Prepared Statements, and Callable Statements.
* Practiced writing safe, parameterized queries and understood transaction management for data consistency.

**4. Project Configuration & Deployment**

* Created Docker file and docker-compose.yml to containerize the backend and database for easier testing and deployment.
* Initialized GitHub repository with branch structure for main, dev, and feature branches.
* Configured Prettier, ESLint, and Husky to ensure consistent code style.
* Wrote draft GitHub Actions workflows for future CI/CD automation.
* Started preparing Netlify configuration for hosting the frontend.

**5. Testing & Quality**

* Wrote initial unit tests for API endpoints using Vitest.
* Ran basic type checks with TypeScript to catch errors early.
* Tested form submissions and API calls with different inputs to handle edge cases.

**III. Project Status**

So far, about 40% of the ServiceHub Marketplace project is implemented:

* The core frontend framework, styling, and routing are functional.
* Backend APIs are connected and working for basic operations.
* Database models and connections are in place.
* CI/CD, deployment, and containerization are partially set up.
* UI is functional but needs more screens, styling polish, and full CRUD coverage.

**IV. Challenges Faced**

* Handling version compatibility between some libraries and plugins.
* Debugging CORS and Axios headers for cross-origin API calls.
* Balancing Java learning (JDBC, Java 8 features) with daily full stack tasks.
* Ensuring Docker containers network correctly for local dev and testing.

**V. Learning Resources**

* Official docs: React, Vite, TypeScript, Tailwind CSS.
* Radix UI and Lucide icon library references.
* PostgreSQL and Sequelize documentation.
* Java OOPs, JDBC PPTs for database interaction theory.
* Docker and Netlify deployment guides.
* GitHub Actions and CI/CD best practices.

**VI. Next Week’s Goals**

* Complete full CRUD endpoints for Services, Users, and Bookings.
* Implement JWT authentication for secure login and role-based access.
* Connect all forms in the frontend to live APIs with proper error handling.
* Finalize more Radix UI components and polish styling for production.
* Write more unit and integration tests for backend logic.
* Deploy a live staging version on Netlify and test for feedback.
* Document APIs with Swagger/OpenAPI for easier collaboration.

**VII. Additional Comments**

This week’s work has laid a stable foundation for the ServiceHub Marketplace, ensuring that the tech stack is modern, scalable, and maintainable. Working on Java JDBC and Java 8 features side by side helps me design the backend to follow secure data practices. The next steps will focus on completing the remaining modules, tightening security, and deploying a working version for testing.