

Nhlanzeko Lwazi Mhlongo

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Professional Profile:

Highly motivated Software Engineer and recent graduate (76.3% average) specializing in building secure, enterprise-grade applications. Adept at leveraging modern frontend frameworks (Next.js, TypeScript) alongside powerful backend technologies (Java 21, Spring Boot 3) to deliver high-performance solutions. Proven experience in integrating third-party APIs, implementing circuit-breaker fallback mechanisms, and designing stateless JWT authentication. Passionate about writing clean, maintainable code and eager to contribute to complex technical challenges within a collaborative engineering environment

Education:

Eduvos | 2023 – Completed: January 2026

Bachelor of Information Technology : Software Engineering | Final Grade Average: 76,3%

Projects

1. Asset Compass | FinTech Portfolio Tracker ([Demo](#) / [GitHub](#))

Built with: **Next.js, TypeScript, Tailwind CSS, Java 21, Spring Boot 3, PostgreSQL**

- Engineered a full-stack financial dashboard utilizing the AlphaVantage API to fetch real-time market data and foreign exchange rates (USD/ZAR).
- Architected a "Circuit Breaker" fallback mechanism to catch third-party API rate limits, seamlessly serving deterministic mock data to ensure zero application downtime.
- Implemented secure, stateless JWT authentication via Spring Security with BCrypt password hashing for an optimized, frictionless user onboarding flow.
- Developed an automated event-driven audit trail that logs asset transactions and price refreshes, rendering dynamic performance graphs via Recharts.

- Optimized serverless database stability by configuring custom HikariCP connection pooling, proactively preventing idle-timeout connection drops on Neon PostgreSQL.
- Connected Google Analytics to monitor user behaviour and traffic.

2. Atomic Ledger | AI-Powered Banking Switch ([Demo](#) / [GitHub](#))

Built with: **Java 21, Spring Boot 3, Google Gemini AI, PostgreSQL (Supabase), Docker**

- Engineered a high-performance financial switching engine capable of routing transactions between multiple banking ledgers (Investec, Absa, Standard Bank) based on BIN validation logic.
- Integrated Google Gemini 2.0 Flash to autonomously categorize transaction metadata in real-time, implementing resilient error handling to ensure 99.99% system uptime.
- Optimized API latency by implementing Spring Caching (In-Memory), reducing redundant AI calls and accelerating response times for recurring transaction types.
- Secured sensitive credentials using environment-based configuration (application.properties) and implemented strict input validation to prevent negative-balance fraud.
- Deployed a cloud-native architecture using Docker containers on Render, connected to a managed Supabase PostgreSQL cluster for immutable transaction logging.

3. Humble Coffee | E-commerce Platform ([Demo](#) / [GitHub](#))

Built with: **Next.js, TypeScript, Tailwind CSS, PostgreSQL (Supabase)**

- Developed a full-stack e-commerce solution featuring a dynamic pricing engine to handle complex product variants (e.g., weighted items, gift cards).
- Engineered advanced cart logic with LocalStorage persistence to ensure a seamless user experience across sessions.

- Architected a scalable database schema on Supabase (PostgreSQL) to manage real-time inventory and product data.
- Implemented secure user authentication and row-level security (RLS) to protect sensitive customer data and transaction history.
- Optimized mobile performance using adaptive media loading techniques to improve core web vitals.

4. **StudyConnect** | Student Networking PWA ([Demo](#) / [GitHub](#))

Built with: **Next.js, TypeScript, Tailwind CSS**

- Migrated legacy native Android architecture to a high-performance Progressive Web App (PWA) using Next.js 14 to eliminate installation barriers.
- Leveraged TypeScript for strict type safety, ensuring robust code maintainability and reducing runtime errors during scaling.
- Implemented a "Find Peers" discovery engine allowing users to filter connections by university, module, or study interests.
- Engineered a custom "Digital Phone" UI chassis with Glassmorphism aesthetics (backdrop-blur) to simulate native mobile interactions within a web browser.
- Implemented independent viewport scrolling and touch-simulation logic to replicate the "feel" of a native mobile app on desktop interfaces.

5. **Personal Portfolio Website** | (www.lwazimhlongo.com / [Github](#))

Built with: **React.js, Tailwind CSS, Vercel**

- Engineered a high-performance personal portfolio using React architecture and Tailwind CSS for responsive design.
- Configured a CI/CD pipeline using GitHub Actions to automate build and deployment workflows, ensuring seamless updates.
- Implemented advanced UX features including a lanyard, slide-up/slide-down page transitions and smooth scrolling navigation.
- Developed a serverless contact form backend to replace legacy email links, improving user engagement and security.

- Optimized SEO and meta tags to ensure professional indexing and social sharing preview performance.
- Managed full-stack deployment configuration, including custom domain DNS settings and HTTPS security certification.

Technical Skills:

- **Languages:** Java (21), TypeScript, JavaScript (ES6+), PHP, Python, SQL, HTML5, CSS3.
- **Frameworks & Libraries:** Spring Boot 3, Next.js 14, React, Tailwind CSS, Hibernate/JPA.
- **Tools & Platforms:** Docker, Git, GitHub Actions, Supabase (PostgreSQL), Google Cloud AI, Vercel, Maven, IntelliJ IDEA.

Soft Skills:

- **Self-Motivation & Discipline:** Proven ability to manage independent projects (like Humble Coffee) from concept to deployment without external supervision.
- **Continuous Learning:** Actively upskilling in new technologies to stay current with industry standards.
- **Collaborative Teamwork:** Experience collaborating in agile academic teams (StudyConnect v1) to deliver shared project goals.
- **Analytical Problem Solving:** Strong determination to debug complex issues and find creative technical solutions.