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FULL STACK ENGINEER

Versatile and security-focused Full-Stack Engineer with deep expertise across Native PHP 8 (OOP/PDO), Laravel, React, and jQuery, specializing in building highly interactive, scalable web applications and automated digital platforms. Expert at bridging backend infrastructure with responsive user experiences, combining robust systems like cron task pipelines, real-time WebSockets, and secure FinTech gateways (Paystack/Stripe) with debounced multi-model searches and active-session polling dashboards. Proven ability to design optimized relational databases while crafting protective, dynamic client-side layers that eliminate performance bottlenecks, prevent session concurrency, and maximize user engagement.

TECHNICAL CORE

• **Languages:** PHP (7/8), JavaScript (ES6+), SQL, Python, C#, Java, HTML5, CSS3

• **Frameworks & Libraries:** Laravel (11+), React, Node.js, jQuery, Bootstrap 5, Yajra DataTables, Chart.js, FullCalendar.js

• **Engineering & Design:** RESTful APIs, Role-Based Access Control (RBAC), Event-Driven Architecture, Database Normalization, Eager Loading (Eloquent ORM), FinTech Integrations, OTP Security

• **Real-Time & Queue Layers:** Laravel Reverb (WebSockets), Redis, Queue Workers, Asynchronous Processing, Scheduled Tasks (Cron Jobs), Whisper Protocols

• **Infrastructure & Safety:** Git/GitHub, Linux Server Management, Application Security Hardening, Session Lifecycle Management, Unit Testing

• **Utilities & Formatting:** Carbon, Select2, Toastr, Moment.js, Tempus Dominus, jQuery UI, CKEditor, domPDF, PHPMailer, Endroid/QR-Code, Material Design Icons, Font Awesome (5/6)

ENGINEERING PROJECTS

1. Real-Time Chat Application

Project Description

Architected and deployed a secure, high-performance enterprise messaging and networking application designed for instant, multi-tenant workspace communication, live availability tracking, and rich multimedia broadcasting. The system pairs low-latency events with secure data APIs to handle peer connections, real-time message text styling, **contextual thread replies**, **streaming voice audio**, and **ephemeral multi-format status updates** seamlessly.

Key Implementations & Core Contributions

- **Asynchronous Real-Time Handshaking:** Built a scalable WebSocket infrastructure utilizing Laravel Reverb over authenticated Presence Channels, enabling continuous connection heartbeats for thousands of active clients with a minimal resource footprint.
- **Automated Lifecycle Monitoring:** Implemented an internal system listener mapped directly to Reverb's ReactPHP core loops to instantly update database states to offline if a client's device shuts down or loses cellular network coverage unexpectedly.
- **High-Performance Data Segregation:** Optimized server performance by offloading heavy, non-blocking queries—such as text history loads and batch unread calculations—away from the socket loop to async Axios HTTP endpoints.
- **Contextual Message Reply Pipeline:** Engineered a WhatsApp-style message quotation architecture by structuring database relationships to support parent-child message tracking (parent_id), rendering structured nested preview bubbles within the frontend chat viewport.
- **Binary Multimedia & Streaming Audio Ingestion:** Expanded file processing pipelines by building a secure image and audio upload controller handling client-side MediaRecorder voice

inputs and JavaScript FormData objects, backed by strict server-side validation (mimes:mp3,wav,jpeg,png|max:5120).

- **Ephemeral Story Status Engine:** Designed and deployed a chronological 24-hour status system allowing users to broadcast plain text, standalone images, or captioned media updates, utilizing scheduled Laravel CRON jobs to automatically purge expired attachments from disk storage.
- **Stateful User Aesthetic Caching:** Integrated a local storage and database-backed configuration mapping layer that empowers users to customize individual workspace aesthetics, dynamically switching and persisting custom CSS wallpaper backgrounds across active sessions.
- **Database Query Optimization:** Eliminated costly N+1 query loops within dashboard rendering sequences by tuning Eloquent relationships and eager-loading specific table columns (with('sender:id,name,user_image')).
- **Stateful Connection Identity Tracking:** Engineered a background network-binding routine that hooks into the frontend socket loop on page entry, linking the unique Reverb session ID string directly to the user's database row.
- **Peer-to-Peer Whisper Architecture:** Developed a client-side typing indicator utilizing Laravel Echo's .whisper() capabilities to stream typing statuses instantly across parallel clients without overloading backend disk storage.
- **Interactive UI Component Integrations:** Integrated Fancybox Lightbox galleries for responsive full-screen image previews and SweetAlert2 toast configurations to provide clean, non-intrusive notification banners.

Technologies Used

Backend: PHP, Laravel 13, Laravel Reverb (WebSockets), Eloquent ORM
Frontend: JavaScript (ES6+), Laravel Echo, Pusher JS, Axios, Bootstrap 5, Vite
Libraries & Tools: SweetAlert2, Fancybox Lightbox, Font Awesome, Git, Composer, npm

2. Visitor Management System (VMS) | Sole Software Engineer & Architect

Project Description

Designed, architected, and engineered a secure, enterprise-grade Visitor Management System (VMS) to automate corporate reception check-ins, optimize workforce tracking, and establish role-based access boundaries. The architecture pairs real-time WebSocket communication channels with asynchronous processing queues and optimized relational database lookups to deliver data consistency and operational safety

Key Implementations & Core Contributions

- **Role-Based Access Control**: Implemented strict RBAC using Laravel Policies and Authorization Gates, ensuring secure data isolation across public front-desk and authenticated admin routes.
- **Real-Time Session Eviction**: Integrated Laravel Reverb WebSockets over private channels alongside Auth::logoutOtherDevices() to instantly terminate duplicate user sessions and prevent concurrent hardware access.
- **Dual-Party Audit Trails**: Designed an automated checkout loop that dispatches timestamped email receipts to both departing visitors and hosts, embedding secure, unique post-visit feedback survey links.
- **Asynchronous Notification Pipeline**: Architected a front-desk arrival alert engine using Redis-backed queues to offload high-latency mail dispatches, cutting receptionist processing latency during peak hours.
- **Security Event Dispatcher**: Created a profile auditing engine using Laravel model state tracking (wasChanged()) to instantly alert users of account modifications and mitigate hijacking risks.
- **Optimized Relational Queries**: Structured complex visitor-to-employee hierarchies via Eloquent ORM eager loading, eliminating N+1 performance bottlenecks and reducing database transaction latency.
- **Smart Availability Auditing**: Engineered a real-time availability check within the registration workflow, triggering defensive UI warning states if the targeted host employee is marked on leave.
- **Multi-Model Search Engine**: Built a hybrid global search engine featuring a debounced typeahead live preview and a 3-column results view with independent pagination tracks for Users, Visitors, and Employees.

- **High-Performance Data Tables**: Developed responsive date-range filtering for Yajra DataTables utilizing Carbon abstractions to execute clean, server-side boundary queries without performance degradation.
- **Proactive Session Lifecycle Guard**: Created a jQuery-driven idle monitoring interceptor to manage client-server token lifetimes, automatically purging cookies to gracefully eliminate 419 | Page Expired errors.

Technologies Used

Backend: PHP, Laravel, Laravel Reverb (WebSockets), Eloquent ORM, Redis Queues, Carbon
Frontend: JavaScript (ES6+), jQuery, Axios, Ajax, Bootstrap 5, Vite, Yajra DataTables
Security & Tooling: RBAC (Gates & Policies), Session Lifecycle Middleware, Git, Composer, npm

3. Church Management System (CMS) | Sole Software Engineer & Architect

Project Description

Designed, architected, and deployed a secure, high-availability Church Management System (CMS) engineered to automate member tracking, administrative scheduling, and organizational security auditing. The architecture features custom session control layers, fault-tolerant communication pipelines, and deeply joined relational database layouts to handle hierarchical household mapping and dynamic data exports seamlessly.

Key Implementations & Core Contributions

- **Network & Endpoint Hardening**: Engineered a custom PHP security layer enforcing strict IP address whitelisting, 3-try brute-force account lockouts, administrative password re-verification, and automated 15-minute idle-inactivity session termination.

- **Concurrent Session Control**: Developed a rigid single-device login policy using custom PHP session handler overrides that triggers real-time session invalidation of active endpoints upon secondary authentications.
- **Automated Data Systems & Cron Tasks**: Programmed decoupled background cron pipelines executing daily targeted birthday greetings, bi-daily administrative moderation alerts, and a 30-day automated storage cleanup script to purge ephemeral PDF files.
- **Resilient Mail Delivery Loop**: Fabricated a fault-tolerant mailing subsystem utilizing PHPMailer with a 3-tier automated retry logic architecture for failed dispatches, auto-logging anomalies to a central SQL database for manual review.
- **Relational Family Data Mapping**: Structured a recursive "Family Unit" SQL database schema mapping complex household hierarchies and dynamic "Head of House" designations using complex table joins to minimize cross-profile query latencies.
- **Intelligent Rota & Schedule Validation**: Programmed a data-matching engine cross-referencing event rosters against database roles to dynamically flag understaffed upcoming services, linked with a front-end FullCalendar CRUD scheduling matrix.
- **Context-Aware Dynamic Forms**: Crafted event-driven user interfaces fueled by custom PHP AJAX typeahead endpoints to expedite staff allocation across complex multi-role departmental volunteering groups.
- **Universal Search & Export Engine**: Built a universal search engine using optimized SQL wildcards for real-time member and group data retrieval, paired with an automated document generation system streaming data into domPDF and CSV layouts.

Technologies Used

Backend: Core PHP, SQL (MySQL), PHPMailer, domPDF, Linux Cron Jobs
Frontend: JavaScript (ES6+), AJAX, jQuery, FullCalendar API, CSS Grid, HTML5
Security & Architecture: Session Handlers, IP Filtering, Brute-Force Lockouts, Relational Database Normalization, Git

4. Allcafenet.com (E-Commerce) | Sole Software Engineer & Architect

Project Description

Designed, architected, and deployed a secure, high-density B2C e-commerce platform engineered to handle concurrent physical retail transactions and digital service procurement. The system features a deeply protected data layer, native FinTech API integrations, and an automated inventory management matrix to guarantee absolute transactional consistency and real-time business intelligence reporting.

Key Implementations & Core Contributions

- **Native PHP 8 & OOP Architecture**: Architected a custom B2C platform using strict PHP 8 typing and robust object-oriented design patterns to cleanly process decoupled data payloads for physical retail goods and digital service procurement.
- **Secure Data Layer (PDO)**: Implemented a highly secure database access layer utilizing **PHP Data Objects (PDO)** with parameterized prepared statements, completely mitigating SQL injection vulnerabilities across complex consumer and administrative modules.
- **Automated Customer Onboarding**: Engineered an event-driven registration pipeline that triggers an automated welcome email immediately upon account creation, dynamically querying the database via PDO to inject a personalized showcase of sample products and trending SKUs.
- **FinTech & Mobile Money Integration**: Developed a secure transaction controller interacting directly with the Paystack API via native cURL wrappers to manage international card and Sub-Saharan mobile money workflows, protected by a custom OTP verification class.
- **Subscription Engagement Engine**: Built a dedicated CRM subsystem using OOP data entities to manage customer newsletter subscriptions, automating targeted marketing dispatches and product announcements via native background mailing handlers.
- **Telemetry & Analytics Suite**: Designed an administrative business intelligence suite utilizing raw, highly optimized SQL aggregate functions to stream live telemetry on gross sales, inventory volume, and revenue velocity through active-session polling.
- **Intelligent IMS & Fulfilment Matrix**: Programmed an Inventory Management System (IMS) featuring automated low-stock safety threshold alerts, an inline RESTful

restocking endpoint, and a state-driven order tracking pipeline (**New → Processed → Shipped → Delivered**).

- **Persistence & Security Auditing**: Structured custom PHP session abstractions to manage persistent carts, localized delivery zone logistics, multi-user Role-Based Access Control (RBAC), and automated account lockouts driven by a real-time security audit log.

Technologies Used

Backend: PHP 8 (OOP), SQL (MySQL), PDO, Paystack API (FinTech), cURL
Frontend: JavaScript (ES6+), AJAX, HTML5, CSS3 (Flexbox/Grid), Responsive Layouts
Security & Tooling: Parameterized Prepared Statements, Native Session Abstractions, OTP Verification, RBAC, Git, npm

5. Gazetteer | Geo-Spatial Data Integration | *Portfolio Project*

- **Asynchronous Data Orchestration**: Developed a mobile-first "virtual atlas" utilizing asynchronous PHP/AJAX workflows to concurrently consume and map third-party RESTful payloads (GeoNames, OpenWeather).
- **Dynamic Geolocation UX**: Engineered a highly responsive mapping interface leveraging advanced JavaScript DOM manipulation to parse multi-layered JSON coordinates and dynamically render live weather matrices without global page refreshes.

PROFESSIONAL EXPERIENCE

NHS Lothian / Yourworld Nursing | *Mental Health Professional* | **2022 – Present**

- **Crisis Management & Agile Resolution**: Execute rapid problem-solving and risk mitigations in high-pressure, fluid clinical environments; maintain absolute operational focus and split-second decision integrity during acute incidents.
- **Data Integrity & Compliance**: Manage sensitive, regulated patient information adhering strictly to GDPR, data confidentiality boundaries, and stringent electronic health record documentation protocols.

National Health Insurance Authority | *Data Systems Clerk* | **2017 – 2020**

- Optimized data consistency and system uptime for a national-scale beneficiary database.

EDUCATION & TRAINING

- **Full Stack Traineeship** | IT Career Switch Ltd | 2023 – 2024
- **MBA Business Management** | University of the West of Scotland | 2021
- **BA Management Studies** | University of Cape Coast, Ghana | 2017

ADDITIONAL INFORMATION

- **Right to Work:** Full UK Right to Work.
- **GitHub:** Source code for private repositories available upon request.