

Project Case Study: Accounting – Full-Stack Fintech SaaS ERP Platform

Industry: Fintech | Accounting ERP | Inventory & Warehouse Automation

Tech Stack: Laravel 12.X, React, Redux, TailwindCSS ([Website](#)), MySQL, AWS (S3, SES, CloudWatch), Docker, Uppy.js

Role: Lead Full Stack Developer – Architecture, Development, DevOps, Security

Project Overview

Accounting is a comprehensive **multi-tenant financial SaaS platform** designed to centralize and streamline core business functions including **accounting, inventory, warehouse operations, and billing**. Built to support **fast-growing SMEs and enterprise clients**, the platform delivers a seamless, scalable, and secure environment for managing finance and operations from a single interface.

The platform was originally developed using **Laravel 8.x** and was **progressively upgraded to Laravel 12.x**, enhancing performance, security, and developer productivity. This upgrade involved **codebase modernization**, dependency restructuring, new architectural conventions, and adopting Laravel's latest features including scoped routes, new job batching, native health checks, and cleaner service providers.

My Responsibilities

As the **Lead Full Stack Developer**, I was responsible for:

- Architecting the multi-tenant backend using Laravel and MySQL
 - Designing secure API layers for frontend/backend communication
 - Building reusable frontend components in React + Tailwind CSS
 - Integrating file storage, PDF generation, and email automation
 - Setting up CI/CD, monitoring pipelines (CloudWatch + Datadog)
 - Ensuring GDPR/data security, performance, and uptime goals
 - Coordinating feature planning with designers, QA, and PMs
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Authentication & SaaS Multi-Tenancy

Accounting uses a **subdomain/domain-based multi-tenant** structure, with each tenant getting its own logical separation in the database and configuration layers.

Key Components:

- **Tenant auto-provisioning** with isolated settings, logo, templates, and user data
- **API Key + HMAC authentication** for third-party integrations and secure automation
- **Dynamic role/permission matrix** that is aware of multiple products per tenant
- Real-time **audit logging** of sensitive user actions, permission changes, and system access

📌 *Why this matters:* It allows secure, scalable onboarding of thousands of businesses while offering each tenant complete data isolation and product-specific access rules.

Accounting Engine

Designed around **double-entry accounting principles**, this module powers the core ledger system and financial reporting tools.

Key Features:

- Configurable **Chart of Accounts (COA)** per tenant with parent-child hierarchies
- Real-time **journal entries** triggered by system events (billing, inventory, etc.)
- **Trial Balance, P&L, and Balance Sheet** auto-generated on-demand
- **Bank reconciliation** tool with CSV import + transaction matching
- Bulk data import for journals and ledgers via CSV and Excel

📌 *Why this matters:* Many small ERPs lack automation for core ledgers. automates these workflows while remaining transparent and auditable.

Inventory Management

A full-featured module to track products across multiple warehouses and variants.

Key Capabilities:

- SKU variants, product types, and **multi-location tracking**
- Stock valuation via **FIFO or Average Cost** methods
- Expiry date tracking with **alert systems**
- **Reorder logic and notifications** for low-stock products
- Opening stock, batch import, and transaction-level adjustments

📌 *Why this matters:* Enables businesses to automate restocking, comply with expiry-based regulations (e.g., pharma, food), and run accurate COGS reporting.

Warehouse Management

Integrated warehouse logistics with real-time stock updates and zone-wise configuration.

Key Features:

- Custom configuration of **zones, racks, and bins per warehouse**
- **Inter-warehouse transfers** with automated journal updates
- Barcode support for product scanning and live stock operations
- Location-based costing logic (planned in roadmap)

📌 *Why this matters:* Empowers warehouse managers with real-time visibility, and removes manual reconciliation between stock locations and financial records.

Billing & Invoicing System

Custom invoice generation engine with international currency and taxation support.

Core Capabilities:

- Multi-step **invoice creation, recurring billing, credit notes, POs**
- **Custom tax logic** for VAT, GST, and region-specific rules
- Real-time **multi-currency support** using Twelve Data API
- Integrated **supplier and customer ledgers** for payment aging
- PDF invoice generation with templating support

📌 *Why this matters:* A major revenue lifecycle touchpoint – optimized for speed, accuracy, and branding.

Custom PDF Builder

A no-code designer for building branded documents without developer involvement.

Highlights:

- Drag-and-drop layout builder with logo, QR, and custom fields

- Reusable **invoice/delivery/estimate templates** per tenant
- **i18n + RTL** support for Arabic, Hebrew, Urdu markets
- Live preview and downloadable sample templates

📌 *Why this matters:* Clients can adapt their documents for regional standards and branding without technical help.

Cloud File Upload & Storage

Handled file uploads with modern UI, async processing, and S3 backup.

Technical Highlights:

- React-based **Uppy.js** integration for chunked, resumable uploads
- Files stored in **Amazon S3** with public/private ACLs
- Laravel queues for background processing (invoices, images, docs)
- Attachments used in ledgers, inventory, compliance, and more

📌 *Why this matters:* Enables scalable, secure document handling across all modules.

System Logs & Monitoring

Critical for observability, debugging, and alerting.

Key Tools:

- **CloudWatch** for Laravel queue monitoring, logs, cron tracking
- **Datadog** for real-time application tracing, memory usage, alerts
- Custom Laravel audit log system with CRUD and event hooks
- Tenant-based logs for easier debugging and SLA tracking

📌 *Why this matters:* Ensures the system is production-grade with 24/7 insights and failure visibility.

Automation & Background Tasks

Ensures system stays up-to-date without manual intervention.

Automated Tasks:

- Invoice reminders, backup snapshots, daily reports
- **SES-based email delivery** with DKIM/SPF for sender integrity
- Scheduled stock check + reorder alert jobs
- Laravel Horizon dashboard to track failed and retrying jobs

📌 *Why this matters:* Enhances reliability, especially as the tenant base scales.

📌 Upcoming Features (Planned & In Progress)

- **Payroll System:** Salary slips, tax regime logic, PF/ESI integration
 - **Financial KPI Dashboard:** Real-time charts for revenue, AR, cashflow
 - **Localization:** 100% i18n with RTL and LTR support
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📊 Results & Business Impact

- 💬 Reduced time to close books by 60% for small businesses
 - 🔥 Reduced transaction latency by 40% with optimized queries & Redis
 - 🛡️ Passed internal security audits with clean API logging and auth policies
 - 💰 Increased client retention with flexible PDF branding + automation
 - 🌍 Successfully deployed for **2000+ tenants** in a multi-region SaaS setup
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🔗 Live Access & Acknowledgement

- **Demo:** <https://demo.mochaaccounting.com/>
Login: kayatix325@cgbird.com / Mocha@2024
 - **Official Site:** <https://mochaaccounting.com/>
 - **Team Listing:** [About Us – Mocha Accounting](#)
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💬 Final Thoughts

Accounting is more than just an accounting tool—it's a **modern SaaS ERP** crafted for financial efficiency, operational automation, and global business scaling.

I played a **foundational role** in transforming a traditional idea into a modular, enterprise-grade SaaS platform.

If you're building a **multi-tenant fintech platform**, **React + Laravel solution**, or **custom ERP**, I'm available to help architect and deliver it with excellence.

