

AMRUTH SHYJU

Backend-Focused Full Stack Developer (MERN)

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Professional Summary

Software Engineer specializing in **scalable backend systems** and **full-stack SaaS applications** using the MERN stack and TypeScript. Experienced in designing **multi-tenant architectures**, **real-time systems**, and **high-performance data pipelines** using **Clean Architecture** and modern backend patterns. Passionate about building **production-grade systems** with strong focus on **scalability, performance, and maintainable system design**.

Technical Skills

Languages: JavaScript (ES6+), TypeScript

Frontend: React.js, Next.js, Redux, HTML5, CSS3, Tailwind CSS, Bootstrap

Backend: Node.js, Express.js, REST APIs, MVC Architecture, Layered Architecture, Clean Architecture

Databases: MongoDB (NoSQL), SQL

Real-Time: Socket.IO, WebSockets

Security: JWT Authentication, RBAC, Input Validation, Rate Limiting

DevOps & Cloud: AWS EC2, Nginx, Docker (Basic), CI/CD Pipelines, Vercel, Render

Tools: Git, GitHub, Postman, Jira, Agile/Scrum

Experience

Software Engineering Trainee (MERN Stack)

Prototype

Industry Training Program — 2024 – Present

- Completed a 1.5-year intensive **industry-level software engineering residency**, building **production-grade full-stack applications** using the MERN stack.
- Designed **modular backend systems** using **Clean Architecture**, ensuring separation between **business logic and infrastructure layers**.
- Participated in weekly **technical reviews** and **architecture discussions** with senior engineers to maintain **scalable system design** and high code quality.

Projects

STRATIFY – Multi-Tenant SaaS Project Management Platform

Live | GitHub

Tech Stack: React, Node.js, TypeScript, MongoDB, Socket.IO, AWS

- Architected a **secure multi-tenant SaaS backend** using Node.js AsyncLocalStorage and a custom Mongoose global plugin that automatically injects tenant constraints into queries, guaranteeing **strict cross-tenant data isolation**.
- Designed the system using **Clean Architecture (Hexagonal)** and **Domain-Driven Design** in TypeScript, implementing **Dependency Injection** to decouple business logic from infrastructure.
- Built **real-time collaboration features** including live Kanban boards, notifications, and team chat using Socket.io with **JWT-based WebSocket handshake authorization**.
- Hardened **production APIs** with **stateless JWT authentication, rate limiting, Helmet security headers, and centralized error handling**.

SPEEDO – GPS Fleet Trip Analytics System

Live | GitHub

Tech Stack: Node.js, TypeScript, MongoDB, React, Leaflet

- Engineered a **high-performance GPS data pipeline** using Node.js Streams to process large CSV trip logs with **O(1) memory usage**.
- Developed **spatial-temporal algorithms** to detect vehicle stoppage, idling, and overspeed events using the **Haversine formula** for speed and distance calculations.
- Architected a **scalable backend** using **Clean Architecture** and **TSyringe Dependency Injection** for loosely coupled business logic.
- Built an **interactive GIS dashboard** with React and Leaflet that dynamically color-codes trip polylines by speed while rendering **thousands of GPS coordinates efficiently**.

Education

Higher Secondary Education – Computer Science, St. Catherine's HSS (SCHSS), Payyampally — Kerala State Board

2022 — Score: 80%