

# Joel Samuel Raj A

Software developer with proven proficiency in web development. Polyglot and Gen AI enthusiast.



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## Skills

**Programming languages:** Javascript, Typescript, Python, Go, C, C++, Java, Dart, Bash, Rust.

**Tools:** React, React Native, Angular, Next.js, Flutter, Grafana, Linux, Nix, Docker, Git, Github, Nginx, Firebase, NoSQL, SQL, AWS, Langchain.

## Experience

### **C1Exchange** Software Engineer - FullStack / DevOps

Aug 2024 - Present

- Tech stack: Angular, React, Nest.js, PHP, AWS ( IAM, Lambda, S3, CloudFront, EKS ), SQL, OpenAI.
- Dual-role in UI & API teams, currently maintaining the UI of our flagship Customer Data Marketing Platform (CDMP) and multiple B2B products.
- Led the entire development of GenAI-powered ad banner, embedding a chatbot utilizing RAG and first-party data for personalized product recommendations using React Native Web and esbuild workflows.
- Developed a product line-breakout feature in Angular + Nest.js, from PHP to automate a 15-year-old manual campaign process, ensuring full coverage of business logic and edge cases for [OTTDashboard](#).
- Leading the release management for UI projects, implementing GitFlow, Semantic Versioning, and Conventional Commits, as well as architecting its end-to-end DevOps workflows across AWS & GCP.
- Extended an internal fork of a Keycloak plugin (Java; federates users from an SQL DB) by adding password reset and update functionalities, addressing a critical gap in business logics.

### **A2A Point L.L.C** Founding Engineer (Full time)

Mar 2024 - Aug 2024 **6 months**

- Tech stack: Typescript, Python, React, React Native, Next.js (RSC), Keycloak, Directus, Postgres, Docker.
- Single-handedly engineered the entire technological infrastructure of the business and the products.
- The project includes [Play store](#) and [App store](#), CMS solutions for admins and users, newsletter, user courses, blogs, MFA authentication, in-app ads, payment gateways (Stripe), real-time chatting, push notifications, and much [more](#).
- Designed a fully containerized architecture, deployed products on Portainer with a self-hosted Nginx Proxy Manager, Gitea - enabling private NPM packages, Docker registries, Gitea actions for CI/CD.
- Engineered rapid development of web app and mobile apps through a unified codebase [checkout blog post](#).
- Integrated Playwright with CI/CD, enabling automated testing in Gitea Actions and setting up dedicated QA instances for thorough pre-deployment testing.
- The closed community app for real estate agents in UAE is estimated to have at least 5000 active subscriptions per month.

## Achievements

- Contributor in [expo.dev](#), [directus.io](#) - notably made improvements to the websocket auth [PR 22888](#).
- Member in [catppuccin organization](#). Notably, [catppuccin for flutter](#) - ports the catppuccin color scheme to the flutter library.
- Won the state-level Dr. A.P.J Abdul Kalam young achiever award for my contributions in TNEA online, Govt of Tamil Nadu.

## Education

Government College of Technology, Coimbatore

B.Tech in Information Technology

CGPA: 8.64

2020 - 2024

## Projects

**Golox:** Go implementation of the lox-language interpreter from the amazing book [crafting interpreters](#) which originally used Java. Supports all the features of the original lox language (variables, control flow, functions, classes, inheritance, scoping, closures, error handling, etc).

**Blogs:** Built a blog platform for our college club using Next.js RSC, where members upload markdown files to a dedicated GitHub repo, and the site automatically fetches and displays them via the GitHub API. Each blog post automatically creates a corresponding GitHub issue, where comments and reactions are stored and fetched via the Issues API, eliminating the need for a separate database.

**Sqlite Python implementation:** Implemented an SQLite-style database following [cstack's tutorial](#), originally in C, with advanced features like B+ trees for indexing, pagination for efficient storage, and more. Supports essential operations like INSERT, SELECT, and DELETE, providing a deeper understanding of database internals and low-level storage management using Python.

## Internships

### **Tvarit GmbH    Software Developer intern**

Nov 2022 - Feb 2024, **1 year 4 months**

- Tech stack: Typescript, React, Go, Python, Grafana, AWS, Active Directory.
- Maintained our internal fork of Grafana and added multiple features to it, notably - custom emails, notifications, alerting strategies.
- Developed a plugin for Grafana that completely changed the way frontend customization is done in the company. Previously, the HTML panel was used for custom UIs. The new panel dynamically renders React components at runtime with TailwindCSS, enabling much faster UI development. Soon [open sourced](#) it.
- Hands-on experience with the AWS infra with Lambda, S3, CloudFront, API Gateway, RDS, EKS, CloudWatch, SNS, SQS, IAM; Notably - worked in refactoring every Lambda function to a single codebase and deploying it through CloudFormation.
- Built a queuing service for a proxy API that prefetches and stores results on our middle server, reducing latency by up to 100%.

### **TNEA Online, Govt of Tamil Nadu    FullStack intern**

Apr 2022 - Sep 2022, **6 months**

- Tech stack: Typescript, Next.js, MongoDB, AWS, Firebase.
- Developed a fullstack application for 500+ colleges to submit Govt.-sanctioned student intake with documents for the 2022 academic year.
- Implemented authentication with mandatory password reset, automated seat allocation by calculating management and Govt. counseling seats per category, enforced form validations, and added features like document upload, save as draft, and printable intake tables.
- Streamlined manual data entry of 200,000 seats and 2000 documents, replacing the postal process with a secure online 2-step submission system.

### **Coding club gct    Board Member**

Aug 2022 - Jan 2024, **1 year 6 months**

- Transformed the cloud lab by installing Proxmox and setting up various services like Jellyfin, Coolify, OpenNAS, and more, significantly enhancing the club's infrastructure.
- Led the architecture of redesigning the 15 year old Network Infrastructure of the entire college campus using GNS3 and recommended using pfSense for the firewall.
- **Coding club mono repo:** The monorepo contains 5 Next.js apps and 1 package published [npm](#) that showcases our club's integrity in uniform design, code style, theming, maintaining an internal tech stack, and much more.
- **AlgoLab:** Leetcode-like platform built using Monaco editor that's powering VS Code and a custom judge system that supports compilation of 6 different languages. Self-hosted in our Proxmox instance and used in conducting foolproof semester examinations.
- **Custom nix configuration:** Developed a custom Nix configuration to manage all computers in our computer labs. Earlier developed a custom [Arch-based distro](#) using Archlive, (archived in favor of Nix).