

Shubham Kumar Singh

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EXPERIENCE

Software Engineer

July 2024 – Jan 2026

Smart Food Safe

Bengaluru, Karnataka

- Stabilized a **5+ year-old, highly interconnected production codebase** by developing a deep understanding of complex business workflows, resolving recurring production issues, and implementing changes without disrupting dependent functionality.
- Became a key contributor for understanding complex product workflows in a frequently changing development team, helping troubleshoot functionality, resolve production issues, and support smoother feature development.
- Redesigned and optimized **data structures and database schemas** for a major workflow change, adapting the entire module to the new data model while improving data access patterns, scalability, maintainability, and avoiding major post-release regressions.
- Evaluated multiple technologies through **POCs**, analyzed technical trade-offs and limitations, and selected appropriate solutions based on performance, scalability, and product requirements.
- Solved complex frontend engineering challenges** involving **hierarchical data and large-scale rendering**, improving performance while deepening my understanding of scalable frontend architecture and data modeling.
- Collaborated with **cross-functional teams**, communicated complex product workflows, and supported QA and developers through knowledge transfer and production releases.

PROJECTS

Centralized Exchange (CEX)

[GitHub](#) | [Blog](#) | [Architecture](#)

- Tech:** Bun, TypeScript, Express.js, PostgreSQL, Prisma, Redis, WebSockets, Docker, Decimal.js, k6.
- Built a **performance-focused Centralized Exchange** using an **event-driven architecture** with decoupled **API, Matching Engine, and WebSocket services**.
- Designed an **in-memory matching engine** supporting limit/market orders, cancellations, balances, and order book updates, achieving **0.02–0.1 ms internal matching latency** in local benchmarks.
- Designed the **Matching Engine as the source of truth** for live state, using **Redis** for asynchronous communication and **RDB snapshots** for state persistence and recovery.
- Built a **real-time market update pipeline** using **Redis Streams and WebSockets** and used **Decimal.js** for precise financial calculations.
- Performed **load testing with k6 across 100 concurrent users**, identified **network and queueing bottlenecks**, and optimized the request-to-engine communication path.

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, SQL (Postgres), HTML/CSS

Frontend: React.js, Next.js, React Flow, React Hook Form, Material UI, Shadcn, Tanstack React Query, Tanstack Router, React Router DOM

Backend: Node.js, Express.js, Bun, REST APIs, WebSockets, Zod

Database and ORMS: MongoDB, PostgreSQL, Redis, Prisma, Mongoose

Testing and Performance: Jest, Bun Test, SuperTest, K6, Unit Testing and Integration Testing

Tools and Platforms: Git, Github, CI/CD, Docker, AWS, Linux, Postman, PM2, Nginx

EDUCATION

Durgapur Institute of Advanced Technology & Management

Durgapur, West Bengal

Bachelor of Technology in Computer Science Engineering

Aug. 2018 – May 2022

VOLUNTEER

Open Source Contributor | [Contributions](#)

Jan. 2023 – Dec. 2023

Real Dev Squad

Remote