

SOFTWARE ENGINEER II

Collective Data is seeking a Senior Software Engineer to help shape our fleet, asset, and quartermaster management platform. Our applications are configuration-driven: business objects, views, reports, and workflows are defined in metadata and run by a C++/Qt server and an Angular web client.

The role is hands-on development across that stack, plus two areas of growing importance: building AI-powered product features, and building the AI-assisted development workflows our engineering team uses every day.

The ideal candidate has strong product judgment and can look beneath the user experience to judge how software is built. They treat AI as both a product capability and an engineering tool. They understand how models behave, where they fail, and how to build systems that stay correct when they do. They remain accountable for the quality, security, and correctness of every change, regardless of who or what wrote it.

Key Responsibilities:

Product Development and Judgement

- Turn customer workflows into intuitive, reliable functionality, finding requirement gaps and edge cases before development begins.
- Balance immediate customer needs against product consistency and technical sustainability.
- Own features from technical design through implementation, testing, release, and follow-up.

Platform Development and Code Quality

- Develop and maintain functionality across the C++/Qt server, the Angular web client, and the SQL layer that generates queries for PostgreSQL and SQL Server.
- Extend the metadata-driven application platform: the definition types, the engines that interpret them, and the authoring tools used to build applications on it.
- Migrate legacy UI to Angular without changing its existing behavior.
- Refactor incrementally to improve separation of responsibilities, error handling, and testability.
- Do substantive code reviews covering correctness, design, performance, and security.

AI-powered Product Features

- Design and build LLM-backed features such as natural-language querying, AI-assisted record creation, and AI review of application definitions.
- Design prompts and model context, define structured-output contracts, and validate model responses before they affect customer data.
- Build evaluation methods that catch answers that are wrong but look plausible, not only outright failures, and use them to tune prompts and instructions.
- Choose and route between models based on cost, latency, and quality, and log AI interactions so problems can be diagnosed.
- Design human review gates for AI-proposed changes to customer data and configuration.

AI-assisted Development Workflow

- Build and maintain the team's AI development tooling: agent skills, plugins, and automated workflows for starting work, implementation, self-review, preparing PRs, and review retrospectives.
- Build our architecture standards and code-review lessons into that tooling so recurring mistakes are caught automatically.
- Measure whether workflow changes actually improve quality and throughput and retire the ones that don't.
- Critically evaluate AI-generated code for correctness, architectural fit, security, and maintainability. Verify it rather than accept it.
- Follow company requirements for protecting source code, credentials, and customer information when using AI tools.

Technical Ownership and Reliability

- Independently investigate complex defects, including crashes, memory errors, and concurrency issues in the server, and find their root causes.
- Assess the scope and risk of changes, including their effect on customer configurations and data. Design tests, data migrations, and rollback plans to match.
- Enforce authorization and access-control rules on the server and treat client-supplied input as untrusted.
- Fix performance problems across server logic, generated queries, and the UI.
- Document significant design decisions and mentor other developers.

Required Qualifications:

- 6+ years of professional software development, including ownership of production software and complex changes.
- Strong C++ skills: object-oriented design, memory and resource management, debugging, and performance analysis.
- Strong Angular and TypeScript skills, including RxJS and signals.

- Strong SQL skills: relational modeling, query semantics and optimization, transactions, and schema changes.
- Experience building configurable business software, where application behavior comes from metadata or configuration rather than code.
- Experience shipping LLM-powered features to production: prompt and context design, structured outputs and tool use, evaluation, and failure handling.
- Deep hands-on experience with agentic AI coding tools, including customizing them with skills, rules, or automated workflows, not just prompting them.
- Working understanding of LLM limitations (context limits, nondeterminism, hallucination, prompt injection) and how to design around them.
- Ability to understand an established codebase and tell sound design from fragile implementation.
- Experience with code review, automated testing, version control, and production troubleshooting.
- Clear communication of tradeoffs to technical and nontechnical colleagues.

Preferred Qualifications:

- Qt.
- SQL Server in addition to PostgreSQL.
- Building developer tooling or internal platforms used by other engineers.
- Fleet, asset, maintenance, inventory, or quartermaster management systems.
- Supporting government or other organizations with demanding reliability and security requirements.
- Azure-hosted applications and Azure DevOps.

What Success Looks Like:

- Product improvements are intuitive, consistent, and match how customers actually work.
- Complex changes ship with appropriate testing and a clear understanding of their risks.
- AI features either give correct answers or fail visibly. The rate of wrong-but-plausible answers is measured and going down.
- The team's AI workflow catches problems before human review, and the same review comments stop recurring.
- Code becomes easier to understand, maintain, and extend.
- Other developers benefit from thoughtful reviews, clear guidance, and better tooling.

Who is Collective Data?

Collective Data is a leading provider of Fleet Management and Asset Management software for both the public and private sectors. Our mission is to empower organizations with intelligent software solutions that help streamline operations, reduce costs, and improve efficiency.



Why Join Us?

At Collective Data, we value innovation, collaboration, and the personal growth of our employees. We offer a competitive salary and benefits package, flexible work arrangements, and an environment where your input is valued and encouraged.

Interested in making a difference with Collective Data? Please submit your resume and cover letter detailing your relevant experience to careers@collectivedata.com

Collective Data is an Equal Opportunity Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or protected veteran status and will not be discriminated against on the basis of disability.

