Tulsi Kumari

Software Development Engineer
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SUMMARY

Software Engineer with production experience designing, building, and optimizing enterprise applications and distributed systems. Experienced in Java 21, Spring Boot, microservices, relational databases, concurrency, cloud-native technologies, and CI/CD. Reduced production workflow latency by 95% through database and ORM optimization and resolved complex production issues involving transaction boundaries, connection pools, and enterprise integrations.

TECHNICAL SKILLS

Languages: Java 21, Python, SQL, JavaScript, Go
Software Engineering: Core Java, OOP, Collections, Design Patterns, Multithreading, Concurrency
Backend & Distributed Systems: Spring Boot, Spring Data JPA, Spring Security, Hibernate, JDBC, REST APIs, SOAP, Microservices, AOP
Databases: MySQL, Oracle, PostgreSQL, RDBMS, Schema Design, Query Optimization, Indexing, Flyway
Testing: JUnit, Mockito, Unit Testing, Integration Testing
Cloud & DevOps: AWS, OCI, Docker, Kubernetes, Jenkins, Argo CD, CI/CD, Git, Maven, Linux
Tools & Methodologies: Jira, Agile/Scrum

WORK EXPERIENCE

Software Development Engineer — Texas Instruments, Bengaluru, India *Aug 2025 – Present*

- **Architected an 11-state quarter lifecycle orchestrator** as a modular monolith, using event-triggered transitions, asynchronous processing, hash-based delta synchronization, and downstream impact propagation to automate sales incentive workflows at **10,000+ participant scale**, reducing administration cycle time from **15 days to 3–4 days** and **saving ~$120K annually**.
- Reduced Hibernate/JPA-driven workflow latency by **95% (45+ min to ~2 min)** by enabling JDBC batching, replacing bulk `saveAll` merges with correlated SQL updates, removing cascade merges, and eliminating N+1 queries.
- Diagnosed and resolved **1+ hour application freezes**, tracing the root cause to Oracle connection-pool starvation from long-running transactions held open during external SOAP/Denodo calls; redesigned transaction boundaries to isolate external I/O from database transactions.
- Established transaction and integration boundaries for a Spring Boot platform coordinating databases, REST/SOAP APIs, data virtualization, and SFTP across a multi-thousand-record batch process, ensuring all-or-nothing consistency.
- Standardized global exception handling through a custom exception hierarchy, producing consistent error responses and failure diagnostics across **15+ services.**
- Introduced correlation-ID based request tracing across the workflow pipeline, enabling end-to-end request tracking for debugging and auditability.
- Developed reusable, Kubernetes-deployed Python libraries standardizing integration development across **150+ enterprise integrations**, and designed RBAC authorization services for sensitive enterprise data across multiple business domains.
- Developed and maintained unit and integration test coverage using JUnit and Mockito for Spring Boot services, improving regression safety across production workflows.

Software Development Engineer Intern — Texas Instruments, Bengaluru, India *Jan 2025 – Aug 2025*

- Developed and delivered an AI-powered workflow automation platform to production in 8 weeks, sustaining **zero production defects** for 2+ months and driving adoption across **20+ workflows.**
- Established CI/CD deployment workflows for on-premises Kubernetes clusters, configuring manifests, persistent volumes, CronJobs, Argo CD deployment scripts, and Jenkins pipelines; resolved build and deployment issues across projects.

PROJECTS

Enterprise Data Lineage and Search Platform *— Python, PostgreSQL, Graph Traversal, REST/SOAP APIs*

- Built a searchable knowledge graph of **16,000+ artifacts and 30,000+ dependency edges across 9 artifact types**, using normalized artifact relationships and GIN-indexed search to enable dependency/impact analysis, reducing manual investigation from **2–3 months to ~30 seconds.**

Raft Consensus Implementation — Go | Personal Project (In Progress)

- Implementing Raft from the original paper for hands-on understanding of leader election and log replication; currently at leader election. Exploring MapReduce alongside consistency and sharding tradeoffs.

AI-Assisted Job Application Platform — Product & Engineering

- Contributed product/data-modeling design for an AI-assisted job application platform and deployed it on **OCI using Docker, Nginx, DNS, and TLS**, optimizing data structures to reduce LLM inference calls.

EDUCATION

National Institute of Technology Patna — B.Tech, Computer Science and Engineering (2021 – 2025)
CGPA: 9.67/10 (perfect 10.0 across multiple consecutive semesters)

ACHIEVEMENTS

- Rising Star of the Quarter for end-to-end ownership and execution quality • Silver Recognition, Top 10 finish, AI Hackathon.