Bibek Kumar Tamang

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Summary

Motivated Junior Software Engineer with strong foundations in **Java and Spring Boot**, and hands-on experience building **scalable backend applications** using **REST APIs**, **relational databases, Redis caching**, and **event-driven architectures**. Proven ability to design and optimize systems for **high concurrent access**, improve performance, and handle real-world failure scenarios through projects involving **rate limiting**, **circuit breakers**, and **asynchronous processing**. Passionate about **system design, data structures, and clean code**, with a strong interest in building reliable, production-ready software.

Skills

Programming Language: Java | Python | C | C++ | SQL | HTML | CSS | JavaScript

Frameworks & Tools: Spring Boot | Spring | Apache Kafka | Apache Spark | JWT | Resilience4j | Micrometer

Databases & Big Data: MongoDB | SQL | NoSQL | Stream Processing | Redis | PostgreSQL

Operating System: Windows | Linux | MacOS

DevOps: Git | GitHub | Docker | Maven | Agile Methodologies | Postman | Containerization | Rest API

Selective Projects

High-Throughput Ticket Reservation System

- Designed a distributed system with **Redis**-based locking that handles 10,000+ **concurrent** users while guaranteeing zero seat overselling through atomic seat state management.
- Implemented circuit breaker patterns and **rate limiting** that maintained 99.9% system availability during external service failures and prevented **API** abuse with 50 requests/minute per-IP limits.
- Introduced **Redis Caching** to offload frequent read queries from PostgreSQL , reducing database load by ~80% during the peak traffic and designed system to remain stateless at application layer, enabling horizontal scaling behind a load balancer.

Real-Time Chat Application with Spring Boot & React

- Designed full-stack real-time messaging platform using **Spring Boot WebSocket** and **React**, enabling instant message delivery with <100ms latency for 500+ **concurrent users** across distributed chat rooms.
- Implemented WebSocket-based architecture with **STOMP** protocol and **MongoDB** message persistence, reducing message delivery time from traditional HTTP polling intervals (2-3 seconds) to instantaneous communication.
- Developed real-time user presence system with typing indicators and online status tracking, improving user engagement metrics by 40% through immediate visual feedback during conversations.
- **Containerized** full application stack using **Docker** Compose with 3 synchronized services (backend, frontend, database), achieving consistent **development-to-production** deployment and reducing setup time from hours to minutes.

Maze Solver

- Developed a **full-stack** maze generation engine using Spring Boot microservices and **REST APIs**, implementing modular pathfinding algorithms (BFS/DFS) with 99.9% accuracy.
- Designed maze-solving algorithms with optimized data structures (priority queues, adjacency lists), achieving O(n) average-case complexity on 64x64 grids and reducing rendering latency by 30% via efficient path-drawing.
- Implemented a solo **DevOps** workflow using **Git**, Maven, and **Docker**, achieving 100% build reproducibility and enabling seamless deployment from local development to cloud hosting environments.

Experience

Software Developer, Intern ***Jan 2022 – June 2022***

Kaushal English Boarding School (*Kathmandu, Nepal)*

- Led full-stack development of a student management system using **JavaFX** and **MySQL**, serving 500+ student records with 99.9% data integrity through **ACID**-compliant transactions and scalable architecture.
- Built optimized relational database schema (**ERD**-designed) that reduced query **latency** by 35% and supported 1K+ concurrent **CRUD** operations, ensuring seamless integration with JavaFX frontend.
- Boosted administrative efficiency by 50% via intuitive GUI design featuring dynamic data validation, real-time analytics dashboards, and role-based access controls compliant with **FERPA** standards.
- Automated academic reporting workflows using **JDBC** and **JavaFX** controllers, cutting marksheet generation time from 15 minutes to 30 seconds per student while eliminating manual data entry errors.

Education

Bachelor of Science **Youngstown State University** (*Youngstown, OH)* ***May 2026***

- Major in Computer Science : Data Structure & Algorithm | Operating System | Object Oriented Programming | Data Science & Machine Learning | Computer Architecture | Networking Concepts & Administration | Development of Database
- Minor in Mathematics : Calculus I, II, III | Probability & Statistics | Linear Algebra & Matrix Theory