

# Bibek Kumar Tamang

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## Summary

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A motivated Junior Full-Stack Developer with a strong foundation in Java and Spring Boot, specializing in building high-concurrency, fault-tolerant systems. Proficient in distributed system design, implementing Redis-based locking to prevent race conditions, and applying circuit breaker patterns for resilience. Experienced in creating idempotent RESTful APIs, rate-limited microservices, and performance-monitored applications that scale to thousands of concurrent users. Knowledgeable in DevOps practices including Docker and CI/CD. Eager to apply my combined software engineering and machine learning skills to contribute to innovative, scalable projects in a collaborative Agile team.

## Skills

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**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

## Experience

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### 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.
- Engineered 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.

## Projects

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### High-Throughput Ticket Reservation System

- Engineered 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
- Reduced **database** load by 80% through multi-level Redis caching and optimized connection pooling, achieving sub-100ms response times for seat availability queries under peak load

### Java Big Data Pipeline

- Built real-time big data pipeline using **Spring Boot** microservices and **Apache Kafka**, processing 1000+ events/second with 99.9% data integrity through event-driven architecture.
- Created stream processing with **Apache Spark** implementing real-time analytics and windowed aggregations, reducing data processing latency from batch hours to seconds
- Developed interactive dashboard with live **data visualization** and real-time filtering using Thymeleaf and Chart.js, enabling instant business insights from streaming data
- Containerized** entire ecosystem with **Docker** Compose across 4 coordinated services, achieving one-command **deployment** and 100% environment consistency

### 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.

## Education

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### 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