Aayush KC

linkedin.com/in/aayush/ | 330-338-7543 | ayushkc25@gmail.com | github.com /aayushkc01

Summary

Junior Full-Stack Developer passionate about building scalable, deployable web applications using Python and modern frameworks. I enjoy working across the entire stack — from backend APIs and databases to frontend interfaces and deployment — and love optimizing systems using data structures and algorithms. I'm especially excited about AI/ML and how intelligent features can enhance real-world applications. I care deeply about writing clean, maintainable code and building software that is reliable, efficient, and impactful.

Skills

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

Frameworks & Tools: Django | Fast API

Databases & Big Data: MongoDB | SQL | NoSQL | PostgreSQL

Operating System: Windows | Linux | MacOS

DevOps: Git | GitHub | Docker | 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 2021 – June 2021***

WebMandu Nepal (*Kathmandu, Nepal)*

- Built and maintained a scalable full-stack web application using Python (Django/FastAPI) and PostgreSQL, handling thousands of daily API requests with stable performance and clean architecture.
- Designed normalized database schemas and optimized queries, reducing API latency by 30% and improving system responsiveness under concurrent usage.
- Implemented secure authentication, role-based access control, server-side validation, plus background processing and caching to improve reliability, throughput, and data integrity.
- Containerized and deployed the application using Docker and automated CI/CD pipelines, enabling consistent releases and minimizing deployment failures.

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