

ARJUN SINGH

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PROFESSIONAL SUMMARY

Backend Engineer with 1+ year of experience developing REST APIs, data pipelines, and CI/CD automation in Java, Spring Boot, and JDBC at Tata Consultancy Services (clients: PayPal and American Express), with a growing focus on Generative AI and Agentic AI systems. Reduced API latency by 30% for 10,000+ daily calls and built an ingestion pipeline that processed 1M+ records at under 0.1% failure rate. Owns modules end to end, writes well tested code (85%+ coverage) and works in Agile teams. Strong DSA foundation, Top 8% globally on LeetCode (1,000+ problems, rating 1,727).

PROFESSIONAL EXPERIENCE

Software Engineer – Java Backend Developer

Apr 2025 – Present

Tata Consultancy Services (TCS) • Clients: PayPal, American Express • India

PayPal — Instant Payment Notification (IPN)

- Handled MassPay notifications in IPN end to end, integrating pagination across the full flow and adding the supporting functions and unit tests.
- Designed and built a fault-tolerant high-volume data ingestion pipeline handling up to 1,000 records/request and 1M+ records total, with pagination, retry logic, and resume capability, reducing ingestion failure rate to under 0.1%.
- Owned the complete event management module end-to-end (5+ workflows, business logic, system integration), shipping 2 sprints ahead of schedule and removing manual coordination for 3 downstream teams.
- Authored 40+ unit tests (JUnit 5, Mockito) to achieve 85%+ code coverage, reducing production defect escapes by ~40%; contributed to code reviews on 15+ pull requests across 6+ Agile sprints, using Git and Maven.

PayPal — Partners Team

- Integrated OpenTelemetry and Terraform, worked with Harness, and resolved a bottleneck in a multithreaded environment.
- Optimized REST API integration by removing redundant duplicate requests and consolidating calls into a single fetch, reducing API latency by 30% and improving throughput for 10,000+ daily API calls.

American Express (Amex)

- Built CI/CD pipelines with GitHub Actions, integrating automated integration tests that cover the full flow.
- Integrated OpenTelemetry into the application, upgraded Java and dependency versions as required, and developed new APIs per business requirements (details confidential).

Software Development Intern – Full Stack

Feb 2024 – Jun 2024

Innovate • Remote

- Shipped 4 core features for a Conference Management System (React.js, Express.js, MongoDB) that support 200+ concurrent user registrations and real-time scheduling across multiple events.
- Built organizer dashboards that reduced manual data-entry effort by ~60% and enabled coordinators to manage 10+ concurrent events.

PERSONAL LEARNING PROJECT

Seat Lock System – Concurrent Seat Booking Backend

Java, Spring Boot, MongoDB, Maven, JavaScript • github.com/Arjun-singh-AS/seat-lock-system

- Built REST APIs for managing events, venues, screens, seats, and bookings, with MongoDB persistence and request validation.
- Implemented event-specific seat reservations using fair per-seat thread locks and a MongoDB unique index to prevent duplicate bookings.
- Verified the concurrency behavior with a MongoDB integration test that sends 100 simultaneous requests for one seat; exactly one reservation succeeds.
- Added expiring seat holds, booking cancellation and release, plus a browser-based concurrency playground for testing 4–100 simultaneous booking attempts.

HumanAI — AI Assistant (In Progress)

Java, Spring Boot, Gemini API

- Building a Spring Boot AI assistant that routes chat, search, and personal task requests to specialized agents, with Gemini integration and asynchronous task processing.
- Implemented a browser-based chat UI, REST APIs, and persistence for tasks and reminders; exploring future voice and real-time updates.

TECHNICAL SKILLS

Languages: Java, Python, C++, C, SQL

Backend: Spring Boot, REST APIs, Microservices, JDBC, Servlet, JUnit 5, Mockito, Maven, Gradle

Generative AI: Large Language Models (LLMs), Prompt Engineering, Retrieval-Augmented Generation (RAG), Embeddings, Vector Databases (FAISS, Pinecone), LangChain, Hugging Face Transformers, LLM APIs (OpenAI, Anthropic Claude)

Agentic AI: AI Agents, Multi-Agent Systems, Tool / Function Calling, LangGraph, Model Context Protocol (MCP), Agent Orchestration, Memory & Planning

System Design & CS Core: Data Structures & Algorithms, System Design (HLD & LLD), OOP, DBMS, Operating Systems, Software Engineering

Databases: MySQL, MongoDB

Tools: Git, GitHub, Postman, IntelliJ IDEA, VS Code, Agile, Scrum, JIRA

EDUCATION

Bachelor of Technology – Computer Science and Engineering

Aug 2020 – May 2024

National Institute of Technology (NIT), Patna • CGPA: 8.21 / 10.0

Coursework: Data Structures, Algorithms, DBMS, Operating Systems, Software Engineering, Computer Networks

ACHIEVEMENTS & CERTIFICATIONS

- LeetCode Top 8% Globally** — 1,000+ problems solved | Max rating: 1,727 | Best global contest rank: 2,538 | leetcode.com/u/Arjun2948
- NPTEL Certification** — Top 5% Nationally, “The Joy of Computing Using Python,” IIT Madras