

SARTHAK SINHA

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PROJECTS

Idempotent Request Processing Service | Java, Spring Boot, Spring Data JPA, MySQL, Docker

- Engineered a distributed idempotent request processing service ensuring exactly-once execution semantics in REST APIs, solving complex distributed systems challenges including network retries and partial failures.
- Implemented idempotency-key validation with persistent request tracking, pessimistic database locking, and multi-tier caching strategy to handle concurrent requests safely with distributed systems design patterns.
- Validated solution in simulated non-production environments, achieving **100% protection** against duplicate transactions with **1000+** concurrent requests and guaranteed deterministic API behavior with **O(1) lookup**.

URL Redirection Traffic Control Service | Java, Spring Boot, JPA, Redis, MySQL, Docker, Postman

- Developed a highly scalable URL shortening service using **Base62 encoding** with collision detection, managing **1000+ unique short URLs** with zero collisions and handling **1000+ requests/second**.
- Implemented sliding window rate limiting algorithm with fault-tolerant Redis-backed distributed tracking (**O(log n) complexity**), preventing **95% of abuse attempts** across multiple service instances and optimizing database queries to achieve **200ms average response time**.

EXPERIENCE

Meditab Software (India) Pvt. Ltd.

Software Development Engineer Intern (Onsite)

Sep 2025 – Dec 2025

Ahmedabad, India

- Contributed to backend development of IMS (Intelligent Medical Software), a large-scale distributed enterprise healthcare platform serving **100,000+ users**, built on scalable multi-tier architecture.
- Collaborated in fast-paced **Agile environment** with 2-week sprints using GitLab, participating in code reviews and software testing to ensure extensible, maintainable, and reliable code following SDLC best practices.
- Optimized SQL Anywhere database queries by implementing WHERE clause filtering, reducing data fetch times by **10% (100ms improvement)** and improving live service performance and diagnosability.

Coding Blocks

Backend Development Intern

June 2024 – July 2024

Remote

- Developed a quiz platform during summer internship with **JWT-based authentication**, custom test creation and real-time leaderboard functionality using Node.js, HTML, CSS, and JavaScript.
- Re-architected backend using Java Spring Boot and MySQL, implementing extensible REST API design with MVC architecture, deployment automation, and **improving system scalability by 3x**.

TECHNICAL SKILLS

Programming Languages: Java, C/C++, Python, JavaScript, SQL

Frontend Development: React, HTML, CSS

Backend Development: Spring Boot, Spring Security, JPA, Hibernate, Node.js

Databases: MySQL, PostgreSQL, MongoDB, Redis

Cloud and DevOps: AWS (EC2, S3), Microsoft Azure (fundamentals), Docker, CI/CD, Git, GitHub, Maven

Computer Science Coursework: Data Structures and Algorithms, Algorithm Design & Complexity Analysis, Object-Oriented Design, Problem Solving, DBMS, Computer Networks, Software Testing

EDUCATION

GLA University, Mathura

Bachelor of Technology in Computer Science and Engineering (**CGPA: 7.9**)

2022 – 2026

Mathura, India

ACHIEVEMENTS

- Achieved **top 1.1% ranking on LeetCode (1519 rating)** with **600+ data structures and algorithms** problems solved, demonstrating proficiency in problem-solving, optimization, and complexity analysis.
- Completed certifications in **Software Engineering** and **Management Information Systems** from IIT Kharagpur, and **Organizational Behavior** from IIT Guwahati.