

# FAREAL AHMED

## Software Engineer

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## SKILLS

**Languages & Frameworks:** Java, Kotlin, Spring Boot, JavaScript, TypeScript, React.js, Next.js, Node.js, Express.js

**APIs & Integration:** RESTful APIs, GraphQL, OpenAPI/Swagger, WebSockets, LangChain4j

**Databases:** PostgreSQL (pgvector), Microsoft SQL Server, MongoDB, Prisma, Hibernate

**Cloud & DevOps:** AWS, GCP, Docker, Git, GitLab, CI/CD, Kibana, Grafana

**Development Practices:** Agile (Scrum), TDD, Clean Architecture, Microservices, RESTful API Design

## EXPERIENCE

**Software Engineer** | Compass Operations Pty Ltd., Melbourne | *June 2022 - September 2025*

- **Built end-to-end full-stack modules for school management system** serving users across Australia, UK and Europe (timetables, course selections, exams, daily-organisation) using Java, Kotlin, Spring Boot, React, and TypeScript.
- **Engineered scalable backend services** implementing RESTful and GraphQL APIs. Developed React/TypeScript UIs with modular, accessible components adhering to enterprise design systems.
- **Re-engineered asynchronous job engine** into hybrid sync/async processor using Factory pattern and Java Suppliers, enabling schools to make immediate exam changes that propagated instantly across timetables and daily organisation, while maintaining 100% code reuse.
- **Optimized system performance** by designing lean DTOs and efficient data-fetching strategies, reducing page load times by 40%.
- **Implemented recursive backtracking algorithm** to resolve 30+ edge cases in data selection, eliminating scheduling conflicts and ensuring 100% data integrity during critical course selection time. Refactored legacy service layers using Clean Architecture principles, reducing technical debt.
- **Maintained comprehensive test suites (TDD)** and monitored CI/CD pipelines in GitLab, ensuring stable releases aligned with academic deadlines.

**Technical Trainer** | BASIS Institute of Technology & Management, Dhaka | *February 2013 - October 2014*

- Trained 3 cohorts in C#, .NET, OOP, and clean coding practices; developed curriculum based on industry standards.

**Software Engineer** | ADDIE Soft Ltd., Dhaka, Bangladesh | *August 2011 - January 2013*

- Built core features for Oddhoyon, a school management system used by 1000+ schools in Bangladesh.
- Led migration from desktop (Windows Forms) to ASP.NET MVC, improving scalability and maintainability.

## PERSONAL PROJECTS

### AI-Powered Document Assistant (RAG Application)

- Built full-stack RAG application enabling users to chat with PDF/DOCX documents using Spring Boot and React. Implemented high-performance backend with LangChain4j for vector embeddings and Apache Tika for parsing, integrated with Ollama for local LLM inference. Built scalable vector search using PostgreSQL with pgvector. <https://github.com/farealahmed/doc-whisperer>

### Video Vault

- Built end-to-end video streaming application integrating Spring Boot REST backend with React frontend. Designed PostgreSQL database schema using Docker, implemented secure authentication with Spring Security, and engineered efficient multipart file handling for large video uploads. <https://github.com/farealahmed/my-video-vault>

## EDUCATION

### BSc in Computer Science and Engineering

Ahsanullah University of Science and Technology, Dhaka, Bangladesh | *2007 - 2011*