

AAYUSH TIWARI

Computer Science Undergraduate | Java Backend & Software Engineering

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EDUCATION

Vellore Institute of Technology – B.Tech, Computer Science & Engineering | CGPA: 8.27/10

2023 – 2027

TECHNICAL SKILLS

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

Backend & APIs: Spring Boot, Spring Security, Spring Data JPA, Hibernate, JDBC, REST APIs, JWT, Node.js, Express, BullMQ

AI & LLMs: RAG, NVIDIA NIM, prompt engineering, embeddings & pgvector, LLM output validation, AI-assisted development

Frontend & Databases: React, Next.js, HTML, CSS | PostgreSQL, MySQL, H2

Tools & Testing: Git, Maven, Docker, JUnit, Postman

Core CS Fundamentals: Data Structures & Algorithms, OOP, DBMS, Operating Systems, Computer Networks

Engineering Practices: Debugging, automated testing, secure API design

EXPERIENCE

Software Engineer Intern | Accumet Solutions

Jun 2025 – Dec 2025

Tech Stack: Java, PostgreSQL

- Contributed to Meter Data Management System (MDMS) modules used for daily testing and validation of 300+ electrical (three-phase) and water meters.
- Developed data-handling logic to collect and process real-time readings from utility metering hardware, supplying data to downstream monitoring dashboards.
- Tested and debugged MDMS components alongside senior engineers to support reliable meter-validation workflows.

PROJECTS

HipHopHub | Full-Stack Music Platform

Jan 2026 – May 2026

Live Demo: hip-hop-hub.vercel.app | GitHub: github.com/Aayush10016/HipHopHub

Tech Stack: Java, Spring Boot, React, TypeScript, SQL, REST APIs, Spring Security, JWT, Docker

- Built and deployed a Spring Boot REST API (61 endpoints) secured with Spring Security and JWT, a React and TypeScript frontend, and a Dockerized backend (backend on Render, frontend on Vercel).
- Integrated the Last.fm and iTunes APIs and created a multiphase cleaning pipeline across 75 artists that classified remix, compilation, and duplicate-artist contamination, removing 93 tracks and 102 releases and restoring 111 official releases.
- Delivered a Guess the Song game with 1–30 second snippets, quizzes, a global leaderboard, and achievement tracking.

Waymark | AI-Assisted Development Governance Platform

May 2026 – Aug 2026

GitHub: github.com/Aayush10016/waymark | Marketplace: marketplace.visualstudio.com/items?itemName=Waymark-Dev.waymark

Tech Stack: Java 17, Spring Boot, TypeScript, VS Code API, NVIDIA NIM

- Engineered a deterministic, rule-based Guardian in TypeScript that validates AI-generated code changes against project rules and ADRs using Project Memory and bounded Git context, detecting violations without AI or repository-wide indexing.
- Shipped to the VS Code Marketplace: 24 commands, 160+ automated tests, and GitHub Actions CI on every push and PR.
- Added NVIDIA NIM assistance and remediation suggestions grounded by a RAG context builder (ranked ADR, memory, and Git evidence), with user approval, SHA-256 stale-file checks, and Guardian recheck after each edit.
- Developed the Java 17/Spring Boot backend from the project's earlier architecture: 11 REST controllers (23 endpoints), JWT authentication, pgvector similarity search, 12 Flyway migrations on PostgreSQL, and 420 JUnit tests.

Pact | Secure Agreement & Payments Platform (Phase 1 foundation)

Aug 2026 – Sep 2026

GitHub: github.com/Aayush10016/pact

Tech Stack: TypeScript, Next.js, NestJS, Node.js, PostgreSQL, Redis, BullMQ, Python, FastAPI, Docker, Playwright

- Built a three-service foundation (Next.js web app, NestJS REST API, FastAPI AI service) on a 16-table PostgreSQL schema covering evidence versions, approvals, audit events, and payment webhook events.
- Enforced fail-closed boundaries: unauthenticated workflows are denied, the PayPal adapter is disabled (financial routes return 403), inputs are Zod-validated, and AI assessments citing unknown evidence are rejected.
- Defined BullMQ job contracts and Phase 2 integration points (Clerk JWT, PayPal Sandbox, NVIDIA NIM), verified by 20 automated tests and GitHub Actions CI (lint, integration, Playwright e2e, Docker smoke tests).

ACHIEVEMENTS & OPEN SOURCE

- GirlScript Summer of Code (GSSoC):** Accepted open-source contributor; code changes reviewed and merged by maintainers.
- Flipkart Gridlock:** Competed in Flipkart's engineering challenge against B.Tech students from across India.
- Hackathons:** Designed and presented technical solutions at Bharat Academix Hackathon and Mahakumbh Tech Challenge, two national-level hackathons.
- GitHub:** 450+ contributions across personal and collaborative repositories.

CERTIFICATIONS & TRAINING

- Google IT Support Professional Certificate (Coursera)
- Bits and Bytes of Computer Networking (Coursera)
- AI & Robotics Workshop, Techkriti, IIT Kanpur