

# JAYDEEP BALDE

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[github.com/JaideepBalde](https://github.com/JaideepBalde)



## EDUCATION

**Bharatiya Vidya Bhavan's Sardar Patel Institute of Technology**, Mumbai

2021 – 2025

Bachelor of Technology in Electronics and Telecommunication Engineering

**Narayana E-Techno Junior College**, Thane

2019 – 2021

12<sup>th</sup> Standard (HSC, Maharashtra State Board)

## TECHNICAL SKILLS

**Languages:** Python, JavaScript (ES6+), Java, SQL, Bash, C, C++

**Backend & APIs:** Node.js, Express.js, RESTful API design, JWT authentication, validation, error handling

**Databases:** MongoDB, PostgreSQL (CRUD, schema design, indexing)

**DevOps & Deployment:** Docker, CI/CD (GitHub Actions / Jenkins), Linux, Git, Nginx, Cloud (AWS EC2, Render)

**Frontend (Working Knowledge):** HTML5, CSS3, React

**Monitoring & Observability:** Prometheus, Grafana (basic), structured logging, system metrics

**Data Analytics & BI:** Advanced Excel (Pivot Tables, formulas), Python (Pandas, NumPy) for EDA, descriptive statistics, Power BI (dashboards, data modeling), Tableau

**Tools:** GitHub, VS Code, Postman

## INTERNSHIP

**SP Jain Institute of Management & Research**

Jan 2025 – Jul 2025

*Research Intern – Data Analysis & Systems Support*

Mumbai, India

- Processed and validated datasets from **200+** participants using Python (Pandas, NumPy).
- Performed statistical analysis including **hypothesis testing (p-test, chi-square)** to validate data patterns.
- Stored and queried structured survey data using **MongoDB** to support analytical workflows.
- Implemented NLP preprocessing pipelines using **Hugging Face models** for text normalization and preparation.
- Conducted root cause analysis and contributed to **SDLC-aligned** technical documentation.
- Automated data cleaning and validation workflows using Python scripts, reducing manual review effort.

## PROJECTS

• **ZenLedger – Ledger-Based Family Finance System**

2025

*React, TypeScript, Node.js, Express, MongoDB, REST APIs, JWT, Docker*

- Designed a **ledger-driven financial system** where balances are **computed from immutable transaction history**, ensuring correctness and auditability.
- Enforced **role-based financial invariants** (Parent/Child) with CREDIT-only provisioning, DEBIT-only spending, and non-negative balances at the service layer.
- Implemented **idempotent transaction handling** using unique transaction IDs to prevent duplicate operations under retries.
- Added **approval workflows, audit metadata, and CSV exports** to simulate real-world compliance and traceability.

• **PulseQ – Distributed Job Scheduling & Execution Engine**

2025

*Java 17, Spring Boot, PostgreSQL, JPA, Docker*

- Built a **persistent job scheduler** with stateful execution (PENDING, RUNNING, FAILED, SUCCESS) to ensure reliability across crashes.
- Implemented **concurrency-safe job claiming** using database locking to prevent duplicate execution across workers.
- Added **retry mechanisms with exponential backoff** and dead-letter handling for failed jobs.
- Validated fault tolerance by simulating worker failures and ensuring safe job recovery.

• **Sentinel – Event-Driven Notification Pipeline**

2025

*Node.js, TypeScript, Express, MongoDB, Redis, Docker*

- Designed an **event ingestion and delivery pipeline** decoupling API requests from downstream notification processing.
- Implemented **idempotent event ingestion and retry-safe background consumers** using Redis-backed queues.
- Modeled explicit event lifecycle states to enable observability and failure diagnostics.
- Tested system resilience by injecting failures and verifying at-least-once delivery guarantees.

More projects available at: [github.com/JaideepBalde](https://github.com/JaideepBalde)

## ACHIEVEMENTS

• Ranked **Top 5 / 115+** participants in Barclays Cybershala CTF (system exploitation, security challenges).

• Finalist in inter-college cybersecurity challenge; built USB Rubber Ducky-based keystroke injection tool.

• Published peer-reviewed paper in **IJRASET**: “Speech-Controlled Powerlenses for Optical Wearables.”

## CERTIFICATIONS

**Barclays Cybershala** — Fundamentals of Cybersecurity and Ethical Hacking

2024