

# Bipin Shrestha

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## SUMMARY

Motivated Computer Science student passionate about software development and problem-solving. Proficient in Java with strong algorithms and data structures skills, experienced in full-stack web development and cloud/DevOps projects, eager to contribute innovative solutions and grow in a dynamic tech environment.

## EDUCATION

University of Louisiana at Monroe

Monroe, LA

Bachelor of Science in Computer Science

Data Structures and Algorithms, Object-Oriented Programming, Operating System, Computer Networks, Database Management

## PROJECTS

### Hotel Booking Application

[Website](#) | [Repository](#)

A full-stack hotel booking system for privately-owned or large hotels, built with Spring Boot, Next.js, and AWS.

- Implemented secure JWT-based authentication with role-based access for users, supporting sign-up, login, bookings, payments, and profile management.
- Developed admin dashboard for room management (CRUD) and booking approvals, integrated with asynchronous email notifications and Stripe payments.
- Deployed backend on AWS (EC2, RDS, S3) with CI/CD, reducing **deployment time from 30 mins to <5 mins**.

**Tech Stack:** Java, Spring Boot, Spring, Next.js, AWS, MySQL, Tailwind CSS, JavaScript

### Quizzes Microservice Application

[Repository](#)

A microservices-based quiz app using Spring Boot and Spring AI with local AI model that generates Category-based quizzes via Category and Quiz Services, managed through API Gateway and Congi server with externalized configuration

- Developed an AI-powered quiz platform using Spring AI with a locally hosted model, backed by a hybrid database architecture (MongoDB for flexible storage, PostgreSQL for relational data).
- Built a resilient microservices ecosystem with API Gateway, Eureka Service Registry, and Config Server, enabling **10,000+ async quiz requests/min** through RabbitMQ and Kafka event streaming.
- Ensured high availability and fault tolerance by deploying services in Docker containers and implementing **Resilience4j Circuit Breaker with Retry, Fallback, and Actuator Monitoring**, reducing service failure rate by **35% under load testing**.

**Tech Stack:** Java, Spring Boot, Spring AI, MongoDB, PostgreSQL, RabbitMQ, Docker, GitHub

### Train management System (Backend)

[Repository](#)

A Full Backend Enterprise level Train Management System built with java spring boot to manage trains station, routes, schedules, seats, booking and payments with secure JWT-based authentication.

- Built Spring Boot REST API with Hibernate + MySQL for trains, stations, routes, schedules, seats, and bookings, with scalable pagination, sorting, and global error handling.
- Refactored the payment validation module by applying AOP principles, resulting in a **20% reduction in code duplication** and a more modular design, facilitating easier updates and maintenance. **OpenAPI/Swagger UI** for interactive API.

**Tech Stack:** Java, Spring Boot, MySQL, Hibernate

## Research & Collaboration

### Emerging Scholar Program Research

Spring 2023 – Fall 2023

Academic Research -University of Louisiana at Monroe

- VR in Education – analyzed teacher perceptions of virtual reality for enhanced student engagement and experiential learning
- AI in Business Communication – Studied impacts of AI, Robotics, and ICT on modern business operations, workforce Management, and global economic trends.

### Google Developer Code (GDSC)

Fall 2024 - Present

Active Community Member – Coding competition, hackathons, and mentoring fellow developers.

## Technical Skill

**Frontend:** React.js, Next.js, TypeScript, JavaScript (ES6+), HTML5/CSS3, Tailwind CSS, Chart.js, Responsive UI

**Backend & APIs:** Java, Spring Boot, Spring AI, REST APIs, Git, JWT Authentication & Role-Based Access, AOP, Microservices

**Databases & Data:** MySQL, PostgreSQL, MongoDB, Hibernate/JPA ORM, Data Modeling, Caching

**AI & Automation:** OpenRouter API, Generative AI, Spring AI, n8n, MCP

**DevOps & Cloud / Project Management:** Docker, RabbitMQ, AWS (EC2, RDS, S3, API Gateway, Elastic Beanstalk, SNS, SQS, DynamoDB), CI/CD (CodePipeline & CodeBuild), Linux, GitHub, Jira