

VISHAL RAI

Software Engineer | Java, Python & Full-Stack Development

Kathmandu, Nepal

Portfolio: vishalrai.com.np

I'm a software engineer with over 10 years of experience building scalable, high-performance applications using Java and Python. My experience includes system architecture, REST API design, databases like PostgreSQL, MySQL, Oracle, and MongoDB, as well as microservices and event-driven systems. I also have hands-on experience with Angular, React, and Next.js, so I can work across both the backend and frontend when needed.

TECHNICAL SKILLS

- **Programming Languages:** Java, Python
- **Backend & Frameworks:** Spring Boot, Spring MVC, Spring Security, Spring Batch, Spring WebFlux (Reactive), FastAPI, Microservices, gRPC, WebSocket, RSocket
- **API & Security:** REST APIs, JAX-RS (Jersey), JAX-WS (SOAP), OAuth 2.0, JWT, RBAC, Auth0, Keycloak
- **Databases:** PostgreSQL, TimescaleDB, MySQL, Microsoft SQL Server, Oracle, MongoDB; Database Design, Schema Design, Indexing, Query Optimization
- **Frontend & Full-Stack:** HTML, CSS, JavaScript, Bootstrap, Angular, React, Next.js
- **Cloud & Streaming:** AWS Lambda, Amazon S3, Amazon API Gateway, Amazon Kinesis Data Streams, Amazon Cognito, Amazon DynamoDB, Apache Kafka
- **Build Tools:** Maven, Gradle
- **Testing:** JUnit, Mockito, pytest, unittest, unittest.mock
- **DevOps & Tools:** Git, Docker, Jenkins, Kubernetes

PROFESSIONAL EXPERIENCE

Senior Software Engineer | Fusemachines

Kathmandu, Nepal | September 2017 – April 2023

- Participated in the design and architecture of software systems, ensuring scalability, reliability, and maintainability.
- Optimized applications for maximum speed, performance, and scalability.
- Led a team of software engineers, supervising development, setting coding standards, and ensuring high-quality software delivery within project deadlines.
- Mentored and coached engineers, providing guidance, advice, and educational opportunities to improve technical skills and performance.
- Planned and managed project work, breaking down complex tasks into manageable pieces, estimating time, effort, and risk, and ensuring timely delivery.
- Collaborated on system specifications and roadmap design, contributing to key decisions and software solutions.
- Deployed, monitored, and maintained applications, ensuring operational stability and performance.
- Conducted performance evaluations, assessed team members' strengths and weaknesses, and assigned clear tasks to improve individual effectiveness.
- Worked with HR on recruitment, interviewing and selecting potential candidates for the team.
- Participated in internal and client meetings, representing the development team and contributing to technical discussions.
- Analyzed systems and operations, recommending improvements to processes, policies, and procedures.

Software Engineer | Finaccess Pvt. Ltd

Lalitpur, Nepal | August 2013 – September 2017

- Developed and maintained features for the core mobile banking system, ensuring high reliability and performance.
- Implemented backend functionality for financial transactions, reporting, and monitoring modules.
- Built transaction reversal logic to ensure consistency and reliability during failed transfers.

- Contributed to Android apps development, integrating backend services and APIs.
- Collaborated with QA and support teams to maintain system stability, data integrity, and security.

PROJECTS

Phishing Detection System

A high-volume phishing detection system designed to identify potentially malicious URLs and help protect individuals and financial institutions from phishing attacks, data theft, and financial loss.

Technologies: Python, Apache Kafka, AWS Lambda, S3, MariaDB, AI/ML, Amazon EKS, Github

- Implemented a producer and consumer architecture with batching and scalable consumers to process high volumes of incoming records.
- Improved system stability during peak workloads and supported processing of over one million records per day.
- Used monitoring and load testing to evaluate throughput, latency, and reliability.

Data Extraction System

A data extraction and enrichment system that processes files, extracts relevant information, and enriches the data using third-party APIs to identify ISP and telecommunications provider information. The enriched data is persisted for threat analysis and integrated with Splunk for visualization and analysis.

Technologies: Python, Amazon S3, AWS Lambda, Amazon DynamoDB, Splunk, Third-Party APIs

- Developed multiple AWS Lambda functions to extract, enrich, and persist data.
- Improved data extraction by using regular expressions to identify and extract relevant information from files.
- Implemented monitoring and alerts to detect data processing failures.

Phishing Threat Intelligence Search API

A serverless API built with AWS Lambda to search and retrieve threat intelligence data from PostgreSQL and Elasticsearch. Supports filtering by file and malware-related identifiers, retrieving metadata such as file hashes, filenames, file types, and timestamps, and returning paginated results through a structured JSON response.

Technologies: Python, Amazon S3, AWS Lambda, Amazon API Gateway, Redis, PostgreSQL, Elasticsearch, Gitlab

- Developed AWS Lambda API endpoints to query threat intelligence data from PostgreSQL and Elasticsearch.
- Implemented filtering and pagination to support efficient retrieval of file and malware-related metadata.
- Validated request parameters and implemented error handling for invalid queries and database failures.
- Returned structured JSON responses containing search results, record counts, and pagination information.

Online Education Platform

An AI-powered education and learning management platform integrating online classrooms, student information management, live video classes, and administrative automation.

Technologies: Java, Spring Boot, Spring Security, Amazon Cognito, Amazon S3, MongoDB, Jenkins, SonarQube

- Developed REST APIs for student enrollment, course management, assignments, and file management.
- Collaborated with other engineers to integrate platform components and deliver additional system functionality.

Online AI Course Enrollment and Payment Platform

An online learning platform that publishes AI training courses for individuals from non-technical backgrounds, allowing learners to enroll in courses and pay online through multiple payment gateways available in Nepal.

Technologies: Java, Spring Boot, Spring Security, Auth0, Amazon S3, MongoDB, Amazon EC2, Jenkins, Github

- Developed REST APIs for course management and learner enrollment.
- Integrated multiple payment gateways to enable online course payments.
- Implemented PDF payment receipt generation for successful transactions.
- Collaborated with frontend developers to integrate backend APIs with the user interface.

Truckload Marketplace Platform

A logistics marketplace that connects shippers, brokers, and truckers, enabling users to discover available loads and coordinate freight transportation through an online platform.

Technologies: Java, Spring Boot, Spring Security, Auth0, Amazon S3, MongoDB, Amazon EC2, Stripe, Redis, Github

- Developed backend APIs to support load listings and marketplace functionality.
- Contributed to payment processing integration using Stripe.
- Collaborated with mobile app developers to integrate backend APIs with the mobile applications.

Mobile Financial Services Platform

An interoperable mobile financial services and branchless banking platform. The system connected multiple banks to facilitate mobile-based financial transactions, electronic voucher transfers, and financial services.

Technologies: Java, Spring Framework, Hibernate, Oracle Database, JAX-WS, Android, TortoiseSVN

- Contributed to the development and maintenance of core backend application functionality.

- Developed desktop GUI functionality to process refunds for failed transactions.
- Developed an Android application supporting wallet-to-wallet transfers, wallet-to-bank transfers, bank-to-wallet deposits, utility bill payments, and other digital financial services.

EDUCATION

Bachelor of Science in Information Technology (BScIT)

Sikkim Manipal University | India | 2010

INTERESTS

Computers and technology, learning new things, networking and socializing, listening to music, playing cricket and watching football, travelling, reading books

LANGUAGES

English, Nepali, Hindi

DECLARATION

I hereby declare that all the above information given by me is true to the best of my knowledge.