

# Hassan Ali

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## SUMMARY

Experienced Senior Software Engineer and Full Stack Tech Lead with a proven track record of architecting and delivering complex, scalable systems across BI, eCommerce, and Web3 gaming domains. Expert in modern JavaScript/TypeScript stacks (React, Next.js, NestJS), Python (Flask, Django), and cloud-native solutions on GCP and AWS. Led end-to-end development of real-time data platforms, AI-powered chatbots, blockchain-integrated backends, and custom analytics dashboards using tools like Looker, BigQuery, Supabase, Redis, and WebSockets. Known for driving performance optimization, secure API design (OAuth2, RBAC), CI/CD automation, and mentoring cross-functional teams in Agile environments.

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## EDUCATION

**Bachelors in Computer Science**  
**University of Punjab**

Lahore, Pakistan  
2017

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## SKILLS

**Programming Languages:** Javascript (JS, ES6+), Typescript (TS), Python, Java

**Front-End Development:** HTML, CSS, React.Js, React Admin, Next.Js, GSAP, Remix, React Native, Redux, ContextAPI, Zustand, Tailwind CSS, Bootstrap, Ant Design, DaisyUI, Server-Side Rendering (SSR), Static Site Generation (SSG), Incremental Site Generation (ISG)

**Back-End Development:** Node.Js, Express.Js, NestJS, Flask, Django, GraphQL, RESTful API design, Spring Boot

**Database Management:** SQL, NoSQL, PostgreSQL, MySQL, MongoDB, CosmosDB, DynamoDB, Firebase, TypeORM, Sequelize, Prisma, Supabase, Microsoft Azure Data Studio, SQL Alchemy, RDBMS, Google BigQuery, Hibernate, JPA, JDBC

**Data Visualization and BI Tools:** PowerBI, Looker, LookML, Chart.JS, D3.js, AmCharts, Charting Lib, Draw.io, Miro, UML Diagrams, Virtual Paradigm

**Payment Gateway Integration:** Stripe, PayPal, Payzone, Plaid

**Cloud and DevOps:** AWS, Lambda Functions, GCP, Google Cloud Functions, Google Task Queues, Docker, Containerization, Kubernetes, AKS, EKS, Orchestration, Salesforce Marketing Cloud (SFMC), CQRS, Cloud, Continuous Integration / Continuous Delivery / Continuous Deployment (CI/CD), S3, SNS, SQS, Event Bridge, RabbitMQ, BullMQ, API Gateway

**Version Control Systems:** Git, Github, Bitbucket, GitLab

**API Interfaces & Docs:** GraphQL, RESTful API design, SOAP API, Swagger, JSDoc

**Workflows:** Pipedream, Hookdeck, Cloudflare, N8N

**Security:** OAuth2, Role-Based Access Control, JWT, Rate Limiting, Audit Logs

**Software Development Practices:** Design and development, Software development lifecycle management, Research and development, Performance optimization, NX Monorepo, SaaS, Scalable Infrastructure, Microservices Architecture, System Architecture, Technical Documentation

**Project Management:** SCRUM, Agile Development Methodologies, Sprint, Kanban, JIRA, ClickUp, Linear, Trello

**UI/UX Design:** UI and UX principles

**LLMs & AI Platforms:** Open AI - ChatGPT, Google Vertex AI - Gemini Pro, Gemini Flash, Document AI, AI Platform, Chat & Search Apps, Vector Embeddings

**Logging and Observation:** Sentry, GlitchTip, Datadog, BetterStack Logtail, Cloudwatch

**Testing:** Playwright, Jest, Supertest

**Quality and Standards:** Eslint, Husky, Prettier

**Other Skills and Qualities:** Multilingual programming, Database Design, Database Migration, Domain-Driven Design (DDD), Mentorship, Design Patterns, Distributed Systems, Project Ownership, Team Lead, Work Independently, Operational Excellence, Communication Skills, Performance Optimization Techniques

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## WORK EXPERIENCE

**Universal Music Group**

**Senior Software Engineer & Tech Lead**

New York City, NY

April 2024 - Present

- Architected and led full-stack development of an internal BI platform for 8,000+ global eCommerce stores, managing 10M+ sales, inventory, and warehouse records using React, TypeScript, Tailwind CSS, Looker SDK, Supabase, and BigQuery.
- Designed and deployed highly interactive, real-time dashboards using Looker + custom React components, enabling dynamic filtering on 50+ KPIs with near-instant responsiveness and customizable data ranges.
- Developed a Flask-based AI chatbot leveraging Gemini Flash and Gemini Pro LLMs, integrated with BigQuery to allow natural language input for automated dataset creation and SQL generation, reducing ad hoc analytics time by over 50%.
- Engineered frontend performance optimizations using React memoization, react-window, and virtualized rendering, improving data rendering speed by ~70% for datasets with millions of rows.
- Implemented advanced data-fetching and caching strategies using React Query and custom hooks, decreasing network load and redundant API calls by 60%.
- Created over 30 configurable charts and modules using AMCharts, D3.js, and Looker visualizations, significantly improving data storytelling and executive reporting workflows.
- Managed user authentication and real-time data syncing through Supabase SDK integrated with Google OAuth 2.0, supporting secure, scalable access for 100+ internal stakeholders.
- Built Looker-powered dashboards and data layers with LookML, optimizing query performance and creating reusable semantic models for finance, sales, inventory, and marketing teams.
- Led agile development across 20+ sprints, managing Monday (Jira Alternative) workflows, sprint planning, retrospectives, and cross-functional collaboration with PMs, analysts, and data scientists.
- Reduced dashboard and reporting turnaround times by 40% through embedded AI tools and pre-configured data modules, enabling faster decision-making for global teams.
- Delivered robust filtering systems using dynamic query parameters and persistent state models, giving users the ability to slice and compare large datasets in real time.
- Managed CI/CD pipelines for frontend and backend deployment using Docker, Git, and GCP environments, improving deployment reliability and reducing downtime by 30%.
- Built cloud-native data infrastructure using BigQuery, Dataflow, and BI Engine, supporting concurrent querying and scaling across multiple business units.
- Mentored and led a team of 5+ developers, conducting code reviews, setting architectural standards, and promoting best practices across frontend and data pipelines.

- Maintained clean, testable codebases with strong TypeScript typings, functional component patterns, and unit testing for React components and serverless endpoints.
- Integrated AI-generated summaries and GPT-powered insight suggestions into dashboards, boosting non-technical user adoption and engagement by 35%.
- Collaborated with data governance and privacy teams to implement secure data handling policies, OAuth scopes, and access permissions across Supabase and Looker environments.
- Achieved a >95% sprint velocity consistency while balancing stakeholder requirements, technical debt management, and innovation in tooling and AI automation.
- Partnered with design and UX teams to create consistent component libraries using Tailwind CSS, improving design velocity and reducing UI bugs by 40%.

## Gameplay Galaxy

San Francisco , California

### Senior Full Stack Engineer

February 2022 - May 2024

- Led full-stack development of Web3-integrated backend services and dashboard interfaces using NestJS, Next.js, TypeScript, and MongoDB, supporting real-time multiplayer mobile gaming.
- Architected and deployed scalable, high-concurrency backend infrastructure using Node.js, NestJS, Redis, WebSockets, and Pub/Sub messaging, enabling smooth gameplay for thousands of concurrent users.
- Built secure, high-throughput RESTful and GraphQL APIs for player profiles, NFT assets, and gameplay state, integrated with Ethereum smart contracts and blockchain event listeners.
- Developed serverless pipelines using Google Cloud Functions (GCF), Cloud Pub/Sub, and Cloud Storage to manage gameplay events, telemetry ingestion, and media asset delivery at scale.
- Designed and implemented a hybrid data architecture using MongoDB for real-time game state and ClickHouse + PostgreSQL (Greenplum) for analytics and performance dashboards.
- Engineered wallet-based login flows and secure authentication mechanisms with RBAC, token validation, and encrypted wallet key handling to ensure safe NFT and token utility experiences.
- Built event-driven microservices and queuing systems to manage matchmaking, leaderboard logic, and asynchronous game state updates using Pub/Sub and Redis Streams.
- Led development of admin and in-game dashboards with React and Next.js, enabling secure and intuitive control over players, in-game assets, and digital economies.
- Collaborated with blockchain engineers to align smart contract logic with backend services, facilitating seamless interaction with wallet providers and on-chain transactions.
- Implemented DevOps workflows and CI/CD pipelines using GitHub Actions, improving deployment frequency and reducing QA cycles by over 40%.
- Spearheaded architecture decisions and roadmap planning as the senior-most engineer on the core platform team, actively influencing product and technical direction.
- Mentored 4+ junior developers, conducted peer reviews, and upheld documentation standards across a distributed engineering team in Asia, Europe, and North America.
- Operated in an Agile environment with Jira and Confluence, ensuring sprint goals, backlog grooming, and cross-functional collaboration with game design and product teams.
- Optimized smart contract interaction layers and gas efficiency for on-chain asset minting and transfer logic, reducing blockchain operation costs by ~30%.
- Implemented comprehensive unit and integration tests for backend services using Jest and Supertest, ensuring reliable API behavior across all core gameplay and NFT asset endpoints.
- Achieved 90%+ code coverage on critical backend modules by building automated test suites covering authentication, matchmaking, state syncing, and blockchain interactions.

- Streamlined backend QA workflows by integrating Jest-based testing pipelines into CI/CD, reducing production bugs and deployment rollbacks by over 50%.

## **Nurocor**

Austin, Texas

### **Full Stack Engineer**

April 2018 - January 2022

- Led development of end-to-end features across microservice-based architecture using Java (Spring Boot) and Node.js, delivering modular backend services integrated via GraphQL and RESTful APIs.
- Built performant, reusable Vue.js components using NuxtJS, enhancing UI/UX across multiple clinical data modules, and reducing rendering latency by over 40%.
- Developed and maintained critical backend services with PostgreSQL, Elasticsearch, and ArangoDB, handling real-time data ingestion, complex queries, and graph-based metadata relationships.
- Authored scalable APIs (GraphQL + REST) that supported inter-service communication for clinical trial scheduling, metadata management, and specimen tracking features.
- Integrated Jenkins, Docker, and Git into team CI/CD workflows, improving deployment velocity and reducing manual configuration errors by 70%.
- Championed automated testing practices using Jest (unit tests) and Cypress (end-to-end testing), achieving 90%+ code coverage for new features and reducing post-release defects.
- Resolved hundreds of cross-functional issues reported by QA, Support, and internal users, reducing turnaround time by instituting a peer review and hotfix escalation process.
- Collaborated with distributed DevOps, QA, and Product teams across time zones using Microsoft Teams, Jira, and Confluence, contributing to bi-weekly agile sprint cycles.
- Conducted in-depth code reviews and refactoring sessions, enforcing best practices in object-oriented design, asynchronous programming, and secure coding standards.
- Built and optimized backend services with advanced concurrency and multi-threaded processing in Java, ensuring robust performance under data-heavy workloads.
- Participated in the early-stage design of multiple microservices, advising on API contract design, service orchestration, and error handling patterns across Node.js and Java services.
- Adapted quickly to evolving requirements by independently analyzing technical specs, scoping tasks, and delivering high-quality, production-ready code with minimal oversight.

## **Netsol**

Lahore, Pakistan

### **Associate Software Engineer**

March 2017 - March 2018

- Collaborated with senior developers on the Loan Origination System module of NFS Ascent, a core Java-based enterprise platform for global finance and leasing clients
- Contributed to the development and debugging of Java EE components, including servlets, JSPs, and EJBs, to enhance client onboarding workflows
- Implemented RESTful APIs using the Spring framework to integrate internal business services with third-party systems
- Wrote and optimized SQL queries for backend operations using Oracle Database
- Participated in Agile Scrum activities such as daily stand-ups and sprint planning, and collaborated using JIRA and Confluence
- Assisted QA teams with unit and integration testing using JUnit, and maintained comprehensive test case documentation
- Gained practical experience in enterprise software architecture, multi-tier application design, and version control with Git
- Contributed to improving automated testing with Selenium, increasing software reliability and reducing test cycle times across projects

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## PROJECTS

### Java Codebase Migration from Monolithic to Microservices Architecture

February 2025 - Present

#### Freelance Work

- Leading end-to-end migration of a legacy monolithic Java codebase (dating back to 1998) to a modern, scalable Spring Boot microservices architecture hosted on AWS.
  - Refactoring and optimizing legacy Core Java code for modularization, reusability, and performance while preserving critical business logic and historical workflows.
  - Architecting and deploying microservices on AWS using Lambda Functions, EC2, Elastic Container Service (ECS), and API Gateway, ensuring high availability and fault tolerance.
  - Containerizing services using Docker and orchestrating deployments with AWS ECS and Fargate, with an eye toward scalability, observability, and CI/CD readiness.
  - Integrating SQL (PostgreSQL, MySQL) and NoSQL (DynamoDB) databases based on service-specific requirements, improving data consistency and reducing latency.
  - Implementing CloudWatch for centralized logging, monitoring, and alerting across services, enabling faster incident response and system health tracking.
  - Collaborating with cross-functional teams to analyze decades-old code and business rules, ensuring smooth migration of complex domain logic with full traceability.
  - Driving transition from legacy Java servlets and EJBs to modern Spring Boot applications with layered architecture, RESTful APIs, and service decoupling.
  - Leading the frontend modernization effort using Nuxt.js and Vuetify, bringing the UI layer in line with modern accessibility, responsiveness, and performance standards.
  - Participating in ongoing architecture discussions, technical planning, and sprint-based execution, with strong focus on domain-driven design (DDD) and bounded context identification.
  - Conducting stakeholder workshops and technical deep-dives to understand implicit dependencies and undocumented legacy behaviors critical to migration
  - Establishing CI/CD pipelines and deployment automation to improve iteration speed and reduce operational overhead during the phased migration process.
  - Delivering detailed documentation of system behavior, service boundaries, data flow, and integration touchpoints to ensure long-term maintainability and onboarding.
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