

# HAMZA MUHAMMAD IQBAL

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## PROFESSIONAL SUMMARY

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Second year Computer Science student at NUST building real systems - not just coursework projects. Designed and shipped backend APIs for a live e-commerce platform using Spring Boot and MySQL with JWT-based authentication and role-based access control. Contributed to a Rust-integrated blockchain supply chain system and a graph algorithm-driven city navigation platform. Comfortable across the full backend stack with growing full-stack exposure through React and Node.js. Driven by depth over speed, with a focus on system design, clean architecture, and solving problems that have actual moving parts.

## EDUCATION

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**National University of Sciences & Technology (NUST), Islamabad**

2024 – 2028

Bachelor of Science in Computer Science (BSCS)

Currently in 4<sup>th</sup> Semester

Relevant Coursework: Object-Oriented Programming, Data Structures & Algorithms, Advanced Database Systems, Information Security, Computer Network

## TECHNICAL SKILLS, ACTIVITIES & INTERESTS

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<b>Languages</b>	C/C++, Java, JavaScript, TypeScript, SQL, Oracle PL/SQL, HTML5, CSS3
<b>Frameworks &amp; Libraries</b>	React, Node.js, Express.js, Spring Boot, Hibernate/JPA, Redis
<b>Databases</b>	MySQL, MongoDB, Oracle, FireBase, Neo4j
<b>Developer Tools</b>	Git/GitHub, Postman, Vercel, Cloudinary, Upstash, Figma, Canva
<b>Interests</b>	Full-Stack Web Development, Application Development, AI Automation Projects

## PROJECTS

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### AgriBlock : Blockchain Supply Chain System

[Demo Video](#) | [GitHub](#)

AgriBlock is a traceability platform for agricultural supply chains, using an immutable blockchain layer to verify and record every event from farm to distribution. Built the Node.js and Express backend with MySQL for structured data storage and integrated a custom Rust-based blockchain module to handle tamper-proof event logging. Implemented role-based access logic to differentiate between farmer, distributor, and admin actors, and designed the system to provide end-to-end traceability for any product batch in the chain.

### Naz Rice : E-Commerce Platform (Commercial Project)

[Demo Video](#) | [GitHub](#)

Naz Rice is a backend-driven e-commerce system built for a rice retail business, handling product listings, customer orders, and admin operations through a structured server-side architecture. Developed the complete backend using Spring Boot and MySQL, designing a normalized relational schema across multiple entities to support efficient product and order management. Implemented JWT-based authentication and role-based access control to separate admin and customer permissions, and exposed all core functionality through structured REST APIs connected to an admin dashboard for centralized business operations.

### Islamabad Smart Navigation System

[Demo Video](#) | [GitHub](#)

A city-scale navigation system modelling Islamabad's road network as a weighted graph to compute shortest and fastest routes between locations. Designed and integrated the backend database schema to store road nodes, edges, and traffic weights, and implemented both Dijkstra's algorithm for shortest path and A\* for heuristic-driven fastest path computation. The system simulates real routing logic and was built with extensibility in mind to support live traffic model updates. Optimized route evaluation through cost-based graph traversal strategies, enabling efficient path recomputation, modular traffic-weight recalibration, and scalable support for future geospatial analytics and real-time navigation services.

Eduvora LMS is a scalable full-stack learning management platform inspired by Udemy, designed to support course publishing, student enrollment, secure video-based learning, and real-time platform interactions. Built the back-end using Node.js, Express, and TypeScript with MongoDB and Redis for persistent storage and high-speed session caching, while integrating JWT-based authentication, role-based access control, and rate-limited REST APIs for secure multi-user operations. Developed modular service architecture for courses, orders, analytics, notifications, and authentication workflows, with support for Stripe and Polar payment gateways, Cloudinary media management, Socket.IO powered real-time notifications, and optional Neo4j graph integrations for relationship-driven learning features. The frontend was developed using Next.js with scalable component-based architecture, optimized routing, responsive UI rendering, and production-oriented deployment workflows designed for extensibility and high concurrency learning environments.

## EXPERIENCE

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### Hatch 8 Pre-Incubation Programme-National Science and Technology Park (NSTP), NUST Apr 2026

- Pitched RelyBill - a marketplace aggregation platform targeting service-based SMEs in Pakistan, at National Science and Technology Park (NSTP) Hatch 8; led primary market research, competitive landscape analysis, and go-to-market strategy development, demonstrating cross-functional ownership across product design, business modeling, and stakeholder communication.

## HACKATHONS & COMPETITIONS

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### AI Product Development Sprint - APIMatic (NSTP, NUST)

May 2026

- Selected for an exclusive AI product engineering sprint focused on rapid prototyping using Claude AI and APIMatic API tooling.
- Developed an autonomous **AI Logistics Operating System** with real-time shipment tracking, dynamic rerouting, SLA monitoring, automated refund workflows, and operational alerting.
- Utilized Node.js, TypeScript, React, PostgreSQL, Prisma ORM, Socket.IO, Google Maps API, Twilio, Slack API, and PayPal Sandbox in a high-speed collaborative environment.

### Vibe Coding Hackathon - Remote (NYU Abu Dhabi)

Nov 2025

- Participated in an international remote hackathon hosted by NYU Abu Dhabi, building a complete Bubble Shooter web game using AI-assisted development workflows on Cursor IDE.