

MUHAMMAD ARSLAN

Data Engineer | Backend Developer | Computer Engineer

arslanzero234@gmail.com • +92 334-2881493 • Karachi, Pakistan • linkedin.com/in/muhammadarслан • github.com/muhammadarслан

PROFESSIONAL SUMMARY

Computer Engineering student at Bahria University Karachi with hands-on experience in **data engineering, backend development, AI/NLP systems**, and relational database design. Delivered **4 end-to-end software projects**, including an NLP-powered academic evaluation tool, a **10-module enterprise pharmacy system**, and a secure Linux networking environment. Proficient in **Python, Java, SQL, and C++** with expertise in **ETL pipelines, stored procedures, Scikit-learn, NLTK, and Microsoft SQL Server**. Eager to contribute analytical and engineering skills to a data-focused organization.

WORK EXPERIENCE

Freelance Software Developer | Self-Employed

Jan 2023 – Present

- Developed and delivered **4 full-stack software applications** independently, covering NLP/AI systems, enterprise desktop applications, and Linux network security environments.
- Automated manual workflows across billing, inventory, and academic grading modules, reducing processing time by an estimated **60%** per project.
- Applied **Agile iterative development** — plan, build, test, refine — achieving stable, bug-free releases while managing a concurrent full-time university schedule.
- Utilized **Git and GitHub** for version control across all projects, maintaining clean commit histories and branch-based development workflows.

Data Engineering Intern (Academic) | Bahria University Karachi

Jan 2024 – Dec 2024

- Designed and implemented **ETL pipelines** using Pandas and NumPy on academic datasets, improving data quality and analysis readiness by **60%**.
- Built **normalized relational database schemas** in Microsoft SQL Server with stored procedures, triggers, and views across multiple software projects.
- Trained and evaluated **NLP and machine learning models** using Scikit-learn and NLTK, achieving **over 90% keyword detection accuracy** on labeled academic data.

PROJECTS

AI-Based Assignment Quality Checker

Python • NLP • Scikit-learn • Streamlit • NLTK • TextBlob • Pandas • TF-IDF

- Built an NLP evaluation system automating assignment assessment across **5 quality dimensions** — grammar, keyword relevance, readability, structure, and plagiarism — reducing manual grading time by **70%**.
- Implemented **TF-IDF vectorization and Cosine Similarity** via Scikit-learn for plagiarism detection, achieving **over 90% accuracy** on manually labeled academic assignments.
- Deployed a real-time **Streamlit dashboard** displaying quality scores, keyword frequency graphs, and similarity charts, with downloadable feedback reports for teachers and students.

Advanced Pharmacy Management System

Java • Microsoft SQL Server • JDBC • Java Swing • Stored Procedures • Triggers

- Architected a **10-module enterprise desktop application** covering medicine inventory, supplier and customer management, purchase and sales billing, returns, expenses, and audit logging.
- Designed a normalized SQL Server schema with **15 stored procedures, triggers, and views**, cutting redundant queries by **40%** and enforcing data integrity at the database layer.
- Implemented **Role-Based Access Control (RBAC)** supporting Admin, Pharmacist, Cashier, and Manager roles via `sp_LoginUser` stored procedure, with dynamic dashboards per role.

- Built automated inventory triggers to increment stock on purchase and block sales when stock reached zero, achieving **100% real-time inventory accuracy** without manual oversight.

Airline Management System

Java • Object-Oriented Programming • File I/O

- Developed a fully functional airline reservation system in Java using **OOP principles** — inheritance, encapsulation, and polymorphism — with **4 core modules**: flight scheduling, passenger booking, seat allocation, and ticket generation.
- Implemented **structured file-based persistence** to store and retrieve flight and passenger records across sessions with zero data loss.

Secure VPN Browser Environment

Ubuntu Linux • OpenVPN • Shell Scripting • iptables • DNS • Network Security

- Configured a **production-grade VPN environment** on Ubuntu using OpenVPN, iptables firewall rules, and DNS settings, routing all browser traffic through encrypted tunnels with **zero DNS leaks**.
- Produced a **reproducible deployment guide** documenting the complete secure Linux network configuration for team reuse.

EDUCATION

Bachelor of Science — Computer Engineering | Bahria University Karachi

2023 – Present

Campus

Karachi, Pakistan

- Relevant Coursework: Data Structures and Algorithms, Database Systems, Operating Systems, Computer Networks, Software Engineering, Object-Oriented Programming, Embedded Systems, Artificial Intelligence
- Completed **4 independent full-stack software projects** alongside full-time academic coursework.

Higher Secondary Certificate — Pre-Engineering | P.S.S.S Government

2021 – 2023

Degree College

Karachi, Pakistan

SKILLS

Programming Languages: Python, Java, C++, SQL, Embedded C, PHP

Data Engineering and Databases: Microsoft SQL Server, SQLite, ETL Pipelines, Data Pipelines, Stored Procedures, Triggers, Views, SSMS, Pandas, NumPy

Artificial Intelligence, Machine Learning, and NLP: Scikit-learn, NLTK, TextBlob, Cosine Similarity, TF-IDF, Rule-Based AI, Text Mining, Embedded Machine Learning

Backend and Web Development: Laravel, Streamlit, JDBC, Java Swing, REST APIs, HTML, CSS, JavaScript, WordPress

Tools and Platforms: Git, GitHub, VS Code, NetBeans, Android Studio, HubSpot CRM, Visual Studio, SSMS

Operating Systems: Ubuntu Linux, Windows

CERTIFICATIONS

- The Complete SQL Bootcamp — Udemy (2024)
- SQL Basics for Beginners — Udemy (2024)
- GitHub Foundations — Udemy (2024)
- Introduction to Embedded Machine Learning — Udemy (2024)
- Pre-Security Learning Path — TryHackMe (2024)