Zubair Ahmed

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SUMMARY

CS undergrad proficient in database management, with experience in system-level applications, game engines, automation tools, & simulators. Skilled in high & low-level programming. Aspiring systems software engineer focused on building efficient, scalable low-level solutions.

SKILLS

Languages: C/C++, C#, R, Python, Java, Bash/Shell, Assembly(x86), JavaScript/TypeScript, Go

Frameworks/Libraries: (Database) SQL, MongoDB, NoSQL, PostgreSQL, MySQL; (Data Analytics) R, dplyr, tidyr, ggplot2; (Frontend) HTML, jQuery, CSS, TailwindCSS; (Backend) PHP; (ML) Python, Pandas, Numpy, Scikit-Learn; (Low-Level) Irvine32; (Infrastructure) Ubuntu-Linux

Technical Skills: Object-Oriented Programming, Functional Programming, Data Structures & Algorithms, System Design, LLMs, AI/ML

Other Skills: Teaching/Mentoring, LaTeX, Cybersecurity Awareness, Digital Marketing & Business Theory

EDUCATION

Bachelor of Science in Computer Science Sep 2023 – Jun 2027
National University of Computer and Emerging Sciences (FAST-NUCES), Karachi

Secondary Education IGCSE A Levels, Mathematics & CS Oct 2022 – Jun 2023
Cedar College, Karachi

Primary Education IGCSE O Levels, General Studies May 2019 – Jun 2020
Montessori Complex Cambridge School (MCCS), Karachi *Score: 2A*, 5A*

EXPERIENCE

Web Development Intern – HUM Network Ltd June 2025 – July 2025
Database Design, Front/Back-End Technologies, APIs

- Built responsive full-stack websites with interactive UIs, CRUD functionality, & relational database schemas.
- Implemented authorized user access via session-based authentication, ensuring controlled application entry.
- Designed RESTful APIs to enable data exchange across various systems.

Undergraduate Teaching Assistant – FAST-NUCES Feb 2025 – May 2025
Teaching, Mentoring & Grading

- Assisted in teaching *MT-1008 Multivariate Calculus* and *SS-1013 Ideology & Constitution of Pakistan.*

Assessment Management & Technical Operations – PROCOM & Developer's Day
Event Operations & Organizing *Feb 2025 – Apr 2025*

- Designed and prepared competitive programming problems and multiple-choice assessments.
- Evaluated participants' submissions to ensure fairness and accuracy.
- Managed technical logistics, including server setup, performance checks, and live troubleshooting.

PROJECTS

CL1002 Inventory Processing System (Link) Dec 2023
C, File Handling, Console UI, Windows API

- Console-based system with user authentication, product/transaction management, and file persistence for data storage (threshold alerts for stock levels)
- Interactive Windows API menus with color-coding/system sounds, multi-criteria search (ID/category), bulk operations, and automated reports

CL1004 Tetris Game Engine (Link) Apr 2024
C++, Raylib, Object Oriented Programming, Polymorphism, File I/O Manipulation, Game Development

- OOP-designed engine with 7 block types via inheritance, polymorphic difficulty scaling, and dynamic grid management
- Raylib-powered UI with real-time scoring/next-block previews + persistent high-score storage via binary file I/O

EL2003 Library Management System (Link) Oct 2024

Assembly (x86), Irvine32, Low-Level Programming, System Design, Data Management

- Role-based access (librarian/customer) with real-time inventory via arrays/bitwise flags + student ID validation
- Optimized memory management for O(n) searches + text-based UI with animated menus using Irvine32 libraries

CS2001 Automated Ticket Management System(Link) Nov 2024

C++, Data Structures, Sorting Algorithms, Multithreading, Configuration Management

- Data management system using AVL trees for range queries ($O(\log n)$) & hash tables for $O(1)$ ID/name lookups
- Implemented adaptive sorting (5 algorithms) with dynamic threshold-based selection (configurable via file)
- Thread-safe priority queues (Mutex-Protected Heaps) for pending tickets and resolution stacks with automated time tracking

CS3005 Sudoku Turing Machine Simulator (Link) Apr 2025

JavaScript, Turing Machines, Algorithm Design, Backtracking, UI/UX

- Multi-tape Turing machine simulator with backtracking to solve Sudoku puzzles
- Interactive UI with real-time tape/grid visualization + adjustable speed/step controls for algorithmic demonstration

CS2006 Multi-User Document Editor (Link) May 2025

C, POSIX Semaphores, Shared Memory, Signal Handling, ncurses, Reader-Writer Locks

- Priority-based reader-writer locks using semaphores/shared memory + admin preemption via SIGUSR1 signaling
- ncurses UI for collaborative editing with formatted text + atomic version snapshots and rollback capabilities

OTHERS

EL1005 Arduino Integrated Calculator (Link) Mar 2024

Arduino Uno, Embedded Systems, Digital Logic, Hardware Based

- Hardware-based calculator using Arduino Uno with 4x4 keypad input and 16x2 LCD output, built on breadboard with jumper wiring and a 10k potentiometer for contrast control
- Demonstrated embedded system design through signal processing, button-state management, and arithmetic logic implementation