

Abel Johnson

9567040510 | abeljohnson207@gmail.com | abe0770.github.io | [LeetCode](#)

EDUCATION

National Institute of Technology Calicut
Bachelor of Engineering in Electrical and Electronics

Calicut, Kerala
Dec. 2020 – Sept 2024

EXPERIENCE

Advanced Application Engineering Analyst (Software Development Engineer - 2) June 2024 - Present
Accenture *Bangalore, Karnataka*

- Designed and implemented microservices architecture using Spring Boot and MySQL to support scalable backend infrastructure.
- Reduced security vulnerabilities by 30% through code analysis and patching in a production system.
- Integrated REST APIs with AWS-hosted services for enhanced system scalability and monitoring.
- Collaborated with QA and DevOps teams for CI/CD using Jenkins and Docker.

Undergraduate Research Assistant Aug 2023 - May 2024
NIT Calicut *Calicut, Kerala*

- Developed Python-based optimization algorithms to enhance micro-grid energy efficiency using NumPy, SciPy, and Pandas.
- Built real-time data visualization tools (Matplotlib) to monitor system behavior and validate results.
- Simulated power distribution with OpenDSS, leading to measurable improvements in power loss reduction.

PROJECTS

Virtual Machine | *C Programming, Makefile* | [Link](#)

- Built and optimized a custom 16-bit virtual machine (VM) in C, emulating the architecture of a CPU with memory segments, general-purpose registers, stack pointer (SP), and instruction pointer (IP).
- Designed and implemented a simple instruction set, including mov, nop, and hlt, to simulate the execution of assembly-like operations on a virtual machine.
- Enhanced the VM's efficiency by developing a memory management system that allocates and frees memory dynamically, ensuring stability and preventing issues like memory leaks or segmentation faults.
- Built an instruction mapping system using an opcode table that dynamically determines instruction size and execution, making it easier to add additional opcodes in the future without modifying the core logic.

Inventory Management System (B2B and B2C) | *Java Spring Boot, MVC, JDBC, Rest APIs*

- Built a full-stack application enabling vendors to list products and customers to purchase items online.
- Developed microservices using Spring-boot for vendor and material and integrated with IMS using Rest template.
- Managed database interactions with Spring ORM and performed validations to ensure data quality in database.

Real-Time Gesture Recognition for Mouse Control | *C++, OpenCV, Windows API* | [Link](#)

- Developed a gesture-controlled mouse system using hand gestures for movement, clicking, and scrolling.
- Achieved smooth real-time tracking under varied lighting using OpenCV optimizations.
- Integrated with Windows APIs for hands-free mouse actions via gestures.

Cryptographic Hashing Utility | *C++* | [Link](#)

- Built a Modular Hashing Framework: Designed a scalable C++ command-line utility to compute cryptographic hashes from both strings and files, starting with a custom SHA-256, sha-1 implementation.
- File and String Hashing Support: Enabled efficient hashing of large files and raw input strings, handling message padding, chunk division, and hash computation per FIPS 180-4.
- Interactive Command-Line Tool: Created a command-line tool for users to input strings and receive the corresponding hash value, demonstrating practical use of cryptographic principles.

TECHNICAL SKILLS

Programming Languages: C Programming, C++, BASH, Python, Java

Frameworks and Libraries: JDBC, Hibernate, ReactJS, Spring Boot, REST, Pandas, NumPy, Matplotlib

Developer Tools: Maven, Linux, Docker, Azure, Git

Databases: MySQL