

## Kagiso Makgaba

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## Summary

Motivated software engineering trainee with extensive, hands-on experience in C, Python, and JavaScript. Recently completed the ALX Software Engineering Program, gaining expertise in data structures, algorithms, DevOps, web development, and back-end systems. Skilled in problem-solving and collaboration, with a commitment to continuous learning and career growth in software engineering.

## Skills

- ▣ **Programming Languages:** C, Python, JavaScript, SQL
- ▣ **Web Development:** HTML, CSS, Flask, React, Nginx, APIs
- ▣ **DevOps & System Engineering:** Linux, Bash scripting, Git, SSH, SSL/TLS, Configuration Management (Puppet)
- ▣ **Data Management:** SQL, MySQL, Advanced MySQL, NoSQL (Redis)
- ▣ **Software Development:** OOP, Data Structures, Unit and Integration Testing, Error Handling, Memory Management, File I/O
- ▣ **Soft Skills:** Technical writing, time management, public speaking, collaboration, problem-solving

## Education

### ALX Software Engineering Program

[11][SEP]*Completion Date: [November, 2024]*

- ▣ Completed a comprehensive three-trimester program covering programming, systems engineering, web development, and back-end specialization.
- ▣ Developed in-demand technical and professional skills, including collaboration, public speaking, time management, and technical writing.

## Projects

### Airbnb Clone

[11][SEP]*Tech Stack:* HTML, CSS, JavaScript, Python, SQLAlchemy, Flask

- ▣ Built a web application from scratch, including both front-end and back-end components, implementing user authentication, data storage, and user interaction

functionalities.

## Custom Printf Function

 *Tech Stack:* C

- ▣ Designed and implemented a custom version of the `printf` function in C, handling various data types and demonstrating memory management skills.

## Shell Program

 *Tech Stack:* C, Linux

- ▣ Created a Unix-based shell as part of the curriculum, implementing command parsing, process control, and custom-built memory allocation techniques.

## Web Scraper

 *Tech Stack:* Python


- ▣ Developed a web scraper using Python to extract data from websites, handling error responses and implementing regular expressions for pattern matching.

## Queuing System

 *Tech Stack:* JavaScript, Redis

- ▣ Built a queuing system using JavaScript and Redis for efficient job handling, applying caching techniques for performance optimization.

## Real Estate website

 *Tech Stack:* MongoDB, Express.js, React.js, Node.js

- ▣ Developed a full-stack real-estate website, incorporating CRUD functionalities, database persistence, and user-friendly front-end interaction.

## Technical Coursework and Projects by Area

### Programming and Data Structures

- ▣ **Languages:** Proficient in C, Python, JavaScript, including ES6 and TypeScript.
- ▣ **Data Structures:** Mastered linked lists, hash tables, binary trees, stacks, queues, and more, applying them to solve complex problems.

### Web Development and APIs

- ▣ **HTML, CSS, Flask, APIs:** Built RESTful APIs and web applications with dynamic content, server interactions, and templating using Jinja2.
- ▣ **Deployment and Configuration:** Deployed applications on Nginx and used Gunicorn as an application server.

## **Systems Engineering and DevOps**

- ▣ **Linux & Shell:** Proficient in Linux commands, shell scripting, and understanding file permissions, system calls, and processes.
- ▣ **Web Servers and Networking:** Worked with HTTP/S protocols, SSL/TLS security, load balancers, and system monitoring tools.

## **Databases**

- ▣ **SQL and MySQL:** Experienced in SQL querying, database design, advanced SQL techniques, and basic database administration.
- ▣ **NoSQL and Redis:** Built applications with NoSQL and implemented caching solutions using Redis.

## **Specialized Skills**

- ▣ **Algorithms:** Knowledgeable in sorting, searching, Big O notation, and recursion.
- ▣ **Advanced Python:** Experienced in async functions, variable annotations, unit testing, and integration testing.

## **Soft Skills and Professional Development**

- ▣ **Technical Writing and Documentation:** Created detailed documentation for projects, explaining code functionality and logic to enhance maintainability.
- ▣ **Public Speaking and Stand-ups:** Regularly participated in group discussions, presentations, and stand-up meetings to improve public speaking skills.
- ▣ **Collaboration and Time Management:** Developed strong teamwork skills through collaborative projects and adherence to project deadlines.

## **References**

Available upon request.