Mohamed Fathy Mohamed

Software Engineer

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EDUCATION

B.S.c in Computer Science, Suez Canal University　　**Oct 2021 – Jul 2025**

- Graduation Project Grade: Excellent
- Relevant Coursework: Data Structures, Algorithms, OOP, Database, Operating Systems, Networks.

PROJECTS

Orbix (Graduation Project) | GO, PostgreSQL　　⏺ **GitHub**

- Launch PostgreSQL databases in under a minute with Orbix's seamless BAAS platform.
- Simplify development with built-in tools like a SQL editor, schema visualizer, and AI-powered assistant.
- Access your data securely through auto-generated APIs for every database.
- Control permissions with a flexible role system for safe and customizable data access.

B-Oak DB | Java　　⏺ **GitHub**

- Build a high-performance NoSQL document store powered by B+Trees for efficient lookups.
- Handle up to 100,000 reads and writes per second with optimized data structures.
- Support flexible access via REST APIs and raw TCP connections for user control.
- Manage memory independently using buffer pooling with LRU-K eviction, avoiding OS-level MMAP reliance.

DuckDB TCP Server | GO, DuckDB, SQLite　　⏺ **GitHub**

- Developed a custom TCP server in Go to manage DuckDB with OLAP workload support.
- Engineered a 7-command protocol for reliable and structured query communication.
- Integrated PostgreSQL to enable per-database connections and seamless data migration.
- Implemented authentication with a superuser model and support for regular user access.
- Enforced table-level access control with role-based authorization across databases and tables.

SKILLS

- **Programming:** GO, Java, Python, C, C++, JavaScript, HTML, CSS, SQL, Django, PostgreSQL, SQLite, DuckDB
- **Miscellaneous:** Algorithms, Data Structures, OOP, SOLID, Design Patterns, Linux, Git, Networks, DBMS, OS

VOLUNTEERING EXPERIENCE

ICPC Suez Canal University　　**Aug 2022 – Present**

IT Specialist, Mentor, Instructor

- Mentored 500+ trainees, conducted informative sessions, and prepared a collection of 20 problems.
- Problem Setter at the problem-solving competition ECPC and the ICPC SCU community.

ACHIEVEMENTS

- Qualified to The Africa and Arab Collegiate Programming Championship 2024 Finals.
- Solved 3000+ problems on DSA in online judges like Codeforces, Atcoder, Leetcode.
- Participated in 100+ online and onsite Problem-solving Contests on DSA.
- Reached the rating of 1600+ (Expert) on Codeforces.