Abdallah Aloush

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Education

Alexandria University, BS in Computer and Communications Engineering 2018 – 2023
- GPA: 3.2/4.0

Experience

Back End SWE Intern, TrianglZ LLC Feb 2023 – Apr 2023
- Built multiple verification endpoints using Ruby on Rails, resulting in a more efficient verification process.
- Implemented authorization policies using Pundit, enforcing compliance with data access rules.
- Wrote and maintained API documentation using Swagger, resulting in fewer integration errors.

Projects

Relational Database Management System (Graduation Project)
Rust
- Designed an SQL parser and developed logical and physical query planning systems capable of handling multiple inner joins, sorting, filtering, and grouping operations.
- Architected a storage engine featuring optimized buffer utilization, incorporating Hash and B+ Tree indexes, and supporting variable-length relation attributes.
- Implemented support for dynamic schemas encompassing various data types and relational constraints.

Gym Management System
Java
- Implemented a user-friendly GUI using JavaFX for adding, modifying, and managing users' data.
- Adhered to Test-Driven Development (TDD) methodologies within our team to ensure the system's integrity and conduct ongoing regression testing while collectively implementing new features.
- Used several OOP design patterns, including Singleton and Factory patterns, resulting in a readable and extensible code base.

Multithreaded Server-Client
Python
- Designed a multithreaded HTTP server, maintaining a persistent connection for each client.
- Implemented a heuristic timeout algorithm, preventing the server from being overloaded.
- Designed and implemented a simple client, allowing more robust testing of the server.

Mathematical Expression Interpreter
C
- Built a stack-based infix-to-postfix converter, improving expression evaluation efficiency.
- Stored evaluated expressions in a BST, enabling faster variable lookup.

Datastructures and Algorithms Implementations
Implementations of several commonly used Algorithms and Datastructures using **C**
- Designed an in-memory dictionary utlizing BST, enabling quick spelling checks and corrections.
- Designed a sorting algorithms benchmark app, enabling clear comparison of algorithms efficiency.

Operating Systems Projects
Collection of projects, simulating different parts of the OS and exprerimenting with POSIX threads on linux
- Multithreaded matrix multiplication and merge sorting
- Built a simulator for FIFO, LRU, CLOCK, and OPTIMAL page replacement algorithms, tracking and comparing page faults across test cases.
- Designed a producer–consumer system with multiple roles (producers, counters, collectors), using semaphores to coordinate shared resources.
- Created a simplified shell supporting command parsing, execution, background processes, and process termination logging.

Skills

Programming Languages: C | Rust | Python | SQL | Java | JavaScript

Web frameworks: Ruby on Rails

Tools: Git | OOP | Datastructures | Algorithms

Extracurricular Activities

Loyal Victorians

- Best media member of the science and engineering fair committee.
- Head of Media in the Graduation Ceremony Organizing Committee.

Certifications

Fundamentals of Back End Engineering by Hussein Nasser