

## Education

### LEBANESE AMERICAN UNIVERSITY

B.S. Computer Science 3.73

Distinction and Honors.

Relevant Coursework: Data Structures and Algorithms, Operating Systems, and Database Management Systems

Beirut, LB

May 2027

## Projects

### CHEMISTRY TOOL SUITE

October 2024 – November 2024

*Python-based application providing seven computational chemistry tools used for lab-level problem-solving*

- Architected the system and led a 3-member team, defining module boundaries and integration workflows.
- Developed a custom  $O(\log n)$  chemical-balancing algorithm, replacing typical  $O(n^2)$  Gaussian-elimination approaches; built an accompanying  $O(n)$  parser for efficient matrix construction.
- Created a modular OOP computation framework (molar mass, concentration, sig figs, conversions) and validated accuracy across 50+ cases.
- Built core Tkinter UI components with strict input validation and error-handling patterns aligned with analytical tooling standards.
- Improved performance and reliability through code reviews, reduced overhead, and consistent Git workflows.
- Integrated all seven tools into a unified interface with shared back-end logic.

### FITNESS CLUB DBMS

September 2025 – November 2025

*A full relational DBMS project modeling a multi-service fitness center; documented on a 150+ page document.*

- Led a 5-member team through requirements analysis, ER modeling, schema design, and SQL implementation
- Designed a complete ER model with 12+ strong entities, weak entities, and 15+ relationships
- Mapped the ER diagram into 40+ normalized relations, enforcing BCNF and documenting all key functional dependencies
- Built and reviewed all SQL DDL structures, including PK/FK design, composite keys, and integrity constraints
- Developed sample data and advanced SQL queries supporting reports, joins, and transaction logic
- Standardized team documentation, naming conventions, and review workflows to improve consistency and reduce errors

## Leadership and Activities

### LEBANESE RED CROSS

Beirut, LB

#### Emergency Medical Responder

January 2025 – August 2025

- Responded to emergency calls and provided immediate medical support across diverse field conditions.
- Collaborated with multidisciplinary teams to stabilize patients and ensure rapid, coordinated care.
- Completed rigorous training in crisis response, safety protocols, and high-pressure decision-making.

**Programming Languages:** Java, C, C++, Python, SQL, JavaScript, C#, Go, Bash

**Tools & Frameworks:** Git, GitHub, AWS, Firebase, WSL2, Tkinter, MySQL, SQLite

**Core Competencies:** Object-Oriented Programming, Data Structures & Algorithms, Operating Systems, Database Design, API Design, Software Architecture, Version Control

**Additional:** Agile Methodology, Debugging, Code Review, UI/UX Design Principles