

# Muhammad Zain

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## EDUCATION

### University of Calgary

Bachelors of Science in Software Engineering

Sep 2022 – May 2027

**Internship Status:** Available September 1, 2025 — Seeking 12–16 month placement

## TECHNICAL SKILLS

### Programming

Java, C++, Python, JavaScript, SQL, HTML/CSS

### Frameworks & Libraries

React, Next.js, Flask, Qt (C++), Java Swing, Tailwind CSS, Node.js

### Databases & Tools

MySQL, SQLite, query optimization, Git/GitHub, CMake, Vercel

### Engineering Practices

OOP, data structures & algorithms, MVC, REST APIs, reliability (caching/retries/fallbacks), AWS (basic)

## PROJECTS

### CityX Subway Display System

Java, Swing (FlatLaf), MySQL, REST APIs, JLayer, Multithreading

- Built a real-time subway display with animated train tracking, rotating ads, and live weather/news for multiple cities.
- Implemented a modular Swing **CardLayout UI** with multithreaded control for smooth **10-second** ad↔map transitions.
- Designed a MySQL ad scheduler with indexed relevance rules, **accelerating query performance** and removing redundant lookups.
- Integrated wttr.in API and JLayer announcements with caching, retries, and fallbacks, ensuring **consistent updates**.

### Flight Operations Manager

C++17, Qt, MVC, SQLite/CSV, Data Visualization

- Developed a Qt desktop application to manage flights, passengers, seats, and schedules within a scalable MVC structure.
- Built an interactive seat map with class pricing, validation, and conflict detection for **precise passenger assignments**.
- Indexed lookups and optimized storage, cutting query time by **~40%** on datasets of **500+ passenger records**.
- Resolved segmentation faults and stabilized workflows to maintain **99.9% uptime** during extended operations.

### TechVista Inc

React, Flask, SQLite, REST APIs, Responsive UI

- Delivered a full-stack store with authentication, product catalog, cart flows, and a responsive animated interface.
- Built Flask REST endpoints with robust validation, error handling, and **parallel request processing** to enhance performance.
- Developed reusable React components with hooks/context, **shortening load times** and optimizing state handling.
- Added profile dropdown with cart preview and guarded actions, **improving UX** while securing guest sessions.

### Art Museum Data Manager

Python, MySQL, SQL Scripting, Role-Based Access Control

- Designed a fully normalized MySQL schema for artworks, artists, loans, and staff with strict referential integrity.
- Built a Python CLI to provision user accounts and manage secure role-based access for admins and employees.
- Applied trigger-based SQL safeguards to enforce business rules for updates, deletions, and overdue loan returns.
- Automated SQL scripts to seed data, create roles, and generate operational reports for **efficient workflows**.

## WORK EXPERIENCE

### Best Buy Canada

Mobile and Smart Living Advisor

May 2023 – Sep 2024 | Calgary, Canada

- Delivered tailored smart home and mobile solutions, increasing customer retention by **20%** via consultations and demos.
- Achieved **\$70K+ monthly revenue** through solution-based selling and resolving complex device compatibility issues.
- Ranked **#2 in team performance**, closing **55+ telecom activations** per month and reducing returns by **15%**.

### AKHSS Science & Commerce Olympiad

Project Lead

Oct 2019 – Dec 2019 | Karachi, Pakistan

- Directed the Laser Li-Fi project, showcasing high-speed light-based data transfer and securing **3rd place in Physics** among nationwide competitors.