

Aya Abdul Nabi

[Email](#) | [LinkedIn](#) | [Github](#) |

EDUCATION

Specialization in Computer Science, Minor in Game Development

London, ON

University of Western Ontario

Sept 2023 - Apr 2027

- **Relevant Coursework:** Data Structures and Algorithm Analysis, Time Complexity, Software Design, Excel for Data Analysis and Function Creation, Web Design, Operating Systems, Object-Oriented Programming
- **GPA: 3.97/4.0** Dean's List on 2024-2025

TECHNICAL SKILLS

Languages: C, C++, Python, Java, JavaScript, HTML/CSS, ARM Assembly, R

Frameworks: Pandas, NumPy, PyTorch, Matplotlib, SDL (Simple Direct Media Layer), Swing (Java)

Developer Tools: Git, Unix/Linux, Visual Studio, Eclipse, Pycharm, LaTeX, Anaconda, Excel/VBA, QtCreator, SQL

EXPERIENCE

WR - Western Rhythm

London, ON

Director of Internals

Nov. 2024 - April. 2025

- Led club operations, managing events and meetings as primary contact to drive member engagement.
- Organized rhythm game tournaments, increasing participation by 30% through targeted promotions.
- Developed creative marketing strategies to attract 30+ new members, expanding the club's campus presence.

Freelancer

London, ON

Tutor

Sept. 2024 - April. 2025

- Tutored 20+ students in Python, Java, C, and Discrete Math, improving grades by 40% through customized lessons.
- Developed exercises to reinforce OOP, data structures, and debugging techniques.
- Mentored beginners in project-based learning.

Adonis - Metro

London, ON

Pastry Clerk

Aug. 2025 - Present

- Prepared and displayed a wide variety of high-quality pastries and desserts daily, ensuring freshness and visual appeal.
- Provided exceptional customer service, offering knowledgeable recommendations and handling transactions efficiently.
- Maintained impeccable sanitation and food safety standards in all preparation and display areas.

SELECTED PROJECTS

Frog Leap 🐸 | Java

- Developed a Java simulation to find optimal paths in a hex-grid pond using stack-based backtracking and a priority queue.
- Engineered a dynamic Unique Priority Queue (Abstract Data Type (ADT)) with array-backed storage and ordered insertion.
- Optimized movement logic based on environmental constraints and prioritized cell types (e.g., lilypads, mud, reeds, flies).
- Validated pathfinding with multiple test cases and visual debugging, ensuring accurate traversal and fly collection tracking.

Virtual Pet Simulator 🐾 | Java

- Designed a multi-screen GUI with Java Swing, implementing 5+ interactive screens (main menu, gameplay, parental controls) with mouse/keyboard navigation and visual feedback systems.
- Architected a state-based pet care system tracking hunger, happiness, and health metrics, with dynamic sprite changes for emotional states (angry, sleeping) and penalties for neglect.
- Engineered a robust JSON save/load system for persistent game states, supporting multiple pets, inventory management (food/gift items), and seamless state restoration.
- Implemented parental controls with playtime tracking, time restrictions, and password-protected pet revival features.

Puzzle Dungeon | C++

- Designed an extensible object-oriented architecture with modular classes (GameObject, Tile, Enemy, Player).
- Implemented grid-based movement, collision detection, and CSV level loading with interactive entities and moving enemies.
- Integrated animations, dialogue boxes, and sound effects to enhance player immersion across more complex puzzle stages.

Maze Solver 🧩 | Java

- Engineered a graph-based maze solver using modified Depth First Search (DFS) traversal, dynamically allocating coins (0-9) to open doors while ensuring path validity under strict coin budgets.
- Implemented OOP principles with classes and adjacency lists, achieving 100% accurate maze representation and traversal.
- Automated maze parsing with file I/O and error handling for robust input processing.
- Designed modular, exception-safe architecture for scalable maze solving.