Omar Hossain

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EDUCATION

Western University   **London, Ontario**
Bachelor of Sciences, Specialization Computer Science   *Expected Graduation, June 2027*

PROJECTS

Contact Management System
Personal Project | Flask, SQLAlchemy, SQLite, React, JavaScript, Python, CSS
- Developed a full-stack web application using Flask for the backend and React for the front end, managing client-server communication with RESTful APIs.
- Designed and implemented CRUD operations for an SQLAlchemy-backed database, handling data persistence and management of contact entries (create, read, update, delete).
- Employed CORS to ensure secure client-server communication across different domains, maintaining data integrity and security.
- Integrated SQLite as the database layer, ensuring fast data retrieval and storage with efficient querying.

Maze Master Game
Personal Project | React, JavaScript, CSS, EmailJS
- Developed a multi-level maze game using React for component-based architecture, leveraging React hooks (useState, useEffect) for state management of player movement, level progression, and game events.
- Developed advanced collision detection logic using array manipulation and state comparisons to handle interactions between player position, static/moving obstacles, and end goals.
- Implemented a touch event handler using onTouchStart and onTouchEnd to detect swipe gestures, enabling mobile device compatibility alongside desktop keyboard controls (Arrow keys).
- Integrated EmailJS API for client-side email submission, allowing players to submit bug reports and suggestions without server-side dependencies.

3D RPG Game Development
Personal Ongoing Project | Unreal Engine 5, Blueprint
- Developed a modular class hierarchy using Unreal Engine 5's Blueprint Scripting, implementing a parent class for core shared functionalities like animations, health, and stamina, and deriving child classes for specific character abilities and mechanics.
- Implemented complex stealth mechanics for the Assassin class, including custom animations for assassinations, precise dagger hit detection, and sound triggers for immersive gameplay, all managed through Blueprint scripting.
- Engineered combat systems for the Warrior class, integrating a large sword with a combo attack system, utilizing state machines for fluid attack transitions, and ensuring responsive and dynamic combat mechanics.

EXPERIENCE

London Muslim Mosque   **London, Ontario**
Teacher   *September 2021 – Current*
- Developed and maintained a classroom environment conducive to learning and appropriate for student's social and emotional development.
- Adapted curriculum, addressing the needs of students with varying abilities and cultural backgrounds.
- Facilitated small group instruction sessions tailored towards specific learner needs while focusing on overall class objectives.

Western Careers and Experience   **London, Ontario**
Summer Work Study   *May 2024 – July 2024*
- Managed incoming phone calls, providing detailed responses to inquiries and guiding students through available resources.
- Coordinated and scheduled appointments between students and counselors, ensuring smooth and timely communication.
- Maintained and updated a detailed Excel database, tracking students' co-op placements and company information.

SKILLS

Programming: Python, Java, JavaScript, C, HTML/CSS, Blueprint, React.js, SQL, SQLAlchemy, Flask, REST API, CORS
Tools: Vs Code, Eclipse, PyCharm, Android Studio, Unreal Engine 5, Vercel, EmailJS, 3D modeling, GitHub, SQLite