Zaki Sabawi

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Education

Monash Malaysia University   **Expected Graduation: November 2025**
Bachelor of Computer Science   *Malaysia, Kuala Lumpur*

- Courses: Algorithm and Data Structures, Theory of Computation, Programming Paradigms, Parallel programming, Mobile Application Development, Software quality and testing, Object oriented design and implementation, Data Bases, Computer Architecture ,Introduction to Data Science, Introduction to Cyber Security

Projects

Marauder's Map | *Source Code*   **Python | UI/UX | Computer Vision Integration**

- Developed an indoor movement tracking and visualization system, featuring **real-time detection and tracking** of **individuals across multiple camera feeds**.

- Collaborated on the backend and AI-powered computer vision pipeline, which identifies unique individuals and transmits positional data for visualization.

- Designed and implemented the **interactive 2D map interface** and analytics dashboard, ensuring an **intuitive** and **responsive** user experience.

- Gained hands-on experience integrating **UI/UX** design with **backend data** processing, **computer vision**, and **real-time visualization systems**.

Guitar Hero | *Source Code*   **TypeScript | NodeJS**

- Developed The full back end of a guitar hero inspired game using **Node.Js** and **TypeScript**, serving as a hands on project to gain proficiency in **TypeScript** and **Functional Programing** Concepts.

- Applied **Functional Reactive Programming (FRP)** principles, utilizing states and observables to manage game logic and dynamic user interactions

- Strengthened understanding of functional programming paradigms such as immutability, pure functions, and reactive data streams.

Text to HTML Converter | *Source Code*   **Haskell**

- Developed a Text-to-HTML converter entirely in **Haskell**, demonstrating strong problem-solving skills and functional programming expertise.

- Utilized **Abstract Data Types (ADTs)** to design and manage structured representations of HTML elements, ensuring flexibility and clean code architecture.

- Strengthened understanding of abstraction, functional paradigms, and type-driven development through hands-on implementation.

Spell Checker | *Source Code*   **Python**

- Developed a **Python-based** spell checker that analyzes user input, builds a **suffix-trie**, and efficiently stores words for validation and correction.

- Implemented features to detect incorrect words and suggest the three closest matches, using trie depth and frequency analysis for accurate recommendations.

- Optimized performance using a **suffix-trie**, gaining practical experience with algorithm design, data structures, and text processing techniques.

Veterinary Database | *Source Code*   **Oracle | SQL**

- Developed a comprehensive veterinary appointment database using **Oracle SQL**, managing detailed records including appointment times, prescribed medications, pet and owner information, and pet types.

- Designed and optimized relational database schemas with rigorous constraints to maintain data integrity and prevent errors in scheduling, prescriptions, and record-keeping.

- Gained practical experience in database design, **SQL programming**, and **data management** for real-world applications.

Leadership

Monash Board Gaming Club | *Instagram* **Jun 2024 – Present**
- Vice President of the Monash Board Game club, Oraganized and hosted events feature multiple board game creators, provided club members with access to industry professionals and explore innovative game designs on campus while allowing the creators to test out their new creation.
- Led and Hosted multiple highly attended events for a club of **150+** members fostering a lively, social atmosphere where participants where engaged and had fun

Technical Skills

Languages: Python, Java, SQL, JavaScript, C, Haskell, HTML
Developer Tools: Oracle, Git
Libraries/Frameworks: NodeJS