

# Jay Esquivel Jr.

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## EDUCATION

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### Simon Fraser University

*Bachelor of Applied Science, Software Systems in Computing Science*

Burnaby, BC

Sept 2022 – May 2025

### University of British Columbia

*Bachelor of Science, Mathematics with intended minor in Computer Science*

Vancouver, BC

Sept 2020 – Aug 2022

- Club Executive: (Active) Cultural Society Board Executive

\* Event Planning for ~700 Members, Maintain Brand Sponsorships/Relations, and Social Media Management

### Burnaby North/Templeton Secondary School

Burnaby, BC

*Dogwood Diploma*

Sept 2015 – Jun 2020

- Club Executive: VikingsDev Coding Club, The Noble Tutors Club, Leos Leadership Club
- School Associations: Athletics Council, Student Council, Honours Program, Honours Student Council, AP Scholar

## TECHNICAL SKILLS

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**Languages:** Java, Python, C++, C, HTML, CSS, JavaScript, R

**Frameworks:** Langchain, HuggingFace, Flask, JUnit, React, Android, Hugo

**Development/Deployment Tools:** Git, Docker, GitHub Actions, GitHub Pages, Supabase, Pinecone, Firebase, Vercel

**Notable Libraries:** Java Swing, Selenium, BeautifulSoup4, Pandas, Numpy, Streamlit

**Knowledge:** Algorithms & Data-structures, Software Development Principles, Networking, Data Science/ML

## PROJECTS

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### AI Impersonator | *Python, Langchain, Streamlit, Docker, OpenAI, Supabase, Pinecone, Git*

- PDF Chatbot full-stack web application created with the Langchain framework and Streamlit as the front-end
- Modular compatibility for different LLMs (localized, fine-tuned, etc), Vector Databases, and Embedding Models
- Tested to support 300+ page OCR compatible PDFs (Subject to the API rate limit of chosen models)
- Streamlined environment setup time and eliminated dependency incompatibility errors through Dockerization

### Divide and Conquer Remake | *Java, Java Swing, Sockets, Git*

- Rendition of D&C as a socket programming game client and server package that uses a Java Swing interface
- Compartmentalized code base and decoupled functions/features, enhancing team development efficiency by 500%
- Implemented a token-based packet messaging system, solving spontaneous system desynchronization issues and reducing client-to-client latency over LAN by a factor of 5x (from 100ms to 20ms round-trip time, 3ms base ping)
- Added mutexes to solve thread synchronization allowing the server to handle unlimited clients

### PeerAdvice | *HTML, CSS, JavaScript, Flask, PostgreSQL, FireBase, Git*

- Full-stack website that provides students access to the peer-to-peer connection they are missing with advisors
- Integrated a PostgreSQL User Database to store all registered client information (Root, Users, and Advisors)
- Flask Back-end controller that serves GET and POST requests from clients to the PostgreSQL user database
- Leveraged the Calendly booking web-service to handle advisor availability and reduce the complexity of the system
- Integrated Google Authentication deployed using Firebase to generate or associate connecting clients their UIDs

### Hercules | *Java, Android, Git*

- Cooperated with a team to design a gamified android workout app
- Implemented the entire front-end, view/controller package from scratch using the Java Android Library
- Facilitated back-end data structure design changes reducing run-time memory usage by over 200% to  $\leq 1$  GiB

### Unclutter | *Java, JUnit, Java Swing, GitHub Actions, Git*

- To-do list application with Java Swing GUI inspired by Google Calendar and the Apple Reminders app
- Complete JUnit unit test suite for all modules in the model package triggered by pushes for CI/CD
- Improved design efficiency by minimizing coupling/complexity with Singleton design pattern for EventLogging
- Enhanced user experience by implementing event-triggered JSON persistence to save and restore user instances

### Portfolio Website | *Python, Hugo, HTML, CSS, JavaScript, GitHub Actions, GitHub Pages, Git*

- Created, "jaysqvl.com", using the Hugo static site generating framework and the "Hugo-Profile" theme
- Achieved a 5-minute reduction in time spent per commit by automating deployment of builds with GitHub Actions

See more projects, about them, and their demos at <https://github.com/jaysqvl>