

William Alex Greenwald

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Education

University of California - Santa Barbara

Sept 2021-Jun 2025

Bachelor of Science, Computer Science (Candidate)

- Programming Courses: Problem Solving With Computers 1&2(C++), Object Oriented Design (C++), Computer Organization (MIPS Assembly)
- Math: Calculus 1/2/3a, Discrete math for Computer Science, Linear Algebra, Differential Equations

Skills

Course taught Skills:

- General: **C++**, MIPS Assembly, Makefile, Unix command line (BASH), Git+Github, Java, LaTeX
- Specific: Hashing, BSTs, Linked Lists, Processes/Threads, **Pointers/Memory Management**

Self taught skills: Python, HTML, CSS

Miscellaneous skills: Bilingual (english, spanish), Guitar, and Piano

Projects and Work Experience

Binary Search Tree with Value Conversion (C++)

Individual Class Project

- Implemented a binary search tree class from scratch in C++, storing integer values.
- Used .txt files as inputs. Learned how to use ifstream to read and parse through the .txt file contents.
- Mapped unique strings from .txt files to weighted int values, and translated those ints back to the same strings at the end of program for more efficiency.
- Inserted, compared, and deleted all nodes in 2 unique BSTs. Program represents a game simulation, where 2 .txt files of strings representing cards are compared using my BST.

Sorting Algorithm Visualizer (Python)

Guided Project

- Python program using pygame modules in order to visualize algorithms.
- Worked with dictionaries, tuples, and arrays. Implemented python generators in combination with pygame to update text and graphics when needed.
- Improved understanding of the main 3 quadratic time array sorting algorithms.

Array Encrypter/Decrypter (MIPS Asm.)

Individual Class Project

- Assembly program, takes an array of integers, calls an encrypt and decrypt 'function', which takes the values and applies/undoes arithmetic (power, subtraction) to them and returns/prints values.
- Solidified understanding of usage for basic I, J, and R type instructions.
- Learned about how to use jumps, the stack, and branches to write, return, and call functions.

Personal Website (CSS, HTML)

Individual Project

- Written with just CSS and HTML, both self taught skills.
- Implemented hover animations, interactive buttons, and image positioning using multiple files.
- Gained an understanding of domains and web hosting, as well as built on my git and github skills to link this and my other projects on my github to this site. Website link: william-greenwald.com.

Seaworld San Diego Ride Operator

Jun 2022 - Sept 2022

- Seasonal summer ride operator at "Shipwreck Rapids" ride at Seaworld San Diego.
- Loaded, unloaded, grouped, and monitored guests at this attraction.
- Used teamwork, communication, and efficiency to maintain guest and employee safety at all times.