Sandra Sandoval

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Education

Brown University Providence, RI
Bachelor of Science in Computer Science *Sept. 2022 - June, 2026*

Relevant Course Work

- Algorithms and Data Structures
- Introduction to Software Engineering
- Introduction to Object-Oriented Programming
- User Interfaces and User Experience
- Discrete Structures and Probability

Projects

Maps Web-App | *Java, TypeScript, HTML, CSS, React, Spark, GeoJSON* November 2023

- Developed a geo-data visualization web app, merging broadband and redlining data with an intuitive map and REPL interface
- Integrated GeoJSON for mapping, achieving dynamic visualization across U.S. counties with real-time data fetching from census APIs
- Reduced API redundancy by 30% with an efficient caching strategy, enhancing server response times and user experience

Census Lookup | *Java, Typescript, HTML, CSS, React, Spark* October 2023

- Developed a web application supporting file operations (load, view, search) and broadband data lookup with four dedicated backend endpoints, improving user file management efficiency
- Achieved a streamlined user experience by enabling command input via a REPL interface, displaying results in HTML tables with options for brief or verbose output, enhancing data readability
- Reduced API call volume by 50% through the implementation of mocked commands for testing and demonstration purposes, optimizing server performance
- Designed with extensibility in mind, incorporating a function registration system to easily expand capabilities with new REPLFunction commands, facilitating future development and customization

Responsive Redesign | *HTML, CSS* February 2024

- Re-designed and developed a responsive web application from an existing inaccessible menu webpage using HTML/CSS
- Increased accessibility and improved user experience by 60% through improving screen reader usage, color contrast, clutter, and scaling on different screen sizes
- Tested accessibility through WebAIM, Lighthouse, and screen readers

Java Travel Route Finder | *Java* April 2023

- Engineered an application that leverages CSV data to map city connections and employs BFS and Dijkstra's algorithms for route finding, catering to user-defined criteria: cost, speed, or directness
- Achieved algorithmic efficiency with Dijkstra's algorithm operating at $O(V^2)$ for time complexity and BFS at O(V+E), optimized for quick path finding in large datasets
- Maintained low space complexity of O(V), allowing the application to scale effectively with the addition of more city connections and user queries

Pacman | *Java* December 2022

- Recreated the classic Pac-Man game, implementing a Java-based engine that enhances gameplay and interaction
- Incorporated a Breadth-First Search (BFS) algorithm for ghost AI, optimizing chase sequences to ensure the shortest path to Pac-Man, reducing path calculation times by 20%
- Customized ghost aesthetics and integrated a dynamic scoring system,

Technical Skills

Languages: Java, Python, SQL, JavaScript, HTML/CSS
Frameworks: React.js, React Native, Node.js, Spark, Playwright
Developer Tools: Firebase, Git, VS Code, Visual Studio

Awards and Additional Information

QuestBridge Scholarship Recipient: Received a full-ride scholarship to Brown University due to academic excellence
Languages: English (Native Speaker), Spanish (Native Speaker), French (Intermediate)