Christian Bacalhau

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EDUCATION

Northeastern University   Boston, MA
Bachelor's of Science in Computer Science   *Expected May 2027*

Relevant Coursework
Object-Oriented Design, Algorithms and Data Structures, Projects in Cloud Computing, Programming in C++,
Discrete Structures, Mathematics of Data Models, Intro to Mathematical Reasoning, Fundamentals of Computer Science

TECHNICAL SKILLS

Languages: Java | Python | C/C++ | TypeScript | SQL | HTML/CSS
Developer Tools: Git | Docker | VS Code | Visual Studio | IntelliJ | Eclipse
Libraries: Swing | JUnit

PROJECTS

Light'em All | *Eclipse, Java*   April 2024
- Includes interactive controls for tile manipulation and game state checks for victory conditions
- Utilizes Kruskal's algorithm to generate a minimum spanning tree for puzzle creation
- Supports tile rotation, power connection logic, and UI rendering with game progress tracking
- The GUI is updated dynamically, reflecting the game's state and updates based on user input

Marble Solitaire | *Java, Swing, JUnit, IntelliJ*   June 2024
- Implemented Marble Solitaire using object-oriented programming with inheritance and encapsulation, creating a modular game structure
- Applied MVC pattern by separating the model (game logic), view (user interface), and controller (user interactions) to enhance code organization and maintainability.
- Implemented multiple game variants of Marble Solitaire, with a UI that lets players select their preferred version

Minesweeper | *Eclipse, Java*   March 2024
- Demonstrated the use of object-oriented programming through classes that organize the game's cells, board, and logic, ensuring clean code separation
- Developed a graphical user interface that updates based on user input and displays all information for the game
- Captured user input for selecting cells and created the game board based on their size and difficulty preferences
- Managed user interactions, win/loss conditions, and cell revealing through well-defined functions

Web Application | *Amazon Web Services*   June 2024
- Developed a functional web application created on an EC2 instance that records a university student's information
- Configured an Application Load Balancer and Amazon's EC2 Auto Scaling to ensure the web application is fault tolerant and can handle large amounts of traffic
- Used Amazon's Cloud9 to simulate 600,000 requests which successfully auto-scaled and load-balanced
- Decoupled the application using Amazon's RDS to create a MySQL database that stores the data and provides scalability/reliability
- Set up IAM roles and implemented AWS Secrets Manager to provide secure access and communication within the cloud infrastructure

EXPERIENCE

Amazon Web Services Skill Center   May 2024
Northeastern University   *Seattle, WA*
- Attended weekly learning sessions at the AWS Skills Center
- Learned the fundamental topics of cloud computing, e.g., databases, networks, scaling, security, block and file storage, etc.

Northeastern Electric Racing - Software Team   Sep. 2023 – May 2024
Northeastern University   *Boston, MA*
- Utilized docker to run the software that held the website for the team written in TypeScript and using React
- Handled bug fixes and implemented new features on the team's website based on requests from other members
- Used git to push my changes to the code base to await further approval