Jacob Roedel
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EDUCATION

THE GEORGE WASHINGTON UNIVERSITY   Washington, D.C.
Bachelor of Science in Computer Science; Minor in Economics   May 2024
University Honors Program; Presidential Academic Scholarship
Relevant Coursework: Software Engineering, Computer Architecture, Data Structures and Algorithms

TECHNICAL PROJECTS

MINI SEARCH ENGINE (C)   December 2021
- Created unique HashMap and Linked Lists structures to resemble a HashMap of Linked Lists, in which each node in the first layer of Linked Lists is the head of another Linked List
- Utilized these structures to represent word/document pairs by using the first layer of linked lists to represent each word and how many documents they appear in, and the second layer of linked lists to represent each document the word appears in as well as its frequency in said document
- Implemented a term frequency-inverse document frequency ranking system to determine the relevancy of a given set of documents for a specific search query inputted by a user

ENCRYPTION (LC-3 Assembly)   November 2021
- Executed Vigenère and Caesar ciphers to simulate an encryption/decryption model dependent on user input
- Received a five-character key and a ten-character message, and outputted the encrypted/decrypted message
- Implemented error checking to analyze the validity of the inputs, including the key and operation
- Utilized subroutines to implement multiplication, XOR, and modulo algorithms to assist with the ciphers

CAT AND MOUSE SIMULATION (Java)   December 2021
- Created a grid world in which various creatures move and interact with one another
- Represented the entirety of the grid with a HashMap of Linked Lists, with each point on the grid represented by a Linked List of creatures at that given grid point
- Applied Object Oriented Programming to construct a hierarchy of creatures within the grid world by using encapsulation, data hiding, polymorphism, and inheritance
- Instantiated various creatures such as mice, cats, zombie cats and terminators with varying properties and actions
- Implemented functions including search, chase, and eat to demonstrate interdependency between the creatures.

WORK EXPERIENCE

GBNY   Hicksville, NY
Website Editor   June 2021 – August 2021
- Managed and edited the designs and layout of various GBNY websites using Shopify
- Improved product descriptions and website organization, and updated product availability throughout the sites
- Worked closely with a team of three co-workers to update the inventory and supply of the various locations

Martial Arts Training Center   Deer Park, NY
Assistant Instructor   June 2015 – August 2018
- Assisted with the instruction of youth classes and belt advancement ceremonies
- Reviewed and discussed progress with students and their parents to promote student achievement and growth
- Created new drills and activities that were used during class to diversify training routines

ADDITIONAL INFORMATION

Languages: C, Java, HTML, CSS, LC-3 Assembly
Leadership: Speech and Debate Captain, NY, September 2019 – June 2020
Clubs: GW Association for Computing Machinery