Daniel Darcy
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Professional Summary

Inquisitive, energetic computer science specialist skilled in leadership, with a strong foundation in math, logic, and cross-platform coding. Seeking to leverage solid skills in collaboration, communication, and development as a computer programmer. Always willing to learn and capable of working alone as well as with customers in a professional manner.

Technical Skills

- Linux Kernel Debugging
- Apache Servers
- Virtual Machines
- C
- Markdown
- Big-O Notation
- Awk
- Mini-com
- VirtualBox
- GIT
- Javascript
- Java
- SQL Databases
- Python
- PHP
- HTML
- Web Development
- Bash
- CSS
- Wireshark
- Secure Programming
- Kali Linux Pen-testing
- Docker Containers
- R

Professional Experience

Harris Hospitality | Muskegon, Michigan
02/2013 - 09/2018
Head Expediter
- Trained new employees, oversaw food preparation, and worked with a team to ensure all customers were satisfied with their experience.
- Constantly in communication with other employees and customers in fast-paced environment.
- Worked 1 on 1 with unhappy customers to resolve any problems.

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Project Related Coursework

- CS 4910 Software Systems Development II - Designed C Coding Tutorial. Tutorial was used as senior design project. Explains in detail the important concepts/functions used in C such as GCC, storage sizes and binary representations of contents, unsigned numbers, signed numbers, ASCII codes, machine code, IEEE floating point numbers, printf function, and memcpy function.
  - GIT is used as version control.
  - Markdown used to embed info to website.
  - C programs are used for examples of concepts/functions.
  - Makefile used to compile and run all examples on different systems.

- CS 2230 Computer Organization and Assembly Language - Used Texas Instrument Development Tool (MSP430) to load self written programs onto microcontroller. Programs included clock using minimum amount of registers, displaying parsed hex codes on 7 segment display, potentiometer to control RGB LED, potentiometer to control 7 segment display, and base2 - base16 number converter.
  - Programs would interact with the devices hardware. (RGB LED, potentiometer, onboard switch, 7 segment display, etc.)
  - Most programs wrote in C language.
  - Used assembly language to create addition, subtraction, multiplication, and division functions.

- CS 5820 Artificial Intelligence - Created study chatbot using pythons Chatterbot library. Uses a selection of machine learning algorithms to produce different types of responses. Hundreds of artificial intelligence questions and answers were stored in database for training. Easy to setup with low complexity and learns slowly as more and more questions are asked.
  - Perfect for automating conversations with users.
  - User input is compared to database strings for likeness and output is returned accordingly.

- CS 4540 Operating Systems - Used virtual machine to run and debug Linux kernel. Downloaded stable linux kernel, configured it for debugging (enabled kgdb over serial console), and compiled it. Once complete the compiled linux kernel was transferred to a virtual machine. I then purposely wrote and compiled a faulty loadable kernel module which was loaded onto the virtual machine running the afore mentioned compiled linux kernel. As expected there was an error and the kernel crashed but not before being caught by kgdb on the host machine. After entering some commands on the host machine it displayed exactly where in memory the error was located on the virtual machines linux kernel. I then fixed the error and the project was complete.
  - kgdb is used for debugging.
  - VirtualBox is used for all virtual machines.
  - Socat was installed on host machine for serial communication management.

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- CS 4540 Operating Systems - Created round-robin CPU scheduling simulator. A data set which provides each processes details is first read into the program. Each process is stored in a struct with fields which represent any relative process info such as time stored in queue, time stored in cpu, wait time minimum, wait time maximum, and many more. Different functions are used to represent CPU and I/O. A counter is used to simulate the clock and does not stop until all processes are complete. Each "clock tick" all necessary variables are modified.
  - Uses priority queue with aging to assure no process waits forever.
  - Created own priority queue data structure instead of using predefined library.
  - All files wrote in C.

- CS 4540 Operating Systems - Created deadlock simulator. Consists of two different programs for two different scenarios of deadlocks. Programs would detect when processes were deadlocked and resolve the issue.
  - pthread() and exec() functions were used in the two different scenarios.
  - All files wrote in C.
  - Used named and unnamed semaphores.

- CS 4310 Design and Analysis of Algorithms - Created java program to analyze sorting of different data structures. Data structures include linked-list based stack, array based stack, linked-list based queue, and array based queue. Created custom data structures instead of using Java Collections API.
  - Program and data structures were wrote in Java.
  - Analyzed space and time complexities using using Big-O notation.

- CS 4900 Software Systems Development I - Created Quadratic Solve program with 2 other classmates. After being given 3 inputs the program prints out the number of x intercepts (0-2). If any intercepts exist their values are also printed out. Program can be installed on computer so it can be accessed no matter what directory a user is in. Extensive testing was implemented to ensure everything worked properly and as expected.
  - GIT is used as version control.
  - Program written in C.
  - Bash, CUnit, and make were all used for testing program.

- CS 5550 Computer Networks - Wrote script to extract contents from Wireshark packet dumps. Multi-packet dump is sent to script which strips packets of all header information and stores only message contents. Contents are saved in text file and server program sends file to client program.
  - Awk language used for all packet handling.
  - Server and client programs wrote in C.

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- CS 3240 Systems Programming Concepts - Created C program which reads in info for thousands of songs and creates searchable makeshift database. Songs are read into structs and relevant information is stored in their fields. These structs are then copied to a file which is used as a "database" and referred to by the structs offset. When the program is ran this all happens followed by a user interface which allows the user to search for a song and get all the relevant information stored in the songs struct.
  - Sorting is done as songs are read in from the input file.

- CS 3240 Systems Programming Concepts - Created C program which reads in an arbitrary number of files containing patient information and sorts all of the records on those files using threads. The premise is that somebody messed up a database and a single file got chopped and separated into some arbitrary number of new files. I was assigned to reorganize this "database" concurrently using threads.
  - Sorting is done as records are read in from the input file.
  - Semaphores are used for handling any deadlocks resulting from threads.

- STAT 2600 Statistics Using R - Used R to analyze/manipulate data sets and find mean, median, standard deviation, line of regression, and more.
  - Wrote R script to read in and store user's dataset as well as generate graphs and tables.
  - Data can then be manipulated and returned to user.

- CS 3500 Intro To Web Technologies - Learned to make an exact replica of a given website using CSS and html. Tables, buttons, headers, and pictures were used when necessary.
  - Perfected website's layout and design with CSS.
  - All content was created using html.

Education

- Bachelor's – Computer Science – Western Michigan University
  - April 2020 Graduate