ARPAN SWAROOP

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July 24, 2024

Hiring Manager
First National Bank of Omaha
1 Microsoft Way
Omaha, NE 98052

Dear Hiring Manager,

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Unix Like 32-bit x86 Operating System | *C, x86 asm*
Architected a minimalistic multitasking operating system for x86 hardware, prioritizing efficiency and reliability. We devised an interrupt-driven, time-slice-based CPU scheduling algorithm to schedule process execution. We also added functionality for up to 3 different terminals running a custom shell program, with support for simultaneous processes with the round robin process scheuduling policy. Supported virtual memory using paging data-structures. Developed a custom writable filesystem, following the ext32 format, that supports basic file operations, utilizing storage, and I/O principles. To allow processes to run we also implemented multiple system calls, such as Execute, Halt, and Vidmap. Implemented device drivers for the keyboard, Real Time Clock, Programmable Interrupt Controller, and Programmable Interval Timer.

Game Developer's toolkit | *Javascript, HTML, CSS, Node.js, Express, MySQL, Python*
Developed full-stack web application using a steam game database to help game devel-

opers. This database had multiple data points on thousands of pc games available in the steam shop. Implemented multiple complex queries to the database to output useful information for game developers. One such query was searching for free games with a metacritic score higher than than the average metacritic score of all free games. Implemented CRUD functionality with a user sign up feature, the ability to add other users as friends, and the ability to update the metacritic scores for games. Implemented interactive graphs in Python, showing helpful patterns in game data across all steam games. This included a box plot to show the sales numbers distribution of action games, where the data are grouped by secondary genre to compare the sales numbers of each genre combination Utilized a REST API made with Node.js and Express. Hosted website on the Google Cloud Platform

Kind Regards,

Arpan Swaroop
Applicant