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Homework 2 Report

I used an Ubuntu virtual machine using Oracle VM VirtualBox for this homework. The program was written in gedit. It was compiled by gcc in the Ubuntu terminal.

The parent process starts by printing its process id for reference when calling kill usr1. It then initializes the signal handler and masks sigusr1. After that, it enters a while loop that continues while there is input. The input is read in and stored in the history array. It is then parsed into the command array. During this process, the symbols <, >, and & are caught with their corresponding flags being raised. Finally, the parent forks a child and waits if & was not caught.

The child process starts by directing input and/or output to the appropriate file if the corresponding flags were raised. It then checks for the cd, history, and env commands and handles them accordingly. Otherwise, it attempts to execute the command using execvp. If all else fails, it informs the user that the command does not exist and exits with failure.

When kill usr1 is called, the signal handler creates a file called audit.log. It then outputs the last ten commands to this file. This is the last thing the parent does before exiting successfully.