

Son Nguyen – Joe

I pledge my Honor that I have abided by the Stevens Honor System

Part 3:

- Exit and cd are handled as build-in command in the shell because they modify the state of the shell process itself:
 - o Exit is used to terminate the shell. If it were run as a child process, it would only terminate the child process, not the shell itself. The child process end, the shell would be still in the original directory. Therefore, it needs to be a built-in command so that it can change the working directory of the shell process.
 - o Cd is used to change the working directory of the shell process. If it were run as a child process, it would only change the working directory of the child process, not the shell itself. When the child process ends, the shell would still be in its original directory. Therefore, it needs to be a build-in command so that it can change the working directory of the shell process.
- SIGTERM signal allows the process to handle the cleanup tasks before shut down. By using killpg(getpid(), SIGTERM) ensures that both the main process and its children handle clean up before exiting.