

# Cpre 308 Project 1

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## Summary:

In this project I learned more about programming in C, multiple processes, and system calls. First, this project gave me more great experience in C. I had to deal with pointers, global variables, and string manipulation. I feel more comfortable programming in C after this project and I feel like I am more prepared for future projects involving C. Next, I learned more about multiple processes. In this project we had to create a child process for each executable we wanted to run. This required us to have separate logic for child and parent processes and additional logic to allow the parent process to release the resources of the child. Lastly, we dealt with system calls. We had to call many for this project; Some include: fork, execvp, waitpid, exit, and chdir. Overall, this project was a very helpful experience. It not only was good programming practice but also a great way to solidify what we learned in class.

For the extra credit I implemented it using a dynamic array. The list had four functions: add\_list, remove\_list, create\_list, and free\_list. I have a struct that keeps track of the length and the last currently occupied index in the array. When the ids overflow the current array I reallocate a new sized array to continue to store ids. If a child process exits, I go through the array and find it and mark it with a -1. This is not completely optimal but in our use case with not too many child processes it should be sufficient.