

# CSE344 - HW1 Report

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## 1 Overview

- Firstly, all requirements were achieved.
- The program keeps one dynamic generic vector. How many child processes are in this vector, their pids are kept. I used the atexit function with notifyAndTerminate. The notifyAndTerminate function runs when the program exits anywhere and frees it to the global dynamic vector.
- Parent process and child processes block signals except SIGINT signal and set handler functions for SIGINT. The SIGINT handler function increments a variable of type sig\_atomic\_t. This value is checked in critical parts of the program. If the SIGINT signal reaches the parent process, the parent exits with the exit function and notifyAndTerminate works. notifyAndTerminate gives resources to the system and sends a SIGINT signal to all child processes with a kill system call. So the child processes will end up catching the signal and giving back the resources to the system and terminates itself. If the child processes handle the SIGINT signal, they assign SIGINT to the parent and terminate.
- For synchronization, when the files are opened for reading or writing, when they are closed, locking/unlocking is done with the fcntl system call.

## 2 Error Handling

- SYSCALL  
Description: The case where syscalls returns an error  
Action: Prints error message using perror and terminates program
- Allocating memory  
Description: The case where there is not enough space when allocating memory  
Action: Prints error message to stderr and terminates program

- Number of arguments  
Description: The case where user enters more or less arguments  
Action: Prints program usage to stderr and terminates program
- Usage of program  
Description: The case where user doesn't enter the expected options  
Action: Prints options to stderr and terminates program

### 3 Compile and Run

- make → Compiles the whole program  
Type make in the file contains the makefile
- make clean → Cleans all objects files