CS307 Operating Systems PA1 Report

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Command and what it does

For the command, as you can see in the "command.txt" I picked **"man ping | grep "\\-v" -A 2 > output.txt".** What it does at the end is first it gets manual page of ping operation (it sends small data packets to given server or host and waits for reply. Engineers use it to see if host is down, working or something is wrong). Then after getting the manual page it gives this page as input to grep command and grep searchs for "-v" in it. The reason double dash is used is in stackoverflow I saw that first one is to escape from bash and second one is to escape from grep's special character and the reason -v is used it does not skip duplicate files in the output so we get more verbose output it was interesting for me because in networking seeing every single packet in the output may be important in most cases. Finally -A 2 means that whenever you find a match also get two lines after it (Added it to see full match as requested in the PA doc).

Process Hierarchy

Firstly, I tried last slide in pipe slides. However, although it seems to work it does not. In my first 10 compilation, I got the correct result but on the 11th one grep child came before man child and when I googled I found that there is no way to make siblings wait each other (only parent can wait its child). So I think that design is not working always (I may have implemented in a wrong way :)).

So, what I did secondly is from SHELL process, I created man process (child) and then in the man child I created second child that is grep process (grandchild) and it worked because first child (man process) was done and then grandchild was done always. Here in the SHELL process at the end I waited (using wait) for both children to finish to not get terminal bug and I was done. I used different pids for the processes so that things do not get mess. Also, execvp is needed in the program because we do not have bash now and to conduct bash commands in the code is using execvp and to determine input and output sources of execvp we used dup2 with pipe (basically writing and reading from random or Anonymous file).