CS307 PA1

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“grep” command searches for given keyword, and It will filter out lines without given keyword

-A flag shows that an integer will be given after that option and that integer value represents how many lines will be captured after a match will found, even if these lines not consists the keyword that we are searching.

I picked this command and option because I am searching for this command and option to use it in this assignment and only way to find out how it works is either you know the command or read through the whole man, also it is ironic to call it to read its manual using this command.

• 1: My man and grep processes has parent-child relationship

• a: My man and grep processes can run concurrently

My program is 1a. They are parent-child because I forked them from the same process.

They can run concurrently because waiting operations are not waiting for other process to finish, instead grep waits for piece of information to be sent(not waits for the whole information to be sent), using a whole other file descriptor, man sends signal using this other file descriptor, this file descriptors only purpose is to ensure that man writes ‘I’m man’ before grep writes ‘I’m grep’.

Grep waits for man to write only if there is nothing to read, and parent(shell) waits for grep to finish, also we know that grep can't finish before man finishes and fd_write closes, therefore shell finishes after both man and grep.

Process Hierarchy:

Man will directly start working after forking.

Grep will wait till grep sends signal, then prints ‘I’m grep’ and starts runs execvp. Reading process might happen before man start, in this case grep will wait till there is something to read. After something sent or already sent by man, it will directly start processing.

Shell will wait for grep to finish, and then close. Shell cannot close before man closes because Shell waits Grep, which is a process which cannot finish before Man finishs and file descriptors write end closes.

Therefore man and grep works concurrently. (hypothetically) If man stops on the halfway, grep will finishes half of the work, then waits for man to send rest of the text.