

My Homework assignment unfortunately is limited. It does everything as it should, but the only limitation it has is that it cannot update the log file in pipe command. I have encountered many strange bugs while doing this assignment; I have ran into permission issue of foo.txt file even though I have referenced the flags from Dr. Li's code. But somehow I absolved it by giving different flags. During the interactive mode, the even though the some of the output had to be displayed onto the user's console first, the other output arrived there first. It happened rarely, but it the problem exist. I had to put in a for loop that counts to 10000 to prevent it. I have no idea why it happens irregularly. I wish I knew the answer in order to debug it correctly. All of the commands gives desired output, but log files are not updated as it should be.

From doing this homework assignment, I gained knowledge in how operating system properly parse the input file redirection and output file redirection. I also gained insight in methodology in how operating system handles such event. With this expansion of knowledge, I hope to learn more about operating system later on as the class progresses.

I mainly used the test cases that are given from Dr. Li in assignment 2 to check the functionality. The output is given below.

```
seoklee-$ ls
foo.txt hello.c hello.o makefile outputfile
hello hello_dbg listoutfile
```

Return value is : 1

```
seoklee-$ ls -l
total 128
-rw-r----- 1 lee lee 21 Oct 29 17:33 foo.txt
-rwxr-xr-x 1 lee lee 21364 Oct 29 17:21 hello
-rw-r--r-- 1 lee lee 28500 Oct 29 17:23 hello.c
-rwxr-xr-x 1 lee lee 30700 Oct 29 17:21 hello_dbg
-rw-r--r-- 1 lee lee 23896 Oct 29 17:21 hello.o
-rw----- 1 lee lee 32 Oct 29 15:10 list
-rw-r--r-- 1 lee lee 220 Oct 4 17:49 makefile
-rw----- 1 lee lee 8 Oct 29 15:09 outfile
-rw----- 1 lee lee 73 Oct 29 16:26 outputfile
```

Return value is : 1

```
seoklee-$ wc < hello.c
```

```
1332 3608 28500
```

Return value is : 2

```
seoklee-$ ls >> outputfile
```

Return value is : 3

```
seoklee-$ cat < outputfile
```

```
foo.txt
hello
hello.c
hello_dbg
hello.o
list
makefile
outfile
outputfile
foo.txt
hello
```

hello.c
hello_dbg
hello.o
list
makefile
outfile
outputfile

Return value is : 2

seoklee-\$ ls -l -a > outputfile

Return value is : 4

seoklee-\$ cat < outputfile

total 132
drwxr-xr-x 2 lee lee 4096 Oct 29 17:23 .
drwxr-xr-x 4 lee lee 4096 Oct 29 17:07 ..
-rw-r----- 1 lee lee 21 Oct 29 17:35 foo.txt
-rwxr-xr-x 1 lee lee 21364 Oct 29 17:21 hello
-rw-r--r-- 1 lee lee 28500 Oct 29 17:23 hello.c
-rwxr-xr-x 1 lee lee 30700 Oct 29 17:21 hello_dbg
-rw-r--r-- 1 lee lee 23896 Oct 29 17:21 hello.o
-rw----- 1 lee lee 32 Oct 29 15:10 list
-rw-r--r-- 1 lee lee 220 Oct 4 17:49 makefile
-rw----- 1 lee lee 8 Oct 29 15:09 outfile
-rw----- 1 lee lee 0 Oct 29 17:35 outputfile

Return value is : 2

seoklee-\$ ls | grep c
hello.c

Return value is : 5

```
seoklee-$ cat < outputfile | grep h
Return value is : 6
```

```
seoklee-$ -rwxr-xr-x 1 lee lee 21364 Oct 29 17:21 hello
-rw-r--r-- 1 lee lee 28500 Oct 29 17:23 hello.c
-rwxr-xr-x 1 lee lee 30700 Oct 29 17:21 hello_dbg
-rw-r--r-- 1 lee lee 23896 Oct 29 17:21 hello.o
```

```
seoklee-$ ls | grep c >> outputfile
```

```
Return value is : 7
```

```
seoklee-$ cat < outputfile
```

```
total 132
drwxr-xr-x 2 lee lee 4096 Oct 29 17:23 .
drwxr-xr-x 4 lee lee 4096 Oct 29 17:07 ..
-rw-r----- 1 lee lee 21 Oct 29 17:35 foo.txt
-rwxr-xr-x 1 lee lee 21364 Oct 29 17:21 hello
-rw-r--r-- 1 lee lee 28500 Oct 29 17:23 hello.c
-rwxr-xr-x 1 lee lee 30700 Oct 29 17:21 hello_dbg
-rw-r--r-- 1 lee lee 23896 Oct 29 17:21 hello.o
-rw----- 1 lee lee 32 Oct 29 15:10 list
-rw-r--r-- 1 lee lee 220 Oct 4 17:49 makefile
-rw----- 1 lee lee 8 Oct 29 15:09 outfile
-rw----- 1 lee lee 0 Oct 29 17:35 outputfile
hello.c
```

```
Return value is : 2
```

```
seoklee-$ ls | grep c > outputfile
```

```
Return value is : 8
```

```
seoklee-$ cat < outputfile
```

```
hello.c
```

```
Return value is : 2
```

```
seoklee-$ netbean&  
Command Not Found  
Sorry, this command is not supported yet. :/
```

```
Return value is : 9
```