Professor Hakner

PSET #3 Question #3

## **Problem 3 Sample Runs**

#### Sample Run 1: test1.sh

```
#!./shell
echo TESTINGTESTING123 >testfile.out
cat <testfile.out >testfile2.out
ls -l
#You should see testfile.out and testfile2.out both with size 18
exit 17
#After you invoke this script from the "real" shell, echo $? and
#verify the exit status is 17
```

Figure 1: Contents of test1.sh

```
derek@derek-VirtualBox:~/OS/PSET #3$ ./test1.sh
Shell execution started.
Child process 2393 exited normally
Real Time: 0.000508(s) User Time: 0.000430(s) System Time: 0.000000(s)
Child process 2394 exited normally
Real Time: 0.000437(s) User Time: 0.000405(s) System Time: 0.000000(s)
total 208
-rwxrwx--- 1 derek derek
                            19 Oct 4 22:17 GROUP
-rwxrwx--- 1 derek derek 142658 Oct 5 13:42 'PSET #3.pdf'
-rwxr-xr-x 1 derek derek 8168 Oct 13 11:33 segFault
-rw-r--r-- 1 derek derek
                            84 Oct 13 11:33 segFault.c
-rwxr-xr-x 1 derek derek 17864 Oct 13 11:37 shell
-rwxrwx--- 1 derek derek 9401 Oct 13 11:37 shell.c
                          254 Oct 12 15:53 test1.sh
583 Oct 13 08:57 test2.sh
-rwxrwx--x 1 derek derek
-rwxrwx--- 1 derek derek
drwxr-xr-x 2 derek derek 4096 Oct 13 11:00 testDir
-rw-r--r-- 1 derek derek
                            18 Oct 13 11:42 testfile2.out
-rw-r--r-- 1 derek derek
                            18 Oct 13 11:42 testfile.out
Child process 2395 exited normally
Real Time: 0.001330(s) User Time: 0.001184(s) System Time: 0.000000(s)
Reached EoF. Exiting with exit code: 17
derek@derek-VirtualBox:~/OS/PSET #3$ echo $?
17
```

Figure 2: Running test1.sh

# Sample Run 1 (cont.): test1.sh

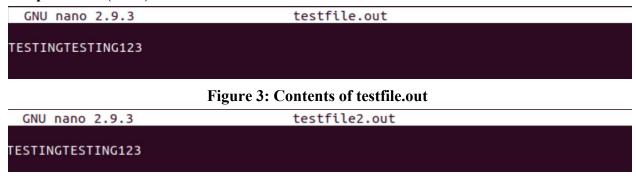


Figure 4: Contents of testfile2.out

#### Sample Run 2: test2.sh

```
GNU nano 2.9.3
                                     test2.sh
!./shell
#/tmp always exists on UNIX systems and is 777, so this will work
cd /tmp
pwd
#this should take you back to your homedir
bwd
echo TESTINGTESTING123 >testfile.out
#The following is a command that presumably doesn't exist. This error
#should not cause the entire script to end
lssssssss
chmod 000 testfile.out
#The I/O redirection should fail on the following
echo BLAH >>testfile.out
#After you invoke this script from the "real" shell, echo $?
#it should reflect the failure of the above I/O redirection which per
#the problem set spec sheet will be a 1 exit status
```

Figure 5: Contents of test2.sh

#### Sample Run 2 (cont.): test2.sh

```
derek@derek-VirtualBox:~/OS/PSET #3$ ./test2.sh
Shell execution started.
Current working directory: /tmp
Current working directory: /home/derek
Child process 2416 exited normally
Real Time: 0.000493(s) User Time: 0.000431(s) System Time: 0.000000(s)
Exec for command lssssssss failed.
Error: No such file or directory
Child process 2417 exited with return value 127
Real Time: 0.000259(s) User Time: 0.000172(s) System Time: 0.000000(s)
Child process 2418 exited normally
Real Time: 0.000457(s) User Time: 0.000000(s) System Time: 0.000421(s)
Couldn't open file (testfile.out) while redirecting STDOUT (APPEND)
Error: Permission denied
Child process 2419 exited with return value 1
Real Time: 0.000207(s) User Time: 0.000120(s) System Time: 0.000000(s)
Reached EoF. Exiting with exit code: 1
derek@derek-VirtualBox:~/OS/PSET #3$ echo $?
```

Figure 6: Running test2.sh

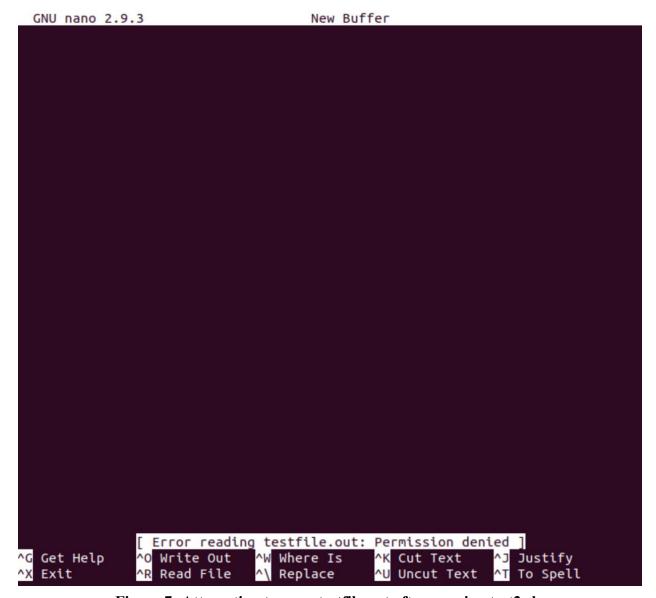


Figure 7: Attempting to open testfile.out after running test2.sh

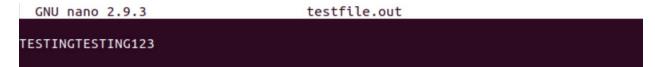


Figure 8: Opening testfile.out after running test2.sh, after giving read permission

#### **Sample Run 3: Various commands**

```
derek@derek-VirtualBox:~/OS/PSET #3$ ./shell
Shell execution started.
cd testDir
bwd
Current working directory: /home/derek/OS/PSET #3/testDir
ls -l >ls.out
Child process 2439 exited normally
Real Time: 0.001430(s) User Time: 0.001312(s) System Time: 0.000000(s)
cat ls.out
total 0
-rw-r--r-- 1 derek derek 0 Oct 13 11:47 ls.out
Child process 2440 exited normally
Real Time: 0.000582(s) User Time: 0.000498(s) System Time: 0.000000(s)
ls asdasdqwdfwef
ls: cannot access 'asdasdqwdfwef': No such file or directory
Child process 2441 exited with return value 2
Real Time: 0.000993(s) User Time: 0.000906(s) System Time: 0.000000(s)
exit
Reached EoF. Exiting with exit code: 2
derek@derek-VirtualBox:~/OS/PSET #3$ echo $?
```

Figure 9: Running a test case and exiting with EXIT

#### **Sample Run 4: Segmentation Fault**

```
derek@derek-VirtualBox:~/OS/PSET #3$ ./shell
Shell execution started.
./segFault
Child process 2375 exited with signal 11 (Segmentation fault)
Real Time: 0.138876(s) User Time: 0.000000(s) System Time: 0.000441(s)
Reached EoF. Exiting with exit code: 139
derek@derek-VirtualBox:~/OS/PSET #3$ echo $?
139
```

Figure 10: Running a program that causes a segmentation fault and exiting with CTRL+D

```
GNU nano 2.9.3
                                     segFault.c
int main() {
   char *str;
    str = "Test";
    *(str+1) = 'n';
   return 0;
                               [ Read 8 lines ]
               ^O Write Out
^G Get Help
                                 Where Is
                                              ^K Cut Text
                                                             ^J Justify
                 Read File
                                 Replace
                                                Uncut Text
```

Figure 11: Contents of segFault.c

### Sample Run 4: fileChecker

```
# of block device inodes:
                                                0.
# of character device inodes:
                                                0.
# of directory inodes:
                                                31031.
# of FIFO/pipe inodes:
                                                0.
# of symlink inodes:
                                                28512.
# of regular file inodes:
                                                156398.
# of sock inodes:
                                                0.
Total size of all regular files:
                                                8891148196.
Total disk blocks allocated:
                                                2253320.
# of inodes with nlink > 1:
# of invalid symlinks:
                                                11495.
# of directory entries with problematic names: 194.
Child process 2234 exited normally
Real Time: 12.322166(s) User Time: 0.242873(s) System Time: 2.031306(s)
```

Figure 12: Running ./fileChecker