Problem 3 Sample Runs

Sample Run 1: test1.sh

```
  GNU nano 2.9.3                          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
-rwxrwx--x 1 derek derek    254 Oct 12 15:53  test1.sh
-rwxrwx--- 1 derek derek    583 Oct 13 08:57  test2.sh
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

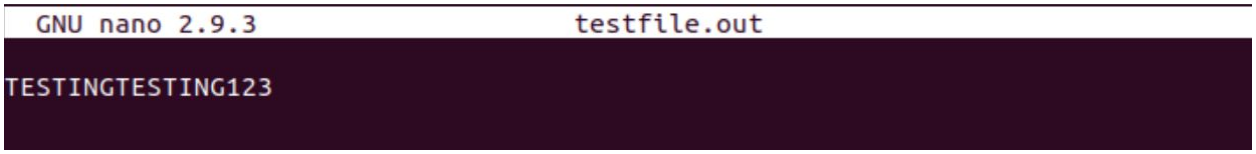

Figure 3: Contents of testfile.out

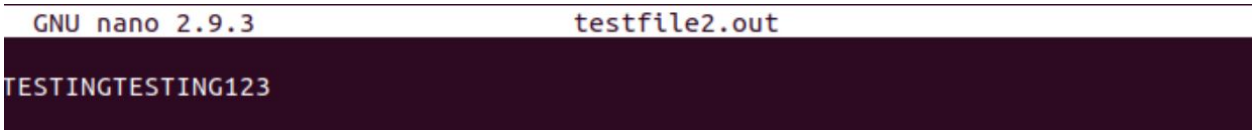

Figure 4: Contents of testfile2.out

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
cd
pwd


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 lsssssssss 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 $?
1
```

Figure 6: Running test2.sh

Sample Run 2 (cont.): test2.sh

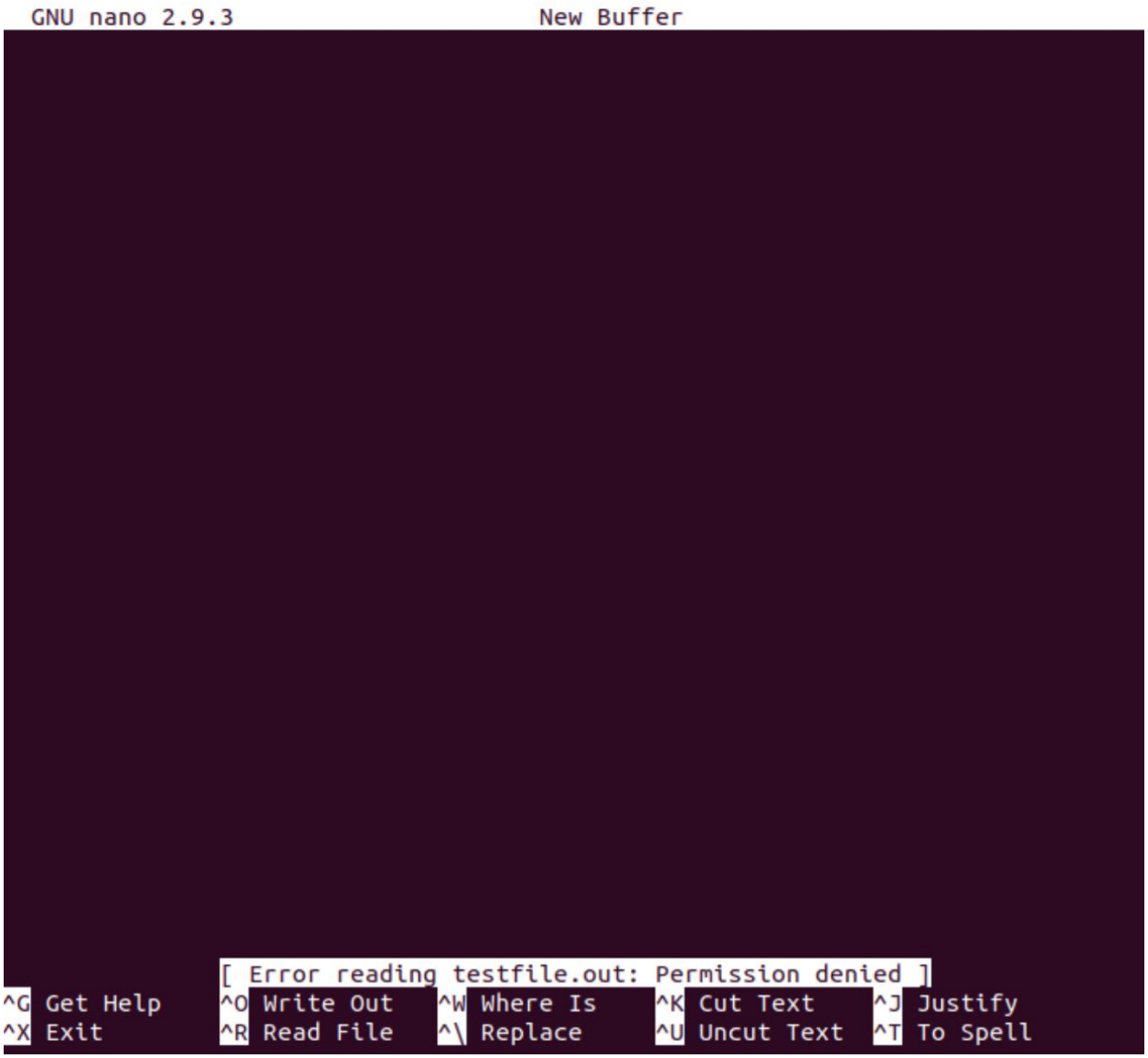

Figure 7: Attempting to open testfile.out after running test2.sh

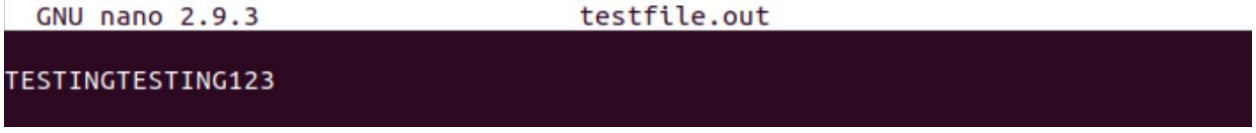

Figure 8: Opening testfile.out after running test2.sh, after giving read permission

Sample Run 3: Various commands

```
derek@derek-VirtualBox:~/OS/PSET #3$ ./shell
Shell execution started.

cd testDir
pwd
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 $?
2
```

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 ]
^G Get Help    ^O Write Out   ^W Where Is    ^K Cut Text    ^J Justify
^X Exit        ^R Read File   ^\ Replace     ^U Uncut Text  ^T To Spell
```

Figure 11: Contents of segFault.c

Sample Run 5: fileChecker.c

```
# 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:                        14.
# 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