**CSC-3044 Operating Systems & System Programming**

**Laboratory 10 Report**

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1. **Document the result of this experiment by copying the exact input that was entered in each terminal window to your lab report document.**  
     
   **[Terminal Window A]**  
   ubuntu@csc3044:~/lab10$ cat - >> file.txt  
   A 1  
   A 2  
   A 3  
   A 4  
   A 5  
   A 6  
   A 7  
     
   **[Terminal Window B]**  
   ubuntu@csc3044:~/lab10$ cat - >> file.txt  
   B 1  
   B 2  
   B 3  
   B 4  
   B 5  
   B 6  
   B 7  
     
   **[File Contents]**  
   ubuntu@csc3044:~/lab10$ cat file.txt  
   A 1  
   B 1  
   A 2  
   B 2  
   A 3  
   B 3  
   A 4  
   B 4  
   A 5  
   B 5  
   A 6

B 6

A 7

B 7

1. **Copy the output that is returned after performing each of the 4 operations shown in Figure 55-4.**  
     
   PID=5739> w 0 10 10

Doing fcntl with fd 3, cmd 7

[PID=5739] got lock

PID=5724> w 0 50 10

Doing fcntl with fd 3, cmd 7

[PID=5724] got lock  
  
PID=5739> w 0 50 10

Doing fcntl with fd 3, cmd 7  
  
PID=5724> w 0 10 10

Doing fcntl with fd 3, cmd 7

[PID=5724] failed (deadlock)

1. **Copy this output to your report document.**  
     
   ubuntu@csc3044:~$ cat /proc/locks

1: FLOCK ADVISORY WRITE 682 00:1b:1116 0 EOF

2: POSIX ADVISORY WRITE 350 00:1b:515 0 EOF

3: POSIX ADVISORY WRITE 5724 08:01:306082 50 59

3: -> POSIX ADVISORY WRITE 5739 08:01:306082 50 59

4: FLOCK ADVISORY WRITE 716 08:01:87428 0 EOF

5: POSIX ADVISORY WRITE 5739 08:01:306082 10 19

1. **Copy the output from each of the 3 processes and explain the results.**  
     
   PID=5781> o 0 tests/file1

PID=5781> w 0 0 10

Doing fcntl with fd 3, cmd 7

[PID=5781] got lock  
  
PID=5775> o 0 tests/file1

PID=5775> w 0 10 10

Doing fcntl with fd 3, cmd 7

[PID=5775] got lock

PID=5775> o 1 tests/file2

PID=5775> w 1 0 10

Doing fcntl with fd 4, cmd 7

[PID=5775] got lock  
  
PID=5776> o 0 tests/file1

PID=5776> w 0 20 10

Doing fcntl with fd 3, cmd 7

[PID=5776] got lock

PID=5776> o 1 tests/file3

PID=5776> w 1 0 10

Doing fcntl with fd 4, cmd 7

[PID=5776] got lock  
  
Locks on different portions of the same file and definitely locks on different files shouldn’t interfere with each other, hence the above output. All operations succeeded without incident.

1. **Do the results match the expected linear behavior?**
2. **Copy these results with your explanation into your report document.**