##

Script started on Thu, Nov 20, 2014 7:47:17 AM
justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName01234567890123456789 \
           FileWithVeryLongName01234567890123456789
Beginning execution...
==================== KPL PROGRAM STARTING ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called. NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...

********** OpenTest1 running **********

Attempting to open a nonexistent file, which should return -1.

Okay.

Attempting to open a file with an overly large name, which should return -1.

Okay.

Attempting to open an existing file, which should succeed.

Okay.

********** Test Complete **********

***** A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation! *****

```
Done!  The next instruction to execute will be:
001138: 09000000       ret
Number of Disk Reads   = 18
Number of Disk Writes  = 0
Instructions Executed  = 3427562
Time Spent Sleeping    = 18804
    Total Elapsed Time = 3446366

justin@Justin ~/cs333/p7

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diskUtil -i
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diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
              FileWithVeryLongName012345678901234567890123456789
Beginning execution...
===================  KPL PROGRAM STARTING  ===================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  OpenTest2 running  **********


Attempting to open the same file 10 times.

Open 0 succeeded

Open 1 succeeded

Open 2 succeeded

Open 3 succeeded

Open 4 succeeded

Open 5 succeeded

Open 6 succeeded

Open 7 succeeded
```

```
Open 8 succeeded

Open 9 succeeded

Attempting to open the file one more time, which should return -1.



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000       ret
Number of Disk Reads   = 18
Number of Disk Writes  = 0
Instructions Executed  = 3456416
Time Spent Sleeping    = 18804
    Total Elapsed Time  = 3475220

justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
            FileWithVeryLongName012345678901234567890123456789
Beginning execution...
====================  KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...



**********  OpenCloseTest running  **********



Opening 10 files...

Closing all 10 files...

Opening 10 files...

Closing all 10 files...
```

```
Opening 10 files...

Closing all 10 files...

Opening 10 files...

Closing all 10 files...

Opening 10 files...

Closing all 10 files...

Opening 10 files...

Closing all 10 files...

Opening 10 files...

Closing all 10 files...

Opening 10 files...

Closing all 10 files...

Opening 10 files...

Closing all 10 files...

Opening 10 files...

Closing all 10 files...


**********  Test Complete  **********




*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads   = 18
Number of Disk Writes  = 0
Instructions Executed  = 4295482
Time Spent Sleeping    = 18804
    Total Elapsed Time = 4314286

justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
```

```
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
            FileWithVeryLongName012345678901234567890123456789
Beginning execution...
==================== KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  CloseTest running  **********


Closing files which are not open and invalid file descriptors; should be nops...


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads   = 18
Number of Disk Writes  = 0
Instructions Executed  = 3402102
Time Spent Sleeping    = 18804
    Total Elapsed Time  = 3420906

justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
            FileWithVeryLongName012345678901234567890123456789
Beginning execution...
==================== KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...
```

```
Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  ReadTest1 running  **********



Should print '>>>Now is the time for all good m<<<'
             >>>Now is the time for all good m<<<


Should print '>>>en to come to the aid of their<<<'
             >>>en to come to the aid of their<<<


Should print '>>> parties!!!
o the aid of their<<<'
             >>> parties!!!
o the aid of their<<<


Should print '>>> parties!!!
o the aid of their<<<'
             >>> parties!!!
o the aid of their<<<


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads   = 19
Number of Disk Writes  = 0
Instructions Executed  = 3425152
Time Spent Sleeping    = 46288
    Total Elapsed Time = 3471440
```

```
justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName01234567890123456789012345678 \
              FileWithVeryLongName01234567890123456789012345678
Beginning execution...
====================  KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  ReadTest2 running  **********


Reading files which are not open and invalid file descriptors...

Okay

Okay

Okay

Okay

Okay

Okay

Reading with negative sizeInBytes...

Okay

Okay


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****
```

```
Done!  The next instruction to execute will be:
001138: 09000000     ret
Number of Disk Reads   = 18
Number of Disk Writes  = 0
Instructions Executed  = 3413423
Time Spent Sleeping    = 18804
     Total Elapsed Time = 3432227


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
             FileWithVeryLongName012345678901234567890123456789
Beginning execution...
==================  KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  SeekTest running  **********


Should print 4...

retval = 4

Should print 0...

retval = 0

Should print 72...

retval = 72

Should print -1 (newCurrentPos is > file size)...

retval = -1

Should print -1 (newCurrentPos is < -1)...
```

```
retval = -1

Should print -1 (file not open)...

retval = -1

Should print -1 (bad file descriptor)...

retval = -1

Should print 35...

retval = 35


Should print '>>> come to the aid of their part<<<'

              >>> come to the aid of their part<<<


Should print 8...

retval = 8


Should print '>>>he time for all good men to co<<<'

              >>>he time for all good men to co<<<


**********  Test Complete  **********




*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads   = 19
Number of Disk Writes  = 0
Instructions Executed  = 3434319
Time Spent Sleeping    = 46089
    Total Elapsed Time  = 3480408


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
```

```
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
             FileWithVeryLongName012345678901234567890123456789
Beginning execution...
===================  KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  WriteTest1 running  **********




Should print '>>>abcdefghijklmnopqrst<<<'

             >>>abcdefghijklmnopqrst<<<

Checking that the file contains "abcdefghijklmnopqrst" at position 0...

Okay.


Should print '>>>abcdePONMLklmZYXWVst<<<'

             >>>abcdePONMLklmZYXWVst<<<

Checking that the file contains "abcdePONMLklmZYXWVst" at position 0...

Okay.


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000     ret
Number of Disk Reads   = 19
Number of Disk Writes  = 1
Instructions Executed  = 3451479
Time Spent Sleeping    = 28533
    Total Elapsed Time = 3480012


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
```

```
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
            FileWithVeryLongName012345678901234567890123456789
Beginning execution...
==================== KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  WriteTest2 running  **********


Writing files which are not open...

Okay

Okay

Okay

Writing files with invalid file descriptors...

Okay

Okay

Okay

Writing with negative sizeInBytes...

Okay

Okay

Make sure file size is unchanged...

Okay


**********  Test Complete  **********


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
```

```
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
          FileWithVeryLongName012345678901234567890123456789
Beginning execution...
==================  KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  WriteTest3 running  **********


Writing "abcdefghijklmnopqrstuvwxyz" to position 0 in file...

Okay

Writing "zyxwvutsrqponmlkjihgfedcba" to position 8179 in file...

Okay

Writing "aaaaabbbbbcccccdddddeeeeef" to position 16371 in file...

Okay

Writing "ggggghhhhhiiiiijjjjjkkkkkl" to position 24550 in file...

Okay

Checking that the file contains "abcdefghijklmnopqrstuvwxyz" at position 0...

Okay.

Checking that the file contains "zyxwvutsrqponmlkjihgfedcba" at position 8179...

Okay.

Checking that the file contains "aaaaabbbbbcccccdddddeeeeef" at position 16371...

Okay.

Checking that the file contains "ggggghhhhhiiiiijjjjjkkkkkl" at position 24550...

Okay.

Writing "AAAABBBBCCCCDDDDEEEEFFFFGG" to position 16371 in file...
```

Okay

Writing "ABCDEFGHIJKLMNOPQRSTUVWXYZ" to position 0 in file...

Okay

Writing "HHHHIIIIJJJJKKKKLLLLMMMMNN" to position 24550 in file...

Okay

Writing "ZYXWVUTSRQPONMLKJIHGFEDCBA" to position 8179 in file...

Okay

Checking that the file contains "ABCDEFGHIJKLMNOPQRSTUVWXYZ" at position 0...

Okay.

Checking that the file contains "ZYXWVUTSRQPONMLKJIHGFEDCBA" at position 8179...

Okay.

Checking that the file contains "AAAABBBBCCCCDDDDEEEEFFFFGG" at position 16371...

Okay.

Checking that the file contains "HHHHIIIIJJJJKKKKLLLLMMMMNN" at position 24550...

Okay.

********** Test Complete **********

***** A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation! *****

Done! The next instruction to execute will be:
001138: 09000000   ret
Number of Disk Reads   = 33
Number of Disk Writes = 9
Instructions Executed = 3580991
Time Spent Sleeping   = 29265
    Total Elapsed Time = 3610256

justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName01234567890123456789 \

```
                    FileWithVeryLongName01234567890123456789012345678 9
Beginning execution...
==================== KPL PROGRAM STARTING ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  WriteTest4 running  **********


Writing "abcdefghijklmnopqrstuvwxyz" to position 0 in file...

Okay

Checking that the file contains "abcdefghijklmnopqrstuvwxyz" at position 0...

Okay.

Writing "0123" to current position...

Okay

Writing "ABC" to current position...

Okay

Writing "4567" to current position...

Okay

Writing "DEF" to current position...

Okay

Writing "89" to current position...

Okay

Writing "GHI" to current position...

Okay

Checking that the file contains "abc0123ABC4567DEF89GHIwxyz" at position 0...

Okay.


**********  Test Complete  **********




*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****
```

```
Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads   = 19
Number of Disk Writes  = 4
Instructions Executed  = 4810537
Time Spent Sleeping    = 29083
    Total Elapsed Time = 4839620


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
            FileWithVeryLongName012345678901234567890123456789
Beginning execution...
===================  KPL PROGRAM STARTING   ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  WriteTest5 running  **********


Writing "abcdefghijklmnopqrstuvwxyz" to position 0 in file...

Okay

Checking that the file contains "abcdefghijklmnopqrstuvwxyz" at position 0...

Okay.

Writing "abcdefghijklmnopqrstuvwxyz" to position 8192 in file...

Okay

Checking that the file contains "abcdefghijklmnopqrstuvwxyz" at position 8192...

Okay.

Make sure that the activity of child 1 and child 2 is interleaved.

......Child 1 beginning......
```

......Child 2 beginning......

Writing "B" to position 1 in file...

Okay

Writing "N" to position 8205 in file...

Okay

Writing "D" to position 3 in file...

Writing "A" to position 0 in file...

Okay

Writing "P" to position 8207 in file...

Okay

Writing "M" to position 8204 in file...

Okay

Writing "F" to position 5 in file...

Okay

Writing "R" to position 8209 in file...

Okay

Okay

Writing "T" to position 8211 in file...

Okay

Writing "V" to position 8213 in file...

Okay

Writing "H" to position 7 in file...

Writing "C" to position 2 in file...

Okay

Writing "J" to position 9 in file...

Okay

Writing "O" to position 8206 in file...

Okay

Writing "L" to position 11 in file...

Okay

Writing "E" to position 4 in file...

Okay

Writing "Q" to position 8208 in file...

Okay

Writing "X" to position 8215 in file...

Okay

Writing "G" to position 6 in file...

Okay

Writing "I" to position 8 in file...

Okay

......Child 2 ending......

Okay

Writing "K" to position 10 in file...

Okay

Writing "S" to position 8210 in file...

Okay

Writing "U" to position 8212 in file...

Okay

Writing "W" to position 8214 in file...

Okay

......Child 1 ending......

Checking that the file contains "ABCDEFGHIJKLmnopqrstuvwxyz" at position 0...

Okay.

Checking that the file contains "abcdefghijklMNOPQRSTUVWXyz" at position 8192...

Okay.

********** Test Complete **********

***** A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation! *****


```
Done!  The next instruction to execute will be:
001138: 09000000        ret
Number of Disk Reads   = 36
Number of Disk Writes  = 17
Instructions Executed  = 4948028
Time Spent Sleeping    = 28991
    Total Elapsed Time = 4977019
```

justin@Justin ~/cs333/p7

```
$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
```

```
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
            FileWithVeryLongName012345678901234567890123456789
Beginning execution...
==================== KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  ReadTest3 running  **********


Should print 9 lines with the characters 'Now is th'.

Each line should contain only one character.

N--------

-o-------

--w------

--- -----

----i----

-----s---

------ --

-------t-

--------h

Should print 9 lines with the characters 'e time fo'.

Each line should contain only one character.

e--------

- -------

--t------

---i-----

----m----

-----e---
```

```
------ --

-------f-

--------o

Should print 9 lines with the characters 'r all goo'.

Each line should contain only one character.

r--------

- -------

--a------

---l-----

----l----

----- ---

------g--

-------o-

--------o


**********  Test Complete  **********




*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads   = 19
Number of Disk Writes  = 0
Instructions Executed  = 15606100
Time Spent Sleeping    = 47482
    Total Elapsed Time = 15653582


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName01234567890123456789012345678 \
            FileWithVeryLongName01234567890123456789012345678
Beginning execution...
```

```
==================== KPL PROGRAM STARTING ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  ReadTest4 running  **********


Okay.

Okay.

Okay.

Okay.

Okay.

Okay.

Okay.

Okay.

Okay.

Okay.

Okay.

Okay.


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads   = 19
Number of Disk Writes  = 0
Instructions Executed  = 3435405
Time Spent Sleeping    = 45989
    Total Elapsed Time = 3481394


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
```

```
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
             FileWithVeryLongName012345678901234567890123456789
Beginning execution...
===================  KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...



**********  WriteTest6 running  **********



Initializing data array to ABCDEFGHIJKLMNOPQRSTUVWXYZ...

Writing 10000 bytes to pos 0...

Initializing data array to abcdefghijklmnopqrstuvwxyz...

Writing 10000 bytes to pos 10000...

Checking that the file contains "ABCDEFGHIJKLMNOPQRSTUVWXYZ" at position 0...

Okay.

Checking that the file contains
"ABCDEFGHIJKLMNOPQRSTUVWXYZABCDEFGHIJKLMNOPabcdefghijklmnopqrstuvwxyz" at position 9958...

Okay.

Checking that the file contains "abcdefghijklmnopqrstuvwxyzabcdefghijklmnop" at position 19958...

Okay.

Checking that the file contains "ABCDEFGHIJKLMNOPQRSTUVWXYZ" at position 3900...

Okay.

Checking that the file contains "abcdefghijklmnopqrstuvwxyz" at position 13900...

Okay.

Initializing data array to ABCDEFGHIJKLMNOPQRSTUVWXYZ...

Checking 10000 bytes at pos 0...

Initializing data array to abcdefghijklmnopqrstuvwxyz...
```

```
Checking 10000 bytes at pos 10000...

Initializing data array to ZYXWVUTSRQPONMLKJIHGFEDCBA...

Writing 10000 bytes to pos 0...

Initializing data array to zyxwvutsrqponmlkjihgfedcba...

Writing 10000 bytes to pos 10000...

Checking that the file contains "ZYXWVUTSRQPONMLKJIHGFEDCBA" at position 0...

Okay.

Checking that the file contains
"ZYXWVUTSRQPONMLKJIHGFEDCBAZYXWVUTSRQPONMLKzyxwvutsrqponmlkjihgfedcba" at position 9958...

Okay.

Checking that the file contains "zyxwvutsrqponmlkjihgfedcbazyxwvutsrqponmlk" at position 19958...

Okay.

Checking that the file contains "ZYXWVUTSRQPONMLKJIHGFEDCBA" at position 3900...

Okay.

Checking that the file contains "zyxwvutsrqponmlkjihgfedcba" at position 13900...

Okay.

Initializing data array to ZYXWVUTSRQPONMLKJIHGFEDCBA...

Checking 10000 bytes at pos 0...

Initializing data array to zyxwvutsrqponmlkjihgfedcba...

Checking 10000 bytes at pos 10000...


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000        ret
Number of Disk Reads   = 40
Number of Disk Writes  = 6
Instructions Executed  = 7558690
Time Spent Sleeping    = 29248
    Total Elapsed Time = 7587938


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
```

```
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
            FileWithVeryLongName012345678901234567890123456789
Beginning execution...
==================== KPL PROGRAM STARTING ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  OpenTest3 running  **********


Attempting to open an existing file whose name exceeds the maximum.

Okay.

Okay.

Attempting to open an existing file using a string which crosses a page boundary.

Okay.


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000        ret
Number of Disk Reads    = 18
Number of Disk Writes   = 0
Instructions Executed   = 3422920
Time Spent Sleeping     = 18804
    Total Elapsed Time  = 3441724


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
```

```
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
            FileWithVeryLongName012345678901234567890123456789
Beginning execution...
===================  KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...



**********  ExecTest1 running  **********



Should print 'Hello, world'...

Hello, World!!!



**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads    = 25
Number of Disk Writes   = 0
Instructions Executed   = 3552908
Time Spent Sleeping     = 29418
    Total Elapsed Time  = 3582326


*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads    = 18
Number of Disk Writes   = 0
Instructions Executed   = 3417723
Time Spent Sleeping     = 18804
    Total Elapsed Time  = 3436527
```

```
justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
              FileWithVeryLongName012345678901234567890123456789
Beginning execution...
====================  KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  ExecTest2 running  **********


Attempting to exec an existing file whose name exceeds the maximum.

Okay.

Attempting to exec an existing file which is not an executable.

LoadExecutable: Bad magic number

Okay.

Attempting to open an existing file using a string which crosses a page boundary.

Should print 'Hello, world'...

Hello, World!!!


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****


Done!  The next instruction to execute will be:
```

```
001138: 09000000      ret
Number of Disk Reads   = 26
Number of Disk Writes  = 0
Instructions Executed  = 3572599
Time Spent Sleeping    = 84720
    Total Elapsed Time = 3657319


justin@Justin ~/cs333/p7

$ make && blitz -g os
kpl TestProgram4 -unsafe
asm TestProgram4.s
lddd UserRuntime.o UserSystem.o TestProgram4.o -o TestProgram4
diskUtil -i
diskUtil -a file1 file1
diskUtil -a MyProgram MyProgram
diskUtil -a TestProgram1 TestProgram1
diskUtil -a TestProgram2 TestProgram2
diskUtil -a TestProgram3 TestProgram3
diskUtil -a TestProgram4 TestProgram4
diskUtil -a file2 file2
diskUtil -a file3 file3
diskUtil -a file1234abcd file1234abcd
diskUtil -a Program1 Program1
diskUtil -a Program2 Program2
diskUtil -a FileWithVeryLongName012345678901234567890123456789 \
          FileWithVeryLongName012345678901234567890123456789
Beginning execution...
==================== KPL PROGRAM STARTING  ====================

Initializing Thread Scheduler...

Initializing Thread Manager...

Initializing Frame Manager...

AllocateRandomFrames called.  NUMBER_OF_PHYSICAL_PAGE_FRAMES = 512

Initializing Disk Driver...

Initializing File Manager...


**********  ExecTest3 running  **********


Should print 'Hello, world' 20 times...

Hello, world     1

Hello, world     2

Hello, world     3

Hello, world     4

Hello, world     5

Hello, world     6

Hello, world     7

Hello, world     8

Hello, world     9

Hello, world     10
```

```
Hello, world      11

Hello, world      12

Hello, world      13

Hello, world      14

Hello, world      15

Hello, world      16

Hello, world      17

Hello, world      18

Hello, world      19

Hello, world      20


**********  Test Complete  **********



*****  A 'wait' instruction was executed and no more interrupts are scheduled... halting
emulation!  *****



Done!  The next instruction to execute will be:
001138: 09000000      ret
Number of Disk Reads    = 159
Number of Disk Writes   = 1
Instructions Executed   = 6751191
Time Spent Sleeping     = 219067
    Total Elapsed Time  = 6970258


justin@Justin ~/cs333/p7

$ exit
Script done on Thu, Nov 20, 2014  7:51:44 AM
```