

CSS 430

Prof: Yang Peng

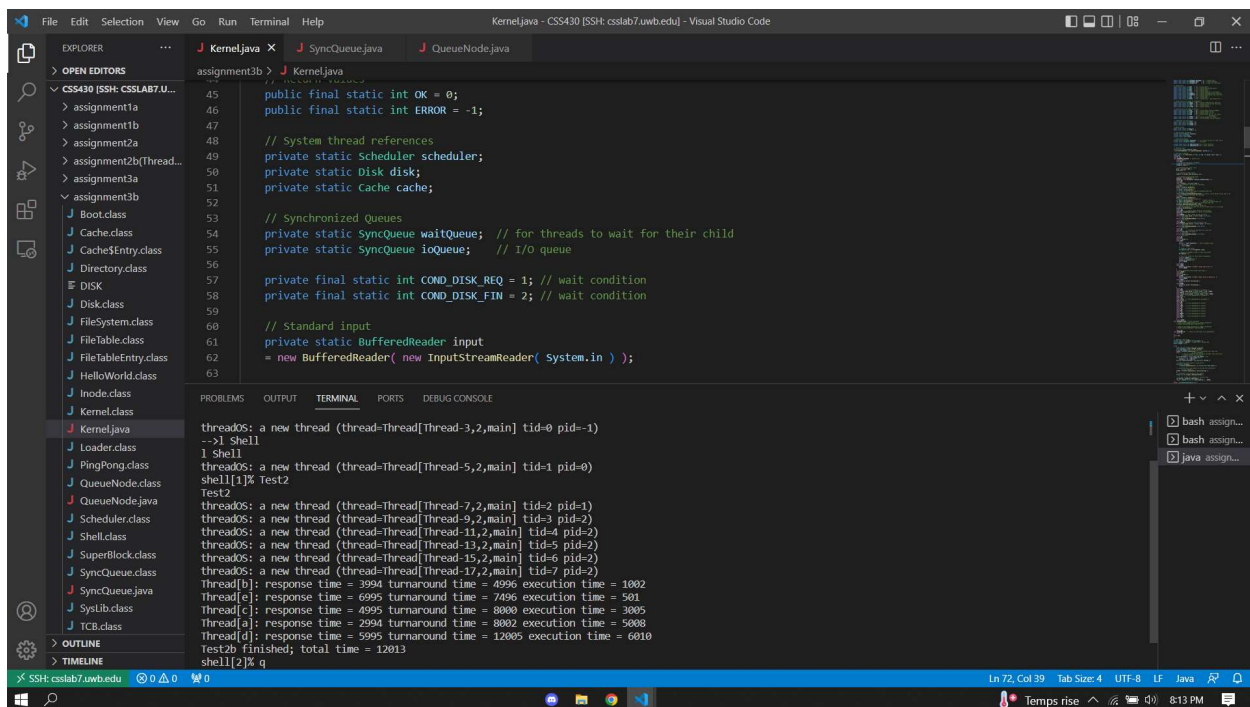
Assignment 3b

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Assignment 3b Purpose:

This assignment exercises an implementation of Java monitors. While the original Java monitors have only an ability of randomly waking up one or all sleeping threads, the implementation of Java monitor in this assignment allows threads to sleep on and wake up from a different condition specified as an integer. Using this special monitor in `SyncQueue.java`, you will implement `SysLib.wait()` and `SysLib.exit()` system calls, with which a parent thread can wait for one of its child threads to be terminated.

Below is the screenshot of the execution of Test2



```
File Edit Selection View Go Run Terminal Help
Kernel.java - CSS430 [SSH: csslab7.uwb.edu] - Visual Studio Code

EXPLORER
> OPEN EDITORS
  CSS430 [SSH: CSSLAB7.U...
    > assignment1a
    > assignment1b
    > assignment2a
    > assignment2b(Thread...
    > assignment3a
    > assignment3b
      J Boot.class
      J Cache.class
      J CacheEntry.class
      J Directory.class
      J DISK
      J Disk.class
      J FileSystem.class
      J FileTable.class
      J FileTableEntry.class
      J HelloWorld.class
      J Inode.class
      J Kernel.class
      J Kernel.java
      J Loader.class
      J PingPong.class
      J QueueNode.class
      J QueueNode.java
      J Scheduler.class
      J Shell.class
      J SuperBlock.class
      J SyncQueue.class
      J SyncQueue.java
      J SysLib.class
      J TCB.class
    > OUTLINE
    > TIMELINE

assignment3b > J Kernel.java
45 public final static int OK = 0;
46 public final static int ERROR = -1;
47
48 // System thread references
49 private static Scheduler scheduler;
50 private static Disk disk;
51 private static Cache cache;
52
53 // Synchronized Queues
54 private static SyncQueue waitQueue; // for threads to wait for their child
55 private static SyncQueue ioQueue; // I/O queue
56
57 private final static int CONO_DISK_REQ = 1; // wait condition
58 private final static int CONO_DISK_FIN = 2; // wait condition
59
60 // Standard input
61 private static BufferedReader input
62 = new BufferedReader( new InputStreamReader( System.in ) );
63

PROBLEMS OUTPUT TERMINAL PORTS DEBUG CONSOLE
thread05: a new thread (thread=Thread[Thread-3,2,main] tid=0 pid=-1)
--21 Shell
1 Shell
thread05: a new thread (thread=Thread[Thread-5,2,main] tid=1 pid=0)
shell[1]% Test2
Test2
thread05: a new thread (thread=Thread[Thread-7,2,main] tid=2 pid=1)
thread05: a new thread (thread=Thread[Thread-9,2,main] tid=3 pid=2)
thread05: a new thread (thread=Thread[Thread-11,2,main] tid=4 pid=2)
thread05: a new thread (thread=Thread[Thread-13,2,main] tid=5 pid=2)
thread05: a new thread (thread=Thread[Thread-15,2,main] tid=6 pid=2)
thread05: a new thread (thread=Thread[Thread-17,2,main] tid=7 pid=2)
Thread[b]: response time = 3994 turnaround time = 4996 execution time = 1802
Thread[c]: response time = 6995 turnaround time = 7496 execution time = 501
Thread[d]: response time = 4995 turnaround time = 8000 execution time = 3005
Thread[a]: response time = 2994 turnaround time = 8002 execution time = 5008
Thread[d]: response time = 5995 turnaround time = 12005 execution time = 6010
Test2b finished; total time = 12013
shell[2]% q

bash assign...
bash assign...
java assign...
```