CIS-657 Spring-2019

Principals of Operating System

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Programming Assignment-1

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CIS657 Spring 2019

Assignment Disclosure Form

Assignment #: Lab-2

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1. Did you consult with anyone other than instructor or TA/grader on parts of this assignment?

      If Yes, please give the details.

No,

2. Did you consult an outside source such as an Internet forum or a book on parts of this assignment?

      If Yes, please give the details.

No

I assert that, to the best of my knowledge, the information on this sheet is true.

Signature:_Divya Sai Sekhar Mullapudi_   Date : 03/30/2019

Design:

Design for Simulation Interrupt service routine:

To deal with IO Read operation and IO Write operation I have created a IORequest object which hold the details of the type of the IORequest, the thread which creates the a IO request , whether it is either read or write, approximately after how much time will it take to perform the operation, the string address that is to be pass to read the data from or write data to it. And Method for this is to a constructor for creating a IORequest object which is parameterized from the threads, a destructor. getType() to determine what type of IORequest and making corresponding thread to sleep state. A Read method to perform read operation and write method to perform write operation. Apart from them, they are few getter and setters. For accessing local variables. These requested are stored in kernel->todo a where the pending IORequests are stored.

IOHandler are created to get callback request from Interrupt service routine for ever OneTick() when the time elapsed to service the request. IOHandler is callback object which is invoked by the interrupt service routine when time has elapsed to service the request. Callback() method is to check the kernel->todo if there exists any IORequest method for its completion.

In Read and Write method of IORequest, those request are performed and making corresponding thread to readytoRun() by increasing its priority.

IOHander that are created for each of the IORequest are added to the Interrupt pending queue. By scheduler(handler, delay which its takes to execute, IORead or IOWrite) where IORead and IOWrite are user defined IO Interrupt type.

Design for MLFQ scheduling policy with aging:

For implementing MLFQ scheduling, the existing ready is replaced with for ready queues and changed the FindNextToRun method of scheduler to pick the a high priority thread from the read queues. Quantum for these queues are stroed in kernel.h as default as 100,200,300,400 or even can be read from the user as command line arguments as -q1, -q2, -q3, -q4.

The priority of thread is maintained by threads. Run method of the scheduler is changed to tell change the existing interrupt if the interrupt pending queue is having any Timer Interrupt pending request, by removing the current time Interrupt and replacing an new TimerInterrupt with new thread corresponding ready queue level's quantum.

ReadyToRun method of the scheduler is changed by adding the thread to the corresponding level of the ready queue based on the threads priority.

If the quantum for the currentThread has completed its execution, the Timer callback is called and a new Timer Interrupt is set based on the currentThread queue's quantum.

Aging is Implented by checking before each time the ReadyToRun method picks its next thread to run by checking the thread lastexecuted time with the current time. If the difference has exceeded the aging time. This thread priority has been increased and placed in the appropriate queue.

Implementation:

Implementing Simulation Interrupt service routine:

Read-Request:

>*string str;*
>
>int delay=rand()%50+200;
>
>std::cout<<"Thread :"<<kernel->currentThread->getName()<<" Read Interrupt will execute at :"<<delay+kernel->stats->totalTicks<<endl;
>
>IORequest *read= new IORequest(&str,kernel->currentThread,delay,0);
>
>std::cout<<"Thread id: "<<kernel->currentThread->getName()<<"---Return read string :"<<str<<"at :"<<kernel->stats->totalTicks<<endl;

Write-Request:

>*string str=" ((Writing to screen)) ";*
>
>int delay = rand()%30+100;
>
>std::cout<<"Thread : "<<kernel->currentThread->getName()<<" will execute at :"<<delay+kernel->stats->totalTicks<<endl;

```
        IORequest *write= new IORequest(&str,kernel->currentThread,delay,1);
```

IORequest.h:

```
        class IORequest
{
        private:
        int type;
        Thread* id;
        string* str;
        int delay_time;
        int raise_request_time;
        int status;
        string read_from="   ((Reading from file))   ";
        string write_to;
        IOHandler *handler;


        public:
        IORequest(string* s, Thread* id, int time, int ty);
        ~IORequest();
        int getType();
        Thread* getThread();
        void Read();
        void Write();
        int getRespondTime();
};
```

IORequest.cc:

```cpp
IORequest::IORequest(string* s, Thread* i, int time, int ty)
{
        IntStatus oldLevel = kernel->interrupt->SetLevel(IntOff);

        type=ty;

        id=i;

        str=s;

        delay_time=time;

        raise_request_time=(kernel->stats->totalTicks)+delay_time;


        handler = new IOHandler();

        if(ty==0)

        {

                kernel->interrupt->Schedule(handler,time,IORead);

        }

        else if(ty==1)

        {

                kernel->interrupt->Schedule(handler,time,IOWrite);

        }

        kernel->todo->Insert(this);

        id->Sleep(false);

        (void) kernel->interrupt->SetLevel(oldLevel);

}

IORequest::~IORequest()

{


}

void
```

```cpp
IORequest:: Read()

{

        *str=read_from;

        IntStatus oldLevel = kernel->interrupt->SetLevel(IntOff);

        id->increasePriority();

        id->increasePriority();

        kernel->scheduler->ReadyToRun(id);

        (void) kernel->interrupt->SetLevel(oldLevel);

}
int

IORequest :: getType()

{

        return type;

}
void

IORequest:: Write()

{

        write_to=*str;

        std::cout<<"----------------------------------------------------------------"<<endl;

        std::cout<<"Displaying string: "<<write_to<<"from "<<id->getName()<<endl;

        std::cout<<"----------------------------------------------------------------"<<endl;

        IntStatus oldLevel = kernel->interrupt->SetLevel(IntOff);

        id->increasePriority();

        id->increasePriority();

        kernel->scheduler->ReadyToRun(id);

        (void) kernel->interrupt->SetLevel(oldLevel);

}
```

```cpp
int IORequest::getRespondTime()

{

        return raise_request_time;

}

Thread*

IORequest:: getThread()

{

        return id;

}
```

IOHandler.h:

```cpp
class IOHandler :  public CallBackObj

{

        private:

        int type;


        public:

        IOHandler();

        ~IOHandler();

        void CallBack();

        bool operator==(IOHandler* other);

};
```

IOHandler.cc:

```cpp
IOHandler :: IOHandler()

{
```

```cpp
}
IOHandler :: ~IOHandler()

{


}
void

IOHandler :: CallBack()

{

        if(kernel->todo->NumInList()==0)

        {

                return;

        }

        ListIterator<IORequest*> *iter = new ListIterator<IORequest*>(kernel->todo);

        while( !iter->IsDone()) {

                IORequest* temp= iter->Item();

                iter->Next();

                if(temp->getRespondTime()<=kernel->stats->totalTicks)

                {

                        if(temp->getType()==0)

                        {

                                std::cout<<"Doing IO Read Handling for thread "<<temp->getThread()->getName()<<"--- at :"<<kernel->stats->totalTicks<<endl;

                                temp->Read();

                        }

                        else if(temp->getType()==1)

                        {

                                std::cout<<"Doing IO Write handling for thread"<<temp->getThread()->getName()<<"--- at :"<<kernel->stats->totalTicks<<endl;
```

```cpp
                    temp->Write();

                }

                kernel->todo->Remove(temp);

            }

            //std::cout<<"Todo Elements:  "<<kernel->todo->NumInList()<<endl;

        }



}
bool IOHandler::operator==(IOHandler* other)

{

        return false;

}
```

Interrupt Type:

```cpp
enum IntType { TimerInt, DiskInt, ConsoleWriteInt, ConsoleReadInt, NetworkSendInt,
NetworkRecvInt, IORead, IOWrite};
```

Kernel-EvenQueue:

```cpp
SortedList<IORequest*> *todo;
```

Kernel.cc

```cpp
int compare(IORequest* r1, IORequest* r2)

{

        if(r1->getRespondTime()>r2->getRespondTime())

        {

                return 1;

        }

        else if(r1->getRespondTime()< r2->getRespondTime())
```

```
        {

                return 1;

        }

        else{

                return 0;

        }


}
```

Implementing MLFQ with aging:

```
        List<Thread *> *readyList;

        List<Thread *> *readyList2;

        List<Thread *> *readyList3;

        List<Thread *> *readyList4;

Scheduler::Scheduler()

{

   readyList = new List<Thread *>;

        readyList2 = new List<Thread *>;

        readyList3 = new List<Thread *>;

        readyList4 = new List<Thread *>;

   toBeDestroyed = NULL;

}

Scheduler::~Scheduler()

{

   delete readyList;

        delete readyList2;

        delete readyList3;
```

```cpp
        delete readyList4;
}


void

Scheduler::ReadyToRun (Thread *thread)

{
    ASSERT(kernel->interrupt->getLevel() == IntOff);

    DEBUG(dbgThread, "Putting thread on ready list: " << thread->getName());


    thread->setStatus(READY);

        int lev= thread->getLeve();

        if(lev==1)

        {

                readyList->Append(thread);

        }

        else if( lev==2)

        {

                readyList2->Append(thread);

        }

        else if(lev==3)

        {

                readyList3->Append(thread);

        }

        else if(lev==4)

        {

                readyList4->Append(thread);

        }
```

```cpp
}

Thread *
Scheduler::FindNextToRun ()
{
        check_aging();
    ASSERT(kernel->interrupt->getLevel() == IntOff);
        Thread *t;
    if (readyList->IsEmpty()) {
                if(readyList2->IsEmpty())
                {
                    if(readyList3->IsEmpty())
                    {
                            if(readyList4->IsEmpty())
                            {
                                    return NULL;
                            }
                            else
                            {
                                    t= readyList4->RemoveFront();
                            }
                    }
                    else
                    {
                            t= readyList3->RemoveFront();
                    }
```

```
                }
                else{
                        t= readyList2->RemoveFront();
                }
        } else {
                t= readyList->RemoveFront();
        }
        t->decreasePriority();
        return t;
}


void
Scheduler::Run (Thread *nextThread, bool finishing)
{
    Thread *oldThread = kernel->currentThread;
    std::cout<<"Thread :  "<<oldThread->getName()<<"  gettin context switch  at "<<kernel->stats->totalTicks<<endl;
    ASSERT(kernel->interrupt->getLevel() == IntOff);

    if (finishing) {          // mark that we need to delete current thread
        ASSERT(toBeDestroyed == NULL);
            toBeDestroyed = oldThread;
    }

    if (oldThread->space != NULL) {      // if this thread is a user program,
        oldThread->SaveUserState();      // save the user's CPU registers
            oldThread->space->SaveState();
```

```
}


oldThread->CheckOverflow();                    // check if the old thread
                                               // had an undetected stack overflow


kernel->currentThread = nextThread;  // switch to the next thread
        int level=-1;
        level=kernel->currentThread->getOld();
        int t=0;
        if(level==1)
        {
                t=kernel->quantum1;
        }
        else if(level==2)
        {
                t=kernel->quantum2;
        }
        else if(level==3)
        {
                t=kernel->quantum3;
        }
        else if(level==4)
        {
                t=kernel->quantum4;
        }
        else{
                t=0;
```

```
        }
        kernel->interrupt->changeInterrupt(t);
    nextThread->setStatus(RUNNING);     // nextThread is now running
        int time= kernel->currentThread->getOld();
    //kernel->interrupt->Schedule(this,time,Schdeuler);
        std::cout<<"Thread : "<<kernel->currentThread->getName()<<"  at ready Queue
"<<kernel->currentThread->getOld()<< "running at "<<kernel->stats->totalTicks<<endl;
    DEBUG(dbgThread, "Switching from: " << oldThread->getName() << " to: " << nextThread-
>getName());


    // This is a machine-dependent assembly language routine defined
    // in switch.s.  You may have to think
    // a bit to figure out what happens after this, both from the point
    // of view of the thread and from the perspective of the "outside world".


    SWITCH(oldThread, nextThread);


    // we're back, running oldThread


    // interrupts are off when we return from switch!
    ASSERT(kernel->interrupt->getLevel() == IntOff);


    DEBUG(dbgThread, "Now in thread: " << oldThread->getName());


    CheckToBeDestroyed();               // check if thread we were running
                                        // before this one has finished
                                        // and needs to be cleaned up
```

```cpp
    if (oldThread->space != NULL) {        // if there is an address space

       oldThread->RestoreUserState();    // to restore, do it.

          oldThread->space->RestoreState();

    }

}


void

Scheduler::check_aging()

{

        ListIterator<Thread *> *iter = new ListIterator<Thread *>(readyList3);

        while( !iter->IsDone()) {

                Thread* temp= iter->Item();

                iter->Next();

                if((kernel->stats->totalTicks)-(temp->getLastExecuted__time()))>= kernel->aging_time)

                {

                        readyList3->Remove(temp);

                        temp->increasePriority();

                        temp->increasePriority();

                        kernel->scheduler->ReadyToRun(temp);

                        std::cout<<"***********************************"<<endl;

                        std::cout<<"Thread :  "<< temp->getName()<< "is getting aged to
increased its priority "<<endl;

                        std::cout<<"***********************************"<<endl;

                }

        }

        ListIterator<Thread *> *iter1 = new ListIterator<Thread *>(readyList4);

        while( !iter1->IsDone()) {
```

```cpp
            Thread* temp= iter1->Item();

            iter1->Next();

            if((kernel->stats->totalTicks)-(temp->getLastExecuted__time()))>= kernel-
>aging_time)

            {

                    readyList4->Remove(temp);

                    temp->increasePriority();

                    temp->increasePriority();

                    kernel->scheduler->ReadyToRun(temp);

                    std::cout<<"***********************************"<<endl;

                    std::cout<<"Thread :  "<< temp->getName()<< "is getting aged to
increased its priority "<<endl;

                    std::cout<<"***********************************"<<endl;

            }

        }
}
```

To store quantum:

```cpp
else if(strcmp(argv[i], "-q1")==0)

        {

                ASSERT(i + 1 < argc);

                randomSlice = FALSE;

                quantum1=atoi(argv[i + 1]);

                i++;

        }

        else if(strcmp(argv[i], "-q2")==0)

        {

                ASSERT(i + 1 < argc);
```

```
                randomSlice = FALSE;

                quantum2=atoi(argv[i + 1]);

                i++;

        }

        else if(strcmp(argv[i], "-q3")==0)

        {

                ASSERT(i + 1 < argc);

                randomSlice = FALSE;

                quantum3=atoi(argv[i + 1]);

                i++;

        }

        else if(strcmp(argv[i], "-q4")==0)

        {

                ASSERT(i + 1 < argc);

                randomSlice = FALSE;

                quantum4=atoi(argv[i + 1]);

                i++;

        }
```

To Change Interrupt:

```
void

Interrupt::changeInterrupt(int t)

{

        ListIterator<PendingInterrupt *> *iter = new ListIterator<PendingInterrupt *>(pending);

        PendingInterrupt* p;

        while( !iter->IsDone()) {

                PendingInterrupt* temp= iter->Item();

                iter->Next();
```

```cpp
            if(temp->type==TimerInt)

            {

                    pending->Remove(temp);

                    p=temp;

            }


            //std::cout<<"Todo Elements:  "<<kernel->todo->NumInList()<<endl;

      }

      p->when=kernel->stats->totalTicks+t;

      std::cout<<"................................"<<endl;

      std::cout<<"Timer Interrupt at  "<<kernel->stats->totalTicks+t<<endl;

      std::cout<<"................................"<<endl;

      pending->Insert(p);


}
```

To Set Timer Interrupt:

```cpp
void

Timer::SetInterrupt()

{

      int t=0;

      int level=-1;

      if(kernel->currentThread!=NULL)

      {

            level=kernel->currentThread->getOld();

      }
```

```
        if(level==1)

        {

                t=kernel->quantum1;

        }

        else if(level==2)

        {

                t=kernel->quantum2;

        }

        else if(level==3)

        {

                t=kernel->quantum3;

        }

        else if(level==4)

        {

                t=kernel->quantum4;

        }




if (!disable) {

  int delay = TimerTicks;


  if (randomize) {

        delay = 1 + (RandomNumber() % (TimerTicks * 2));

   }

  // schedule the next timer device interrupt

      if(t<0)
```

```
        {

                //std::cout<<"error  :"<<t<<" level :"<< level<<endl;

        }

        if(t==0)

        {

                kernel->interrupt->Schedule(this, delay, TimerInt);

                std::cout<<"timer interrutp for empty threads"<< delay<<endl;

        }

        else{

                kernel->interrupt->Schedule(this, t, TimerInt);

                t=0;

                //std::cout<<"timer interrutp at"<< t<<endl;

        }

    level=-1;

  }

}
```

Testing:

Test the program:

- To check the Simulated Read IORequest add following lines to your own created
  function and call it form ThreadTest() of ThreadTest :
  ```
  string str;
  int delay=rand()%50+200;
  std::cout<<"Thread :"<<kernel->currentThread->getName()<<"  Read Interrupt
  will execute at :"<<delay+kernel->stats->totalTicks<<endl;
  IORequest *read= new IORequest(&str,kernel->currentThread,delay,0);
          std::cout<<"Thread id:  "<<kernel->currentThread->getName()<<"---
  Return read string :"<<str<<"at :"<<kernel->stats->totalTicks<<endl;
  ```

- To check the Simulated Write IORequest add following lines to your own created function and call it form ThreadTest() of ThreadTest:

    string str=" ((Writing to screen)) ";
    int delay = rand()%30+100;
    std::cout<<"Thread : "<<kernel->currentThread->getName()<<" will execute at :"<<delay+kernel->stats->totalTicks<<endl;
    IORequest *write= new IORequest(&str,kernel->currentThread,delay,1);

- To check the CPU add following lines to your own created function and call it form ThreadTest() of ThreadTest:

    for(int m=0;m<100;m++)
    {
        IntStatus oldLevel = kernel->interrupt->SetLevel(IntOff);
        (void) kernel->interrupt->SetLevel(oldLevel);
        //std::cout<<"Thread "<<which<<"at ready Queue "<<kernel->currentThread->getOld()<< "running at "<<kernel->stats->totalTicks<<endl;
    }

- To pass quantum as per user specified pass as ./nachos -K -q1 XXX -q2 200 -q3 300 -q4 400
- Aging is checked for 2000 nachos system time.
- I have created 10 thread each functionality is defined in the thread name which takes is as function pointer.

Testing:

1. Make nachos in build.linux folder
2. Run nachos by ./nachos -K -q1 400 -q2 700 -q3 1000 -q4 1500
3. Output is generated based on the order of the threads created how the threads perform IORequests, IOHandler, context switching, aging , Setting timer Interrupt using for each time there is change in the nachos execution system and displaying it corresponding time period that event has occurred.
4. Comments threads forks, changes the function declared to check the those function in the threads as per code snippets above as per your require

Output:

dmullapu@lcs-vc-cis486:~/nachos/code/build.linux$ ./nachos -K -q1 400 -q2 700 -q3 1000 -q4 1500

****
*****

Quantum for Ready Queue with Priority 1: 400

Quantum for Ready Queue with Priority 2: 700

Quantum for Ready Queue with Priority 3: 1000

Quantum for Ready Queue with Priority 4: 1500

****
*****

....

Timer Interrupt at 520 having qunatum 400

....

Thread : postal worker   having priority 1 running at 120

....

Timer Interrupt at 530 having qunatum 400

....

Thread : CPU bound   having priority 1 running at 130

....

Timer Interrupt at 930 having qunatum 400

....

Thread : Read Thread   having priority 1 running at 530

Thread :Read Thread Read Interrupt will execute at :773

....

Timer Interrupt at 940 having qunatum 400

....

Thread : Write Thread   having priority 1 running at 540

Thread : Write Thread will execute at :666

....

Timer Interrupt at 950 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 550

Thread :IO-CPU-Intensive Read Interrupt will execute at :787

....

Timer Interrupt at 960 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 560

Thread : Write-Read-CPU   Write Interrupt will execute at :695

....

Timer Interrupt at 970 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 570

Thread :Read Intensive Read Interrupt will execute at :823

....

Timer Interrupt at 980 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 580

Thread : Write Intensive Write Interrupt will execute at :715

....

Timer Interrupt at 990 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 590

Thread :IO Intensive Read Interrupt will execute at :836

....

Timer Interrupt at 1000 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 600

Thread :CPU-IO-Intensive Read Interrupt will execute at :852

....

Timer Interrupt at 1010 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 610

Doing IO Write handling for threadWrite Thread--- at :670

Displaying string: ((Writing to screen)) from Write Thread

Doing IO Write handling for threadWrite-Read-CPU--- at :700

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadWrite Intensive--- at :720

Displaying string: ((Writing to screen)) from Write Intensive

----

Doing IO Read Handling for thread Read Thread--- at :780

Doing IO Read Handling for thread IO-CPU-Intensive--- at :790

Doing IO Read Handling for thread Read Intensive--- at :830

Doing IO Read Handling for thread IO Intensive--- at :840

Doing IO Read Handling for thread CPU-IO-Intensive--- at :860

....

Timer Interrupt at 1410 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 1010

....

Timer Interrupt at 1810 having qunatum 400

....

Thread : Write Thread   having priority 1 running at 1410

==
======

Exiting Thread : Write Threadat 1420

==
======

....

Timer Interrupt at 1820 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 1420

Thread : Write-Read-CPU   Write Interrupt will execute at :1539

....

Timer Interrupt at 1830 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 1430

Thread : Write Intensive Write Interrupt will execute at :1541

....

Timer Interrupt at 1840 having qunatum 400

....

Thread : Read Thread   having priority 1 running at 1440

Thread id: Read Thread---Return read string : ((Reading from file)) at :1450

==
======

Exiting Thread : Read Threadat 1450

==
======

....

Timer Interrupt at 1850 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 1450

Thread id: IO-CPU-Intensive----Return read string : ((Reading from file)) at :1460

Thread :IO-CPU-Intensive Read Interrupt will execute at :1672

....

Timer Interrupt at 1860 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 1460

Thread id: Read Intensive---Return read string : ((Reading from file)) at :1470

Thread :Read Intensive Read Interrupt will execute at :1697

....

Timer Interrupt at 1870 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 1470

Thread id: IO Intensive----Return read string :   ((Reading from file)) at :1480

Thread :IO Intensive Read Interrupt will execute at :1720

....

Timer Interrupt at 1880 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 1480

Thread id: CPU-IO-Intensive----Return read string :   ((Reading from file)) at :1490

Thread :CPU-IO-Intensive Read Interrupt will execute at :1699

....

Timer Interrupt at 2190 having qunatum 700

....

Thread : CPU bound   having priority 2 running at 1490

Doing IO Write handling for threadWrite-Read-CPU--- at :1540

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadWrite Intensive--- at :1550

Displaying string: ((Writing to screen)) from Write Intensive

----

Doing IO Read Handling for thread IO-CPU-Intensive--- at :1680

Doing IO Read Handling for thread Read Intensive--- at :1700

Doing IO Read Handling for thread CPU-IO-Intensive--- at :1700

Doing IO Read Handling for thread IO Intensive--- at :1720

....

Timer Interrupt at 2590 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 2190

Thread : Write-Read-CPU   Write Interrupt will execute at :2323

....

Timer Interrupt at 2600 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 2200

Thread : Write Intensive Write Interrupt will execute at :2326

....

Timer Interrupt at 2610 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 2210

Thread id: IO-CPU-Intensive----Return read string : ((Reading from file)) at :2220

Thread :IO-CPU-Intensive Read Interrupt will execute at :2460

....

Timer Interrupt at 2620 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 2220

Thread id: Read Intensive---Return read string : ((Reading from file)) at :2230

Thread :Read Intensive Read Interrupt will execute at :2456

....

Timer Interrupt at 2630 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 2230

Thread id: CPU-IO-Intensive----Return read string :   ((Reading from file)) at :2240

Thread :CPU-IO-Intensive Read Interrupt will execute at :2462

....

Timer Interrupt at 2640 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 2240

Thread id: IO Intensive----Return read string : ((Reading from file)) at :2250

Thread :IO Intensive Read Interrupt will execute at :2486

....

Timer Interrupt at 2950 having qunatum 700

....

Thread : CPU-Read-Intensive   having priority 2 running at 2250

Doing IO Write handling for threadWrite-Read-CPU--- at :2330

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadWrite Intensive--- at :2330

Displaying string: ((Writing to screen)) from Write Intensive

----

Doing IO Read Handling for thread IO-CPU-Intensive--- at :2460

Doing IO Read Handling for thread Read Intensive--- at :2460

Doing IO Read Handling for thread CPU-IO-Intensive--- at :2470

Doing IO Read Handling for thread IO Intensive--- at :2490

....

Timer Interrupt at 3350 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 2950

Thread : Write-Read-CPU   Write Interrupt will execute at :3071

....

Timer Interrupt at 3360 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 2960

Thread : Write Intensive Write Interrupt will execute at :3078

....

Timer Interrupt at 3370 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 2970

Thread id: IO-CPU-Intensive----Return read string : ((Reading from file)) at :2980

Thread :IO-CPU-Intensive Read Interrupt will execute at :3197

....

Timer Interrupt at 3380 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 2980

Thread id: Read Intensive---Return read string : ((Reading from file)) at :2990

Thread :Read Intensive Read Interrupt will execute at :3219

....

Timer Interrupt at 3390 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 2990

Thread id: CPU-IO-Intensive----Return read string :   ((Reading from file)) at :3000

Thread :CPU-IO-Intensive Read Interrupt will execute at :3232

....

Timer Interrupt at 3400 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 3000

Thread id: IO Intensive----Return read string : ((Reading from file)) at :3010

Thread :IO Intensive Read Interrupt will execute at :3240

....

Timer Interrupt at 3710 having qunatum 700

....

Thread : CPU-Write-Intensive   having priority 2 running at 3010

Doing IO Write handling for threadWrite-Read-CPU--- at :3080

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadWrite Intensive--- at :3080

Displaying string: ((Writing to screen)) from Write Intensive

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Doing IO Read Handling for thread IO-CPU-Intensive--- at :3200

Doing IO Read Handling for thread Read Intensive--- at :3220

Doing IO Read Handling for thread CPU-IO-Intensive--- at :3240

Doing IO Read Handling for thread IO Intensive--- at :3240

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Thread : CPU boundis getting aged to increased its priority

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Timer Interrupt at 4110 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 3710

Thread : Write-Read-CPU   Write Interrupt will execute at :3822

....

Timer Interrupt at 4120 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 3720

Thread : Write Intensive Write Interrupt will execute at :3843

....

Timer Interrupt at 4130 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 3730

Thread id: IO-CPU-Intensive----Return read string : ((Reading from file)) at :3740

Thread :IO-CPU-Intensive Read Interrupt will execute at :3957

....

Timer Interrupt at 4140 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 3740

Thread id: Read Intensive---Return read string : ((Reading from file)) at :3750

Thread :Read Intensive Read Interrupt will execute at :3985

....

Timer Interrupt at 4150 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 3750

Thread id: CPU-IO-Intensive----Return read string : ((Reading from file)) at :3760

Thread :CPU-IO-Intensive Read Interrupt will execute at :3989

....

Timer Interrupt at 4160 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 3760

Thread id: IO Intensive----Return read string : ((Reading from file)) at :3770

Thread :IO Intensive Read Interrupt will execute at :3972

....

Timer Interrupt at 4170 having qunatum 400

....

Thread : CPU bound   having priority 1 running at 3770

Doing IO Write handling for threadWrite-Read-CPU--- at :3830

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadWrite Intensive--- at :3850

Displaying string: ((Writing to screen)) from Write Intensive

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Doing IO Read Handling for thread IO-CPU-Intensive--- at :3960

Doing IO Read Handling for thread IO Intensive--- at :3980

Doing IO Read Handling for thread Read Intensive--- at :3990

Doing IO Read Handling for thread CPU-IO-Intensive--- at :3990

....

Timer Interrupt at 4570 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 4170

Thread : Write-Read-CPU   Write Interrupt will execute at :4292

....

Timer Interrupt at 4580 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 4180

Thread : Write Intensive Write Interrupt will execute at :4308

....

Timer Interrupt at 4590 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 4190

Thread id: IO-CPU-Intensive----Return read string : ((Reading from file)) at :4200

Thread : IO-CPU-Intensive Write Interrupt will execute at :4329

....

Timer Interrupt at 4600 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 4200

Thread id: IO Intensive----Return read string : ((Reading from file)) at :4210

Thread :IO Intensive Read Interrupt will execute at :4427

....

Timer Interrupt at 4610 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 4210

Thread id: Read Intensive---Return read string : ((Reading from file)) at :4220

Thread :Read Intensive Read Interrupt will execute at :4463

....

Timer Interrupt at 4620 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 4220

Thread id: CPU-IO-Intensive----Return read string : ((Reading from file)) at :4230

Thread :CPU-IO-Intensive Read Interrupt will execute at :4436

....

Timer Interrupt at 4930 having qunatum 700

....

Thread : CPU bound   having priority 2 running at 4230

Doing IO Write handling for threadWrite-Read-CPU--- at :4300

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadWrite Intensive--- at :4310

Displaying string: ((Writing to screen)) from Write Intensive

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Doing IO Write handling for threadIO-CPU-Intensive--- at :4330

Displaying string: ((Writing to screen)) from IO-CPU-Intensive

----

Doing IO Read Handling for thread IO Intensive--- at :4430

Doing IO Read Handling for thread CPU-IO-Intensive--- at :4440

Doing IO Read Handling for thread Read Intensive--- at :4470

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Thread : CPU-Read-Intensiveis getting aged to increased its priority

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....

Timer Interrupt at 5330 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 4930

Thread : Write-Read-CPU   Write Interrupt will execute at :5041

....

Timer Interrupt at 5340 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 4940

Thread : Write Intensive Write Interrupt will execute at :5072

....

Timer Interrupt at 5350 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 4950

Thread : IO-CPU-Intensive Write Interrupt will execute at :5069

....

Timer Interrupt at 5360 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 4960

Thread id: IO Intensive----Return read string :   ((Reading from file)) at :4970

Thread :IO Intensive Read Interrupt will execute at :5193

....

Timer Interrupt at 5370 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 4970

Thread id: CPU-IO-Intensive----Return read string :   ((Reading from file)) at :4980

Thread :CPU-IO-Intensive Read Interrupt will execute at :5201

....

Timer Interrupt at 5380 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 4980

Thread id: Read Intensive---Return read string :   ((Reading from file)) at :4990

Thread :Read Intensive Read Interrupt will execute at :5209

....

Timer Interrupt at 5390 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 4990

Doing IO Write handling for threadWrite-Read-CPU--- at :5050

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadIO-CPU-Intensive--- at :5070

Displaying string: ((Writing to screen)) from IO-CPU-Intensive

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Doing IO Write handling for threadWrite Intensive--- at :5080

Displaying string: ((Writing to screen)) from Write Intensive

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Doing IO Read Handling for thread IO Intensive--- at :5200

Doing IO Read Handling for thread CPU-IO-Intensive--- at :5210

Doing IO Read Handling for thread Read Intensive--- at :5210

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Thread : CPU-Write-Intensiveis getting aged to increased its priority

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Timer Interrupt at 5790 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 5390

Thread : Write-Read-CPU   Write Interrupt will execute at :5514

....

Timer Interrupt at 5800 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 5400

Thread : IO-CPU-Intensive Write Interrupt will execute at :5517

....

Timer Interrupt at 5810 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 5410

Thread : Write Intensive Write Interrupt will execute at :5528

....

Timer Interrupt at 5820 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 5420

Thread id: IO Intensive----Return read string : ((Reading from file)) at :5430

Thread :IO Intensive Read Interrupt will execute at :5654

....

Timer Interrupt at 5830 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 5430

Thread id: CPU-IO-Intensive----Return read string : ((Reading from file)) at :5440

Thread :CPU-IO-Intensive Read Interrupt will execute at :5655

....

Timer Interrupt at 5840 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 5440

Thread id: Read Intensive---Return read string :   ((Reading from file)) at :5450

Thread :Read Intensive Read Interrupt will execute at :5670

....

Timer Interrupt at 5850 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 5450

Doing IO Write handling for threadWrite-Read-CPU--- at :5520

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadIO-CPU-Intensive--- at :5520

Displaying string: ((Writing to screen)) from IO-CPU-Intensive

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Doing IO Write handling for threadWrite Intensive--- at :5530

Displaying string: ((Writing to screen)) from Write Intensive

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Doing IO Read Handling for thread IO Intensive--- at :5660

Doing IO Read Handling for thread CPU-IO-Intensive--- at :5660

Doing IO Read Handling for thread Read Intensive--- at :5670

....

Timer Interrupt at 6250 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 5850

Thread : Write-Read-CPU   Write Interrupt will execute at :5983

....

Timer Interrupt at 6260 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 5860

Thread : IO-CPU-Intensive Write Interrupt will execute at :5986

....

Timer Interrupt at 6270 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 5870

Thread : Write Intensive Write Interrupt will execute at :5981

....

Timer Interrupt at 6280 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 5880

Thread id: IO Intensive----Return read string :   ((Reading from file)) at :5890

Thread :IO Intensive Read Interrupt will execute at :6120

....

Timer Interrupt at 6290 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 5890

Thread id: CPU-IO-Intensive----Return read string :   ((Reading from file)) at :5900

Thread :CPU-IO-Intensive Read Interrupt will execute at :6106

....

Timer Interrupt at 6300 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 5900

Thread id: Read Intensive---Return read string :   ((Reading from file)) at :5910

Thread :Read Intensive Read Interrupt will execute at :6133

....

Timer Interrupt at 6610 having qunatum 700

....

Thread : CPU-Read-Intensive   having priority 2 running at 5910

Doing IO Write handling for threadWrite-Read-CPU--- at :5990

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadIO-CPU-Intensive--- at :5990

Displaying string: ((Writing to screen)) from IO-CPU-Intensive

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Doing IO Write handling for threadWrite Intensive--- at :5990

Displaying string: ((Writing to screen)) from Write Intensive

----

Doing IO Read Handling for thread CPU-IO-Intensive--- at :6110

Doing IO Read Handling for thread IO Intensive--- at :6120

Doing IO Read Handling for thread Read Intensive--- at :6140

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Thread :  CPU boundis getting aged to increased its priority

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Timer Interrupt at  7010 having qunatum  400

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Thread : Write-Read-CPU   having priority 1 running at 6610

Thread :  Write-Read-CPU   Write Interrupt will execute at :6722

..................................

Timer Interrupt at  7020 having qunatum  400

..................................

Thread : IO-CPU-Intensive   having priority 1 running at 6620

Thread :  IO-CPU-Intensive Write Interrupt will execute at :6750

..................................

Timer Interrupt at  7030 having qunatum  400

..................................

Thread : Write Intensive   having priority 1 running at 6630

Thread :  Write Intensive  Write Interrupt will execute at :6756

..................................

Timer Interrupt at  7040 having qunatum  400

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Thread : CPU-IO-Intensive   having priority 1 running at 6640

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Thread id:  CPU-IO-Intensive----Return read string :  ((Reading from file))  at :6650

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Thread :CPU-IO-Intensive Read Interrupt will execute at :6881

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Timer Interrupt at  7050 having qunatum  400

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Thread : IO Intensive   having priority 1 running at 6650

Thread id: IO Intensive----Return read string :   ((Reading from file)) at :6660

Thread :IO Intensive Read Interrupt will execute at :6865

....

Timer Interrupt at 7060 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 6660

Thread id: Read Intensive---Return read string :   ((Reading from file)) at :6670

Thread :Read Intensive Read Interrupt will execute at :6895

....

Timer Interrupt at 7070 having qunatum 400

....

Thread : CPU bound   having priority 1 running at 6670

Doing IO Write handling for threadWrite-Read-CPU--- at :6730

Displaying string: ((Writing to screen)) from Write-Read-CPU

Doing IO Write handling for threadIO-CPU-Intensive--- at :6750

Displaying string: ((Writing to screen)) from IO-CPU-Intensive

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Doing IO Write handling for threadWrite Intensive--- at :6760

Displaying string: ((Writing to screen)) from Write Intensive

----

Doing IO Read Handling for thread IO Intensive--- at :6870

Doing IO Read Handling for thread CPU-IO-Intensive--- at :6890

Doing IO Read Handling for thread Read Intensive--- at :6900

....

Timer Interrupt at 7470 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 7070

Thread :Write-Read-CPU Read Interrupt will execute at :7314

....

Timer Interrupt at 7480 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 7080

Doing IO Read Handling for thread Write-Read-CPU--- at :7320

....

Timer Interrupt at 7880 having qunatum 400

....

Thread : Write Intensive   having priority 1 running at 7480

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Exiting Thread : Write Intensiveat 7490

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Timer Interrupt at 7890 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 7490

Thread id: IO Intensive----Return read string :   ((Reading from file)) at :7500

Thread : IO Intensive Write Interrupt will execute at :7627

....

Timer Interrupt at 7900 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 7500

Thread id: CPU-IO-Intensive----Return read string :   ((Reading from file)) at :7510

Doing IO Write handling for threadIO Intensive--- at :7630

Displaying string: ((Writing to screen)) from IO Intensive

....

Timer Interrupt at 8300 having qunatum 400

....

Thread : Read Intensive   having priority 1 running at 7900

Thread id: Read Intensive---Return read string :   ((Reading from file)) at :7910

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Exiting Thread : Read Intensiveat 7910

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Thread : CPU-Read-Intensiveis getting aged to increased its priority

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Timer Interrupt at 8310 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 7910

Thread id: Write-Read-CPU----Return read string :   ((Reading from file)) at :7920

Thread :Write-Read-CPU Read Interrupt will execute at :8156

....

Timer Interrupt at 8320 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 7920

Thread : IO Intensive Write Interrupt will execute at :8035

....

Timer Interrupt at 8330 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 7930

Doing IO Write handling for threadIO Intensive--- at :8040

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :8160

....

Timer Interrupt at 8730 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 8330

Thread : IO Intensive Write Interrupt will execute at :8456

....

Timer Interrupt at 8740 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 8340

Thread id: Write-Read-CPU----Return read string : ((Reading from file)) at :8350

Thread :Write-Read-CPU Read Interrupt will execute at :8579

....

Timer Interrupt at 9050 having qunatum 700

....

Thread : CPU-Write-Intensive   having priority 2 running at 8350

Doing IO Write handling for threadIO Intensive--- at :8460

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :8580

....

Timer Interrupt at 9450 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 9050

Thread : IO Intensive Write Interrupt will execute at :9173

....

Timer Interrupt at 9460 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 9060

Thread id: Write-Read-CPU----Return read string : ((Reading from file)) at :9070

Thread :Write-Read-CPU Read Interrupt will execute at :9277

....

Timer Interrupt at 9770 having qunatum 700

....

Thread : CPU bound   having priority 2 running at 9070

Doing IO Write handling for threadIO Intensive--- at :9180

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :9280

....

Timer Interrupt at 10170 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 9770

Thread : IO Intensive Write Interrupt will execute at :9904

....

Timer Interrupt at 10180 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 9780

Thread id: Write-Read-CPU----Return read string :   ((Reading from file)) at :9790

Thread :Write-Read-CPU Read Interrupt will execute at :10035

....

Timer Interrupt at 10490 having qunatum 700

....

Thread : IO-CPU-Intensive   having priority 2 running at 9790

Doing IO Write handling for threadIO Intensive--- at :9910

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :10040

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Thread : CPU-Write-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 10890 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 10490

Thread : IO Intensive Write Interrupt will execute at :10612

....

Timer Interrupt at 10900 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 10500

Thread id: Write-Read-CPU----Return read string :   ((Reading from file)) at :10510

Thread :Write-Read-CPU Read Interrupt will execute at :10755

....

Timer Interrupt at 10910 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 10510

Doing IO Write handling for threadIO Intensive--- at :10620

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :10760

....

Timer Interrupt at 11310 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 10910

Thread : IO Intensive Write Interrupt will execute at :11034

....

Timer Interrupt at 11320 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 10920

Thread id: Write-Read-CPU----Return read string : ((Reading from file)) at :10930

Thread :Write-Read-CPU Read Interrupt will execute at :11147

....

Timer Interrupt at 11630 having qunatum 700

....

Thread : CPU-IO-Intensive   having priority 2 running at 10930

Doing IO Write handling for threadIO Intensive--- at :11040

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :11150

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Thread : CPU boundis getting aged to increased its priority

****

....

Timer Interrupt at 12030 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 11630

Thread : IO Intensive Write Interrupt will execute at :11754

....

Timer Interrupt at 12040 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 11640

Thread id: Write-Read-CPU----Return read string : ((Reading from file)) at :11650

Thread :Write-Read-CPU Read Interrupt will execute at :11864

....

Timer Interrupt at 12050 having qunatum 400

....

Thread : CPU bound   having priority 1 running at 11650

Doing IO Write handling for threadIO Intensive--- at :11760

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :11870

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Thread : IO-CPU-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 12450 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 12050

Thread : IO Intensive Write Interrupt will execute at :12163

....

Timer Interrupt at 12460 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 12060

Thread id: Write-Read-CPU----Return read string :   ((Reading from file)) at :12070

Thread :Write-Read-CPU Read Interrupt will execute at :12270

....

Timer Interrupt at 12470 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 12070

Doing IO Write handling for threadIO Intensive--- at :12170

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :12270

....

Timer Interrupt at 12870 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 12470

Thread : IO Intensive Write Interrupt will execute at :12587

....

Timer Interrupt at 12880 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 12480

Thread id: Write-Read-CPU----Return read string :   ((Reading from file)) at :12490

Thread :Write-Read-CPU Read Interrupt will execute at :12698

....

Timer Interrupt at 13190 having qunatum 700

....

Thread : CPU-Read-Intensive   having priority 2 running at 12490

Doing IO Write handling for threadIO Intensive--- at :12590

Displaying string: ((Writing to screen)) from IO Intensive

Doing IO Read Handling for thread Write-Read-CPU--- at :12700

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Thread : CPU-IO-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 13590 having qunatum 400

....

Thread : IO Intensive   having priority 1 running at 13190

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Exiting Thread :   IO Intensiveat 13200

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Timer Interrupt at 13600 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 13200

Thread id: Write-Read-CPU----Return read string :   ((Reading from file)) at :13210

....

Timer Interrupt at 14000 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 13600

....

Timer Interrupt at 14700 having qunatum 700

....

Thread : CPU-Write-Intensive   having priority 2 running at 14000

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****

Thread : CPU-Read-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 15100 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 14700

....

Timer Interrupt at 15800 having qunatum 700

....

Thread : CPU bound   having priority 2 running at 15100

....

Timer Interrupt at 16500 having qunatum 700

....

Thread : IO-CPU-Intensive   having priority 2 running at 15800

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****

Thread : CPU-Write-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 16900 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 16500

....

Timer Interrupt at 17600 having qunatum 700

....

Thread : Write-Read-CPU   having priority 2 running at 16900

****

****

Thread : CPU boundis getting aged to increased its priority

****

....

Timer Interrupt at 18000 having qunatum 400

....

Thread : CPU bound   having priority 1 running at 17600

****

****

Thread : IO-CPU-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 18400 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 18000

....

Timer Interrupt at 19100 having qunatum 700

....

Thread : CPU-IO-Intensive   having priority 2 running at 18400

****

****

Thread : Write-Read-CPUis getting aged to increased its priority

****

....

Timer Interrupt at 19500 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 19100

....

Timer Interrupt at 20200 having qunatum 700

....

Thread : CPU-Read-Intensive   having priority 2 running at 19500

....

Timer Interrupt at 20900 having qunatum 700

....

Thread : CPU-Write-Intensive   having priority 2 running at 20200

****

****

Thread : CPU-IO-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 21300 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 20900

....

Timer Interrupt at 22000 having qunatum 700

....

Thread : CPU bound   having priority 2 running at 21300

****

****

Thread : CPU-Read-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 22400 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 22000

****

****

Thread : CPU-Write-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 22800 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 22400

....

Timer Interrupt at 23500 having qunatum 700

....

Thread : IO-CPU-Intensive   having priority 2 running at 22800

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****

Thread : CPU boundis getting aged to increased its priority

****

....

Timer Interrupt at 23900 having qunatum 400

....

Thread : CPU bound   having priority 1 running at 23500

....

Timer Interrupt at 24600 having qunatum 700

....

Thread : Write-Read-CPU   having priority 2 running at 23900

....

Timer Interrupt at 25300 having qunatum 700

....

Thread : CPU-IO-Intensive   having priority 2 running at 24600

Thread : CPU-IO-Intensive   Write Interrupt will execute at :25166

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Thread : IO-CPU-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 25460 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 25060

Doing IO Write handling for threadCPU-IO-Intensive--- at :25170

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

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....

Timer Interrupt at 25860 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 25460

Thread : CPU-IO-Intensive   Write Interrupt will execute at :25578

....

Timer Interrupt at 26170 having qunatum 700

....

Thread : CPU-Read-Intensive   having priority 2 running at 25470

Doing IO Write handling for threadCPU-IO-Intensive--- at :25580

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

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Thread :CPU-Read-Intensive Read Interrupt will execute at :26008

....

Timer Interrupt at 26170 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 25770

Thread : CPU-IO-Intensive   Write Interrupt will execute at :25904

....

Timer Interrupt at 26480 having qunatum 700

....

Thread : CPU-Write-Intensive   having priority 2 running at 25780

Doing IO Write handling for threadCPU-IO-Intensive--- at :25910

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :26010

Thread : CPU-Write-Intensive   Write Interrupt will execute at :26183

****

****

Thread : Write-Read-CPUis getting aged to increased its priority

****

....

Timer Interrupt at 26480 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 26080

Thread : CPU-IO-Intensive   Write Interrupt will execute at :26201

....

Timer Interrupt at 26490 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 26090

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :26100

Thread :CPU-Read-Intensive Read Interrupt will execute at :26304

....

Timer Interrupt at 26500 having qunatum 400

....

Thread : Write-Read-CPU   having priority 1 running at 26100

Doing IO Write handling for threadCPU-Write-Intensive--- at :26190

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Write handling for threadCPU-IO-Intensive--- at :26210

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :26310

....

Timer Interrupt at 26900 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 26500

Thread : CPU-Write-Intensive   Write Interrupt will execute at :26629

....

Timer Interrupt at 26910 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 26510

Thread : CPU-IO-Intensive   Write Interrupt will execute at :26632

....

Timer Interrupt at 26920 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 26520

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :26530

Thread :CPU-Read-Intensive Read Interrupt will execute at :26740

....

Timer Interrupt at 27230 having qunatum 700

....

Thread : CPU bound   having priority 2 running at 26530

Doing IO Write handling for threadCPU-Write-Intensive--- at :26630

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Write handling for threadCPU-IO-Intensive--- at :26640

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :26740

....

Timer Interrupt at 27630 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 27230

Thread : CPU-Write-Intensive   Write Interrupt will execute at :27366

....

Timer Interrupt at 27640 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 27240

Thread : CPU-IO-Intensive   Write Interrupt will execute at :27368

....

Timer Interrupt at 27650 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 27250

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :27260

Thread :CPU-Read-Intensive Read Interrupt will execute at :27499

....

Timer Interrupt at 27960 having qunatum 700

....

Thread : IO-CPU-Intensive   having priority 2 running at 27260

Doing IO Write handling for threadCPU-Write-Intensive--- at :27370

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Write handling for threadCPU-IO-Intensive--- at :27370

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :27500

....

Timer Interrupt at 28360 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 27960

Thread : CPU-Write-Intensive   Write Interrupt will execute at :28092

....

Timer Interrupt at 28370 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 27970

Thread : CPU-IO-Intensive   Write Interrupt will execute at :28096

....

Timer Interrupt at 28380 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 27980

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :27990

Thread :CPU-Read-Intensive Read Interrupt will execute at :28226

....

Timer Interrupt at 28690 having qunatum 700

....

Thread : Write-Read-CPU   having priority 2 running at 27990

Doing IO Write handling for threadCPU-Write-Intensive--- at :28100

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Write handling for threadCPU-IO-Intensive--- at :28100

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :28230

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======

Exiting Thread : Write-Read-CPUat 28450

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======

....

Timer Interrupt at 28850 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 28450

Thread : CPU-Write-Intensive   Write Interrupt will execute at :28584

....

Timer Interrupt at 28860 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 28460

Thread : CPU-IO-Intensive   Write Interrupt will execute at :28599

....

Timer Interrupt at 28870 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 28470

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :28480

Thread :CPU-Read-Intensive Read Interrupt will execute at :28725

....

Timer Interrupt at 29480 having qunatum 1000

....

Thread : CPU bound   having priority 3 running at 28480

Doing IO Write handling for threadCPU-Write-Intensive--- at :28590

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Write handling for threadCPU-IO-Intensive--- at :28600

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :28730

****

****

Thread : IO-CPU-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 29880 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 29480

Thread : CPU-Write-Intensive   Write Interrupt will execute at :29600

....

Timer Interrupt at 29890 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 29490

Thread : CPU-IO-Intensive   Write Interrupt will execute at :29614

....

Timer Interrupt at 29900 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 29500

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :29510

Thread :CPU-Read-Intensive Read Interrupt will execute at :29738

....

Timer Interrupt at 29910 having qunatum 400

....

Thread : IO-CPU-Intensive   having priority 1 running at 29510

Doing IO Write handling for threadCPU-Write-Intensive--- at :29600

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Write handling for threadCPU-IO-Intensive--- at :29620

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :29740

....

Timer Interrupt at 30310 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 29910

Thread : CPU-Write-Intensive   Write Interrupt will execute at :30037

....

Timer Interrupt at 30320 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 29920

Thread : CPU-IO-Intensive   Write Interrupt will execute at :30051

....

Timer Interrupt at 30330 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 29930

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :29940

Thread :CPU-Read-Intensive Read Interrupt will execute at :30187

....

Timer Interrupt at 30640 having qunatum 700

....

Thread : IO-CPU-Intensive   having priority 2 running at 29940

Doing IO Write handling for threadCPU-Write-Intensive--- at :30040

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Write handling for threadCPU-IO-Intensive--- at :30060

Displaying string: ((Writing to screen)) from CPU-IO-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :30190

****

****

Thread : CPU boundis getting aged to increased its priority

****

....

Timer Interrupt at 31040 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 30640

Thread : CPU-Write-Intensive   Write Interrupt will execute at :30752

....

Timer Interrupt at 31050 having qunatum 400

....

Thread : CPU-IO-Intensive   having priority 1 running at 30650

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======

Exiting Thread : CPU-IO-Intensiveat 30660

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....

Timer Interrupt at 31060 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 30660

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :30670

Thread :CPU-Read-Intensive Read Interrupt will execute at :30887

....

Timer Interrupt at 31370 having qunatum 700

....

Thread : CPU bound   having priority 2 running at 30670

Doing IO Write handling for threadCPU-Write-Intensive--- at :30760

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :30890

....

Timer Interrupt at 31770 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 31370

Thread : CPU-Write-Intensive   Write Interrupt will execute at :31492

....

Timer Interrupt at 31780 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 31380

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :31390

Thread :CPU-Read-Intensive Read Interrupt will execute at :31592

....

Timer Interrupt at 32390 having qunatum 1000

....

Thread : IO-CPU-Intensive   having priority 3 running at 31390

Doing IO Write handling for threadCPU-Write-Intensive--- at :31500

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

Doing IO Read Handling for thread CPU-Read-Intensive--- at :31600

....

Timer Interrupt at 32790 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 32390

Thread : CPU-Write-Intensive   Write Interrupt will execute at :32526

....

Timer Interrupt at 32800 having qunatum 400

....

Thread : CPU-Read-Intensive   having priority 1 running at 32400

Thread id: CPU-Read-Intensive---Return read string :   ((Reading from file)) at :32410

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======

Exiting Thread : CPU-Read-Intensiveat 32410

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======

....

Timer Interrupt at 33410 having qunatum 1000

....

Thread : CPU bound   having priority 3 running at 32410

Doing IO Write handling for threadCPU-Write-Intensive--- at :32530

Displaying string: ((Writing to screen)) from CPU-Write-Intensive

----

****

****

Thread : IO-CPU-Intensiveis getting aged to increased its priority

****

....

Timer Interrupt at 33810 having qunatum 400

....

Thread : CPU-Write-Intensive   having priority 1 running at 33410

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======

Exiting Thread : CPU-Write-Intensiveat 33420

==
======

....

Timer Interrupt at 34120 having qunatum 700

....

Thread : IO-CPU-Intensive   having priority 2 running at 33420

....

Timer Interrupt at 35620 having qunatum 1500

....

Thread : CPU bound   having priority 4 running at 34120

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Exiting Thread : CPU boundat 34980

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....

Timer Interrupt at 35980 having qunatum 1000

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Thread : IO-CPU-Intensive   having priority 3 running at 34980

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======

Exiting Thread : IO-CPU-Intensiveat 35910

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======

^C

Cleaning up after signal 2

dmullapu@lcs-vc-cis486:~/nachos/code/build.linux$

```
dmullapu@lcs-vc-cis486:~/nachos/code/build.linux$ clear
dmullapu@lcs-vc-cis486:~/nachos/code/build.linux$ ./nachos -K -q1 400 -q2 700 -q3 1000 -q4 1500
*******************************************************************************
Quantum for Ready Queue with Priority 1:  400
Quantum for Ready Queue with Priority 2:  700
Quantum for Ready Queue with Priority 3:  1000
Quantum for Ready Queue with Priority 4:  1500
*******************************************************************************
..................................
Timer Interrupt at  520 having qunatum  400
..................................
Thread : postal worker   having priority 1 running at 120
..................................
Timer Interrupt at  530 having qunatum  400
..................................
Thread : CPU bound   having priority 1 running at 130
..................................
Timer Interrupt at  930 having qunatum  400
..................................
Thread : Read Thread   having priority 1 running at 530
Thread :Read Thread  Read Interrupt will execute at :773
..................................
Timer Interrupt at  940 having qunatum  400
..................................
Thread : Write Thread   having priority 1 running at 540
Thread :  Write Thread will execute at :666
..................................
Timer Interrupt at  950 having qunatum  400
..................................
Thread : IO-CPU-Intensive   having priority 1 running at 550
Thread :IO-CPU-Intensive  Read Interrupt will execute at :787
..................................
Timer Interrupt at  960 having qunatum  400
..................................
Thread : Write-Read-CPU   having priority 1 running at 560
Thread :  Write-Read-CPU   Write Interrupt will execute at :695
..................................
Timer Interrupt at  970 having qunatum  400
..................................
Thread : Read Intensive   having priority 1 running at 570
Thread :Read Intensive  Read Interrupt will execute at :823
..................................
Timer Interrupt at  980 having qunatum  400
..................................
Thread : Write Intensive   having priority 1 running at 580
Thread :  Write Intensive  Write Interrupt will execute at :715
..................................
Timer Interrupt at  990 having qunatum  400
..................................
```

```
....................................
Timer Interrupt at  990 having qunatum  400
....................................
Thread : IO Intensive   having priority 1 running at 590
Thread :IO Intensive  Read Interrupt will execute at :836
....................................
Timer Interrupt at  1000 having qunatum  400
....................................
Thread : CPU-IO-Intensive   having priority 1 running at 600
Thread :CPU-IO-Intensive Read Interrupt will execute at :852
....................................
Timer Interrupt at  1010 having qunatum  400
....................................
Thread : CPU-Read-Intensive   having priority 1 running at 610
Doing IO Write handling for threadWrite Thread--- at :670
---------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Thread
---------------------------------------------------------
Doing IO Write handling for threadWrite-Read-CPU--- at :700
---------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write-Read-CPU
---------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :720
---------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Intensive
---------------------------------------------------------
Doing IO Read Handling for thread Read Thread--- at :780
Doing IO Read Handling for thread IO-CPU-Intensive--- at :790
Doing IO Read Handling for thread Read Intensive--- at :830
Doing IO Read Handling for thread IO Intensive--- at :840
Doing IO Read Handling for thread CPU-IO-Intensive--- at :860
....................................
Timer Interrupt at  1410 having qunatum  400
....................................
Thread : CPU-Write-Intensive   having priority 1 running at 1010
....................................
Timer Interrupt at  1810 having qunatum  400
....................................
Thread : Write Thread   having priority 1 running at 1410
==========================================================================================
Exiting Thread :  Write Threadat 1420
==========================================================================================
....................................
Timer Interrupt at  1820 having qunatum  400
....................................
Thread : Write-Read-CPU   having priority 1 running at 1420
Thread :  Write-Read-CPU   Write Interrupt will execute at :1539
....................................
Timer Interrupt at  1830 having qunatum  400
```

```
Timer Interrupt at  1830 having qunatum  400
...................................
Thread : Write Intensive   having priority 1 running at 1430
Thread :  Write Intensive  Write Interrupt will execute at :1541
...................................
Timer Interrupt at  1840 having qunatum  400
...................................
Thread : Read Thread   having priority 1 running at 1440
-----------------------------------------------------------------
Thread id:  Read Thread---Return read string :   ((Reading from file))  at :1450
-----------------------------------------------------------------
=================================================================================
Exiting Thread :  Read Threadat 1450
=================================================================================
...................................
Timer Interrupt at  1850 having qunatum  400
...................................
Thread : IO-CPU-Intensive   having priority 1 running at 1450
-----------------------------------------------------------------
Thread id:  IO-CPU-Intensive----Return read string :   ((Reading from file))  at :1460
-----------------------------------------------------------------
Thread :IO-CPU-Intensive  Read Interrupt will execute at :1672
...................................
Timer Interrupt at  1860 having qunatum  400
...................................
Thread : Read Intensive   having priority 1 running at 1460
-----------------------------------------------------------------
Thread id:  Read Intensive---Return read string :   ((Reading from file))  at :1470
-----------------------------------------------------------------
Thread :Read Intensive  Read Interrupt will execute at :1697
...................................
Timer Interrupt at  1870 having qunatum  400
...................................
Thread : IO Intensive   having priority 1 running at 1470
-----------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))  at :1480
-----------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :1720
...................................
Timer Interrupt at  1880 having qunatum  400
...................................
Thread : CPU-IO-Intensive   having priority 1 running at 1480
-----------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :   ((Reading from file))  at :1490
-----------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :1699
...................................
Timer Interrupt at  2190 having qunatum  700
...................................
```

```
Timer Interrupt at  2190 having qunatum  700
.................................
Thread : CPU bound   having priority 2 running at 1490
Doing IO Write handling for threadWrite-Read-CPU--- at :1540
----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write-Read-CPU
----------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :1550
----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Intensive
----------------------------------------------------------------
Doing IO Read Handling for thread IO-CPU-Intensive--- at :1680
Doing IO Read Handling for thread Read Intensive--- at :1700
Doing IO Read Handling for thread CPU-IO-Intensive--- at :1700
Doing IO Read Handling for thread IO Intensive--- at :1720
.................................
Timer Interrupt at  2590 having qunatum  400
.................................
Thread : Write-Read-CPU   having priority 1 running at 2190
Thread :  Write-Read-CPU   Write Interrupt will execute at :2323
.................................
Timer Interrupt at  2600 having qunatum  400
.................................
Thread : Write Intensive   having priority 1 running at 2200
Thread :  Write Intensive  Write Interrupt will execute at :2326
.................................
Timer Interrupt at  2610 having qunatum  400
.................................
Thread : IO-CPU-Intensive   having priority 1 running at 2210
----------------------------------------------------------------
Thread id:  IO-CPU-Intensive----Return read string :   ((Reading from file))  at :2220
----------------------------------------------------------------
Thread :IO-CPU-Intensive  Read Interrupt will execute at :2460
.................................
Timer Interrupt at  2620 having qunatum  400
.................................
Thread : Read Intensive   having priority 1 running at 2220
----------------------------------------------------------------
Thread id:  Read Intensive---Return read string :   ((Reading from file))  at :2230
----------------------------------------------------------------
Thread :Read Intensive  Read Interrupt will execute at :2456
.................................
Timer Interrupt at  2630 having qunatum  400
.................................
Thread : CPU-IO-Intensive   having priority 1 running at 2230
----------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :   ((Reading from file))  at :2240
----------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :2462
```

```
...............................
Thread : CPU-IO-Intensive   having priority 1 running at 2230
-----------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :   ((Reading from file))  at :2240
-----------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :2462
...............................
Timer Interrupt at  2640 having qunatum  400
...............................
Thread : IO Intensive   having priority 1 running at 2240
-----------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))  at :2250
-----------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :2486
...............................
Timer Interrupt at  2950 having qunatum  700
...............................
Thread : CPU-Read-Intensive   having priority 2 running at 2250
Doing IO Write handling for threadWrite-Read-CPU--- at :2330
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write-Read-CPU
-----------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :2330
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Intensive
-----------------------------------------------------------------
Doing IO Read Handling for thread IO-CPU-Intensive--- at :2460
Doing IO Read Handling for thread Read Intensive--- at :2460
Doing IO Read Handling for thread CPU-IO-Intensive--- at :2470
Doing IO Read Handling for thread IO Intensive--- at :2490
...............................
Timer Interrupt at  3350 having qunatum  400
...............................
Thread : Write-Read-CPU   having priority 1 running at 2950
Thread :  Write-Read-CPU   Write Interrupt will execute at :3071
...............................
Timer Interrupt at  3360 having qunatum  400
...............................
Thread : Write Intensive   having priority 1 running at 2960
Thread :  Write Intensive  Write Interrupt will execute at :3078
...............................
Timer Interrupt at  3370 having qunatum  400
...............................
Thread : IO-CPU-Intensive   having priority 1 running at 2970
-----------------------------------------------------------------
Thread id:  IO-CPU-Intensive----Return read string :   ((Reading from file))  at :2980
-----------------------------------------------------------------
Thread :IO-CPU-Intensive  Read Interrupt will execute at :3197
...............................
```

```
Timer Interrupt at   3380 having qunatum   400
...............................
Thread : Read Intensive    having priority 1 running at 2980
-----------------------------------------------------------------
Thread id:  Read Intensive---Return read string :    ((Reading from file))   at :2990
-----------------------------------------------------------------
Thread :Read Intensive   Read Interrupt will execute at :3219
...............................
Timer Interrupt at   3390 having qunatum   400
...............................
Thread : CPU-IO-Intensive    having priority 1 running at 2990
-----------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :    ((Reading from file))   at :3000
-----------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :3232
...............................
Timer Interrupt at   3400 having qunatum   400
...............................
Thread : IO Intensive    having priority 1 running at 3000
-----------------------------------------------------------------
Thread id:  IO Intensive----Return read string :    ((Reading from file))   at :3010
-----------------------------------------------------------------
Thread :IO Intensive   Read Interrupt will execute at :3240
...............................
Timer Interrupt at   3710 having qunatum   700
...............................
Thread : CPU-Write-Intensive    having priority 2 running at 3010
Doing IO Write handling for threadWrite-Read-CPU--- at :3080
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))   from Write-Read-CPU
-----------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :3080
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))   from Write Intensive
-----------------------------------------------------------------
Doing IO Read Handling for thread IO-CPU-Intensive--- at :3200
Doing IO Read Handling for thread Read Intensive--- at :3220
Doing IO Read Handling for thread CPU-IO-Intensive--- at :3240
Doing IO Read Handling for thread IO Intensive--- at :3240
***********************************************************************
***********************************************************************
Thread :  CPU boundis getting aged to increased its priority
***********************************************************************
...............................
Timer Interrupt at   4110 having qunatum   400
...............................
Thread : Write-Read-CPU    having priority 1 running at 3710
Thread :  Write-Read-CPU   Write Interrupt will execute at :3822
...............................
```

```
----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write-Read-CPU
----------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :3850
----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Intensive
----------------------------------------------------------------
Doing IO Read Handling for thread IO-CPU-Intensive--- at :3960
Doing IO Read Handling for thread IO Intensive--- at :3980
Doing IO Read Handling for thread Read Intensive--- at :3990
Doing IO Read Handling for thread CPU-IO-Intensive--- at :3990
..................................
Timer Interrupt at  4570 having qunatum  400
..................................
Thread : Write-Read-CPU   having priority 1 running at 4170
Thread :  Write-Read-CPU   Write Interrupt will execute at :4292
..................................
Timer Interrupt at  4580 having qunatum  400
..................................
Thread : Write Intensive   having priority 1 running at 4180
Thread :  Write Intensive  Write Interrupt will execute at :4308
..................................
Timer Interrupt at  4590 having qunatum  400
..................................
Thread : IO-CPU-Intensive   having priority 1 running at 4190
----------------------------------------------------------------
Thread id:  IO-CPU-Intensive----Return read string :   ((Reading from file))  at :4200
----------------------------------------------------------------
Thread :  IO-CPU-Intensive Write Interrupt will execute at :4329
..................................
Timer Interrupt at  4600 having qunatum  400
..................................
Thread : IO Intensive   having priority 1 running at 4200
----------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))  at :4210
----------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :4427
..................................
Timer Interrupt at  4610 having qunatum  400
..................................
Thread : Read Intensive   having priority 1 running at 4210
----------------------------------------------------------------
Thread id:  Read Intensive---Return read string :   ((Reading from file))  at :4220
----------------------------------------------------------------
Thread :Read Intensive  Read Interrupt will execute at :4463
..................................
Timer Interrupt at  4620 having qunatum  400
..................................
Thread : CPU-IO-Intensive   having priority 1 running at 4220
```

```
Thread :  Write-Read-CPU   Write Interrupt will execute at :3822
.................................
Timer Interrupt at  4120 having qunatum  400
.................................
Thread : Write Intensive   having priority 1 running at 3720
Thread :  Write Intensive  Write Interrupt will execute at :3843
.................................
Timer Interrupt at  4130 having qunatum  400
.................................
Thread : IO-CPU-Intensive   having priority 1 running at 3730
------------------------------------------------------------
Thread id:  IO-CPU-Intensive----Return read string :   ((Reading from file))  at :3740
------------------------------------------------------------
Thread :IO-CPU-Intensive  Read Interrupt will execute at :3957
.................................
Timer Interrupt at  4140 having qunatum  400
.................................
Thread : Read Intensive   having priority 1 running at 3740
------------------------------------------------------------
Thread id:  Read Intensive---Return read string :   ((Reading from file))  at :3750
------------------------------------------------------------
Thread :Read Intensive  Read Interrupt will execute at :3985
.................................
Timer Interrupt at  4150 having qunatum  400
.................................
Thread : CPU-IO-Intensive   having priority 1 running at 3750
------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :   ((Reading from file))  at :3760
------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :3989
.................................
Timer Interrupt at  4160 having qunatum  400
.................................
Thread : IO Intensive   having priority 1 running at 3760
------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))  at :3770
------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :3972
.................................
Timer Interrupt at  4170 having qunatum  400
.................................
Thread : CPU bound   having priority 1 running at 3770
Doing IO Write handling for threadWrite-Read-CPU--- at :3830
------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write-Read-CPU
------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :3850
------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Intensive
```

```
-----------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :4436
.................................
Timer Interrupt at  4930 having qunatum  700
.................................
Thread : CPU bound   having priority 2 running at 4230
Doing IO Write handling for threadWrite-Read-CPU--- at :4300
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write-Read-CPU
-----------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :4310
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Intensive
-----------------------------------------------------------------
Doing IO Write handling for threadIO-CPU-Intensive--- at :4330
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from IO-CPU-Intensive
-----------------------------------------------------------------
Doing IO Read Handling for thread IO Intensive--- at :4430
Doing IO Read Handling for thread CPU-IO-Intensive--- at :4440
Doing IO Read Handling for thread Read Intensive--- at :4470
*****************************************************************
*****************************************************************
Thread :  CPU-Read-Intensiveis getting aged to increased its priority
*****************************************************************
.................................
Timer Interrupt at  5330 having qunatum  400
.................................
Thread : Write-Read-CPU   having priority 1 running at 4930
Thread :  Write-Read-CPU   Write Interrupt will execute at :5041
.................................
Timer Interrupt at  5340 having qunatum  400
.................................
Thread : Write Intensive   having priority 1 running at 4940
Thread :  Write Intensive  Write Interrupt will execute at :5072
.................................
Timer Interrupt at  5350 having qunatum  400
.................................
Thread : IO-CPU-Intensive   having priority 1 running at 4950
Thread :  IO-CPU-Intensive Write Interrupt will execute at :5069
.................................
Timer Interrupt at  5360 having qunatum  400
.................................
Thread : IO Intensive   having priority 1 running at 4960
-----------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))  at :4970
-----------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :5193
.................................
```

```
Thread : IO Intensive   having priority 1 running at 4960
-------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))  at :4970
-------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :5193
.................................
Timer Interrupt at  5370 having qunatum  400
.................................
Thread : CPU-IO-Intensive   having priority 1 running at 4970
-------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :   ((Reading from file))  at :4980
-------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :5201
.................................
Timer Interrupt at  5380 having qunatum  400
.................................
Thread : Read Intensive   having priority 1 running at 4980
-------------------------------------------------------------
Thread id:  Read Intensive---Return read string :   ((Reading from file))  at :4990
-------------------------------------------------------------
Thread :Read Intensive  Read Interrupt will execute at :5209
.................................
Timer Interrupt at  5390 having qunatum  400
.................................
Thread : CPU-Read-Intensive   having priority 1 running at 4990
Doing IO Write handling for threadWrite-Read-CPU--- at :5050
-------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write-Read-CPU
-------------------------------------------------------------
Doing IO Write handling for threadIO-CPU-Intensive--- at :5070
-------------------------------------------------------------
Displaying string:  ((Writing to screen))  from IO-CPU-Intensive
-------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :5080
-------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Intensive
-------------------------------------------------------------
Doing IO Read Handling for thread IO Intensive--- at :5200
Doing IO Read Handling for thread CPU-IO-Intensive--- at :5210
Doing IO Read Handling for thread Read Intensive--- at :5210
*****************************************************************
*****************************************************************
Thread :  CPU-Write-Intensiveis getting aged to increased its priority
*****************************************************************
.................................
Timer Interrupt at  5790 having qunatum  400
.................................
Thread : Write-Read-CPU   having priority 1 running at 5390
Thread :  Write-Read-CPU   Write Interrupt will execute at :5514
```

```
....................................
Timer Interrupt at  5790 having qunatum   400
....................................
Thread : Write-Read-CPU   having priority 1 running at 5390
Thread :  Write-Read-CPU   Write Interrupt will execute at :5514
....................................
Timer Interrupt at  5800 having qunatum   400
....................................
Thread : IO-CPU-Intensive   having priority 1 running at 5400
Thread :  IO-CPU-Intensive Write Interrupt will execute at :5517
....................................
Timer Interrupt at  5810 having qunatum   400
....................................
Thread : Write Intensive   having priority 1 running at 5410
Thread :  Write Intensive  Write Interrupt will execute at :5528
....................................
Timer Interrupt at  5820 having qunatum   400
....................................
Thread : IO Intensive   having priority 1 running at 5420
------------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))  at :5430
------------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :5654
....................................
Timer Interrupt at  5830 having qunatum   400
....................................
Thread : CPU-IO-Intensive   having priority 1 running at 5430
------------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :   ((Reading from file))  at :5440
------------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :5655
....................................
Timer Interrupt at  5840 having qunatum   400
....................................
Thread : Read Intensive   having priority 1 running at 5440
------------------------------------------------------------------
Thread id:  Read Intensive---Return read string :   ((Reading from file))  at :5450
------------------------------------------------------------------
Thread :Read Intensive  Read Interrupt will execute at :5670
....................................
Timer Interrupt at  5850 having qunatum   400
....................................
Thread : CPU-Write-Intensive   having priority 1 running at 5450
Doing IO Write handling for threadWrite-Read-CPU--- at :5520
------------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write-Read-CPU
------------------------------------------------------------------
Doing IO Write handling for threadIO-CPU-Intensive--- at :5520
------------------------------------------------------------------
```

```
Timer Interrupt at   5850 having qunatum   400
..................................
Thread : CPU-Write-Intensive    having priority 1 running at 5450
Doing IO Write handling for threadWrite-Read-CPU--- at :5520
----------------------------------------------------------------
Displaying string:  ((Writing to screen))   from Write-Read-CPU
----------------------------------------------------------------
Doing IO Write handling for threadIO-CPU-Intensive--- at :5520
----------------------------------------------------------------
Displaying string:  ((Writing to screen))   from IO-CPU-Intensive
----------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :5530
----------------------------------------------------------------
Displaying string:  ((Writing to screen))   from Write Intensive
----------------------------------------------------------------
Doing IO Read Handling for thread IO Intensive--- at :5660
Doing IO Read Handling for thread CPU-IO-Intensive--- at :5660
Doing IO Read Handling for thread Read Intensive--- at :5670
..................................
Timer Interrupt at   6250 having qunatum   400
..................................
Thread : Write-Read-CPU    having priority 1 running at 5850
Thread :  Write-Read-CPU   Write Interrupt will execute at :5983
..................................
Timer Interrupt at   6260 having qunatum   400
..................................
Thread : IO-CPU-Intensive    having priority 1 running at 5860
Thread :   IO-CPU-Intensive Write Interrupt will execute at :5986
..................................
Timer Interrupt at   6270 having qunatum   400
..................................
Thread : Write Intensive    having priority 1 running at 5870
Thread :  Write Intensive   Write Interrupt will execute at :5981
..................................
Timer Interrupt at   6280 having qunatum   400
..................................
Thread : IO Intensive    having priority 1 running at 5880
----------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))   at :5890
----------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :6120
..................................
Timer Interrupt at   6290 having qunatum   400
..................................
Thread : CPU-IO-Intensive    having priority 1 running at 5890
----------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :   ((Reading from file))   at :5900
----------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :6106
```

```
---------------------------------------------------------------
Displaying string:  ((Writing to screen))  from IO-CPU-Intensive
---------------------------------------------------------------
Doing IO Write handling for threadWrite Intensive--- at :5990
---------------------------------------------------------------
Displaying string:  ((Writing to screen))  from Write Intensive
---------------------------------------------------------------
Doing IO Read Handling for thread CPU-IO-Intensive--- at :6110
Doing IO Read Handling for thread IO Intensive--- at :6120
Doing IO Read Handling for thread Read Intensive--- at :6140
*****************************************************************************
*****************************************************************************
Thread :  CPU boundis getting aged to increased its priority
*****************************************************************************
...................................
Timer Interrupt at  7010 having qunatum  400
...................................
Thread : Write-Read-CPU   having priority 1 running at 6610
Thread :  Write-Read-CPU   Write Interrupt will execute at :6722
...................................
Timer Interrupt at  7020 having qunatum  400
...................................
Thread : IO-CPU-Intensive   having priority 1 running at 6620
Thread :  IO-CPU-Intensive Write Interrupt will execute at :6750
...................................
Timer Interrupt at  7030 having qunatum  400
...................................
Thread : Write Intensive   having priority 1 running at 6630
Thread :  Write Intensive  Write Interrupt will execute at :6756
...................................
Timer Interrupt at  7040 having qunatum  400
...................................
Thread : CPU-IO-Intensive   having priority 1 running at 6640
---------------------------------------------------------------
Thread id:  CPU-IO-Intensive----Return read string :   ((Reading from file))  at :6650
---------------------------------------------------------------
Thread :CPU-IO-Intensive Read Interrupt will execute at :6881
...................................
Timer Interrupt at  7050 having qunatum  400
...................................
Thread : IO Intensive   having priority 1 running at 6650
---------------------------------------------------------------
Thread id:  IO Intensive----Return read string :   ((Reading from file))  at :6660
---------------------------------------------------------------
Thread :IO Intensive  Read Interrupt will execute at :6865
...................................
Timer Interrupt at  7060 having qunatum  400
...................................
Thread : Read Intensive   having priority 1 running at 6660
```

```
Timer Interrupt at  8300 having qunatum   400
...............................
Thread : Read Intensive   having priority 1 running at 7900
----------------------------------------------------------------
Thread id:  Read Intensive---Return read string :   ((Reading from file))  at :7910
----------------------------------------------------------------
================================================================================
Exiting Thread :  Read Intensiveat 7910
================================================================================
**********************************************************************
**********************************************************************
Thread :  CPU-Read-Intensiveis getting aged to increased its priority
**********************************************************************
...............................
Timer Interrupt at  8310 having qunatum   400
...............................
Thread : Write-Read-CPU   having priority 1 running at 7910
----------------------------------------------------------------
Thread id:  Write-Read-CPU----Return read string :   ((Reading from file))  at :7920
----------------------------------------------------------------
Thread :Write-Read-CPU Read Interrupt will execute at :8156
...............................
Timer Interrupt at  8320 having qunatum   400
...............................
Thread : IO Intensive   having priority 1 running at 7920
Thread :  IO Intensive  Write Interrupt will execute at :8035
...............................
Timer Interrupt at  8330 having qunatum   400
...............................
Thread : CPU-Read-Intensive   having priority 1 running at 7930
Doing IO Write handling for threadIO Intensive--- at :8040
----------------------------------------------------------------
Displaying string:  ((Writing to screen))   from IO Intensive
----------------------------------------------------------------
Doing IO Read Handling for thread Write-Read-CPU--- at :8160
...............................
Timer Interrupt at  8730 having qunatum   400
...............................
Thread : IO Intensive   having priority 1 running at 8330
Thread :  IO Intensive  Write Interrupt will execute at :8456
...............................
Timer Interrupt at  8740 having qunatum   400
...............................
Thread : Write-Read-CPU   having priority 1 running at 8340
----------------------------------------------------------------
Thread id:  Write-Read-CPU----Return read string :   ((Reading from file))  at :8350
----------------------------------------------------------------
Thread :Write-Read-CPU Read Interrupt will execute at :8579
...............................
```

```
Timer Interrupt at  9460 having qunatum  400
..................................
Thread : Write-Read-CPU   having priority 1 running at 9060
-----------------------------------------------------------------
Thread id:  Write-Read-CPU----Return read string :   ((Reading from file))  at :9070
-----------------------------------------------------------------
Thread :Write-Read-CPU Read Interrupt will execute at :9277
..................................
Timer Interrupt at  9770 having qunatum  700
..................................
Thread : CPU bound   having priority 2 running at 9070
Doing IO Write handling for threadIO Intensive--- at :9180
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from IO Intensive
-----------------------------------------------------------------
Doing IO Read Handling for thread Write-Read-CPU--- at :9280
..................................
Timer Interrupt at  10170 having qunatum  400
..................................
Thread : IO Intensive   having priority 1 running at 9770
Thread :  IO Intensive  Write Interrupt will execute at :9904
..................................
Timer Interrupt at  10180 having qunatum  400
..................................
Thread : Write-Read-CPU   having priority 1 running at 9780
-----------------------------------------------------------------
Thread id:  Write-Read-CPU----Return read string :   ((Reading from file))  at :9790
-----------------------------------------------------------------
Thread :Write-Read-CPU Read Interrupt will execute at :10035
..................................
Timer Interrupt at  10490 having qunatum  700
..................................
Thread : IO-CPU-Intensive   having priority 2 running at 9790
Doing IO Write handling for threadIO Intensive--- at :9910
-----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from IO Intensive
-----------------------------------------------------------------
Doing IO Read Handling for thread Write-Read-CPU--- at :10040
**********************************************************************
**********************************************************************
Thread :  CPU-Write-Intensiveis getting aged to increased its priority
**********************************************************************
..................................
Timer Interrupt at  10890 having qunatum  400
..................................
Thread : IO Intensive   having priority 1 running at 10490
Thread :  IO Intensive  Write Interrupt will execute at :10612
..................................
Timer Interrupt at  10900 having qunatum  400
```

```
.................................
Thread : Write-Read-CPU    having priority 1 running at 10500
----------------------------------------------------------------
Thread id:  Write-Read-CPU----Return read string :   ((Reading from file))  at :10510
----------------------------------------------------------------
Thread :Write-Read-CPU Read Interrupt will execute at :10755
.................................
Timer Interrupt at  10910 having qunatum  400
.................................
Thread : CPU-Write-Intensive   having priority 1 running at 10510
Doing IO Write handling for threadIO Intensive--- at :10620
----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from IO Intensive
----------------------------------------------------------------
Doing IO Read Handling for thread Write-Read-CPU--- at :10760
.................................
Timer Interrupt at  11310 having qunatum  400
.................................
Thread : IO Intensive   having priority 1 running at 10910
Thread :  IO Intensive  Write Interrupt will execute at :11034
.................................
Timer Interrupt at  11320 having qunatum  400
.................................
Thread : Write-Read-CPU    having priority 1 running at 10920
----------------------------------------------------------------
Thread id:  Write-Read-CPU----Return read string :   ((Reading from file))  at :10930
----------------------------------------------------------------
Thread :Write-Read-CPU Read Interrupt will execute at :11147
.................................
Timer Interrupt at  11630 having qunatum  700
.................................
Thread : CPU-IO-Intensive   having priority 2 running at 10930
Doing IO Write handling for threadIO Intensive--- at :11040
----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from IO Intensive
----------------------------------------------------------------
Doing IO Read Handling for thread Write-Read-CPU--- at :11150
*******************************************************************
*******************************************************************
Thread :  CPU boundis getting aged to increased its priority
*******************************************************************
.................................
Timer Interrupt at  12030 having qunatum  400
.................................
Thread : IO Intensive   having priority 1 running at 11630
Thread :  IO Intensive  Write Interrupt will execute at :11754
.................................
Timer Interrupt at  12040 having qunatum  400
.................................
```

```
Thread :  IO Intensive  Write Interrupt will execute at :12587
.............................
Timer Interrupt at  12880 having qunatum  400
.............................
Thread : Write-Read-CPU   having priority 1 running at 12480
----------------------------------------------------------------
Thread id:  Write-Read-CPU----Return read string :   ((Reading from file))  at :12490
----------------------------------------------------------------
Thread :Write-Read-CPU Read Interrupt will execute at :12698
.............................
Timer Interrupt at  13190 having qunatum  700
.............................
Thread : CPU-Read-Intensive   having priority 2 running at 12490
Doing IO Write handling for threadIO Intensive--- at :12590
----------------------------------------------------------------
Displaying string:  ((Writing to screen))  from IO Intensive
----------------------------------------------------------------
Doing IO Read Handling for thread Write-Read-CPU--- at :12700
******************************************************************
******************************************************************
Thread :  CPU-IO-Intensiveis getting aged to increased its priority
******************************************************************
.............................
Timer Interrupt at  13590 having qunatum  400
.............................
Thread : IO Intensive   having priority 1 running at 13190
================================================================================
Exiting Thread :   IO Intensiveat 13200
================================================================================
.............................
Timer Interrupt at  13600 having qunatum  400
.............................
Thread : Write-Read-CPU   having priority 1 running at 13200
----------------------------------------------------------------
Thread id:  Write-Read-CPU----Return read string :   ((Reading from file))  at :13210
----------------------------------------------------------------
.............................
Timer Interrupt at  14000 having qunatum  400
.............................
Thread : CPU-IO-Intensive   having priority 1 running at 13600
.............................
Timer Interrupt at  14700 having qunatum  700
.............................
Thread : CPU-Write-Intensive   having priority 2 running at 14000
******************************************************************
******************************************************************
Thread :  CPU-Read-Intensiveis getting aged to increased its priority
******************************************************************
.............................
```

```
Thread : CPU-Write-Intensive   having priority 2 running at 14000
*************************************************************************
*************************************************************************
Thread :  CPU-Read-Intensiveis getting aged to increased its priority
*************************************************************************
.............................
Timer Interrupt at  15100 having qunatum  400
.............................
Thread : CPU-Read-Intensive   having priority 1 running at 14700
.............................
Timer Interrupt at  15800 having qunatum  700
.............................
Thread : CPU bound   having priority 2 running at 15100
.............................
Timer Interrupt at  16500 having qunatum  700
.............................
Thread : IO-CPU-Intensive   having priority 2 running at 15800
*************************************************************************
*************************************************************************
Thread :  CPU-Write-Intensiveis getting aged to increased its priority
*************************************************************************
.............................
Timer Interrupt at  16900 having qunatum  400
.............................
Thread : CPU-Write-Intensive   having priority 1 running at 16500
.............................
Timer Interrupt at  17600 having qunatum  700
.............................
Thread : Write-Read-CPU   having priority 2 running at 16900
*************************************************************************
*************************************************************************
Thread :  CPU boundis getting aged to increased its priority
*************************************************************************
.............................
Timer Interrupt at  18000 having qunatum  400
.............................
Thread : CPU bound   having priority 1 running at 17600
*************************************************************************
*************************************************************************
Thread :  IO-CPU-Intensiveis getting aged to increased its priority
*************************************************************************
.............................
Timer Interrupt at  18400 having qunatum  400
.............................
Thread : IO-CPU-Intensive   having priority 1 running at 18000
.............................
Timer Interrupt at  19100 having qunatum  700
.............................
Thread : CPU-IO-Intensive   having priority 2 running at 18400
```

```
.................................
Thread : IO-CPU-Intensive    having priority 1 running at 25060
Doing IO Write handling for threadCPU-IO-Intensive--- at :25170
------------------------------------------------------------
Displaying string:  ((Writing to screen))  from CPU-IO-Intensive
------------------------------------------------------------
.................................
Timer Interrupt at  25860 having qunatum  400
.................................
Thread : CPU-IO-Intensive    having priority 1 running at 25460
Thread :  CPU-IO-Intensive    Write Interrupt will execute at :25578
.................................
Timer Interrupt at  26170 having qunatum  700
.................................
Thread : CPU-Read-Intensive   having priority 2 running at 25470
Doing IO Write handling for threadCPU-IO-Intensive--- at :25580
------------------------------------------------------------
Displaying string:  ((Writing to screen))  from CPU-IO-Intensive
------------------------------------------------------------
Thread :CPU-Read-Intensive  Read Interrupt will execute at :26008
.................................
Timer Interrupt at  26170 having qunatum  400
.................................
Thread : CPU-IO-Intensive    having priority 1 running at 25770
Thread :  CPU-IO-Intensive    Write Interrupt will execute at :25904
.................................
Timer Interrupt at  26480 having qunatum  700
.................................
Thread : CPU-Write-Intensive   having priority 2 running at 25780
Doing IO Write handling for threadCPU-IO-Intensive--- at :25910
------------------------------------------------------------
Displaying string:  ((Writing to screen))  from CPU-IO-Intensive
------------------------------------------------------------
Doing IO Read Handling for thread CPU-Read-Intensive--- at :26010
Thread :  CPU-Write-Intensive   Write Interrupt will execute at :26183
***********************************************************************
***********************************************************************
Thread :  Write-Read-CPUis getting aged to increased its priority
***********************************************************************
.................................
Timer Interrupt at  26480 having qunatum  400
.................................
Thread : CPU-IO-Intensive    having priority 1 running at 26080
Thread :  CPU-IO-Intensive    Write Interrupt will execute at :26201
.................................
Timer Interrupt at  26490 having qunatum  400
.................................
Thread : CPU-Read-Intensive   having priority 1 running at 26090
------------------------------------------------------------
```

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..............................
Thread : CPU-IO-Intensive    having priority 1 running at 26510
Thread :  CPU-IO-Intensive    Write Interrupt will execute at :26632
..............................
Timer Interrupt at  26920 having qunatum  400
..............................
Thread : CPU-Read-Intensive   having priority 1 running at 26520
------------------------------------------------------------
Thread id:  CPU-Read-Intensive---Return read string :   ((Reading from file))  at :26530
------------------------------------------------------------
Thread :CPU-Read-Intensive  Read Interrupt will execute at :26740
..............................
Timer Interrupt at  27230 having qunatum  700
..............................
Thread : CPU bound   having priority 2 running at 26530
Doing IO Write handling for threadCPU-Write-Intensive--- at :26630
------------------------------------------------------------
Displaying string: ((Writing to screen))  from CPU-Write-Intensive
------------------------------------------------------------
Doing IO Write handling for threadCPU-IO-Intensive--- at :26640
------------------------------------------------------------
Displaying string: ((Writing to screen))  from CPU-IO-Intensive
------------------------------------------------------------
Doing IO Read Handling for thread CPU-Read-Intensive--- at :26740
..............................
Timer Interrupt at  27630 having qunatum  400
..............................
Thread : CPU-Write-Intensive   having priority 1 running at 27230
Thread :  CPU-Write-Intensive   Write Interrupt will execute at :27366
..............................
Timer Interrupt at  27640 having qunatum  400
..............................
Thread : CPU-IO-Intensive    having priority 1 running at 27240
Thread :  CPU-IO-Intensive   Write Interrupt will execute at :27368
..............................
Timer Interrupt at  27650 having qunatum  400
..............................
Thread : CPU-Read-Intensive   having priority 1 running at 27250
------------------------------------------------------------
Thread id:  CPU-Read-Intensive---Return read string :   ((Reading from file))  at :27260
------------------------------------------------------------
Thread :CPU-Read-Intensive  Read Interrupt will execute at :27499
..............................
Timer Interrupt at  27960 having qunatum  700
..............................
Thread : IO-CPU-Intensive   having priority 2 running at 27260
Doing IO Write handling for threadCPU-Write-Intensive--- at :27370
------------------------------------------------------------
Displaying string: ((Writing to screen))  from CPU-Write-Intensive
```

```
......................................
Thread : CPU-Write-Intensive    having priority 1 running at 27960
Thread :  CPU-Write-Intensive    Write Interrupt will execute at :28092
......................................
Timer Interrupt at  28370 having qunatum  400
......................................
Thread : CPU-IO-Intensive    having priority 1 running at 27970
Thread :  CPU-IO-Intensive    Write Interrupt will execute at :28096
......................................
Timer Interrupt at  28380 having qunatum  400
......................................
Thread : CPU-Read-Intensive    having priority 1 running at 27980
------------------------------------------------------------
Thread id:  CPU-Read-Intensive---Return read string :   ((Reading from file))  at :27990
------------------------------------------------------------
Thread :CPU-Read-Intensive  Read Interrupt will execute at :28226
......................................
Timer Interrupt at  28690 having qunatum  700
......................................
Thread : Write-Read-CPU    having priority 2 running at 27990
Doing IO Write handling for threadCPU-Write-Intensive--- at :28100
------------------------------------------------------------
Displaying string:  ((Writing to screen))  from CPU-Write-Intensive
------------------------------------------------------------
Doing IO Write handling for threadCPU-IO-Intensive--- at :28100
------------------------------------------------------------
Displaying string:  ((Writing to screen))  from CPU-IO-Intensive
------------------------------------------------------------
Doing IO Read Handling for thread CPU-Read-Intensive--- at :28230
==================================================================================
Exiting Thread :  Write-Read-CPUat 28450
==================================================================================
......................................
Timer Interrupt at  28850 having qunatum  400
......................................
Thread : CPU-Write-Intensive    having priority 1 running at 28450
Thread :  CPU-Write-Intensive    Write Interrupt will execute at :28584
......................................
Timer Interrupt at  28860 having qunatum  400
......................................
Thread : CPU-IO-Intensive    having priority 1 running at 28460
Thread :  CPU-IO-Intensive    Write Interrupt will execute at :28599
......................................
Timer Interrupt at  28870 having qunatum  400
......................................
Thread : CPU-Read-Intensive    having priority 1 running at 28470
------------------------------------------------------------
Thread id:  CPU-Read-Intensive---Return read string :   ((Reading from file))  at :28480
------------------------------------------------------------
```

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.................................
Thread : CPU-Read-Intensive   having priority 1 running at 32400
-----------------------------------------------------------
Thread id:  CPU-Read-Intensive---Return read string :   ((Reading from file))  at :32410
-----------------------------------------------------------
========================================================================================
Exiting Thread :  CPU-Read-Intensiveat 32410
========================================================================================
.................................
Timer Interrupt at  33410 having qunatum  1000
.................................
Thread : CPU bound   having priority 3 running at 32410
Doing IO Write handling for threadCPU-Write-Intensive--- at :32530
-----------------------------------------------------------
Displaying string:  ((Writing to screen))  from CPU-Write-Intensive
-----------------------------------------------------------
************************************************************************
************************************************************************
Thread :  IO-CPU-Intensiveis getting aged to increased its priority
************************************************************************
.................................
Timer Interrupt at  33810 having qunatum  400
.................................
Thread : CPU-Write-Intensive   having priority 1 running at 33410
========================================================================================
Exiting Thread :  CPU-Write-Intensiveat 33420
========================================================================================
.................................
Timer Interrupt at  34120 having qunatum  700
.................................
Thread : IO-CPU-Intensive   having priority 2 running at 33420
.................................
Timer Interrupt at  35620 having qunatum  1500
.................................
Thread : CPU bound   having priority 4 running at 34120
========================================================================================
Exiting Thread :  CPU boundat 34980
========================================================================================
.................................
Timer Interrupt at  35980 having qunatum  1000
.................................
Thread : IO-CPU-Intensive   having priority 3 running at 34980
========================================================================================
Exiting Thread :  IO-CPU-Intensiveat 35910
========================================================================================
^C
Cleaning up after signal 2
dmullapu@lcs-vc-cis486:~/nachos/code/build.linux$ ^C
dmullapu@lcs-vc-cis486:~/nachos/code/build.linux$
```