Experiment/Tutorial Number: 04

TITLE: Reader Writer using Threads and Semaphores.

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Question:Write a program in C to implement the Reader Writer problem using

Threads and Semaphores.

Solution:

#include<stdio.h>

#include<semaphore.h>

#include<pthread.h>

int hr,min,sec,tid1,tid2;

void \*read();

void \*write();

void \*ret;

sem\_t s1,s2;

pthread\_t rth,wth;

void main()

{

sem\_init(&s1,0,0);

sem\_init(&s2,0,1);

tid1 = pthread\_create(&rth,NULL,&read,NULL);

if(tid1 == 0)

printf("\nrth created successfully");

tid2 = pthread\_create(&wth,NULL,&write,NULL);

if(tid2 == 0)

printf("\nwth created successfully");

pthread\_join(rth,NULL);

pthread\_join(wth,NULL);

sem\_destroy(&s1);

sem\_destroy(&s2);

}

void \*read()

{

printf("\nin read");

while(hr <= 1)

{

sem\_wait(&s2);

printf("\n%d:%d:%d",hr,min,sec);

sem\_post(&s1);

sleep(1);

}

return(&ret);

}

void \*write()

{

printf("\nin write");

while(hr <= 1)

{

sem\_wait(&s1);

sec++;

if(sec == 60)

{

sec = 0;

min++;

}

if(min == 60)

{

min = 0;

hr++;

}

sem\_post(&s2);

sleep(1);

}

return(&ret);

}