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#include<stdio.h>

#include<pthread.h>

#include<unistd.h>

#include<stdlib.h>

pthread\_mutex\_t wr,mutex;

int a=10,readcount=0;

void \* reader(void \*arg){

long int num;

num=(long int) arg;

pthread\_mutex\_lock(&mutex);

readcount++;

pthread\_mutex\_unlock(&mutex);

if(readcount==1)

pthread\_mutex\_lock(&wr);

printf("\n Reader %ld is in critica section",num);

printf("\nReader %ld is reading data %d",num,a);

sleep(1);

pthread\_mutex\_lock(&mutex);

readcount--;

pthread\_mutex\_unlock(&mutex);

if(readcount==0)

pthread\_mutex\_unlock(&wr);

printf("\n Reader %ld left critica section",num);

}

void \* writer(void \*arg)

{

long int num;

num=(long int) arg;

//lock wr variable tu enter CS

pthread\_mutex\_lock(&wr);

printf("\n Writer %ld is in critica section",num);

printf("\n Writer %ld have written data as %d",num,++a);

sleep(1);

//writer releases a lock on Wr

pthread\_mutex\_unlock(&wr);

printf("\n Writer %ld left critica section",num);

}

int main()

{

pthread\_t r[10],w[10];

long int i,j;

int nor,now;

//initialize mutex variables

pthread\_mutex\_init(&wr,NULL);

pthread\_mutex\_init(&mutex,NULL);

//read input data

printf("Enter number of readers and writers");

scanf("%d %d",&nor,&now);

//Create reader and writer threads

for(i=0;i<nor;i++)

pthread\_create(&r[i],NULL,reader,(void \*)i);

for(j=0;j<now;j++)

pthread\_create(&w[j],NULL,writer,(void \*)j);

//Join the threads

for(i=0;i<nor;i++)

pthread\_join(r[i],NULL);

for(j=0;j<now;j++)

pthread\_join(w[j],NULL);

return 0;

}



