Design a C program to simulate the concept of Dining-Philosophers

problem

#include<stdio.h>

#include<stdlib.h>

#include<pthread.h>

#include<semaphore.h>

#include<unistd.h>

sem\_t diningroom;

sem\_t chopstick[5];

void \* coustmer(void \*);

void eat(int);

int main()

{

int i,a[5];

pthread\_t tid[5];

sem\_init(&diningroom,0,4);

for(i=0;i<5;i++)

sem\_init(&chopstick[i],0,1);

for(i=0;i<5;i++){

a[i]=i;

pthread\_create(&tid[i],NULL,coustmer,(void \*)&a[i]);

}

for(i=0;i<5;i++)

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

}

void \* coustmer(void \* num)

{

int c=\*(int \*)num;

sem\_wait(&diningroom);

printf("\ncoustmer %d has entered room",c);

sem\_wait(&chopstick[c]);

sem\_wait(&chopstick[(c+1)%5]);

eat(c);

sleep(2);

printf("\ncoustmer %d has finished eating",c);

sem\_post(&chopstick[(c+1)%5]);

sem\_post(&chopstick[c]);

sem\_post(&diningroom);

}

void eat(int c)

{

printf("\ncoustmer %d is eating",c);

}

Output:

