#include<stdio.h>

#include<pthread.h>

#include<semaphore.h>

#include<unistd.h>

int buf[5],f,r;

sem\_t mutex,full,empty;

void\* produce(void \*arg){

int i;

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

sem\_wait(&empty);

sem\_wait(&mutex);

printf("Produced item is %d\n",i);

buf[(++r)%5]=i;

sleep(5);

sem\_post(&mutex);

sem\_post(&full);

}

}

void\* consumer(void \*arg){

int i,item;

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

sem\_wait(&full);

sem\_wait(&mutex);

item=buf[(++f)%5];

printf("Consumed item is %d\n",item);

sleep(5);

sem\_post(&mutex);

sem\_post(&empty);

}

}

int main(){

pthread\_t tid1,tid2;

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

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

sem\_init(&empty,0,5);

pthread\_create(&tid1,NULL,produce,NULL);

sleep(5);

pthread\_create(&tid2,NULL,consumer,NULL);

pthread\_join(tid1,NULL);

pthread\_join(tid1,NULL);

sem\_destroy(&mutex);

sem\_destroy(&full);

sem\_destroy(&empty);

return 0;

}