# Topic 18: 18. Construct a C program to simulate producer-consumer problem using semaphores.

#include <stdio.h>  
#include <pthread.h>  
#include <semaphore.h>  
  
sem\_t empty, full;  
int buffer;  
  
void\* producer(void\* arg) {  
 sem\_wait(&empty);  
 buffer = 1;  
 printf("Produced\n");  
 sem\_post(&full);  
 return NULL;  
}  
  
void\* consumer(void\* arg) {  
 sem\_wait(&full);  
 printf("Consumed %d\n", buffer);  
 sem\_post(&empty);  
 return NULL;  
}  
  
int main() {  
 pthread\_t p, c;  
 sem\_init(&empty, 0, 1);  
 sem\_init(&full, 0, 0);  
 pthread\_create(&p, NULL, producer, NULL);  
 pthread\_create(&c, NULL, consumer, NULL);  
 pthread\_join(p, NULL);  
 pthread\_join(c, NULL);  
 return 0;  
}