

Semaphore Program in C

```
#include <stdio.h>

#include <pthread.h>

#include <semaphore.h>

#define NUM_THREADS 5

sem_t semaphore;

void* thread_function(void* arg)
{
    int thread_id = ((int)arg);

    sem_wait(&semaphore);

    printf("Thread %d is in critical section\n", thread_id);

    printf("Thread %d is Working...\n", thread_id);

    sem_post(&semaphore);

    pthread_exit(NULL);
}

int main()
{
    pthread_t threads[NUM_THREADS];

    int thread_args[NUM_THREADS];

    sem_init(&semaphore, 0, 1);

    for (int i=0; i < NUM_THREADS; ++i)
    {
```

```
    thread_args[i]=i;

    pthread_create(&threads[i],NULL,thread_function,&thread_args[i]);

}

for(int i=0;i<NUM_THREADS;++i)

{

    pthread_join(threads[i],NULL);

}

sem_destroy(&semaphore);

return 0;

}
```