1) Implement the above code and paste the screen shot of the output.

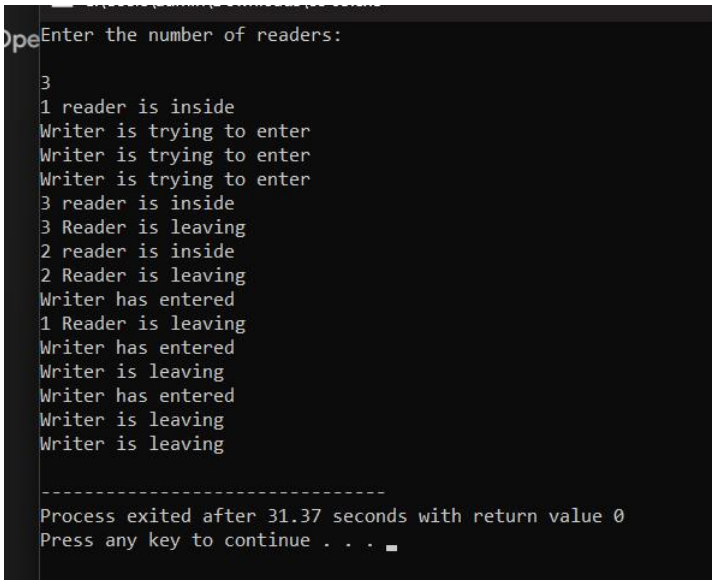
Code

```
#include <semaphore.h>
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <pthread.h>

sem_t x, y;
pthread_t tid;
pthread_t writerthreads[100], readerthreads[100];
int readercount = 0;

void *reader(void *param) {
   sem_wait(&x);
   readercount++;

   if (readercount == 1) {
      sem_wait(&y);
   }
   sem_post(&x);

   printf("%d reader is inside\n", readercount);
   usleep(3);

   sem_wait(&x);
   readercount--;
   if (readercount == 0) {
      sem_post(&y);
   }
   sem_post(&x);
   printf("%d Reader is leaving\n", readercount + 1);
   return NULL;
}

void *writer(void *param) {
   printf("Writer is trying to enter\n");
   sem_wait(&y);
   printf("Writer has entered\n");
   sem_post(&y);
   printf("Writer is leaving\n");
   return NULL;
}

int main() {
   int n2, i;
```

M. HamzaKhan
DT-22048

```
    printf("Enter the number of readers:");
    scanf("%d", &n2);

    int n1[n2];
    sem_init(&x, 0, 1);
    sem_init(&y, 0, 1);

    for (i = 0; i < n2; i++) {
        pthread_create(&writerthreads[i], NULL, reader, NULL);
        pthread_create(&readerthreads[i], NULL, writer, NULL);
    }

    for (i = 0; i < n2; i++) {
        pthread_join(writerthreads[i], NULL);
        pthread_join(readerthreads[i], NULL);
    }

    return 0;
}
```

Output



M. HamzaKhan
DT-22048