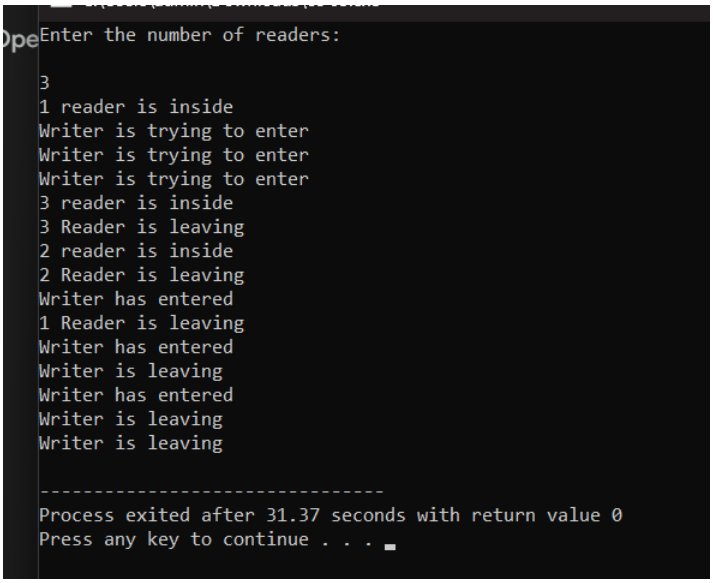
LAB # 5

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

```
#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;
   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;
}
```


Enter the number of readers:
3
1 reader is inside
Writer is trying to enter
Writer is trying to enter
Writer is trying to enter
3 reader is inside
3 Reader is leaving
2 reader is inside
2 Reader is leaving
Writer has entered
1 Reader is leaving
Writer has entered
Writer is leaving
Writer has entered
Writer is leaving
Writer is leaving

Process exited after 31.37 seconds with return value 0
Press any key to continue . . .