Rewrite the programs 48-2.c and 48-3.c as a threaded application, with the two threads passing data to each other via a global buffer, and using POSIX semaphores for synchronization.

Please write them into a file named quiz4.c and then execute as follows:

```
hungchu@hungchu-VirtualBox:~/Downloads/quiz4_test$ ./quiz4 < file > output
Received 2091 bytes (3 xfrs)
Sent 2091 bytes (3 xfrs)
hungchu@hungchu-VirtualBox:~/Downloads/quiz4_test$ diff file output
```