// Pseudo code for the second version of reader-writer problem:
int readcount, writecount; (initial value = 0)
semaphore mutex_1, mutex_2, mutex_3, w, r; (initial value = 1)

**READER:**
While (true){
    wait(mutex_3);
    wait(r);
    wait(mutex_1);
    readcount := readcount + 1;
    if readcount = 1 then wait(w);
    signal(mutex_1);
    signal(r);
    signal(mutex_3);
    // reading is performed
    wait(mutex_1);
    readcount := readcount - 1;
    if readcount = 0 then signal(w);
    signal(mutex_1);
}

**WRITER:**
while(true) {
    wait(mutex_2);
    writecount := writecount + 1;
    if writecount = 1 then wait(r);
    signal(mutex_2);
    wait(r);
    // writing is performed
    signal(w);
    wait(mutex_2);
    writecount := writecount - 1;
    if writecount = 0 then signal(r);
    signal(mutex_2);
}