```
// 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(w);
     // writing is performed
  signal(w);

  wait(mutex_2);
    writecount := writecount - 1;
    if writecount = 0 then signal(r);
  signal(mutex_2);
}
```