#include <stdio.h>

#include <pthread.h>

#include <semaphore.h>

#include <unistd.h>

sem\_t wrt, mutex;

int read\_count = 0;

void \*writer(void \*id) {

while (1) {

sem\_wait(&wrt);

printf("Writer %d writing...\n", \*(int \*)id); sleep(1);

sem\_post(&wrt); sleep(1);

}

}

void \*reader(void \*id) {

while (1) {

sem\_wait(&mutex); read\_count++;

if (read\_count == 1) sem\_wait(&wrt);

sem\_post(&mutex);

printf("Reader %d reading...\n", \*(int \*)id); sleep(1);

sem\_wait(&mutex); read\_count--;

if (read\_count == 0) sem\_post(&wrt);

sem\_post(&mutex); sleep(1);

}

}

int main() {

pthread\_t read[5], write[2];

sem\_init(&wrt, 0, 1); sem\_init(&mutex, 0, 1);

int ids[5] = {0, 1, 2, 3, 4};

for (int i = 0; i < 2; i++) pthread\_create(&write[i], NULL, writer, &ids[i]);

for (int i = 0; i < 5; i++) pthread\_create(&read[i], NULL, reader, &ids[i]);

for (int i = 0; i < 2; i++) pthread\_join(write[i], NULL);

for (int i = 0; i < 5; i++) pthread\_join(read[i], NULL);

return 0;

}

