CMSC 312 Assignment 2

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OUTPUT FILE

Question1, Part 1 (Correct counting semaphore implementation)

Corresponds to prod-con-1.c

```
[dubejz@egr-v-cmsc312-1 assignment_2]$ ./a
Producer 0 added 15 to buffer
Consumer 1 dequeue 15 from buffer
Producer 2 added 35 to buffer
Consumer 3 dequeue 35 from buffer
Producer 0 added 92 to buffer
Consumer 5 dequeue 92 from buffer
Producer 4 added 49 to buffer
Consumer 1 dequeue 49 from buffer
Producer 4 added 62 to buffer
Consumer 3 dequeue 62 from buffer
Producer 2 added 27 to buffer
Consumer 5 dequeue 27 from buffer
[dubejz@egr-v-cmsc312-1 assignment_2]$
```

Question 1, Part 2 (Incorrect counting semaphore implementation)

Corresponds to prod-con-2.c

```
[dubejz@egr-v-cmsc312-1 assignment_2]$ ./b
Producer 0 added 15 to buffer
Consumer 1 dequeue 15 from buffer
Producer 2 added 35 to buffer
Consumer 3 dequeue 35 from buffer
Producer 0 added 92 to buffer
Consumer 5 dequeue 92 from buffer
Producer 4 added 49 to buffer
Consumer 1 dequeue 49 from buffer
Producer 4 added 62 to buffer
Consumer 3 dequeue 62 from buffer
Producer 2 added 27 to buffer
Consumer 5 dequeue 27 from buffer
[dubejz@egr-v-cmsc312-1 assignment_2]$
```

Question 2 (FIFO queue implementation with counting semaphores)

Corresponds to prod-con-3.c

```
[dubejz@egr-v-cmsc312-1 assignment_2]$ gcc -pthread prod-con-3.c -o c
[dubejz@egr-v-cmsc312-1 assignment_2]$ ./c
Producer 2 added 15 to buffer
Consumer 1 dequeue 15 from buffer
Producer 0 added 35 to buffer
Producer 2 added 92 to buffer
Consumer 3 dequeue 35 from buffer
Consumer 3 dequeue 92 from buffer
Producer 4 added 49 to buffer
Consumer 1 dequeue 49 from buffer
Producer 4 added 62 to buffer
Consumer 5 dequeue 62 from buffer
Producer 0 added 27 to buffer
Consumer 5 dequeue 27 from buffer
[dubejz@egr-v-cmsc312-1 assignment_2]$
```

Question 3 (n-bound reader-writer problem)

Corresponds to reader-writer-1.c

```
[dubejz@egr-v-cmsc312-1 assignment_2]$ gcc -pthread reader-writer-1.c -o d
[dubejz@egr-v-cmsc312-1 assignment_2]$ ./d
Reader 2: read cnt as 1
num readers: 3
Reader 1: read cnt as 1
num readers: 2
Reader 9: read cnt as 1
num readers: 2
Reader 4: read cnt as 1
num readers: 2
Reader 10: read cnt as 1
num readers: 2
Reader 6: read cnt as 1
num readers: 2
Reader 7: read cnt as 1
Reader 8: read cnt as 1
num readers: 3
num readers: 3
Writer 2 modified cnt to 2
Writer 1 modified cnt to 4
Reader 5: read cnt as 4
num readers: 3
Writer 3 modified cnt to 8
Writer 4 modified cnt to 16
Reader 3: read cnt as 16
num readers: 2
Writer 5 modified cnt to 32
[dubejz@egr-v-cmsc312-1 assignment_2]$
```