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CS-33211 Operating Systems

The producer and consumer processes both share memory which allows them to share the same values stored on the "table". Two semaphores are used to allow synchronization without corruption or lose of data. The producer will try to produce as many items as quickly as possible while the consumer will then try to "receive" them as fast as possible. The amount produced is double the amount set within the loops of each file on lines 73 and 70. The program should end by unlinking the shared memory and exiting.

Example Code Output:

```
[tmoore81@wasp Operating_Systems]$ gcc producer.c -pthread -lrt -o producer
[1]- Killed                    ./producer
[2]+ Killed                    ./consumer
[tmoore81@wasp Operating_Systems]$ gcc consumer.c -pthread -lrt -o consumer
[tmoore81@wasp Operating_Systems]$ ./producer & ./consumer &
[1] 3322943
[2] 3322944
[tmoore81@wasp Operating_Systems]$ PRODUCER: Produced integer in int1: 604612471
PRODUCER: Produced integer in int2: 1867028247
CONSUMER: Recieved integer in int1: 604612471
CONSUMER: Recieved integer in int2: 1867028247
PRODUCER: Produced integer in int1: 40611961
PRODUCER: Produced integer in int2: 926146299
CONSUMER: Recieved integer in int1: 40611961
CONSUMER: Recieved integer in int2: 926146299
PRODUCER: Produced integer in int1: 358379495
PRODUCER: Produced integer in int2: 604669711
CONSUMER: Recieved integer in int1: 358379495
CONSUMER: Recieved integer in int2: 604669711
PRODUCER: Produced integer in int1: 1731474529
PRODUCER: Produced integer in int2: 370261415
CONSUMER: Recieved integer in int1: 1731474529
CONSUMER: Recieved integer in int2: 370261415
PRODUCER: Produced integer in int1: 1466003084
PRODUCER: Produced integer in int2: 1668989855
CONSUMER: Recieved integer in int1: 1466003084
CONSUMER: Recieved integer in int2: 1668989855
PRODUCER: Produced integer in int1: 117275321
PRODUCER: Produced integer in int2: 505462652
CONSUMER: Recieved integer in int1: 117275321
CONSUMER: Recieved integer in int2: 505462652
PRODUCER: Produced integer in int1: 1374719176
PRODUCER: Produced integer in int2: 601191902
CONSUMER: Recieved integer in int1: 1374719176
CONSUMER: Recieved integer in int2: 601191902
PRODUCER: Produced integer in int1: 1466993740
PRODUCER: Produced integer in int2: 366770388
CONSUMER: Recieved integer in int1: 1466993740
CONSUMER: Recieved integer in int2: 366770388
PRODUCER: Produced integer in int1: 144349504
PRODUCER: Produced integer in int2: 1087521120
CONSUMER: Recieved integer in int1: 144349504
CONSUMER: Recieved integer in int2: 1087521120
PRODUCER: Produced integer in int1: 1445971846
PRODUCER: Produced integer in int2: 312123005
CONSUMER: Recieved integer in int1: 1445971846
CONSUMER: Recieved integer in int2: 312123005
[tmoore81@wasp Operating_Systems]$
```