CC418 - Operating Systems
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Term: Spring 2012

Section Assignment #5
Producer/Consumer Problem

Date Assigned: Week of Sunday, May 6th (Week 12)
Date Due: Week of Sunday, May 13th (Week 13). Late assignments will not be accepted. Submissions should be typed. Be sure to write your name, registration number, assignment number, and lecturer and TA name in the header.

The following excerpt is taken from Chapter 5 of "Operating Systems: Internals and Design Principles" by William Stallings (7th Edition).

General Statement:

"There are one or more producers generating some type of data (records, characters) and placing these in a buffer. There is a single consumer that is taking items out of the buffer one at a time. The system is to be constrained to prevent the overlap of buffer operations. That is, only one agent (producer or consumer) may access the buffer at any one time. The problem is to make sure that the producer won't try to add data into the buffer if it's full and that the consumer won't try to remove data from an empty buffer."

Assignment:

Implement the producer/consumer problem using semaphores with an **infinite buffer**. In your output, clearly show the values being produced and consumed (these can be randomly generated), and the value of the shared buffer at each iteration.

Bonus:

For bonus marks, modify your above implementation to use a **finite buffer**.