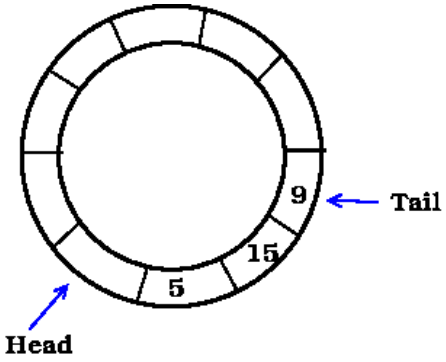
Real Time Systems, January 2024

Using semaphore for counting and synchronization amond independenty run processes

Opened: Wednesday, 7 February 2024, 12:00 AM
Due: Wednesday, 14 February 2024, 11:59 PM

✔ Done

Let there be a circular queue (holding **at most 10** integer items) **shared** between two independent processes, one executing ***producer.c*** (the **producer** process) and the other ***consumer.c*** (the **consumer** process). The **producer** process, in an infinite loop, reads one integer from the user and adds that to the queue. The consumer process, on the other hand, in an infinite loop, "consumes" one integer from the queue.



Write the program producer.c and consumer.c ensuring the following points.

- **Producer** and **consumer** processes to be run independently (at 2 different terminals).
- Since the circular queue is shared by both producer and consumer processes, there are possibilities for race conditions to occur. Ensure that there is **no race condition.**
- The **Producer** process cannot add an item if the queue is full and should wait for the consumer process to "consume" one item. This must not be a "busy waiting", that is, the producer process, in that case, should "go" into wait-state.
- The **Consumer** process, on the other hand, cannot "consume" an item if the queue is empty, and should wait for the producer process to add one item. This too must not be a "busy waiting", that is, the consumer process, in that case, should "go" into wait-state.

Your programs must be user-friendly and well-documented!

Submission status

Attempt number	This is attempt 1.
Submission status	Submitted for grading
Grading status	Not graded
Time remaining	Assignment was submitted 12 days 19 hours late
Last modified	Tuesday, 27 February 2024, 7:37 PM

File submissions	consumer1.c	27 February 2024, 7:37 PM
	producer1.c	27 February 2024, 7:37 PM
Submission comments	Comments (0)	

◄ Sample program on semaphore

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