Results

60%	6	07:21
Score	Out of 10 points	Time for this attempt

1 0 / 2 points

What is the primary challenge addressed by the Producer-Consumer problem?

- Ensuring data integrity
- ✗ Maximizing CPU usage

Correct Answer: **Preventing race conditions**

- Sharing data between processes
- Preventing race conditions

0 / 2 points

2 0 / 2 points

Which mechanism is often used to synchronize access to a shared buffer in the Producer-Consumer problem?

- Priority scheduling
- ✗ Busy waiting

Correct Answer: **Condition variables**

- Condition variables
- Thread preemption

0 / 2 points

3 2 / 2 points

What is the major problem with the initial solution for the ProducerConsumer problem presented in the PPT?

- It doesn't use mutexes to protect shared data access.
- It fails to block the producer or consumer when necessary.
- It lacks a clear algorithm for producing and consuming data.
- ✓ It suffers from busy waiting, wasting CPU cycles.

Feedback

Based on your answer

The initial solution in the PPT involves busy waiting, which means threads repeatedly check for conditions to be met, wasting CPU resources while they could be doing other useful work.

2 / 2 points

4 2 / 2 points

How can the problem of busy waiting in the Producer-Consumer problem be effectively resolved?

- By printing debug messages for better monitoring
- ✓ By using condition variables or semaphores
- By increasing the thread's priority to avoid waiting
- By using spinlocks to optimize waiting times

Feedback

Based on your answer

Condition variables or semaphores can be used to block threads when they cannot make progress, avoiding busy waiting and efficiently utilizing CPU resources.

2 / 2 points

5 2 / 2 points

What library call is commonly used to decrease a semaphore's value, potentially causing a thread to be blocked?

- sem_signal()
- sem_post()
- ✓ sem_wait()
- sem_lock()

2 / 2 points

Fudge Points
Manually adjust the score by adding positive or negative points to this box

0

Final Score **6 / 10**