Concurrent Queue with Condition Variable Exercises

Concurrent Queue

- The queue from the previous lecture is safe
  - pop() throws an exception when the queue is empty
  - push() throws an exception when the queue is full
- Suggest how it could be made more useful

Concurrent Queue with Condition Variable

- Describe how you could do this with a condition variable

- wait() will be called on the condition variable

- Would it be useful to add a predicate argument to this call?

- What would this predicate do?

concurrent_queue with Condition Variable

- Implement your solution

- Write a multi-threaded program to exercise your implementation

- Check that it behaves correctly, including the following cases:
    - pop() called when the queue is empty
    - push() called when the queue is full

Conclusion

- This is a simple concurrent queue implementation

- Describe its limitations

- Does adding the condition variable improve the situation?

- Are there other ways to implement a concurrent queue?