

Concurrent Queue Solutions

std::queue

- Briefly explain why, as it stands, std::queue is not suitable for use as a concurrent queue
 - Implemented as a memory location - needs to be protected against data races
 - "Popping" an element requires two operations (one to get its value, one to remove it) and another thread could interfere between these operations
 - A pop operation on an empty container is not defined

Concurrent Queue Implementation

- Implement a concurrent queue which uses locks
- Make sure your implementation is thread-safe and exception-safe
- In the event that a client tries to pop() from an empty queue, your implementation throws an exception
- Write a multi-threaded program to exercise your implementation
- Your program should call pop() on an empty thread and catch the exception in the thread which called pop()