**CTA 7 Concurrency C++**

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# **Pseudocode:**

Declare a mutex called mtx

Declare an integer variable called counter and initialize it to 0

Function CountUp:

Lock the mutex mtx to protect the shared variable

Print "Thread 1: Count is " followed by the current value of counter

For increment from 1 to 20:

Simulate some work

Increment counter by 1

Print "Thread 1: Counting up - " followed by the updated value of counter

For End

Unlock the mutex mtx

Function End

Function CountDown:

Declare an integer variable troubleTracker and initialize it to 0

While counter is not equal to 20:

Increment troubleTracker by 1

Sleep for a while to give Thread 1 a chance

While End

If troubleTracker is greater than 11:

Print "Thread 2: Trouble! Counter is " followed by the current value of counter

Print "Thread 1: Has not finished counting up yet to 20!"

Exit the loop

If End

Lock the mutex mtx to protect the shared variable

Print "Thread 2: Count is " followed by the current value of counter

While true:

Simulate some work

If counter is greater than or equal to 1:

Decrement counter by 1

Print "Thread 2: Counting down - " followed by the updated value of counter

If End

If counter is equal to 0:

Exit the loop

If End

While End

Function End

Main Function:

Create a thread thread1 that executes the CountUp function

Create a thread thread2 that executes the CountDown function

Wait for thread1 to finish

Wait for thread2 to finish

Return 0

Main Function End

# **Figures Section**

## **Figure 1.**

Asking for User input, performing validation, and limiting special characters input.

A screen shot of a computer code

Description automatically generated

## **Figure 2**

GitHub Repo

A screenshot of a computer program

Description automatically generated