ELE709 - Real-Time Computer Control Systems
Lab 5 - Task Synchronization and Communication

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1. **Exercise 5.1:**

   (a) Explain why the example program lab5.c didn't always produce the correct results?

   Sometimes the receiver thread will sleep for 2 seconds before the sender thread sleeps for 2 seconds. This causes the receiver to check the message queue before the sender thread has sent its messages to the message queue.

   (b) How did you modify it so that the correct results are always produced.

   The main thread waits for the sender thread to finish before creating the receiver thread. The main thread joins the sender thread using pthread_join() before creating the receiver thread.

2. **Exercise 5.2:** What is the purpose of the binary semaphore in Figure 5.2?

   The purpose of the binary semaphore is to make the sender wait for the Receiver to read the last message before the sender sends the next message.