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**Lab 6 Report**

To complete the mission, I used two approaches. To synchronize the four operations, the first employs the Pthreads library, while the second employs semaphores. The multiprocessing approach is used with semaphores, while the multithreading approach is used with the Pthread library. I used a lock for the critical section in both methods. I used mutex locks in the Pthreads approach, because when a smoker phase is woken up, it locks the crucial parts before smoking the cigarette. Semaphores were also used to lock the crucial section in the semaphores approach. In both cases, after the smoker had finished smoking the cigarette, I unlocked the crucial section to inform the process that he was ready to distribute the ingredients once more. For now, I've set it up so that the agent phase distributes the ingredients 20 times, but this can easily be adjusted by adjusting the length of the for loop.