CSCI 3310 – Semaphore Exercises

1. Suppose you have three threads A, B, and C. Thread A will execute **studyOS()**, thread B will execute **drinkCoffee()**, and thread C will execute **takeExam()**. Using a single semaphore **s**, sketch code for each thread that will ensure that both **drinkCoffee()** and **studyOS()** happen before **takeExam()**. Remember to specify the starting value of the semaphore!

2. You and your roommate decide to have milk and cookies for dinner. Remembering the Too Much Milk incident, you have decided to split the dinner prep by having you (Thread A) **buyMilk()**, while your roommate (Thread B) will **buyCookies()**. After both milk and cookies are purchased, both of you will **eatDinner()**. Write code using two semaphores **s1** and **s2** that will ensure that neither of you eats dinner until both the milk and cookies are acquired. Of course, you should still be able to purchase the milk and cookies concurrently.

3. Repeat question 2, but this time use only a single semaphore **s**.