1. One reason that this method of communication is not recommended is because both processes must wait in the CPU, and take up CPU time that could be given to other processes. A solution to this would be to use semaphores, where they take the process out of the CPU until triggered. Another reason it is not recommended is Peterson’s method is designed between 2 processes/threads, and would be difficult, if possible, to implement into a multithreaded system.
2. In both scenarios, assuming the buffer is filling to it’s maximum capacity, it can only use N-1 elements because the producer does the incrementation of *in* before it writes, rather than the second solution, where it writes to the buffer, then increments *in*. In other words, the second approach can use counter to check for the amount of the buffer filled, which goes to the highest index +1. The first approach does index comparison, which only goes to the highest index before wrapping back around to the 0th index.