

ECE 39595J Homework 6

1.1. buf = []
wait = [C1]
block = []

1.2. buf = ["c"]
wait = []
block = [C1, C2]

1.3. There is no character for C1 to get. C2 will return "c" and C1 will see buf.size is 0 and return to wait queue. If no while loop, C1 would try to do buf.remove(0) and cause an error.

2.1. buf = ["c"]
wait = [P2, P3]
block = []

2.2. buf = ["c"]
wait = [P2, P3]
block = [C2, C3]

2.3. buf = []
wait = [P3, C2, C3]
block = [P2]

2.4. buf = ["d"]
wait = [P3, C2, C3]
block = []

2.5. Any thread could've been woken.

If bb used notifyAll(), C2 and C3 would've also been woken. This would allow P3, C2, and C3 to perform their operations in the order C2 → P3 → C3 OR C3 → P3 → C2.

2.5. buf = ["d"]
wait = [P3, C2, C3]
block = []