No.

Date 10 . 16 . 2020

Max Shi CS 511 Midterm

1. Schema: (P, Q, turn P, turn Q, current, turns)

(P4, Q4, -, -, 0, 0)
(P5, Q4, 0, -, 0, 1) (P4, Q5, -, 1, 1, 1)
(P5, Q5, 0, 1, 0, 2) (P5, Q5, 1, 1, 1, 0)
(P7, Q5, 0, 1, 0, 2)
(P8, Q5, 0, 1, 1, 1) (P7, Q5, 1, 1, 1, 0)
(P7, Q7, 1, 1, 1, 0)

P7 and Q7 are critical sections of P and Q, and as they are both in the critical section at the same time, mutex does not hold.

2. Semaphore readyToCut = new Semaphore(0);
Semaphore doneCutting = new Semaphore(0);
Semaphore barberChair = new Semaphore(1);
Semaphore secretary = new Semaphore(0);
Semaphore register = new Semaphore(1);

```
Thread.start{ //Client
    barberChair.acquire();
    readyToCut.release();
    doneCutting.acquire();
    barberChair.release();
    register.acquire();
    secretary.release();
      //pay secretary
    register.release();
}
```

```
Thread.start{ //secretary
    while(true){
        secretary.acquire();
        //receive payment
    }
}
```

No.

Date

```
monitor Grid {
    int producers = 0, consumers = 0;
    Condition stoppingProducers;
    Condition startingConsumers;

    void startConsuming {
        while (producers <= consumers) { startingConsumers.wait() }
        consumers ++;

    }
    void stopConsuming() {
        consumers --;
        stoppingProducers.signal();

    }

    void startProducing() {
        producers++;
        startingConsumers.signal();
    }

    void stopProducing() {
        while (producers == consumers) { stoppingProducers.wait() }
        producers --;
    }

}
```