

Question 6:

6.1.

Assume the current turn is 1.

A possible sequence that violate mutual exclusion is given below:

```
P0: blocked[0]:=true;
P0: while (turn != 0) -> true
P0: while (blocked[1]) -> false
P1: blocked[1]:=true;
P1: while (turn != 1) -> false
P1: <critical section> //P(1) goes into CS
P0: turn:=0;
P0: while (turn != 0) -> false
P0: <critical section> //P(0) goes into CS
```

6.2.

```
cust: semaphore (:= 0);
bus: semaphore (:= 0);
busReady: semaphore (:= 0);
busMutex: semaphore (:= 1);
```

```
procedure bus;
{
    wait(busMutex);
    signal(bus);
    signal(bus);
    wait(cust);
    wait(cust);
    signal(busReady);
    signal(busReady);
    signal(busMutex);
    drive around the park;
    unload visitors;
}
```