

Assignment4

Please write your student number and name in the assignment when submit it.

1. Explain why spinlocks are not appropriate for single-processor systems yet are often used in multiprocessor systems.

2. Race conditions are possible in many computer systems. Consider an online auction system where the current highest bid for each item must be maintained. A person who wishes to bid on an item calls the bid(amount) function, which compares the amount being bid to the current highest bid. If the amount exceeds the current highest bid, the highest bid is set to the new amount. This is illustrated below:

```
void bid (double amount){  
    if (amount > highestBid)  
        highestBid= amount;  
}
```

Explain if race conditions are possible in this situation.

3. What are the differences between Semaphores and Monitors?

4. What are three classical problems of synchronization? Explain them briefly