Csc72010

Parallel and Distributed Computation and Advanced Operating Systems

Homework 1

For Thursday, February 22

1. Write a tioa that implements the sliding window algorithm.
Show that the algorithm has the following desirable properties:
a. Messages are delivered to the receiving application in the order that they were sent.
b. Each message is delivered to the receiving application at most once.
c. If the channel drops only a finite number of messages, then all messages are delivered to the receiving application.

Make the proof as formal as you can, but I will require only that you make a reasonable argument that presents the key insights. We will discuss how to formalize the proof in subsequent classes.

2. Fill in the details in the learning bridge algorithm.
   a. Discuss what happens if switches forward messages out all ports, instead of all ports except the incoming port.
   b. Discuss what happens if switches are connected to each other in a cycle.

Both tioa should be syntactically correct (they pass the tioa checker), but you do not need to simulate them.