

CS425/ECE428 Distributed Systems (Spring 2016)

Homework 1

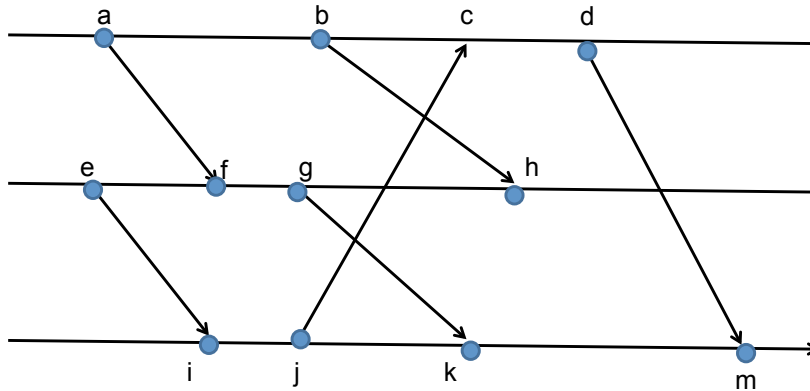
Due by 7 p.m. on February 2, 2016

See the 48-hour extension policy in the course handout.

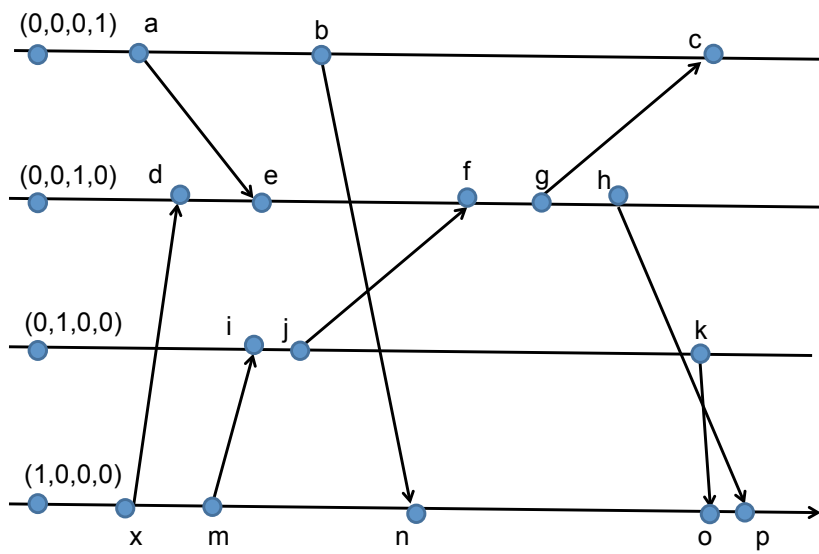
Please submit electronically.

Submission instructions to be provided separately.

1. (a) Determine the logical timestamps for events e and m in the execution below, obtained using the rules discussed in the textbook or in the slides (these rules are equivalent, although they are presented somewhat differently).



- (b) In the above execution, determine all the events that are concurrent with event e.
 - (c) In the above execution, determine all the events that happened-before event m.
2. In the execution below, determine the vector timestamps for events o and p.



3. A client attempts to synchronize its clock using Cristian's method. It sends requests to three different servers simultaneously, and records the round-trip time and timestamp returned by each server, as shown in the table below.

server	round trip time (ms)	Time
A	60	06:23:25.575
B	45	06:23:25.345
C	200	06:23:25.823

To achieve the best accuracy, which server should the client synchronize with, and what time should it set its software clock to?