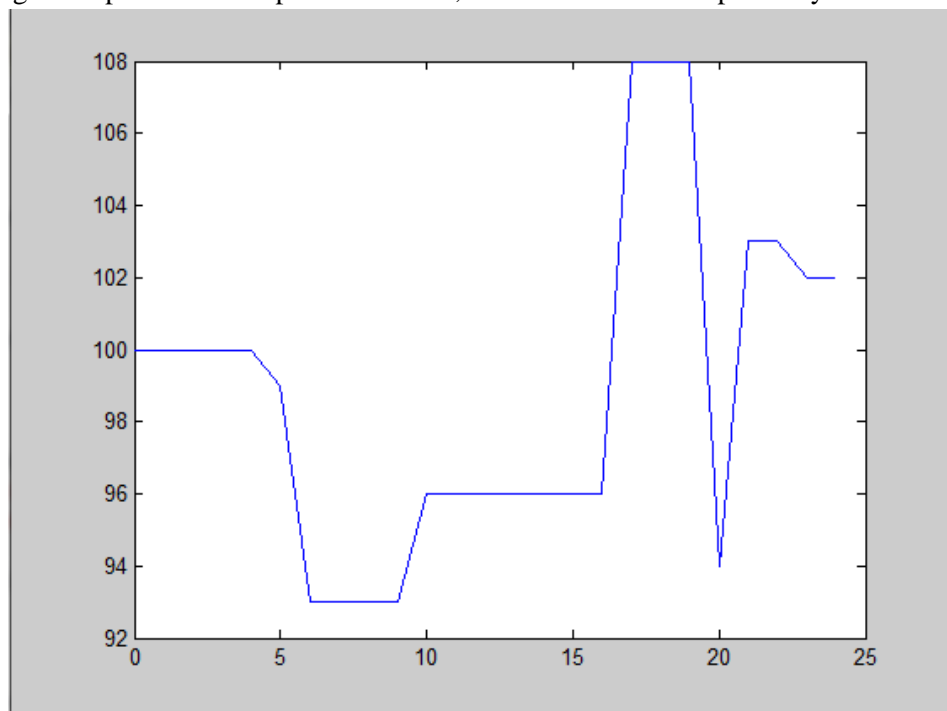
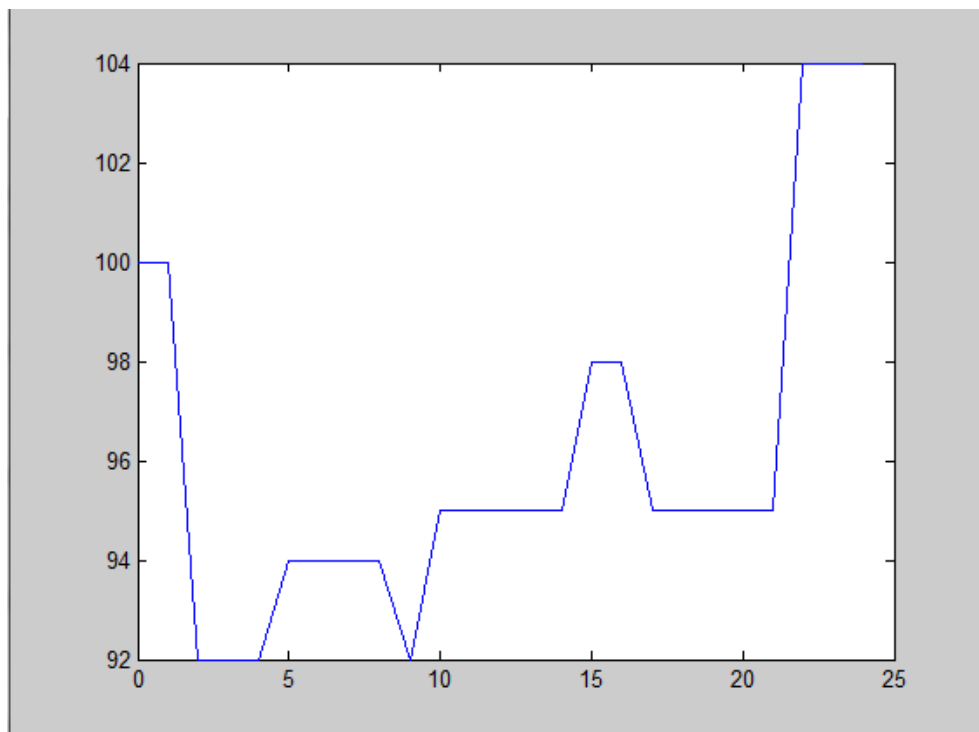


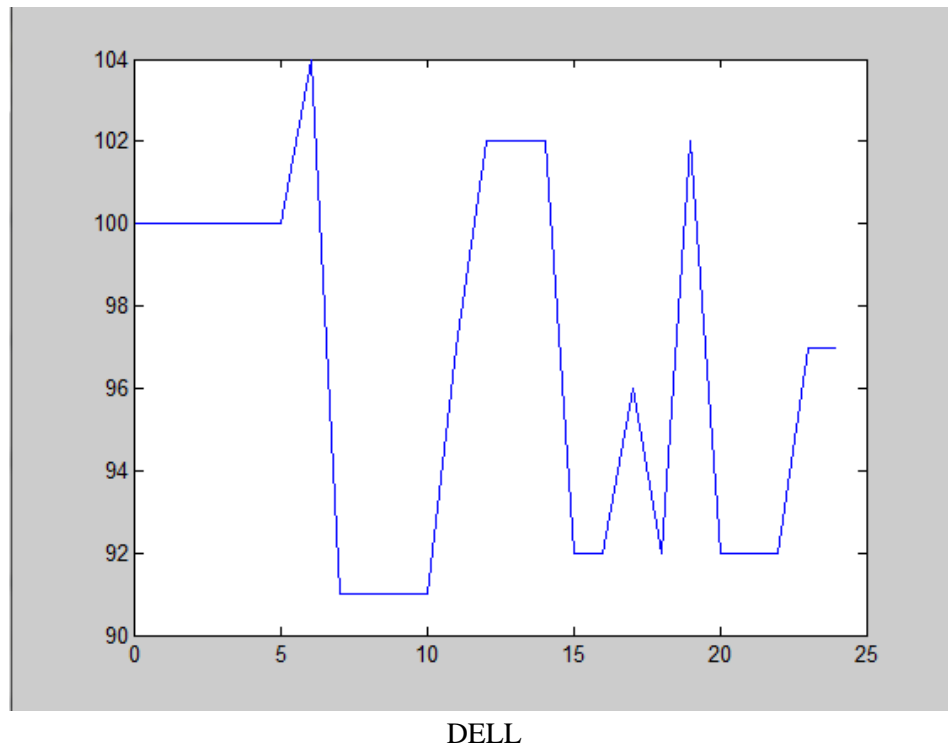
Following is the price-to-order plot for GOOG, AMZN and DELL repectively:



GOOG



AMZN



Q1. Answer:

The distributed object in my program is a list for account information, the current stock information, and the current order number.  
They are put into a class called StateOb.

Q2. Answer:

My program is not Byzantine failure safe, because it does not utilize a voting protocol with which servers in the group can vote for the valid message provided by other group members. And what's more, with three servers the group is vulnerable to Byzantine failure since it needs at least  $3k+1$  servers that the voting protocol can make sense.

In order to prevent the group from being disturbed by Byzantine failure, first there should be  $3k+1$  servers, and the voting protocol should be applied to the program.

Q3. Answer:

If sequencer mechanism is applied, there will be a server that has to serve as coordinator. In this case the system is not scalable since the one coordinator limits the scalability of this virtual synchrony system.

Q4. Answer:

Yes, the system has to implement distributed commit protocol. That is, one coordinator in the system will send messages to participants in the group to have them aware the occurrence of requests, let them vote whether to commit or abort the requests, and finally handle the requests. Either two-phase commit or three-phase commit is proper to achieve consistency.