Assignment 3

Report requirements

After finalizing the implementation of your virtual currency application, upload your code and answer the following questions:

1. Copy and paste below the interfaces that you used in your application.

2. How did you bootstrap your network? In other words, how does each machine get the IPs of the other machines in the network?

3. How many machines initiate the leader election process in your implementation? How does this affect your implementation?

4. How many messages do you expect to get sent in the leader election process?

5. Run the leader election process multiple times, and record the number of messages sent around in only this process. Compare that number to the estimate you had above. Was your estimate close?

6. Run the global snapshot process, and copy and paste below the final snapshot collected by the initiator.

7. How many messages were sent through the network because of that process?

8. Now, run the global snapshot multiple times, and compare the snapshots to each other. Are there any significant differences between the snapshots collected? If yes, what?

9. [Bonus question] Did you implement vector clocks to debug your code. Answer the following question only if your answer is yes: Collect all the timestamps of all events occurring in your system, with a single execution of the global snapshot algorithm, and sketch the event timeline below.

10. Did you design your code to handle any type of bugs; such as network failures or delays? If yes, mention two of these errors, and copy and paste below parts of your code, in which you handle them. If no, what issues/bugs do you think might occur in your code?