Sheet 5, SS 2015
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Distributed Systems Lecture - Discussion 02.07.2015

We will have a look at leader election again and at the snapshot problem.

Assignment 1. Leader Election again

Consider the Peterson Leader election algorithm in a ring with $n = 16$ nodes, in which the UIDs for processes $P_1, \ldots, P_{16}$ are $25, 3, 6, 15, 19, 8, 7, 14, 4, 22, 21, 18, 24, 1, 10, 23$. Which process is elected as leader?

Assignment 2. Leader Election Algorithms

Please study the YO-YO Algorithm:
`http://www.iaushab.ac.ir/uploads/DESIGN%20AND%20ANALYSIS%20of%20Distributed%20_383.pdf`, p. 199.

1. How does this algorithm work? What are the assumptions?
2. Into which class of algorithms does this one belong?
3. What are its advantages/disadvantages compared with other election algorithms?

Assignment 3. Snapshot Algorithms

Please study and explain at least one snapshot algorithm e.g. the Chandy-Lamport Snapshot Algorithm from K. Mani Chandy and Leslie Lamport:
`http://research.microsoft.com/en-us/um/people/lamport/pubs/chandy.pdf`
or an algorithm from
`http://www.ics.uci.edu/~cs237/reading/files/An%20introduction%20to%20snapshot%20algorithms%20in%20distributed%20computing.pdf`

1. What assumptions do these algorithms make?
2. Give an example of a situation where it could be necessary to take a snapshot?

Distributed Systems Seminar - Discussion 09.07.2015

Assignment 1. FUcoin - Advanced Algorithms

Participate in the following poll and choose one of the tasks below: `http://doodle.com/6nswgwbw9b93psz2`. Choose the task that has the least entries so far. The tasks are:

- Snapshot - We will have to implement a snapshot algorithm and collect the distributed states in order to get a truly consistent view of the whole network.
- Distributed Commit - We will have to implement a distributed commit scheme in order to have a consistent network at any time (atomic transactions).
- Leader Election - To perform certain actions (e.g. distributed commit), we will have to define a temporary leader.

Your task is:

1. to pick an appropriate algorithm for your problem,
2. to specify/adapt the interface, and
3. to present pseudo code of your algorithm.

You do not need to implement the algorithm yet!