Distributed Computing: Spring 2024
Theory Assignment 1:Spezialetti-Kearns Snapshot Algorithm

Submission Date: 20th February 2024, 21:00 hrs

Spezialetti-Kearns (SK) algorithm is an efficient and scalable algorithm for global snapshots in a distributed system. There are two phases in the SK algorithm for obtaining a global snapshot:

1. Locally recording the snapshot at every process known as efficient snapshot recording.

2. Distributing the resultant global snapshot to all the initiators known as efficient dissemination of the recorded snapshot.

SK algorithm supports concurrent initiators, efficient assembly, and distribution of a snapshot. It is based on the assumption that bidirectional channels are present in the network. It takes $O(e)$ messages to record, $O(rn^2)$ messages to assemble and distribute snapshots. Where n is the number of processes, e is the number of channels, and r is the number of concurrent initiators. Please develop a pseudo code for the SK algorithm. (15 points)

Note: Submit your answer as a pdf by the deadline mentioned above. Please follow the naming convention as *Theory-Assign1-<rollno>.pdf* for the submission.