CS 7610: Homework 2
DUE October 22, 21:59 PM

1 Description

Problem 1 – Randomized algorithms (25 points) Consider the Ben-Or randomized algorithm described in class. Show how to modify the algorithm to tolerate Byzantine faults, then explain why the modified algorithm is correct assuming that Ben-Or was proven to be correct.

Problem 2 - 2PC (25 points) Consider the 2PC algorithm described in class and a setting with 4 servers. Show a scenario in which the 2PC algorithm blocks.

Problem 3 - 3PC (25 points) Consider the 3PC algorithm described in class. Prove that if a process has pre-commit messages from all processes he can proceed with pushing the "commit" operation.

Problem 4 - Reliable multicast (25 points) Prove that if a reliable multicast service provides both single source FIFO ordering and total ordering, then it is also causal (i.e. provides causal ordering).

2 Submission

Information about submission is in post @11 in piaza. Name of the project in the submission command is hw2. Submission is in *PDF* format. Please do not submit be email.