

Solutions to Exercise Session 9

Shared Memory

November 29, 2010

Problem 1

Explain why every process needs to maintain a copy of the register value in the “Majority Voting” algorithm (Either algorithm 4.2 in the book, or ABD95 algorithm from slides).

See Exercise 4.2 in the book.

Problem 2

Does any implementation of a regular register require a majority of the correct processes in a fail-silent model with no failure detector? What if an eventually perfect failure detector is available?

See Exercise 4.8 in the book.

Problem 3

Explain why a timestamp is needed in the “Majority Voting” algorithm (Algorithm 4.2 in the book, or ABD95 algorithm from slides), but not in the “Read-One Write-All” algorithm (Algorithm 4.1, or the Algorithm from slide 21).

See Exercise 4.5 in the book.