

Homework Assignment #6
Due: March 14, 2016 at 5:30 p.m.

1. Consider an asynchronous shared-memory system with n processes and up to f halting failures. An algorithm may specify the initial state of all shared objects. In the consensus problem, each process receives an input value (a natural number) and the processes' outputs must satisfy the following conditions.
 - Termination: in every execution where at most f processes experience halting failures, all non-faulty processes eventually output a value.
 - Agreement: in every execution, all outputs produced in the execution are identical.
 - Validity: in every execution, each output is the input of some process in that execution.

Give a simple consensus algorithm that uses one shared stack, together with shared read-write registers for the case where $f = 1$. (Your algorithm should work for every n .)