ECE 526 Distributed Algorithm
Homework 2
Fall 2016 20 points

Due by 2 pm, Wednesday, September 21, 2016
Submit via Compass.

- (10 points) Consider an asynchronous system in which at most f processes may crash. Design a k-set consensus algorithm that terminates in finite time, with each process deciding on some value. The FLP impossibility result implies that we cannot guarantee that all the non-faulty processes decide on an identical value.

  Suggest an algorithm that ensure that the set of outputs chosen by the non-faulty processes contains at most f+1 distinct values. Show the correctness of your algorithm.

  Suggestion: You may want to first design an algorithm for f = 0.

- (10 points) Does the phase king algorithm for n processes work correctly when n = 4f, where f > 0 is the maximum number of Byzantine faults? Justify your answer.

Recommended exercises: https://courses.engr.illinois.edu/ECE526/fa2014/1hw.pdf
You need not submit solutions to the recommended exercises.