Advanced Distributed Algorithms and Data Structures
SS 2019
Homework Assignment 8

Problem 1:
Implement the amnesiac flooding algorithm in the NetSimLan environment and test it with a
network of your choice.

Problem 2:
Suppose that we are using the broadcasting strategy on slide 23 of Chapter 6 and that for a
process to recover M it suffices to receive any $k/2$ out of the k messages $M_1, \ldots, M_k$. Show that
it then suffices to reach a point where every M_i has been sent to at least $3n/4$ processes so that
every process can recover M, w.h.p.
Hint: Use the fact that due to symmetry reasons, every process has the same probability of
receiving M_i for any i, and these probabilities are indenpendent for different i.

Problem 3:
Suppose that a message just needs to be received by $(1 - \epsilon)n$ many processes, for some constant
$\epsilon > 0$. Would it suffice for the push procotol if every process that receives the message would
only push the message to c random processes, for some constant c?
Hint: You may look at the case $\epsilon = 1/2$ and $c = 2$ to get an intuition.