IN4150 Lab Exercise 3c report

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The testcases and their effect is stated in the table below. The number of times a process is (sucessfully) captured is equal to the number of ack messages.

Testcase name	N	Parameters	# capture msg	#kill msg	# ack msg	levels	Observed and expected behavior
Simple	3	1 captures all nodes	3	0	3	1=3	1 sucessfully captures every other node sequentially
Simple	100	1 captures all nodes in random order	100	0	100	1=100	1 sucessfully captures every other node in random order
Concurrent	3	1 starts election immidiatly followed by 2. Both try to capture the nodes sequentially. No random delay	4	1	5	1=1 or 2 2=3	1 captures 1, 2 captures 1 which kills 1. 2 captures 2 and 3.
Concurrent	3	2 starts election immidiatly followed by 1. Both try to capture the nodes sequentially. No random delay	4	0	3	1=0 2=3	2 captures 1. 1 tries to capture 1 but is ignored. 2 captures 2 and 3
Concurrent	10	3 nodes randomly start the election at the same time and randomly capture nodes	10-28	0-9	10-27	winner=10 others=0-5	Behavior varies wildly depending on timing and order; algorithm behaves as expected
Slow	10	5 starts capturing, and a while later 6 starts capturing	10-15	1-2	10-15	5=10 6=0-5	6 eventually is ignored or captures a node which tries to kill 5, but the kill is ignored by 5, which causes 6 to stop trying to capture more nodes. If 6 already captured a node 5 capture it which kills 6
Clash	3	1 and 2 concurrently start election, and try to capture the nodes in reverse order.	4 or 5	1 or 2	5 or 6	1=1 or 3 2=1 or 3	2 captures 3, 1 captures 1. Then there are 2 cases: if 1 first captures 2: 2 tries to capture 2 and a kill message is sent to 1, but it is ignored (because level is now higher). 1 captures 3 and 2 is killed if 2 first captures 2: 1 tries to capture 2 and is ignored. 2 captures 1 and 1 is killed