Distributed Algorihtms Lab 3 report

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June 16, 2014

1 The assignment

short algorithm explaination.

2 Test setup

To verify if our implemetation is correct, we ran some tests. The test our designed to check on some boundary conditions. The variable parameters are the number of loyal processes(n), the number of disloyal processes(f) and the type of faulty processes. table 1 shows the paramters for the diferrent tests we ran. Each test is run for each type of faulty process.

	n	f
All loyal	3	0
5f ¡ n	7	1
5f = n	5	1
5f ¿ n	5	2
large n	100	0

Table 1: Parameters for the diferrent test

3 Results

3.1 All loyal test

table 2 shows the result of a test run with all loyal processes. because of the small number, consensus is reached in the first round.

round	process 1	process 2	process 3
intial value	false	false	true
decision	false	false	false

Table 2: results for the test where all processes are loyal

3.2 5f ¡ n test

table 3 shows the result of a test run with only 1 disloyal process. The results show that the algorithm does reach consensus for this condition in 4 rounds.

round	process 1	process 2	process 3	process 4	process 5	process 6	process 7
intial value	true	false	true	false	false	true	true
1	true	true	true	true	false	false	false
2	false	true	false	false	true	true	true
3	true	true	false	true	true	true	true
decision	true	true	true	true	true	true	true

Table 3: results for the test where 1 process is disloyal, compared to 7 loyal processes

3.3 5f = n test

table 4 shows the result of a test run where the condition 5f ¡ n is just not met (5f = n). Now the algorihm reaches a consensus, but not the expected one given the intial values.

round	process 1	process 2	process 3	process 4	process 5
intial value	true	true	false	false	true
1	false	false	false	false	true
2	no new value	no new value	no new value	no new value	no new value
decision	false	false	false	false	false

Table 4: results for the test where 1 process is disloyal, compared to 5 loyal processes