ASSIGNMENT 4

Title : To develop any distributed algorithm for leader election.

Batch No.: Roll No.:

* Bully algorithm

import java.io.InputStream;

import java.io.PrintStream;

import java.util.Scanner;

public class Bully {

static boolean[] state = new boolean[5];

int coordinator;

public static void up(int up) {

if (state[up - 1]) {

System.out.println("process " + up + " is already up");

} else {

int i;

Bully.state[up - 1] = true;

System.out.println("process " + up + " held election");

for (i = up; i < 5; ++i) {

System.out.println("election message sent from process " + up + " to process " + (i + 1));

}

for (i = up + 1; i <= 5; ++i) {

if (!state[i - 1]) continue;

System.out.println("alive message send from process " + i + " to process " + up);

break;

}

}

}

public static void down(int down) {

if (!state[down - 1]) {

System.out.println("process " + down + " is already dowm.");

} else {

Bully.state[down - 1] = false;

}

}

public static void mess(int mess) {

if (state[mess - 1]) {

if (state[4]) {

System.out.println("0K");

} else if (!state[4]) {

int i;

System.out.println("process " + mess + " election");

for (i = mess; i < 5; ++i) {

System.out.println("election send from process " + mess + " to process " + (i + 1));

}

for (i = 5; i >= mess; --i) {

if (!state[i - 1]) continue;

System.out.println("Coordinator message send from process " + i + " to all");

break;

}

}

} else {

System.out.println("Prccess " + mess + " is down");

}

}

public static void main(String[] args) {

int choice;

Scanner sc = new Scanner(System.in);

for (int i = 0; i < 5; ++i) {

Bully.state[i] = true;

}

System.out.println("5 active process are:");

System.out.println("Process up = p1 p2 p3 p4 p5");

System.out.println("Process 5 is coordinator");

do {

System.out.println(".........");

System.out.println("1.up a process.");

System.out.println("2.down a process");

System.out.println("3.send a message");

System.out.println("4.Exit");

choice = sc.nextInt();

switch (choice) {

case 1: {

System.out.println("bring proces up");

int up = sc.nextInt();

if (up == 5) {

System.out.println("process 5 is co-ordinator");

Bully.state[4] = true;

break;

}

Bully.up(up);

break;

}

case 2: {

System.out.println("bring down any process.");

int down = sc.nextInt();

Bully.down(down);

break;

}

case 3: {

System.out.println("which process will send message");

int mess = sc.nextInt();

Bully.mess(mess);

}

}

} while (choice != 4);

}

}

OUTPUT::

preeti@ubuntu:~/Desktop/Election$ javac Bully.java

preeti@ubuntu:~/Desktop/Election$ java Bully

5 active process are:

Process up = p1 p2 p3 p4 p5

Process 5 is coordinator

.........

1.up a process.

2.down a process

3.send a message

4.Exit

2

bring down any process.

5

.........

1.up a process.

2.down a process

3.send a message

4.Exit

3

which process will send message

2

process 2 election

election send from process 2 to process 3

election send from process 2 to process 4

election send from process 2 to process 5

Coordinator message send from process 4 to all

.........

1.up a process.

2.down a process

3.send a message

4.Exit

3

which process will send message

1

process 1 election

election send from process 1 to process 2

election send from process 1 to process 3

election send from process 1 to process 4

election send from process 1 to process 5

Coordinator message send from process 4 to all

.........

1.up a process.

2.down a process

3.send a message

4.Exit

3

which process will send message

5

Prccess 5 is down

.........

1.up a process.

2.down a process

3.send a message

4.Exit

4