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Subject: Distributed Computing

Experiment No. 5

Program:

```java
import java.util.Scanner;

class Process{
public int id;
public boolean active;
public Process(int id){
this.id=id;
active=true;
}
}
public class Ring {
int noOfProcesses;
Process[] processes;
Scanner sc;
public Ring(){
sc=new Scanner(System.in);
}
public void initialiseRing(){
System.out.println("Enter no of processes");
noOfProcesses=sc.nextInt();
processes = new Process[noOfProcesses];
for(int i=0;i<processes.length;i++){
processes[i]= new Process(i);
}
}
public int getMax(){
int maxId=-99;
int maxIdIndex=0;
for(int i=0;i<processes.length;i++){
if(processes[i].active && processes[i].id>maxId){
maxId=processes[i].id;
maxIdIndex=i;

}
}
return maxIdIndex;
}
public void performElection(){

System.out.println("Process no "+processes[getMax()].id+" fails");
processes[getMax()].active=false;
System.out.println("Election Initiated by");
```

```java
int initiatorProcesss=sc.nextInt();

int prev = initiatorProcesss;
int next = prev+1;

while(true){
if(processes[next].active){
System.out.println("Process "+processes[prev].id+" pass Election("+processes[prev].id+")
to"+processes[next].id);
prev=next;
}

next = (next+1)%noOfProcesses;
if(next == initiatorProcesss){
break;
}
}

System.out.println("Process "+ processes[getMax()].id +" becomes coordinator");
int coordinator = processes[getMax()].id;

prev = coordinator;
next =(prev+1)%noOfProcesses;

while(true){

if(processes[next].active)
{
System.out.println("Process "+ processes[prev].id +" pass Coordinator("+coordinator+ ") message
to process "+processes[next].id );
prev = next;
}
next = (next+1) % noOfProcesses;
if(next == coordinator)
{
System.out.println("End Of Election ");
break;
}
}

}

public static void main(String arg[]){
Ring r= new Ring();
r.initialiseRing();
r.performElection();
}

}
```

Output:

```
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC:~$ javac Ring.java
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC:~$ java Ring
Enter no of processes
5
Process no 4 fails
Election Initiated by
2
Process 2 pass Election(2) to3
Process 3 pass Election(3) to0
Process 0 pass Election(0) to1
Process 3 becomes coordinator
Process 3 pass Coordinator(3) message to process 0
Process 0 pass Coordinator(3) message to process 1
Process 1 pass Coordinator(3) message to process 2
End Of Election
```