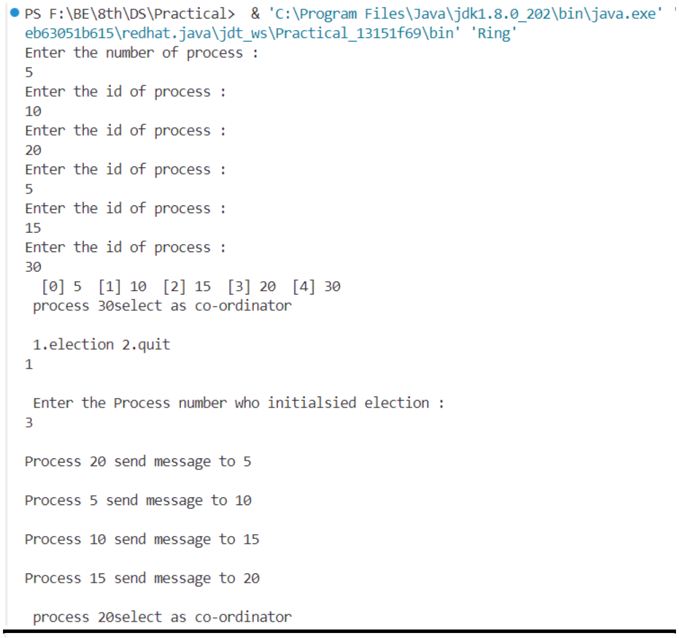
Code

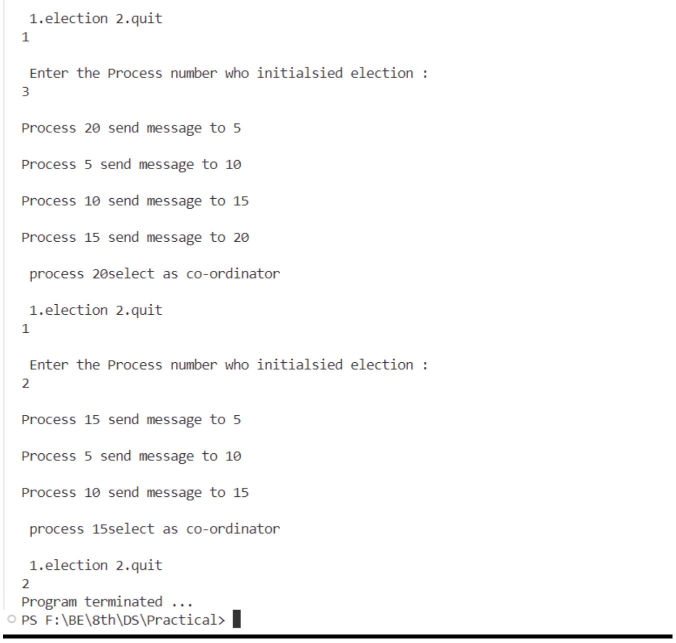
```
import java.util.Scanner;
public class Ring {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int temp, i, j;
        char str[] = new char[10];
        Rr proc[] = new Rr[10];
// object initialisation
        for (i = 0; i < proc.length; i++)
            proc[i] = new Rr();
// scanner used for getting input from console
        Scanner in = new Scanner(System.in);
        System.out.println("Enter the number of process : ");
        int num = in.nextInt();
// getting input from users
        for (i = 0; i < num; i++) {
            proc[i].index = i;
            System.out.println("Enter the id of process : ");
            proc[i].id = in.nextInt();
            proc[i].state = "active";
            proc[i].f = 0;
        }
// sorting the processes from on the basis of id
        for (i = 0; i < num - 1; i++) {
            for (j = 0; j < num - 1; j++) {
                if (proc[j].id > proc[j + 1].id) {
                    temp = proc[j].id;
                    proc[j].id = proc[j + 1].id;
                    proc[j + 1].id = temp;
                }
            }
        }
        for (i = 0; i < num; i++) {
            System.out.print("  [" + i + "]" + " " + proc[i].id);
        }
        int init;
        int ch;
        int temp1;
        int temp2;
        int ch1;
        int arr[] = new int[10];
        proc[num - 1].state = "inactive";
      System.out.println("\n process " + proc[num - 1].id + "select as co-ordinator");
        while (true) {
            System.out.println("\n 1.election 2.quit ");
            ch = in.nextInt();
            for (i = 0; i < num; i++) {
                proc[i].f = 0;
            }
            switch (ch) {
            case 1:
                System.out.println("\n Enter the Process number who initialsied election : ");
                init = in.nextInt();
                temp2 = init;
                temp1 = init + 1;
                i = 0;
                while (temp2 != temp1) {
                    if ("active".equals(proc[temp1].state) && proc[temp1].f == 0) {
                        System.out.println("\nProcess " + proc[init].id + " send message to " +
proc[temp1].id);
                        proc[temp1].f = 1;
                        init = temp1;
                        arr[i] = proc[temp1].id;
                        i++;
                    }
                    if (temp1 == num) {
                        temp1 = 0;
                    } else {
                        temp1++;
                    }
                }
                System.out.println("\nProcess " + proc[init].id + " send message to " +
proc[temp1].id);
                arr[i] = proc[temp1].id;
                i++;
                int max = -1;
// finding maximum for co-ordinator selection
                for (j = 0; j < i; j++) {
                    if (max < arr[j]) {
                        max = arr[j];
                    }
                }
// co-ordinator is found then printing on console
                System.out.println("\n process " + max + "select as co-ordinator");
                for (i = 0; i < num; i++) {
                    if (proc[i].id == max) {
                        proc[i].state = "inactive";
                    }
                }
                break;
            case 2:
            System.out.println("Program terminated ...");
            return ;
            default:
                System.out.println("\n invalid response \n");
                break;
            }
        }
```

```
    }

}
class Rr {
    public int index;   // to store the index of process
    public int id;      // to store id/name of process
    public int f;
    String state;       // indiactes whether active or inactive state of node
}
```

Output



```
PS F:\BE\8th\DS\Practical>  & 'C:\Program Files\Java\jdk1.8.0_202\bin\java.exe' '
eb63051b615\redhat.java\jdt_ws\Practical_13151f69\bin' 'Ring'
Enter the number of process :
5
Enter the id of process :
10
Enter the id of process :
20
Enter the id of process :
5
Enter the id of process :
15
Enter the id of process :
30
  [0] 5  [1] 10  [2] 15  [3] 20  [4] 30
 process 30select as co-ordinator

 1.election 2.quit
1

 Enter the Process number who initialsied election :
3

Process 20 send message to 5

Process 5 send message to 10

Process 10 send message to 15

Process 15 send message to 20

 process 20select as co-ordinator
```



```
 1.election 2.quit
1

 Enter the Process number who initialsied election :
3

Process 20 send message to 5

Process 5 send message to 10

Process 10 send message to 15

Process 15 send message to 20

 process 20select as co-ordinator

 1.election 2.quit
1

 Enter the Process number who initialsied election :
2

Process 15 send message to 5

Process 5 send message to 10

Process 10 send message to 15

 process 15select as co-ordinator

 1.election 2.quit
2
Program terminated ...
PS F:\BE\8th\DS\Practical> █
```