//package Main;

import java.util.\*;

/\*\*

\*

\* @author prasad

\*/

public class Main {

/\*\*

\* @param args the command line arguments

\*/

public static void main(String[] args) {

// TODO code application logic here

Scanner sc = new Scanner(System.in);

int opt0,opt1;

int p1 = 1;

int p2 = 2;

int p3 = 3;

int flag = 0;

int cs = 0;

Queue<Integer> q = new LinkedList<>();

do

{

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

System.out.println("1.Request the critical section");

System.out.println("2.Release the critical section");

System.out.println("3.Exit");

opt0 = sc.nextInt();

switch(opt0)

{

case 1:

{

System.out.println("Select the process.");

System.out.println("1.p1");

System.out.println("2.p2");

System.out.println("3.p3");

opt1 = sc.nextInt();

switch(opt1)

{

case 1:

{

if(flag==0)

{

cs = 1;

flag = 1;

}

else

{

System.out.println("process p"+cs+"is already in critical section.");

q.add(p1);

}

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

System.out.println("critical section is occupoied by:"+cs);

System.out.println("process waiting is: "+q);

break;

}

case 2:

{

if(flag==0)

{

cs = 2;

flag = 1;

}

else

{

System.out.println("process p"+cs+"is already in critical section.");

q.add(p2);

}

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

System.out.println("critical section is occupoied by:"+cs);

System.out.println("process waiting is: "+q);

break;

}

case 3:

{

if(flag==0)

{

cs = 3;

flag = 1;

}

else

{

System.out.println("process p"+cs+"is already in critical section.");

q.add(p3);

}

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

System.out.println("critical section is occupoied by:"+cs);

System.out.println("process waiting is: "+q);

break;

}

}

break;

}

case 2:

{

System.out.println("the process p"+cs+"is removed from section.");

if(!q.isEmpty())

{

cs = q.peek();

q.remove();

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

System.out.println("Critical Section occupied by p"+cs);

}

else

{

System.out.println("No Process is waiting in the queue");

flag = 0;

}

}

case 3:

{

break;

}

}

}

while(3!=opt0);

}

}