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Aim : To Implement the Lamport Clock Synchronization Algorithm.

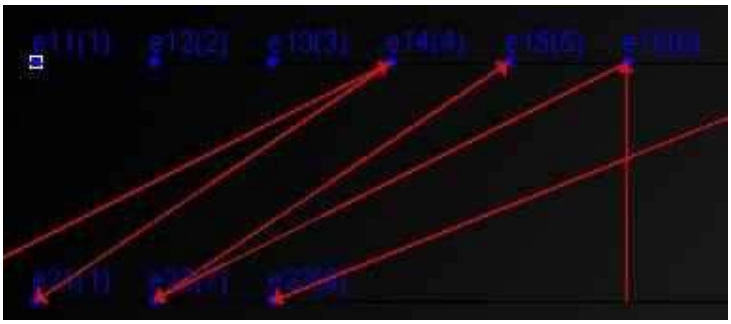
Code:

Lamport.java

```
import java.io.*;
import java.util.*;
import java.util.Scanner;
import javax.swing.*;
import java.awt.*;
import java.awt.geom.*;
public class lamport{
int e[][]=new int[10][10];
int en[][]=new int[10][10];
int ev[]=new int[10];
int i,p,j,k;
HashMap<Integer,Integer> hm=new HashMap<Integer,Integer>();
int xpoints[] =new int[5];
int ypoints[] =new int[5];
class draw extends JFrame{
private final int ARR_SIZE = 4;
void drawArrow(Graphics g1, int x1, int y1, int x2, int y2) {
Graphics2D g = (Graphics2D) g1.create();
double dx = x2 - x1, dy = y2 - y1;
double angle = Math.atan2(dy, dx);
int len = (int) Math.sqrt(dx*dx + dy*dy);
AffineTransform at = AffineTransform.getTranslateInstance(x1, y1);
at.concatenate(AffineTransform.getRotateInstance(angle));
drawArrow(g, 30, 300, 300, 190);
}
}
}
for(i=1;i<=p;i++)
{
for(j=2;j<=ev[i];j++)
{
k=i*10+j;
if(hm.get(k)==0)
```

```
{
en[i][j]=en[i][j-1]+1;
}
}
for(i=1;i<=p;i++)
{
for(j=1;j<=ev[i];j++)
{
System.out.println(en[i][j]);
}
}
JFrame jf=new draw();
jf.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
jf.setSize(500,500);
jf.setVisible(true);
}
public static void main(String[] args){
lamport lam=new lamport();
lam.calc();
}
}
```

Output:



Conclusion:

The two processes from which one has 6 events and next has 3 events is synchronized using the lamport clock synchronization algorithm.