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Practical-8

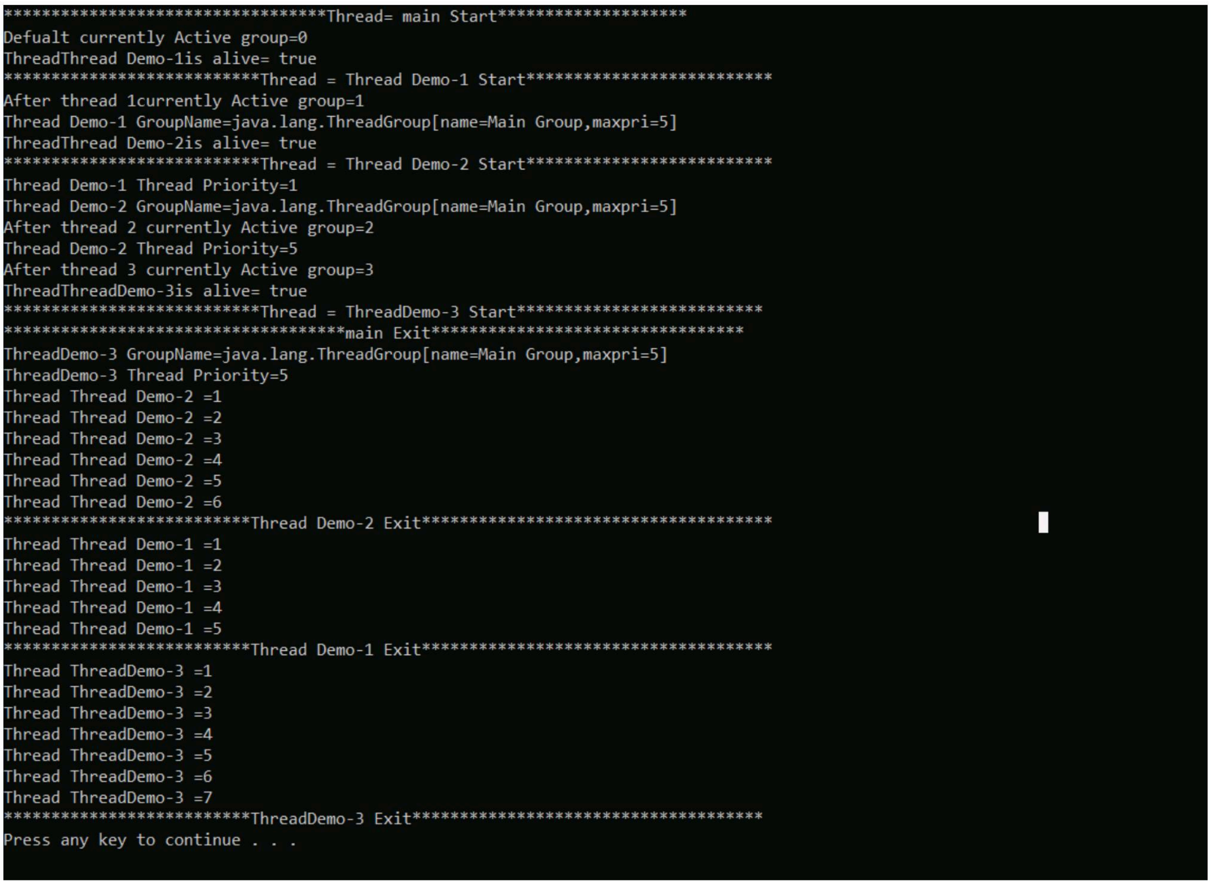
Multithreading

1. Write a Java program to do the following using threads created by extending Thread class,.

Code:-

```
classThreadDemo extends Thread
{
        ThreadDemo(ThreadGrouptp,String nm)
        {
                super(tp,nm);
        }
        public void run()
        {
                System.out.println("***************************Thread = "
                +Thread.currentThread().getName() + "
                System.out.println(Thread.currentThread().getName()+" GroupName="
                +Thread.currentThread().getThreadGroup());
                System.out.println(Thread.currentThread().getName()+" Thread
                Priority=" +Thread.currentThread().getPriority());
                try{Thread.currentThread().sleep(1000); }
                catch(InterruptedException e){}
                for(inti=1;i<=7;i++) {
       if(i==6 &&Thread.currentThread().getName().equals("Thread Demo-1") )
                        {
                                break;
                        }
                        if(i==7 &&Thread.currentThread().getName().equals("Thread
                        Demo-2") )
                {
                        break;
                }
                System.out.println("Thread
                "+Thread.currentThread().getName()+" =" +i);
        }
                System.out.println("**************************"
                +Thread.currentThread().getName() +"
}}
class lab8_1
{
        public static void main(String args[])throws InterruptedException
        {
                System.out.println("**********************************Thread=
                " +Thread.currentThread().getName() + "
                Start********************");
                ThreadGrouptp=new ThreadGroup("Main Group");
                tp.setMaxPriority(Thread.NORM_PRIORITY);
                System.out.println("Defualt currently Active group="
                +tp.activeCount());
                ThreadDemo t1=new ThreadDemo(tp,"ThreadDemo");
                t1.setName("Thread Demo-1");
                t1.setPriority(Thread.MIN_PRIORITY);
                t1.start();
                System.out.println("Thread"+t1.getName()+"is alive= " +t1.isAlive());
                System.out.println("After thread 1currently Active group="
                +tp.activeCount());
                ThreadDemo t2=new ThreadDemo(tp,"Thread Demo-2");
                t2.setPriority(Thread.NORM_PRIORITY);
                t2.start();
                System.out.println("Thread"+t2.getName()+"is alive= " +t2.isAlive());
                System.out.println("After thread 2 currently Active group="
                +tp.activeCount());

                ThreadDemo t3=new ThreadDemo(tp,"ThreadDemo-3");

                t3.setPriority(Thread.MAX_PRIORITY);

                t3.start();

                System.out.println("After thread 3 currently Active group="
                +tp.activeCount());

                System.out.println("Thread"+t3.getName()+"is alive= " +t3.isAlive());

                System.out.println("*************************************"
                +Thread.currentThread().getName() +"
                Exit**********************************" );

        }

}
```

Output:-



```
**********************************Thread= main Start********************
Defualt currently Active group=0
ThreadThread Demo-1is alive= true
***************************Thread = Thread Demo-1 Start**************************
After thread 1currently Active group=1
Thread Demo-1 GroupName=java.lang.ThreadGroup[name=Main Group,maxpri=5]
ThreadThread Demo-2is alive= true
***************************Thread = Thread Demo-2 Start**************************
Thread Demo-1 Thread Priority=1
Thread Demo-2 GroupName=java.lang.ThreadGroup[name=Main Group,maxpri=5]
After thread 2 currently Active group=2
Thread Demo-2 Thread Priority=5
After thread 3 currently Active group=3
ThreadThreadDemo-3is alive= true
***************************Thread = ThreadDemo-3 Start**************************
************************************main Exit*********************************
ThreadDemo-3 GroupName=java.lang.ThreadGroup[name=Main Group,maxpri=5]
ThreadDemo-3 Thread Priority=5
Thread Thread Demo-2 =1
Thread Thread Demo-2 =2
Thread Thread Demo-2 =3
Thread Thread Demo-2 =4
Thread Thread Demo-2 =5
Thread Thread Demo-2 =6
**************************Thread Demo-2 Exit*************************************
Thread Thread Demo-1 =1
Thread Thread Demo-1 =2
Thread Thread Demo-1 =3
Thread Thread Demo-1 =4
Thread Thread Demo-1 =5
**************************Thread Demo-1 Exit*************************************
Thread ThreadDemo-3 =1
Thread ThreadDemo-3 =2
Thread ThreadDemo-3 =3
Thread ThreadDemo-3 =4
Thread ThreadDemo-3 =5
Thread ThreadDemo-3 =6
Thread ThreadDemo-3 =7
**************************ThreadDemo-3 Exit*************************************
Press any key to continue . . .
```

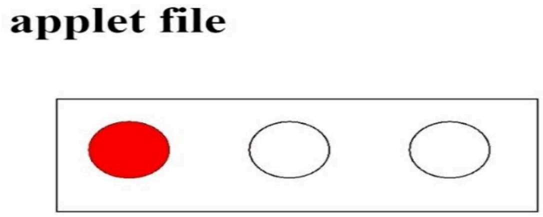
2. Write a Java Program for TrafficLight using Applet and Multithreading. Create three circle to display Red, Green and Yellow light which should simulate traffic light. The switching between Red, Green and Yellow should take place after every 10 seconds

Code:-

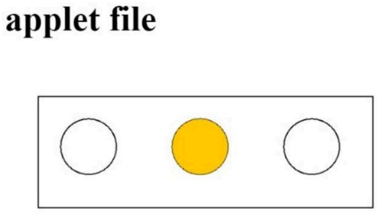
```
importjava.applet.Applet;
importjava.awt.*;
public class Lab8_2 extends Applet implements Runnable
{
    Thread t;
    int a=0;
    public void init()
    {
        t=new Thread(this);
        t.start();
    }
    public void run()
    {
            while(true)
            {
                try
                {
                    Thread.sleep(1000);
                    a++;
                    repaint();
                    Thread.sleep(1000);
                    a++;
                repaint();
                Thread.sleep(1000);
                a++;
                repaint();
            }
            catch(InterruptedException e)
            {
                e.printStackTrace();
            }
        }
}
public void paint(Graphics g)
{

    g.drawRect(30,30,300,100);
    g.setColor(Color.black);
    g.drawOval(50,50,50,50);
    g.drawOval(150,50,50,50);
    g.drawOval(250,50,50,50);
    if(a==1)
    {
            g.setColor(Color.red);
            g.fillOval(50,50,50,50);
    }
    if(a==2)
    {
            g.setColor(Color.orange);
            g.fillOval(150,50,50,50);
    }
```

```
        if(a==3)
        {
                g.setColor(Color.green);
                g.fillOval(250,50,50,50);
        }
    }
}
```

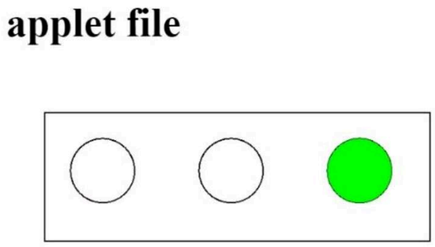
Output:-



applet file



applet file



applet file