

# Lab-11

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## Question-1:

### Code:

```
import java.util.*;

public class Lab_11_1 extends Thread{

    static int max;
    static Object o = new Object();
    static int t=0;
    int r;
    public Lab_11_1(int r){
        this.r=r;
    }
    public void run(){
        while(t<=max-1){
            synchronized(o){

                while(t%2!=r){
                    try {
                        o.wait();
                    } catch (Exception e) {
                        // TODO: handle exception
                    }
                }

                System.out.println("From Thread "+r+" : i = "+t);
                t++;
                o.notifyAll();
            }
        }
    }
}
```

```

    }
}
public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter the number upto which you want to
print");
    max=sc.nextInt();
    Lab_11_1 t2 = new Lab_11_1(0);
    Lab_11_1 t1 = new Lab_11_1(1);
    t2.start();
    t1.start();
}
}

```

## Output:

```

PS C:\Users\Admin\Desktop\OOPs-LAB> javac Lab_11_1.java
PS C:\Users\Admin\Desktop\OOPs-LAB> java Lab_11_1
Enter the number upto which you want to print
11
From Thread 0 : i = 0
From Thread 1 : i = 1
From Thread 0 : i = 2
From Thread 1 : i = 3
From Thread 0 : i = 4
From Thread 1 : i = 5
From Thread 0 : i = 6
From Thread 1 : i = 7
From Thread 0 : i = 8
From Thread 1 : i = 9
From Thread 0 : i = 10
From Thread 1 : i = 11
PS C:\Users\Admin\Desktop\OOPs-LAB> 

```

## Question-2:

### Code:

```
import java.util.*;
class factorial implements Runnable
{
    int s,e,pans;
    factorial(int s,int e)
    {
        this.s=s;
        this.e=e;
        this.pans=1;
    }
    public int getfactorial()
    {
        return pans;
    }
    public void run()
    {
        for(int i=s;i<=e;i++)
        {
            pans*=i;
        }
    }
}

public class Lab_11_2
{
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int t=sc.nextInt();
        int lp=n/t;
        int r=n%t;
        factorial a[]=new factorial[t];
        Thread []thread=new Thread[t];
        for(int i=0;i<t;i++)
        {
            int s=(i*lp+1);
            int e;
            if(i<t-1){
                e =s+lp-1;
            }
            else{
                e =s+lp-1+r;
            }
        }
    }
}
```

```

    }
    a[i]=new factorial( s,e);
    thread[i]=new Thread(a[i]);
    thread[i].start();
}
for(int i=0;i<t;i++)
{
    try {
        thread[i].join();
    } catch(Exception e) {
    }
}
long ans=1;
for(int i=0;i<t;i++)
{
    ans*=a[i].getfactorial();
}
System.out.println(ans);
}
}

```

## Output:

```

PS C:\Users\Admin\Desktop\OOPs-LAB> javac Lab_11_2.java
8
3
40320

```