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
```