

PRACTICE PROGRAMS ON INTER-THREAD COMMUNICATION (SYNCHRONIZATION)

QUES 1

```
class Table
{
    void printTable(int n)
    {
        synchronized(this)
        {
            for(int i=1;i<=5;i++)
            {
                System.out.println(+n+"*"+i+"="+n*i);
                try
                {
                    Thread.sleep(400);
                }
                catch(Exception e)
                {
                    System.out.println(e);
                }
            }
        }
    }
}

class Mythread1 extends Thread
{
    Table t;
    Mythread1(Table t)
    {
        this.t=t;
    }
    public void run()
    {
        t.printTable(5);
    }
}
```

```
    }  
}
```

```
class Mythread2 extends Thread  
{  
    Table t;  
    Mythread2(Table t)  
    {  
        this.t=t;  
    }  
    public void run()  
    {  
        t.printTable(100);  
    }  
}
```

```
class mult_table  
{  
    public static void main(String args[])  
    {  
        Table obj = new Table();  
        Mythread1 th1 = new Mythread1(obj);  
        Mythread2 th2 = new Mythread2(obj);  
        th1.start();  
        th2.start();  
    }  
}
```

```
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C:\Users\shivani>cd desktop

C:\Users\shivani\Desktop>cd JA

C:\Users\shivani\Desktop\JA>javac mult_table.java

C:\Users\shivani\Desktop\JA>java mult_table
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
100*1=100
100*2=200
100*3=300
100*4=400
100*5=500

C:\Users\shivani\Desktop\JA>_
```

QUES 2

```
class CarService {
    public static void main(String args[]){
        Car_Queue q= new Car_Queue();
        new Car_Owner(q);
        new Car_Mechanic(q);
        System.out.println("Press Ctrl+C to stop.");
    }
}

class Car_Queue{
    int n;
    boolean valueSet = false;
    synchronized int get(){
        while(!valueSet)
            try{
                wait();
            }
        catch (InterruptedException e){
            System.out.println("InterruptedException caught");
        }
    }
}
```

```

System.out.println("Service Provided:"+n);
valueSet = false;
notify();
return n;
}
synchronized void put(int n)
{
while(valueSet)
try{
wait();}
catch(InterruptedException e){
System.out.println("InterruptedException caught");
}
this.n=n;
valueSet = true;
System.out.println("Order placed:"+n);
notify();
}
}
class Car_Mechanic implements Runnable {
Car_Queue q;
Car_Mechanic(Car_Queue q){
this.q=q;
new Thread(this,"Car_Mechanic").start();}
public void run(){
int i=0;
while(true){
q.put(i++);
}
}
}
class Car_Owner implements Runnable {
Car_Queue q;
Car_Owner(Car_Queue q){
this.q=q;
new Thread(this,"Car_Owner").start();}

```

```
public void run()
{
while(true){
q.get();
}
}
}
```

```
Microsoft Windows [Version 10.0.18363.1256]  
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```

```
C:\Users\shivani>cd desktop
```

```
C:\Users\shivani\Desktop>cd JA
```

```
C:\Users\shivani\Desktop\JA> javac CarService.java
```

```
C:\Users\shivani\Desktop\JA>java CarService
```

```
Press Ctrl+C to stop.
```

```
Order placed:0
```

```
Service Provided:0
```

```
Order placed:1
```

```
Service Provided:1
```

```
Order placed:2
```

```
Service Provided:2
```

```
Order placed:3
```

```
Service Provided:3
```

```
Order placed:4
```

```
Service Provided:4
```

```
Order placed:5
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```
Service Provided:5
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```
Order placed:6
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```
Service Provided:6
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```
Order placed:7
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```
Service Provided:7
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```
Order placed:8
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```
Service Provided:8
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```
Order placed:9
```

```
Service Provided:9
```

```
Order placed:10
```

```
Service Provided:10
```

```
Order placed:11
```

```
Service Provided:11
```

```
Order placed:12
```

```
Order placed:859
```

```
Service Provided:859
```

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Order placed:860
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Service Provided:860
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Order placed:861
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Service Provided:861
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Order placed:862
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Service Provided:862
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Order placed:863
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Service Provided:863
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Order placed:864
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Service Provided:864
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Order placed:865
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Service Provided:865
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Order placed:866
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Service Provided:866
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Order placed:867
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Service Provided:867
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Order placed:868
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Service Provided:868
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Order placed:869
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Service Provided:869
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Order placed:870
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Service Provided:870
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Order placed:871
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Service Provided:871
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Service Provided:873
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Order placed:874
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Service Provided:874
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Order placed:875
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```
Service Provided:875
```

```
C:\Users\shivani\Desktop\JA>
```