⇒ **Multithreading :**

Inter Thread Communication

$i = 1$

Producer

poll

$\frac{1}{2}$
$i \neq 1$

1

2

3
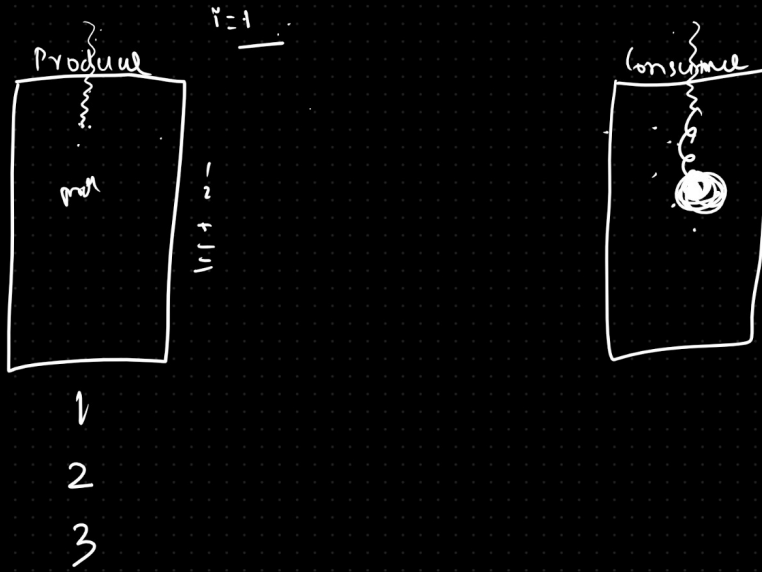
Consumer

```java
class Producer extends Thread
{

    Queue q;

    int i=1;

    public Producer(Queue q)
    {
        this.q=q;
    }

    public void run()
    {
        while(true)
        {
            q.produce(i++);
        }
    }
}
class Consumer extends Thread
{
    Queue q;

    public Consumer(Queue q)
    {
        this.q=q;
    }
    public void run()
    {
        while(true)
        {
            q.consume();
        }
    }
}
class Queue
{
    int data;
    boolean flag=false;

    synchronized public void produce(int i)
    {
        try
        {
            if(flag==true)
            {
                System.out.println("Poducer in waiting state");
                wait();
            }
            else
            {
                data=i;
                System.out.println("I Have Produced Data "+ data);
                flag=true;
                notify();
            }
        }
        catch(Exception e )
        {
            e.printStackTrace();
        }
    }

    synchronized public void consume()
    {
        try
        {
            if(flag==false)
            {
                System.out.println("Consumer in wait state");
                wait();
            }
            else
            {
                System.out.println("I Have Consumed Data "+ data);
                flag=false;
                notify();
            }
        }
        catch(Exception e)
        {
            e.printStackTrace();
        }
    }
}
```

infinite

flag = false

false true

false true false