## Program 10

Demonstrate Inter process Communication and deadlock

## **OBSERVATION:**

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## **CODE:**

```
class Q { int n; boolean
valueSet = false;

synchronized int get() {
  while(!valueSet) try {
    System.out.println("\nConsumer waiting\n"); wait();
}
```

```
catch(InterruptedException e) {
System.out.println("InterruptedException caught");
}
System.out.println("Got: " + n);
valueSet = false;
System.out.println("\nIntimate Producer\n");
notify(); return n;
}
synchronized void put(int n) {
while(valueSet) try {
System.out.println("\nProducer waiting\n"); wait();
catch(InterruptedException e) {
System.out.println("InterruptedException caught");
} this.n = n;
valueSet = true;
System.out.println("Put: " + n);
System.out.println("\nIntimate Consumer\n");
notify(); }
}
class Producer implements Runnable {
Q q; Producer(Q q) { this.q = q; new
Thread(this, "Producer").start();
}
```

```
public void run() {
int i = 0; while (i < 15)
{ q.put(i++);
}
class Consumer implements Runnable {
Q q; Consumer(Q
q) {
this.q = q; new Thread(this,
"Consumer").start();
} public void run()
{
       int i=0;
while(i<15) { int
r=q.get();
System.out.println("consumed:"+r);
i++; }
}
}
class PCFixed { public static void
main(String args[]) \{ Q q = new Q(); \}
new Producer(q); new Consumer(q);
System.out.println("Press Control-C
to stop.");
}
```

```
}
```

ii. Demonstration of deadlock

```
class A { synchronized
void foo(B b)
String name = Thread.currentThread().getName();
System.out.println(name + " entered A.foo"); try
{ Thread.sleep(1000);
catch(Exception e) {
System.out.println("A Interrupted"); }
    System.out.println(name + " trying to call B.last()");
b.last(); {
   synchronized void last() {
System.out.println("Inside A.last");
} }
class B {
 synchronized void bar(A a) {
  String name = Thread.currentThread().getName();
System.out.println(name + " entered B.bar");
{ Thread.sleep(1000);
catch(Exception e) {
System.out.println("B Interrupted");
System.out.println(name + " trying to call A.last()");
a.last(); {
synchronized void last() {
System.out.println("Inside A.last");
}
}
```

```
class Deadlock implements Runnable
{
    A a = new A(); B
    b = new B();
    Deadlock() {
        Thread.currentThread().setName("MainThread");
        Thread t = new Thread(this, "RacingThread");
        t.start(); a.foo(b); // get lock on a in this thread.
        System.out.println("Back in main thread");
    }
    public void run() { b.bar(a);
        System.out.println("Back in other thread");
    }
    public static void main(String args[]) { new Deadlock();
}
```