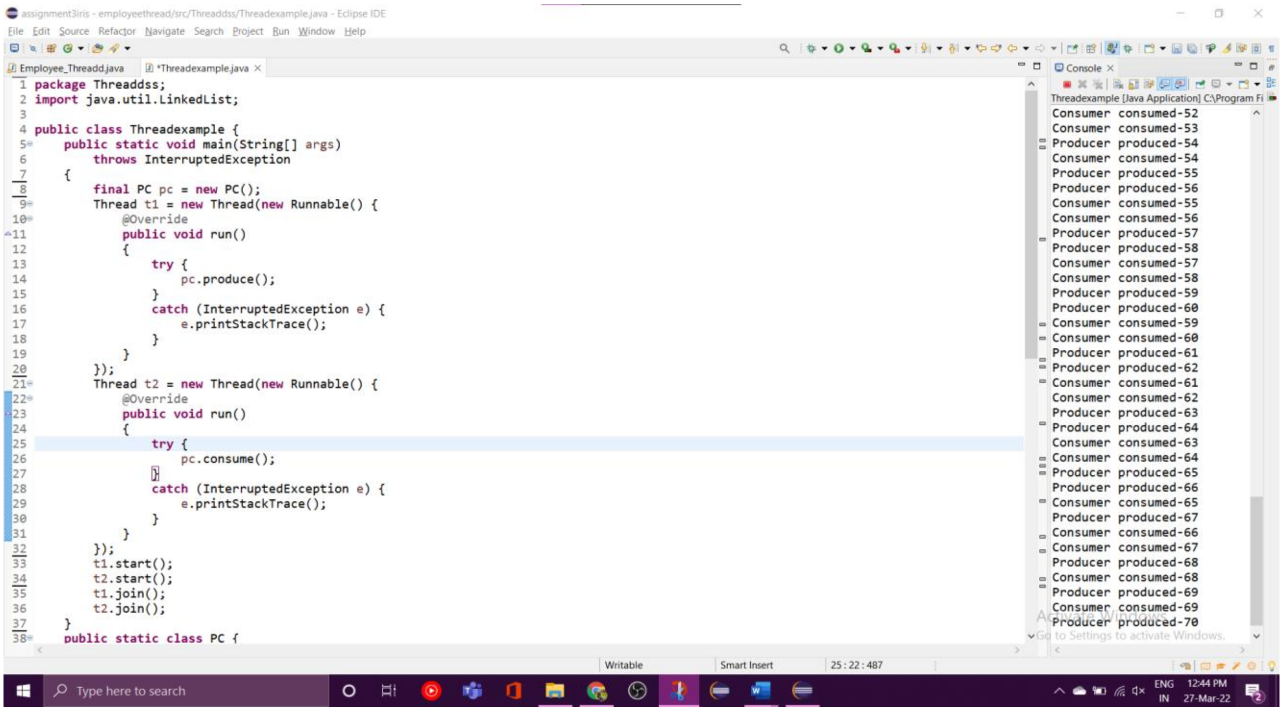
Assignment – 2

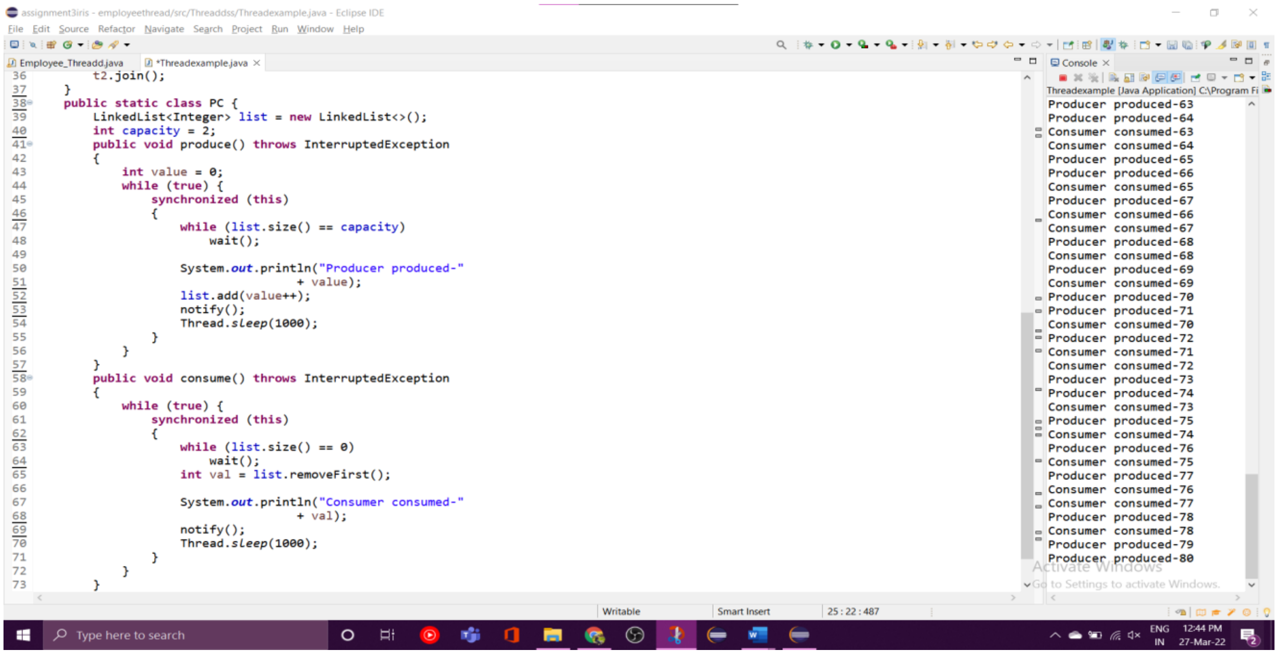
write a program which implements thrads with locks by using synchronized keyword, write a program which ellaborates the concept of producer consumer problem using wait() ,notify() & all required functionalities in it.Write a program with data structure ,use atomic methods like get(),incrementAndGet(),decrementAndGet(),compareAndSet(),etc ,also use all other functionalities to make the progrm more responsive.


assignment3iris - employeethread/src/Threaddss/Threadexample.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Employee_Threadd.java
*Threadexample.java
Console
Threadexample [Java Application] C:\Program Fi
Writable
Smart Insert
25 : 22 : 487
Type here to search
ENG IN
12:44 PM 27-Mar-22

```java
package Threaddss;
import java.util.LinkedList;

public class Threadexample {
    public static void main(String[] args)
        throws InterruptedException
    {
        final PC pc = new PC();
        Thread t1 = new Thread(new Runnable() {
            @Override
            public void run()
            {
                try {
                    pc.produce();
                }
                catch (InterruptedException e) {
                    e.printStackTrace();
                }
            }
        });
        Thread t2 = new Thread(new Runnable() {
            @Override
            public void run()
            {
                try {
                    pc.consume();
                }
                catch (InterruptedException e) {
                    e.printStackTrace();
                }
            }
        });
        t1.start();
        t2.start();
        t1.join();
        t2.join();
    }
    public static class PC {
```

```
Consumer consumed-52
Consumer consumed-53
Producer produced-54
Consumer consumed-54
Producer produced-55
Producer produced-56
Consumer consumed-55
Consumer consumed-56
Producer produced-57
Producer produced-58
Consumer consumed-57
Consumer consumed-58
Producer produced-59
Producer produced-60
Consumer consumed-59
Consumer consumed-60
Producer produced-61
Producer produced-62
Consumer consumed-61
Consumer consumed-62
Producer produced-63
Producer produced-64
Consumer consumed-63
Consumer consumed-64
Producer produced-65
Producer produced-66
Consumer consumed-65
Producer produced-67
Consumer consumed-66
Consumer consumed-67
Producer produced-68
Consumer consumed-68
Producer produced-69
Consumer consumed-69
Producer produced-70
```


assignment3iris - employeethread/src/Threaddss/Threadexample.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Employee_Threadd.java
*Threadexample.java
Console
Threadexample [Java Application] C:\Program Fi
Writable
Smart Insert
25 : 22 : 487
Type here to search
ENG IN
12:44 PM 27-Mar-22

```java
        t2.join();
    }
    public static class PC {
        LinkedList<Integer> list = new LinkedList<>();
        int capacity = 2;
        public void produce() throws InterruptedException
        {
            int value = 0;
            while (true) {
                synchronized (this)
                {
                    while (list.size() == capacity)
                        wait();

                    System.out.println("Producer produced-"
                                    + value);
                    list.add(value++);
                    notify();
                    Thread.sleep(1000);
                }
            }
        }
        public void consume() throws InterruptedException
        {
            while (true) {
                synchronized (this)
                {
                    while (list.size() == 0)
                        wait();
                    int val = list.removeFirst();

                    System.out.println("Consumer consumed-"
                                    + val);
                    notify();
                    Thread.sleep(1000);
                }
            }
        }
```

```
Producer produced-63
Producer produced-64
Consumer consumed-63
Consumer consumed-64
Producer produced-65
Producer produced-66
Consumer consumed-65
Producer produced-67
Consumer consumed-66
Consumer consumed-67
Producer produced-68
Consumer consumed-68
Producer produced-69
Consumer consumed-69
Producer produced-70
Producer produced-71
Consumer consumed-70
Producer produced-72
Consumer consumed-71
Consumer consumed-72
Producer produced-73
Producer produced-74
Consumer consumed-73
Producer produced-75
Consumer consumed-74
Producer produced-76
Consumer consumed-75
Producer produced-77
Consumer consumed-76
Consumer consumed-77
Producer produced-78
Consumer consumed-78
Producer produced-79
Producer produced-80
```