

## Lab 18-Assignment

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1)Write a java program to implement synchronized block in a threadprocess. create 2 threads to achieve thread synchronization. use join(), notify()

```
package com.wrapperclass.examples;
class SharedResource {
    synchronized void printNumbers() {
        for (int i = 1; i <= 5; i++) {

System.out.println(Thread.currentThread().getName() +
": " + i);
            try {
                Thread.sleep(500); // Simulating some
work
            } catch (InterruptedException e) {
                e.printStackTrace();
            }
        }
    }
}

class MyThread extends Thread {
    private SharedResource sharedResource;

    MyThread(String name, SharedResource
sharedResource) {
        super(name);
        this.sharedResource = sharedResource;
    }

    @Override
    public void run() {
        synchronized (sharedResource) {
            sharedResource.printNumbers();
            sharedResource.notify(); // Notify waiting
thread after completion
        }
    }
}
```

```

    }
}

public class ThreadSynchronization {
    public static void main(String[] args) {
        SharedResource sharedResource = new
SharedResource();

        MyThread thread1 = new MyThread("Thread 1",
sharedResource);
        MyThread thread2 = new MyThread("Thread 2",
sharedResource);

        thread1.start();
        try {
            thread1.join(); // Ensure Thread 1
completes before Thread 2 starts
        } catch (InterruptedException e) {
            e.printStackTrace();
        }

        synchronized (sharedResource) {
            // Wait for Thread 1 to complete and notify
            try {
                sharedResource.wait();
            } catch (InterruptedException e) {
                e.printStackTrace();
            }
        }

        thread2.start();
    }
}

```

## OUTPUT:

```
ThreadSynchronization.java x myapplication.pom.xml Calculator.java TestCase.java
1 package com.wrapperclass.examples;
2 class SharedResource {
3     synchronized void printNumbers() {
4         for (int i = 1; i <= 5; i++) {
5             System.out.println(Thread.currentThread().getName() + ": " + i);
6             try {
7                 Thread.sleep(500); // Simulating some work
8             } catch (InterruptedException e) {
9                 e.printStackTrace();
10            }
11        }
12    }
13 }
14
15 class MyThread extends Thread {
16     private SharedResource sharedResource;
17
18     MyThread(String name, SharedResource sharedResource) {
19         super(name);
20         this.sharedResource = sharedResource;
21     }
22
23     public void run() {
24         sharedResource.printNumbers();
25     }
26 }
27
28 public class ThreadSynchronization {
29     public static void main(String[] args) {
30         SharedResource sharedResource = new SharedResource();
31         MyThread t1 = new MyThread("Thread 1", sharedResource);
32         MyThread t2 = new MyThread("Thread 2", sharedResource);
33         MyThread t3 = new MyThread("Thread 3", sharedResource);
34         MyThread t4 = new MyThread("Thread 4", sharedResource);
35         MyThread t5 = new MyThread("Thread 5", sharedResource);
36         t1.start();
37         t2.start();
38         t3.start();
39         t4.start();
40         t5.start();
41     }
42 }
```

Problems Javadoc Declaration Console x Coverage  
ThreadSynchronization [Java Application] [pid: 10556]

```
Thread 1: 1
Thread 1: 2
Thread 1: 3
Thread 1: 4
Thread 1: 5
```