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| **S.No: 22** | Exp. Name: ***A program to illustrate threads*** | **Date:2023-12-08** |

## Aim:

Write Java program(s) on creating multiple threads, assigning priority to threads, synchronizing threads, suspend and resume threads

## Source Code:

TestThread.java

```
class RunnableDemo implements Runnable {
   public Thread t;
   public String threadName;
   boolean suspended=false;
   RunnableDemo(String name) {
      threadName=name;System.out.println("Creating "+threadName);}
      public void run() {System.out.println("Running "+threadName);
      try{
         for(int i=10;i>0;i--) {
            System.out.println("Thread: "+threadName+", "+i);
            Thread.sleep(100);
            synchronized(this) {
               while(suspended) {
                  wait();}}}}
                  catch(InterruptedException e) {
                     System.out.println("Thread "+threadName+" interrupte
d.");}
                     System.out.println("Thread "+threadName+" exiting.");}
                     public void start() {System.out.println("Starting "+threa
dName);
                     if(t==null) {
                        t=new Thread(this,threadName);t.start();}}
                        void suspend() {suspended=true;}
                        synchronized void resume() {
                           suspended=false;notify();}}
                        public class TestThread {public static void main(Strin
g args[]) {
                           RunnableDemo R1=new RunnableDemo("Thread-1");
                           R1.start();
                           RunnableDemo R2=new RunnableDemo("Thread-2");
                           R2.start();
                           try{Thread.sleep(100);R1.suspend();
                           System.out.println("Suspending First Thread");
                           Thread.sleep(100);
                           R1.resume();
                           System.out.println("Resuming First Thread");
                           System.out.println("Suspending thread Two");

System.out.println("Resuming thread Two");R2.resume();}
catch(InterruptedException e) {
   System.out.println("Caught: "+e);}
   try{
      System.out.println("Waiting for threads to finish.");
      R1.t.join();
      R2.t.join();}
```

```
       catch(InterruptedException e) {
          System.out.println(e);}
          System.out.println("Main thread exiting.");}}
```

## Execution Results - All test cases have succeeded!

| Test Case - 1 |
|---|
| User Output |
| `Creating Thread-1` |
| `Starting Thread-1` |
| `Creating Thread-2` |
| `Starting Thread-2` |
| `Running Thread-1` |
| `Running Thread-2` |
| `Thread: Thread-2, 10` |
| `Thread: Thread-1, 10` |

```
Suspending First Thread
Thread: Thread-2, 9
Thread: Thread-2, 8
Resuming First Thread
Suspending thread Two
Thread: Thread-1, 9
Thread: Thread-1, 8
Resuming thread Two
Waiting for threads to finish.
Thread: Thread-2, 7
Thread: Thread-1, 7
Thread: Thread-2, 6
Thread: Thread-1, 6
Thread: Thread-2, 5
Thread: Thread-1, 5
Thread: Thread-2, 4
Thread: Thread-1, 4
Thread: Thread-2, 3
Thread: Thread-1, 3
Thread: Thread-2, 2
Thread: Thread-1, 2
Thread: Thread-2, 1
Thread: Thread-1, 1
Thread Thread-2 exiting.
Thread Thread-1 exiting.
Main thread exiting.
```