What Is a Thread?

Definition: A thread is a single sequential flow of control within a program.

There are two ways to create multithreaded applications:

- Subclassing Thread and Overriding run (in the Essential Java Classes trail)
- Implementing the Runnable Interface (in the Essential Java Classes trail)

Example Programs:
class SimpleThread extends Thread {
    public SimpleThread(String str) {
        super(str);
    }

    public void run() {
        for (int i = 0; i < 5; i++) {
            System.out.println(i + getName());
            try {
                sleep((long)(Math.random() * 500));
            } catch (InterruptedException e) {
            }
        }
        System.out.println("DONE!: " + getName());
    }
}

class TwoThreadsTest {
    public static void main(String[] args) {
        new SimpleThread("France").start();
        new SimpleThread("Italy").start();
    }
}
class Thread2 implements Runnable {

    private Thread counter;

    public static void main(String[] args) {
        Thread2 trd22 = new Thread2("France");
        Thread2 trd33 = new Thread2("Italy");
    }

    public Thread2 (String str)
    {
        counter = new Thread(this,str);
        counter.start();
    }

    public void run()
    {
        for (int i = 0; i < 5; i++) {
            System.out.println(i + counter.getName());
            try {
                Thread.sleep((long)(Math.random() * 500));
            } catch (InterruptedException e) { }
        }
        System.out.println("DONE!: " + counter.getName());
    }
}
Some sample output from the above programs:

<table>
<thead>
<tr>
<th>0France</th>
<th>0Italy</th>
<th>0France</th>
</tr>
</thead>
<tbody>
<tr>
<td>0Italy</td>
<td>1France</td>
<td>1Italy</td>
</tr>
<tr>
<td>1Italy</td>
<td>1France</td>
<td>2Italy</td>
</tr>
<tr>
<td>2Italy</td>
<td>2France</td>
<td>1France</td>
</tr>
<tr>
<td>3Italy</td>
<td>2Italy</td>
<td>3Italy</td>
</tr>
<tr>
<td>2France</td>
<td>3France</td>
<td>2France</td>
</tr>
<tr>
<td>4Italy</td>
<td>3Italy</td>
<td>3France</td>
</tr>
<tr>
<td>DONE!: Italy</td>
<td>4France</td>
<td>4France</td>
</tr>
<tr>
<td>3France</td>
<td>4Italy</td>
<td>4Italy</td>
</tr>
<tr>
<td>4France</td>
<td>DONE!: France</td>
<td>DONE!: Italy</td>
</tr>
<tr>
<td>DONE!: France</td>
<td>DONE!: Italy</td>
<td>DONE!: France</td>
</tr>
</tbody>
</table>

The Life Cycle of a Thread

Thread states:

- NEW
- RUNNABLE
- BLOCKED
- WAITING
- TIMED_WAITING
- TERMINATED