Threads

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```
class PrimeThread extends Thread {

    long minPrime;

    PrimeThread(long minPrime) {

        this.minPrime = minPrime;

    }

    public void run() {

        // compute primes larger than minPrime

         . . .

    }

}
```

The following code would then create a thread and start it running:

```
PrimeThread p = new PrimeThread(143);

p.start();
```

The other way to create a thread is to declare a class that implements the Runnable interface. That class then implements the run method. An instance of the class can then be allocated, passed as an argument when

creating Thread, and started. The same example in this other style looks like the following:

```java
class PrimeRun implements Runnable {

    long minPrime;

    PrimeRun(long minPrime) {

        this.minPrime = minPrime;

    }


    public void run() {

        // compute primes larger than minPrime

        . . .

    }

}
```

The following code would then create a thread and start it running:

```java
PrimeRun p = new PrimeRun(143);

new Thread(p).start();
```

The Java Thread Model

The Java run-time system depends on threads for many things. Threads reduce inefficiency by preventing the waste of CPU cycles.

Threads exist in several states:

- **New** - When we create an instance of Thread class, a thread is in a new state.
- **Running -** The Java thread is in running state.
- **Suspended** - A running thread can be **suspended**, which temporarily suspends its activity. A suspended thread can then be resumed, allowing it to pick up where it left off.
- **Blocked** - A Java thread can be blocked when waiting for a resource.
- **Terminated** - A thread can be terminated, which halts its execution immediately at any given time. Once a thread is terminated, it cannot be resumed.