Learning Objectives in this Part of the Lesson

- Understand how Java threads support concurrency
- Learn how our case study app works
- Know alternative ways of giving code to a thread
- Learn how to pass parameters to a Java thread
- Know how to run a Java thread
- Recognize common thread methods
Key Java Thread Methods
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs

See [docs.oracle.com/javase/8/docs/api/java/lang/Thread.html](docs.oracle.com/javase/8/docs/api/java/lang/Thread.html)
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - `void setDaemon()`
    - Marks thread as a “daemon”

See [javarevisited.blogspot.com/2012/03/what-is-daemon-thread-in-java-and.html](http://javarevisited.blogspot.com/2012/03/what-is-daemon-thread-in-java-and.html)
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - `void setDaemon()`
  - `void start()`  
    - Allocates thread resources & initiates thread execution by calling the `run()` hook method

The `start()` method can only be called once per thread object.
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - `void setDaemon()`
  - `void start()`
  - `void run()`
    - Hook method where user code is supplied
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - `void setDaemon()`  
  - `void start()`  
  - `void run()`  
  - `void join()`  
    - Waits for a thread to finish

A simple form of “barrier synchronization”
Key Java Thread Methods

• Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  • void setDaemon()
  • void start()
  • void run()
  • void join()
  • void sleep(long time)
    • Sleeps for given time in ms
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - `void setDaemon()`
  - `void start()`
  - `void run()`
  - `void join()`
  - `void sleep(long time)`

- `Thread currentThread()`
  - Object for current Thread
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - void setDaemon()
  - void start()
  - void run()
  - void join()
  - void sleep(long time)
  - Thread currentThread()
  - void interrupt()
    - Post an interrupt request to a Thread

See upcoming lesson on “Managing the Java Thread Lifecycle”
Key Java Thread Methods

• Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  • void setDaemon()
  • void start()
  • void run()
  • void join()
  • void sleep(long time)
  • Thread currentThread()
  • void interrupt()

  • boolean isInterrupted()
    • Tests whether a thread has been interrupted

isInterrupted() can be called multiple times w/out affecting interrupted status
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - `void setDaemon()`
  - `void start()`
  - `void run()`
  - `void join()`
  - `void sleep(long time)`
  - `Thread currentThread()`
  - `void interrupt()`
  - `boolean isInterrupted()`
  - `boolean interrupted()`

- Tests whether current thread has been interrupted

`interrupted()` clears the *interrupted status* the first time it’s called.
Key Java Thread Methods

- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - `void setDaemon()`
  - `void start()`
  - `void run()`
  - `void join()`
  - `void sleep(long time)`
  - `Thread currentThread()`
  - `void interrupt()`
  - `boolean isInterruptedException()`
  - `boolean interrupted()`
  - `void setPriority(int newPriority)`
  & `int getPriority()`
- Set & get the priority of a Thread

High values of `newPriority` result in higher priority threads
End of Java Thread: Key Class Methods