Key Methods in a Java Thread

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

See 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
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”
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  - `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 isInterruptedException()
  • 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 isInterrupted()`
  • `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 Key Methods in a Java Thread