Key Methods in a Java Thread

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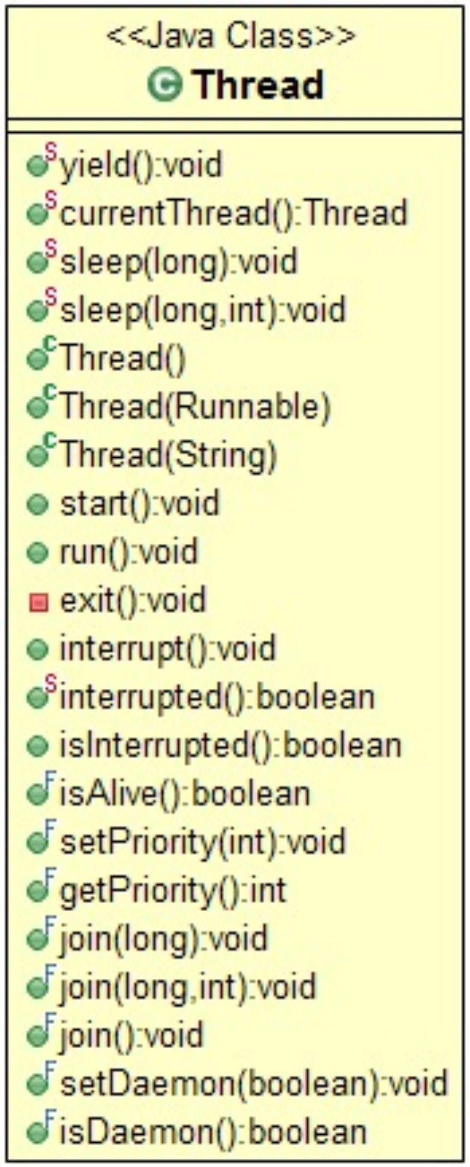
Learning Objectives in this Part of the Lesson

- 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 the differences between Java platform & virtual threads
- Be aware of how a Java thread starts & runs
- Recognize common thread methods



<<Java Class>>
Thread

yield():void
currentThread():Thread
sleep(long):void
sleep(long,int):void
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Thread(Runnable)
Thread(String)
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run():void
exit():void
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getPriority():int
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setDaemon(boolean):void
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Key Java Thread Methods

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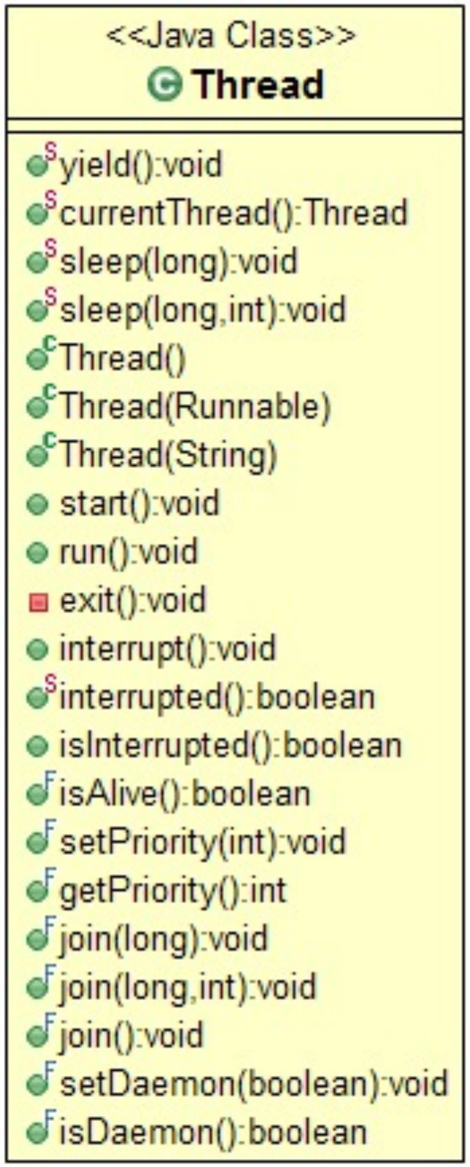
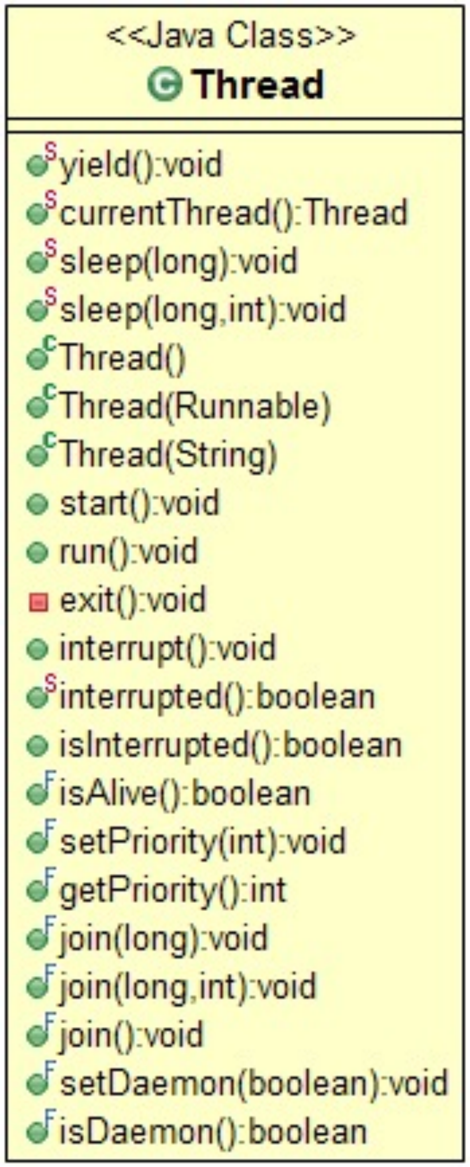
- Certain Java Thread class methods are used in many concurrent Java programs



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"



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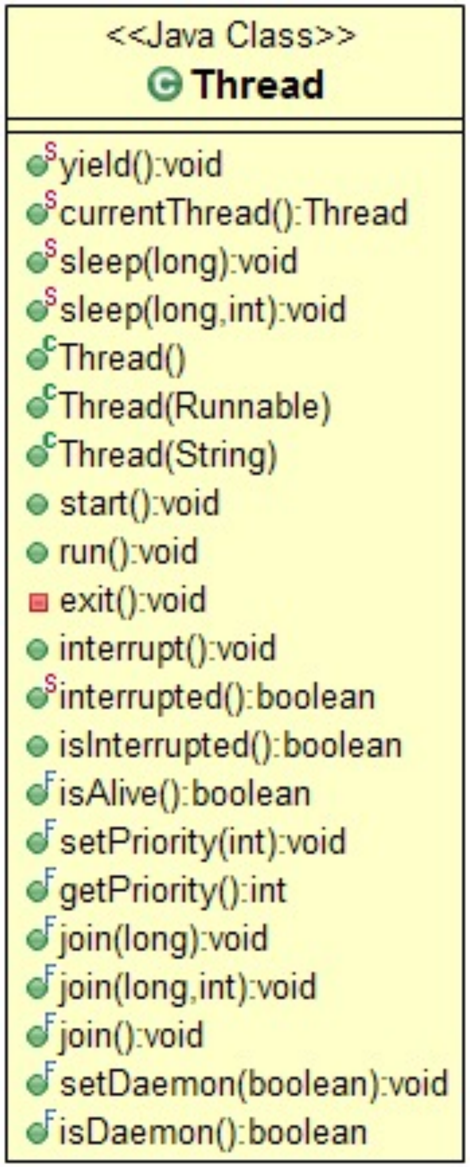
See javarevisited.blogspot.com/2012/03/what-is-daemon-thread-in-java-and.html

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



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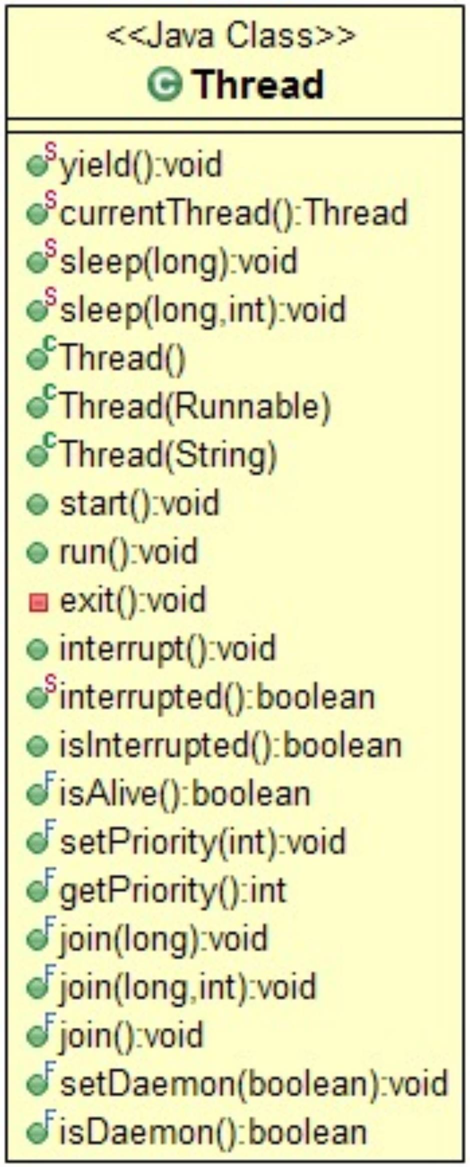
The start() method can only be called once per thread object

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



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See wiki.c2.com/?HookMethod

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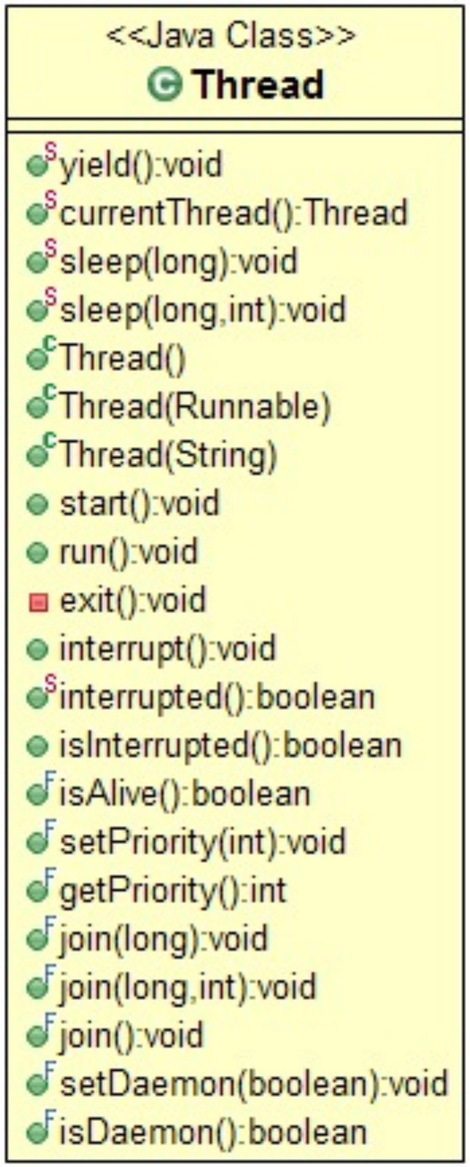
- Certain Java Thread class methods are used in many concurrent Java programs, e.g.
  - `void setDaemon()`
  - `void start()`
  - `void run()`
  - **`void join()`**
    - Waits for a thread to finish



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A simple form of "barrier synchronization"

Key Java Thread Methods

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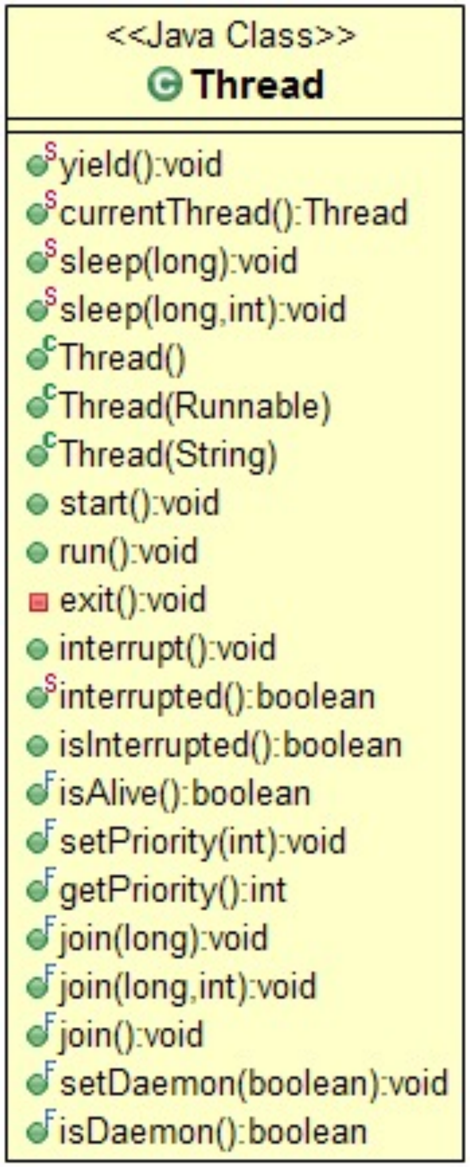
  - `void setDaemon()`
  - `void start()`
  - `void run()`
  - `void join()`
  - **`void sleep(long time)`**
    - Sleeps for given time in ms



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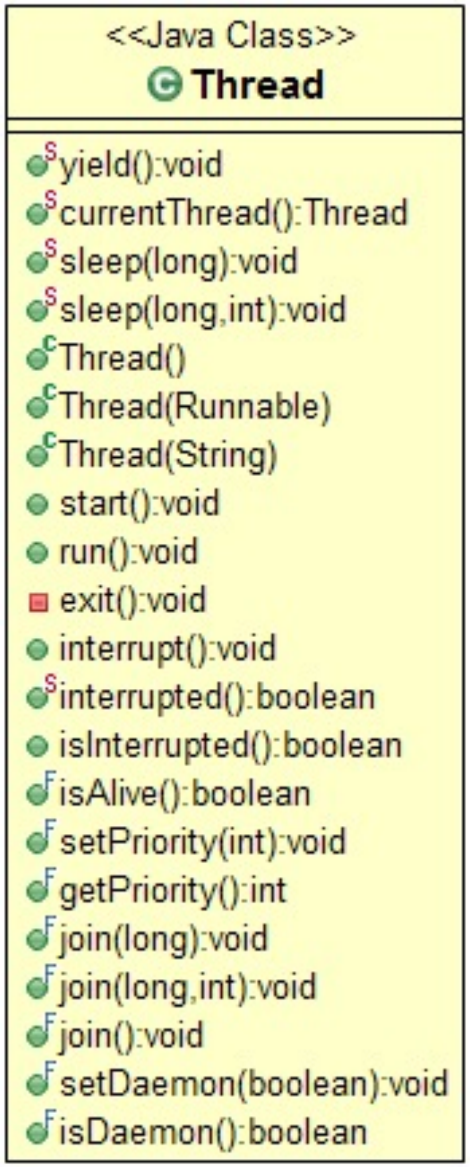
  - `void setDaemon()`
  - `void start()`
  - `void run()`
  - `void join()`
  - `void sleep(long time)`
  - **`Thread currentThread()`**
    - Obtains the object for the current Thread



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  - `void start()`
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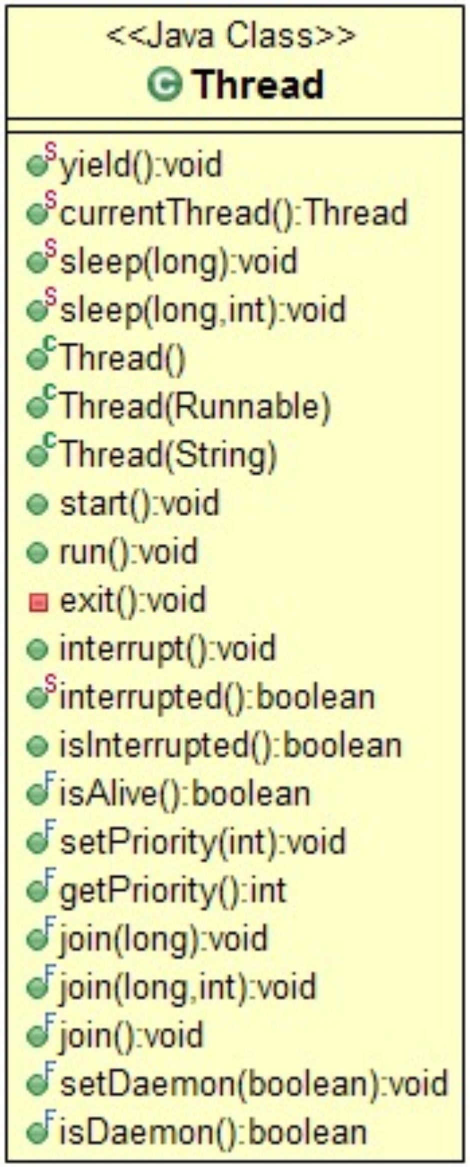
  - `void sleep(long time)`
  - `Thread currentThread()`
  - **`void interrupt()`**
    - Post an interrupt request to a Thread



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See upcoming lesson on "*Managing the Java Thread Lifecycle*"

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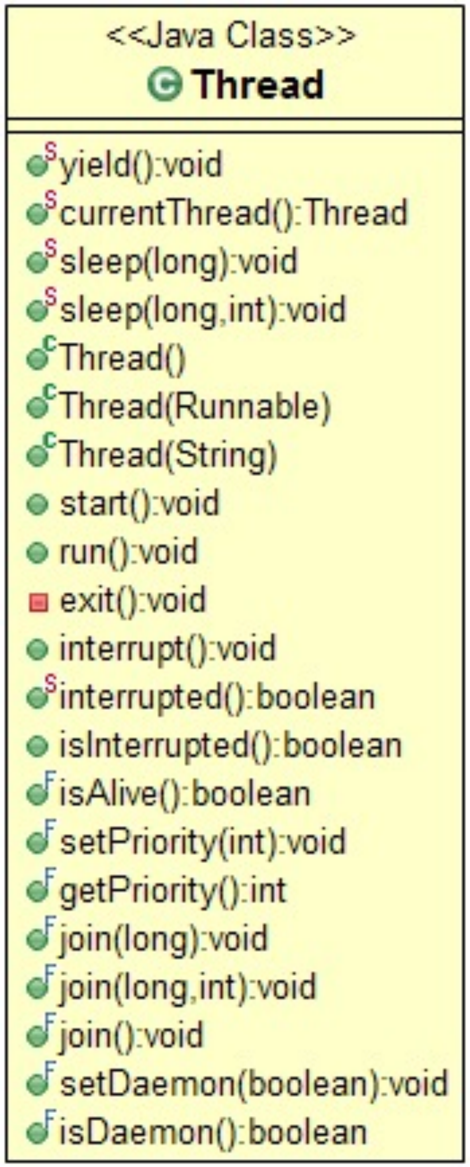
  - `Thread currentThread()`
  - `void interrupt()`
  - **`boolean isInterrupted()`**
    - Tests whether a thread has been interrupted



isInterrupted() can be called multiple times w/out affecting *interrupted status*

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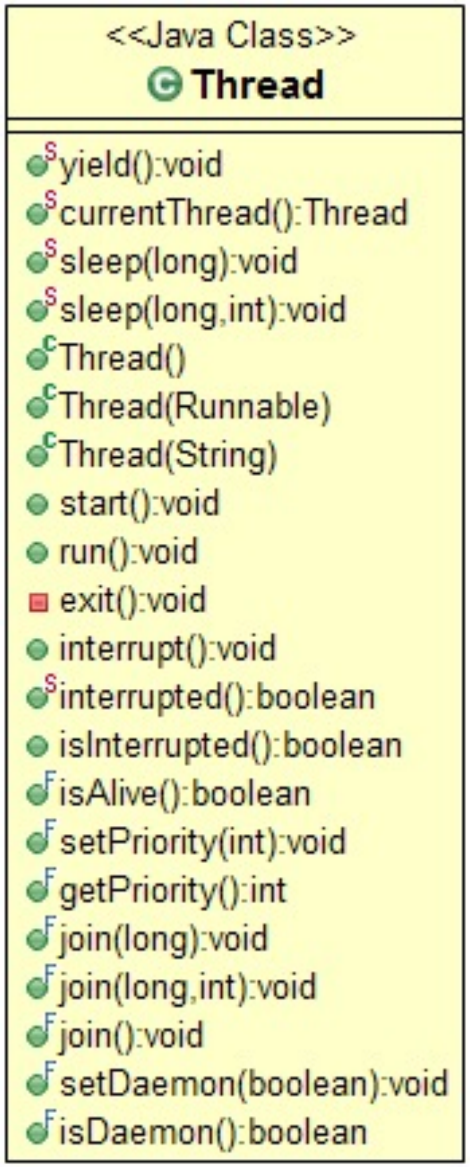
  - **`boolean interrupted()`**
    - Tests whether current thread has been interrupted



interrupted() clears the *interrupted status* the first time it's called

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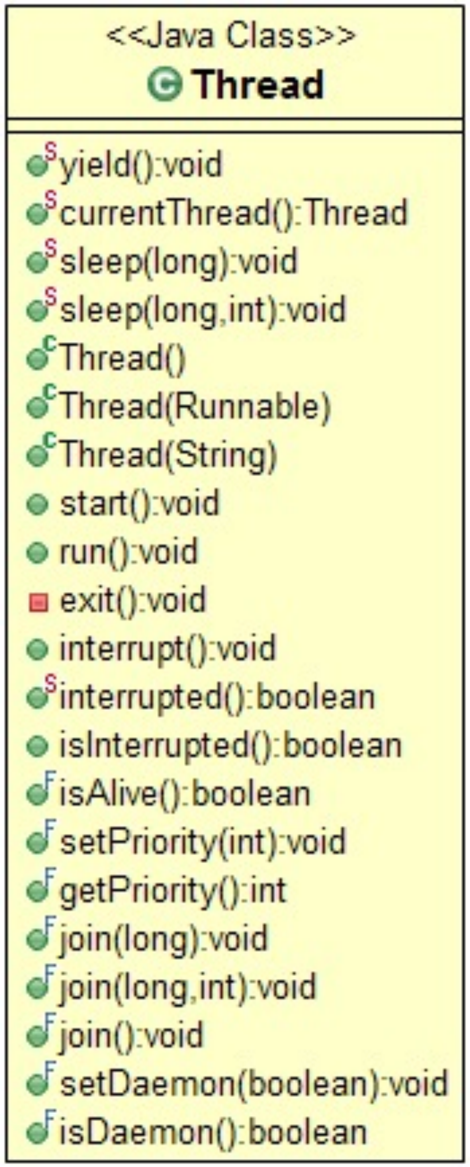
  - `void join()`
  - `void sleep(long time)`
  - `Thread currentThread()`
  - `void interrupt()`
  - `boolean isInterrupted()`
  - `boolean interrupted()`
  - **`void setPriority(int newPriority)` & `int getPriority()`**
    - Set & get the priority of a Thread



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Higher values of **`newPriority`** result in higher priority threads

End of Key Methods in a Java Thread