Java FutureTask: Key Methods

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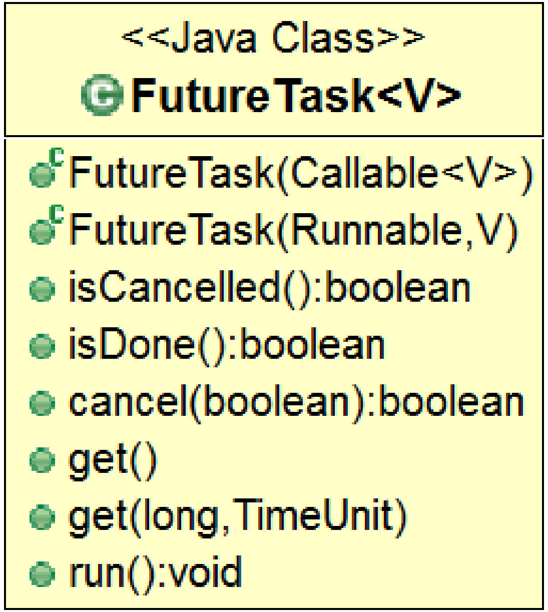
Learning Objectives in this Part of the Lesson

- Understand how Java FutureTask conveys a result from a computation running in a thread to thread(s) retrieving the result
- Recognize key methods in Java FutureTask



<<Java Class>>

FutureTask<V>

FutureTask(Callable<V>)

FutureTask(Runnable,V)

isCancelled():boolean

isDone():boolean

cancel(boolean):boolean

get()

get(long,TimeUnit)

run():void

Key Methods in Java FutureTask

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- Key methods in FutureTask

```
class FutureTask<V> implements
      RunnableFuture<V> {
  public FutureTask
        (Callable<V> callable) {...}

  public void run() {...}

  public boolean isCancelled() {...}

  public boolean isDone() {...}

  public boolean cancel(boolean

      mayInterruptIfRunning) {...}

  public V get() {...}

  protected void done() {...}

  ...
```

See docs.oracle.com/javase/8/docs/api/java/util/concurrent/FutureTask.html

Key Methods in Java FutureTask

- Key methods in FutureTask, e.g.
  - Constructs a future task with a callable to run later
    - The run() method invokes call() on the callable

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See docs.oracle.com/javase/8/docs/api/java/util/concurrent/Callable.html

Key Methods in Java FutureTask

- Key methods in FutureTask, e.g.
  - Constructs a future task with a callable to run later
  - Runs the task
    - i.e., forward to the call() method on the callable

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Sets the future task to the result of its computation unless it's been cancelled

Key Methods in Java FutureTask

- Key methods in FutureTask, e.g.
  - Constructs a future task with a callable to run later
  - Runs the task
  - Checks whether the task was cancelled or finished normally

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  - Constructs a future task with a callable to run later
  - Runs the task
  - Checks whether the task was cancelled or finished normally
  - Cancels a future task
    - true if thread executing this task should be interrupted
    - false if in-progress tasks are allowed to complete

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  - Gets the result
    - Blocks until task finishes

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  - Gets the result
    - Blocks until task finishes
    - There's also a timed version of get(), just like Future

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  public boolean cancel(boolean

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  public V get(long, TimeUnit) {...}

  protected void done() {...}

  ...
```

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  - Constructs a future task with a callable to run later
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  - Cancels a future task
  - Gets the result
  - Hook method called back in the run() hook method if the call() hook method is successful

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  ...
```

Subclasses may override this method, e.g., to invoke completion callbacks

End of Java FutureTask: Key Methods