Java FutureTask: Introduction

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Learning Objectives in this Part of the Lesson

- Understand how Java FutureTask provides a cancellable asynchronous computation that implements the Future & Runnable interfaces

Class FutureTask<V>

java.lang.Object
    java.util.concurrent.FutureTask<V>

Type Parameters:

`V - The result type returned by this FutureTask's get methods`

All Implemented Interfaces:

`Runnable, Future<V>, RunnableFuture<V>`

```
public class FutureTask<V>
extends Object
implements RunnableFuture<V>
```

A cancellable asynchronous computation. This class provides a base implementation of `Future`, with methods to start and cancel a computation, query to see if the computation is complete, and retrieve the result of the computation. The result can only be retrieved when the computation has completed; the `get` methods will block if the computation has not yet completed. Once the computation has completed, the computation cannot be restarted or cancelled (unless the computation is invoked using `runAndReset()`).

A `FutureTask` can be used to wrap a `Callable` or `Runnable` object. Because `FutureTask` implements `Runnable`, a `FutureTask` can be submitted to an `Executor` for execution.

Overview of Java FutureTask

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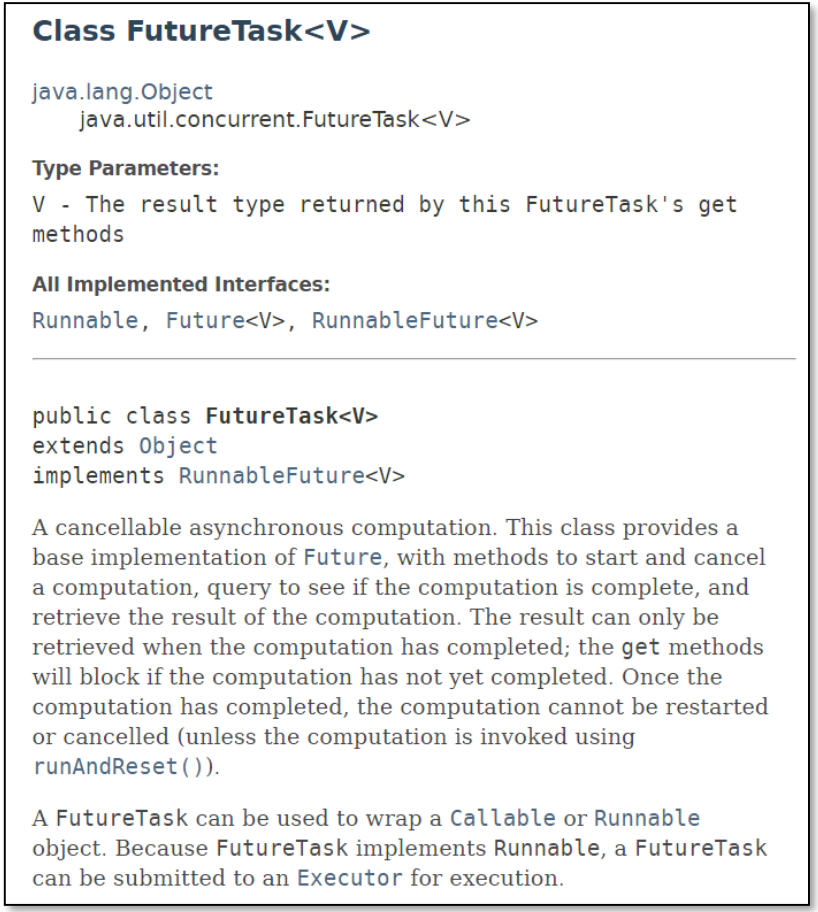
- Java FutureTask conveys the result from a thread running an asynchronous computation to thread(s) that want to process the result



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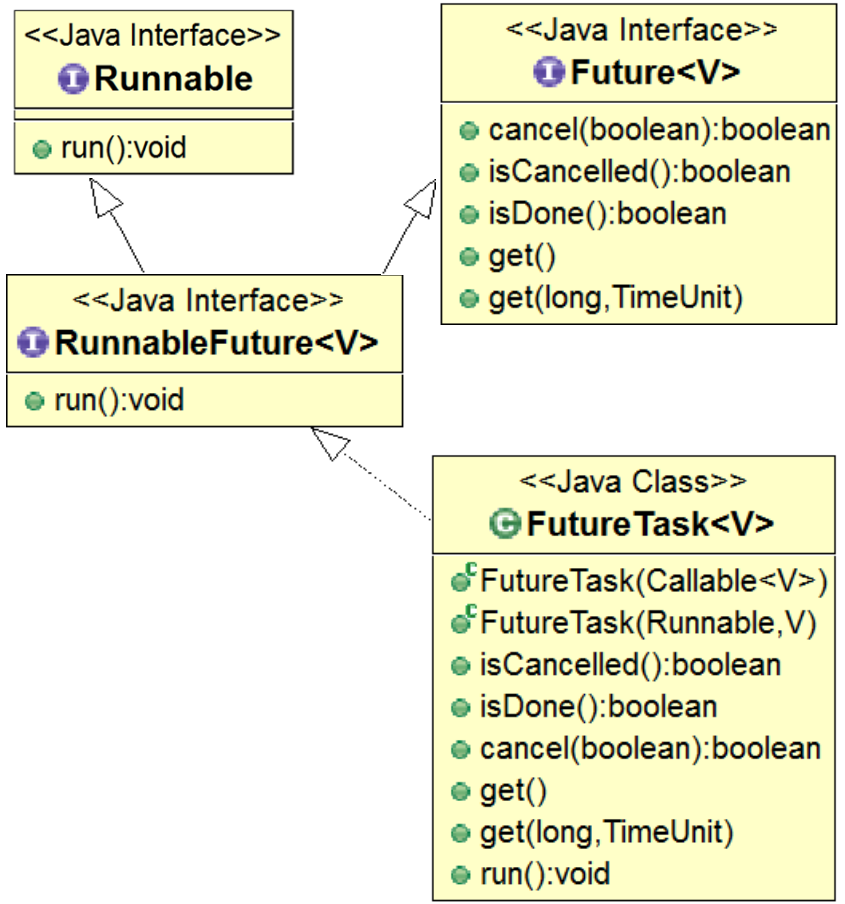
See docs.oracle.com/javase/8/docs/api/java/util/concurrent/FutureTask.html

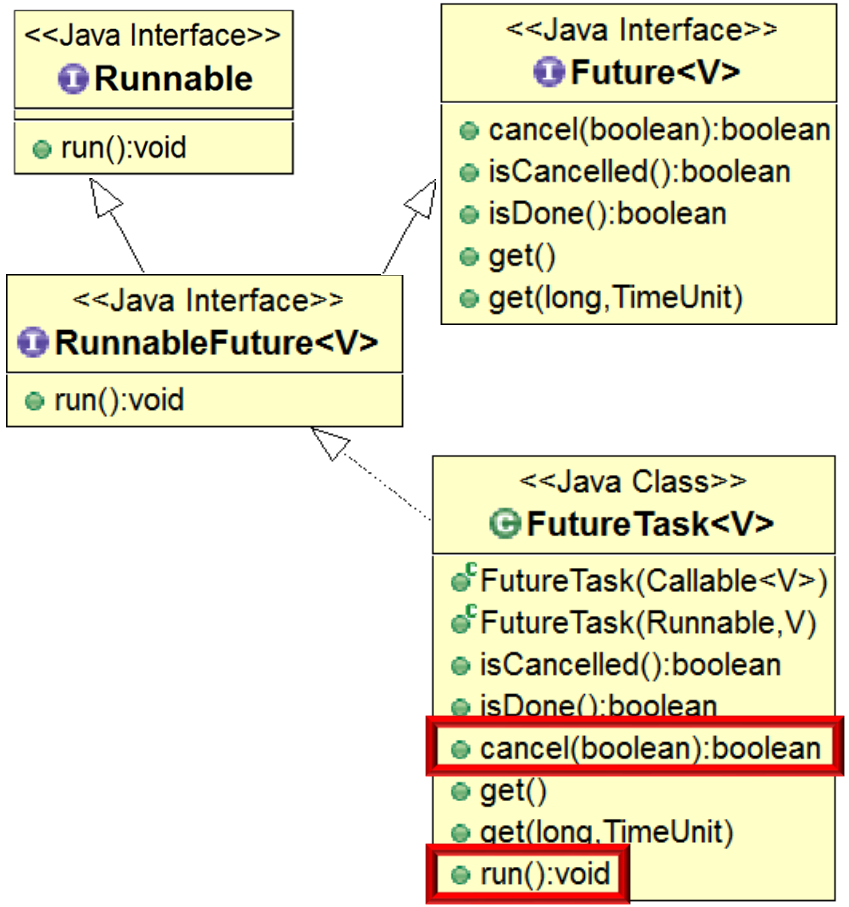
Overview of Java FutureTask

- FutureTask implements RunnableFuture & provides several capabilities



Overview of Java FutureTask

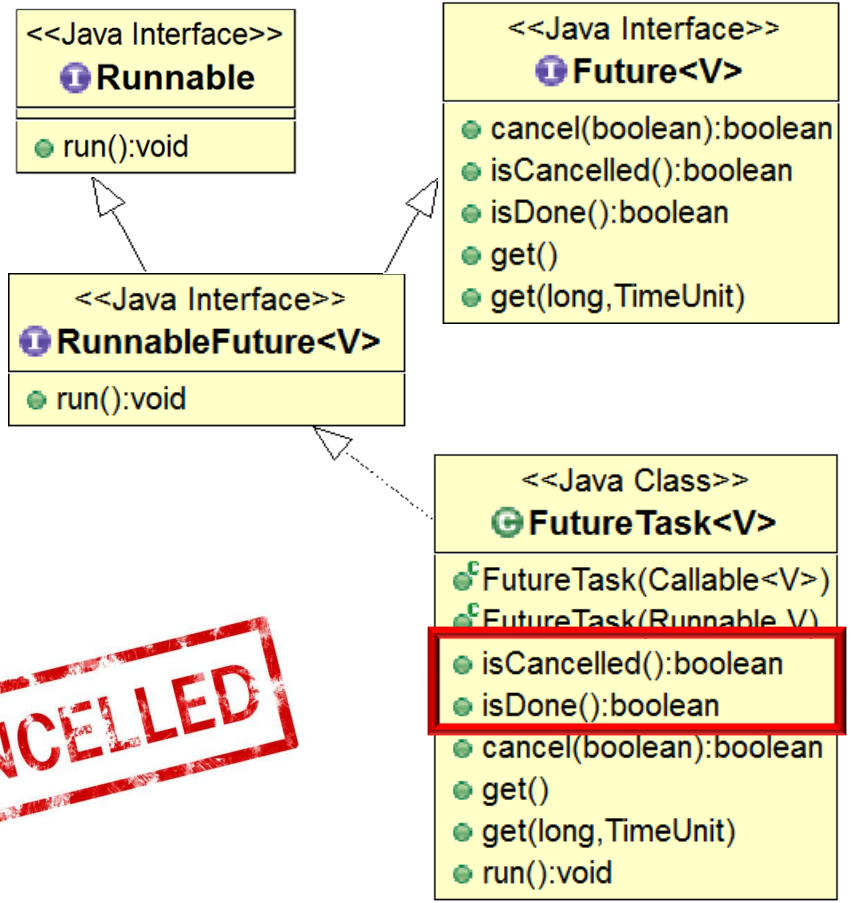
- FutureTask implements RunnableFuture & provides several capabilities, e.g.
  - Start & cancel a computation that can run asynchronously



FutureTask computations are often started/run by a Java ThreadPoolExecutor

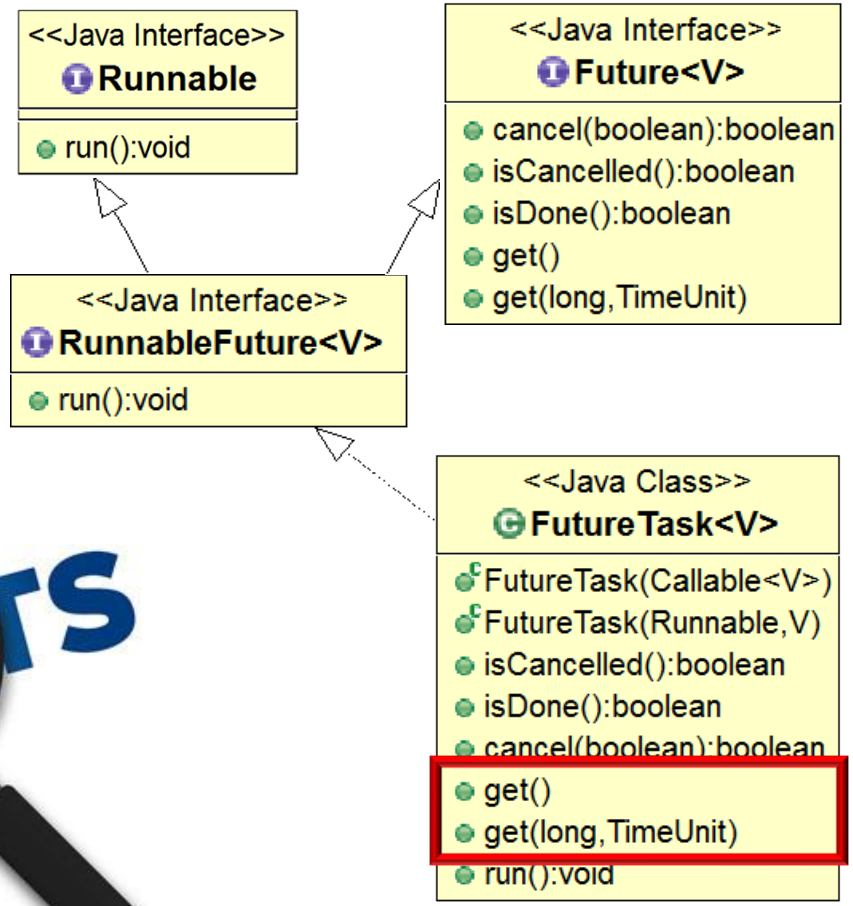
Overview of Java FutureTask

- FutureTask implements RunnableFuture & provides several capabilities, e.g.
  - Start & cancel a computation that can run asynchronously
  - Query to see if computation completed or was cancelled



Overview of Java FutureTask

- FutureTask implements RunnableFuture & provides several capabilities, e.g.
  - Start & cancel a computation that can run asynchronously
  - Query to see if computation completed or was cancelled
  - Get result of computation



End of Java FutureTask: Introduction