The Java Fork-Join Pool: Key Methods in ForkJoinTask

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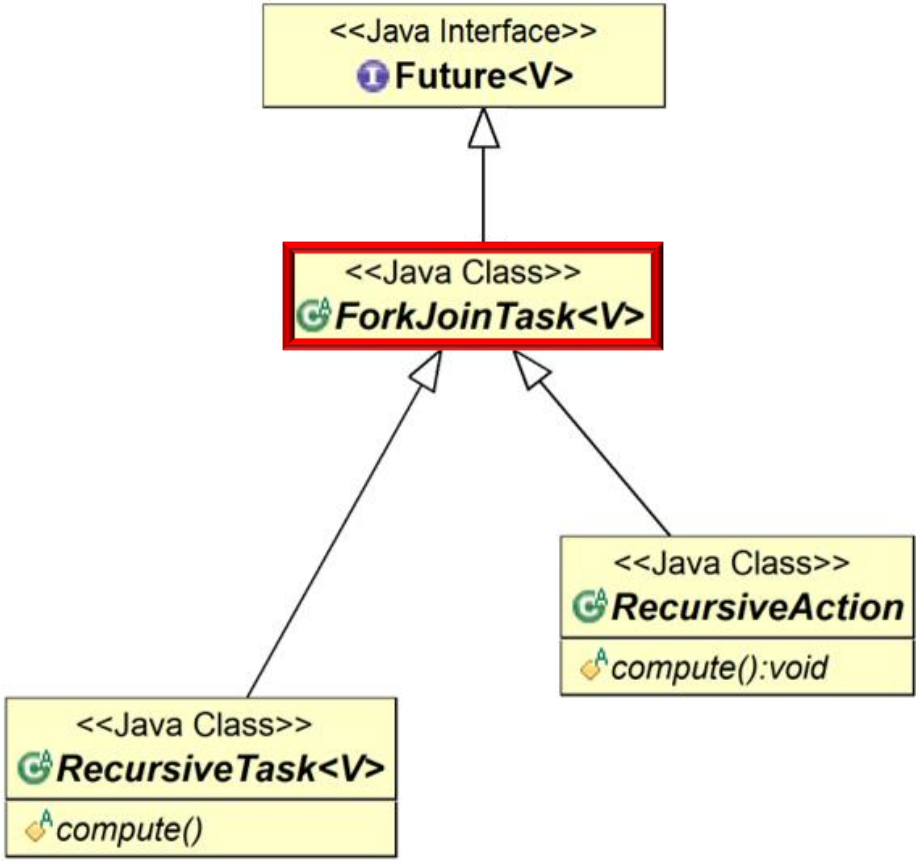
Learning Objectives in this Part of the Lesson

- Recognize the key methods in the ForkJoinTask class



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abstract class ForkJoinTask<V>
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             Serializable {

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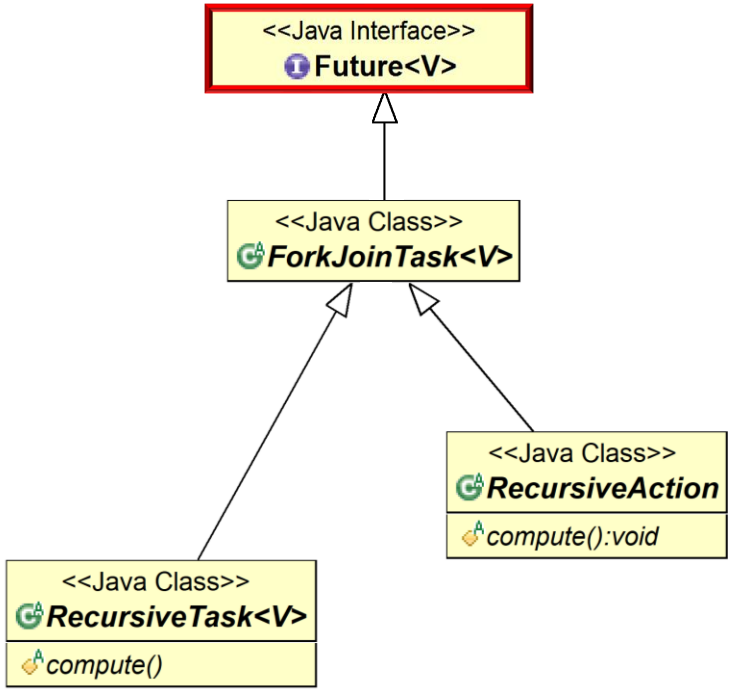

See docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html

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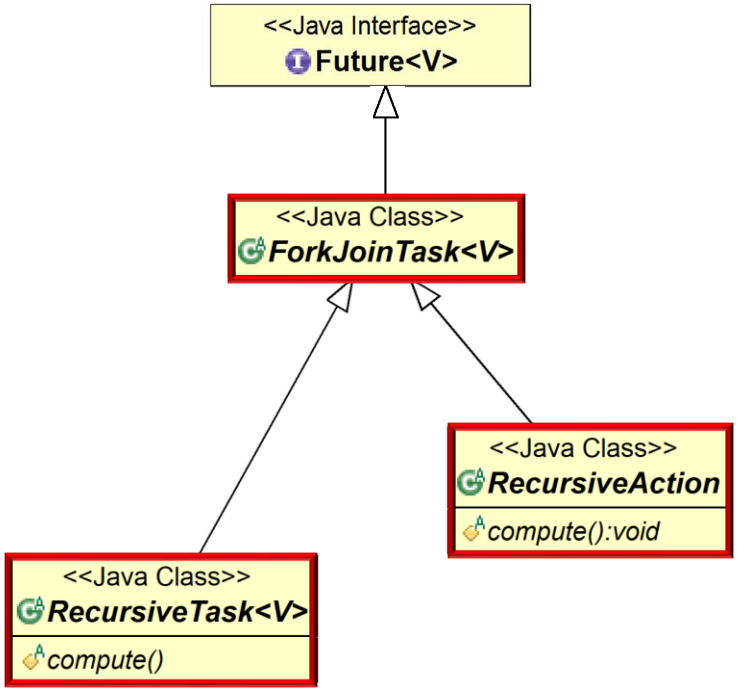

It's uncommon to use these future methods, but rather use subclass methods

Key Methods in Java ForkJoinTask

- ForkJoinTask implements Future
  - fork() enables a task to create sub-tasks that run in parallel

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abstract class ForkJoinTask<V>
  implements Future<V>,
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  final ForkJoinTask<V> fork()
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See docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html#fork

Key Methods in Java ForkJoinTask

- ForkJoinTask implements Future
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    - Arrange to execute this task asynchronously in the current task's pool or ForkJoinPool's common pool


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The fork() method does not block the caller

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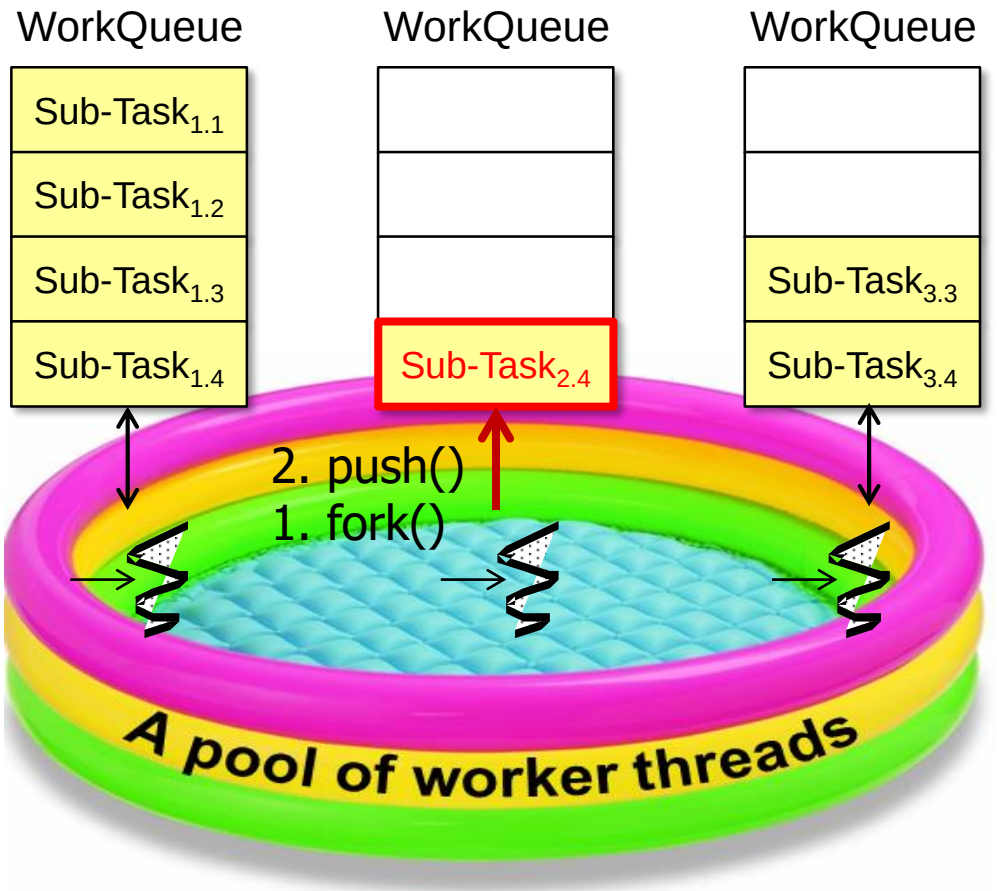
- ForkJoinTask implements Future
  - fork() enables a task to create sub-tasks that run in parallel
    - Arrange to execute this task asynchronously in the current task's pool or ForkJoinPool's common pool
    - Pushes the task on the head of the deque owned by the current worker thread



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See docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html#join

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"Collaborative Jiffy Lube" model of processing!

See en.wikipedia.org/wiki/Jiffy_Lube

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See stackoverflow.com/questions/4800503/memory-visibility-in-fork-join

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    - Defines a synchronization point
      - Ensures all writes in a worker thread that "happen-before" join() are made visible to other threads after the join()

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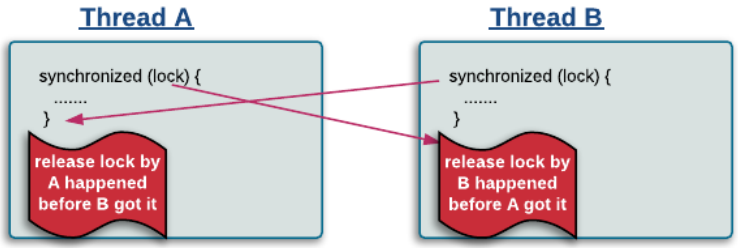

See www.logicbig.com/tutorials/core-java-tutorial/java-multi-threading/happens-before.html

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See docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html#invoke

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  - join() returns the result of a previously fork'd computation when it's done
  - invoke() performs this task, awaits its completion if needed, & returns its result
    - Throws RuntimeException or Error if the underlying computation did so

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See www.baeldung.com/java-exceptions

End of the Java Fork-Join Pool: Key Methods in ForkJoinTask