Advanced Java CompletableFuture Features: Introducing Completion Stage Methods (Part 2)

Douglas C. Schmidt <u>d.schmidt@vanderbilt.edu</u> www.dre.vanderbilt.edu/~schmidt



Professor of Computer Science

Institute for Software Integrated Systems

Vanderbilt University Nashville, Tennessee, USA



Learning Objectives in this Part of the Lesson

- Understand advanced features of completable futures, e.g.
 - Factory methods initiate async computations
 - Completion stage methods chain together dependent actions
 - Perform async result processing & composition
 - These methods also avoid blocking



Completion stage methods

• Completion stages are used to minimize and/or avoid blocking calling thread



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 - Improves responsiveness by not blocking the caller



See en.wikipedia.org/wiki/Responsiveness

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 - Improves responsiveness by not blocking the caller
 - Blocking impedes inherent parallelism, underutilizes cores, & complicates program structure





See www.nastel.com/10-reasons-your-java-apps-are-slow

- Completion stages are used to minimize and/or avoid blocking calling thread
 - Improves responsiveness by not blocking the caller
 - Blocking impedes inherent parallelism, underutilizes cores, & complicates program structure
 - Avoid calling join() or get() until absolutely necessary



- Completion stages are used to minimize and/or avoid blocking calling thread
 - Improves responsiveness by not blocking the caller
 - Clients can often avoid blocking until a result *must* be obtained



See github.com/douglascraigschmidt/LiveLessons/tree/master/ImageCounter

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 - Improves responsiveness by not blocking the caller
 - Clients can often avoid blocking until a result *must* be obtained
 - e.g., GUIs needn't/shouldn't block to ensure responsiveness



See <u>github.com/ReactiveX/RxAndroid</u>

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 - Servers may be able to avoid blocking altogether



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 - Servers may be able to avoid blocking altogether
 - e.g., decouple request reception, processing, & response



End of Advanced Java **CompletableFuture Features: Introducing Completion** Stage Methods (Part 2)