Java Parallel Streams Internals: Order of Processing

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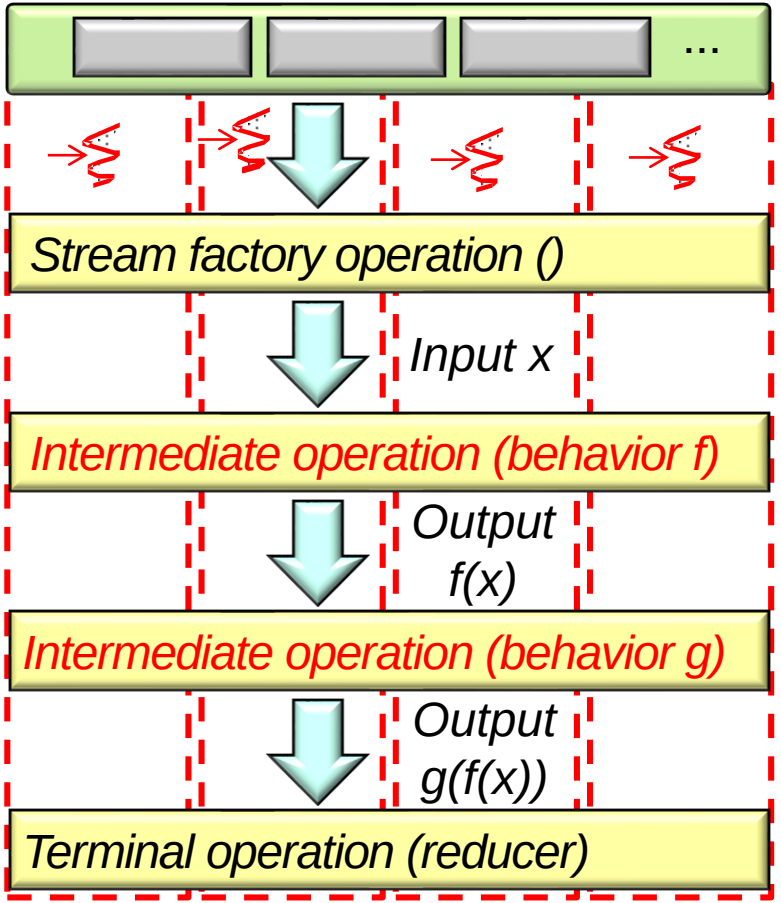
Learning Objectives in this Part of the Lesson

- Understand parallel stream internals, e.g.
  - Know what can change & what can't
    - Splitting, combining, & pooling mechanisms
    - Order of processing

Java Parallel Stream Processing Order

Java Parallel Stream Processing Order

- The *order* in which chunks in a parallel stream are processed is non-deterministic



See en.wikipedia.org/wiki/Nondeterministic_algorithm

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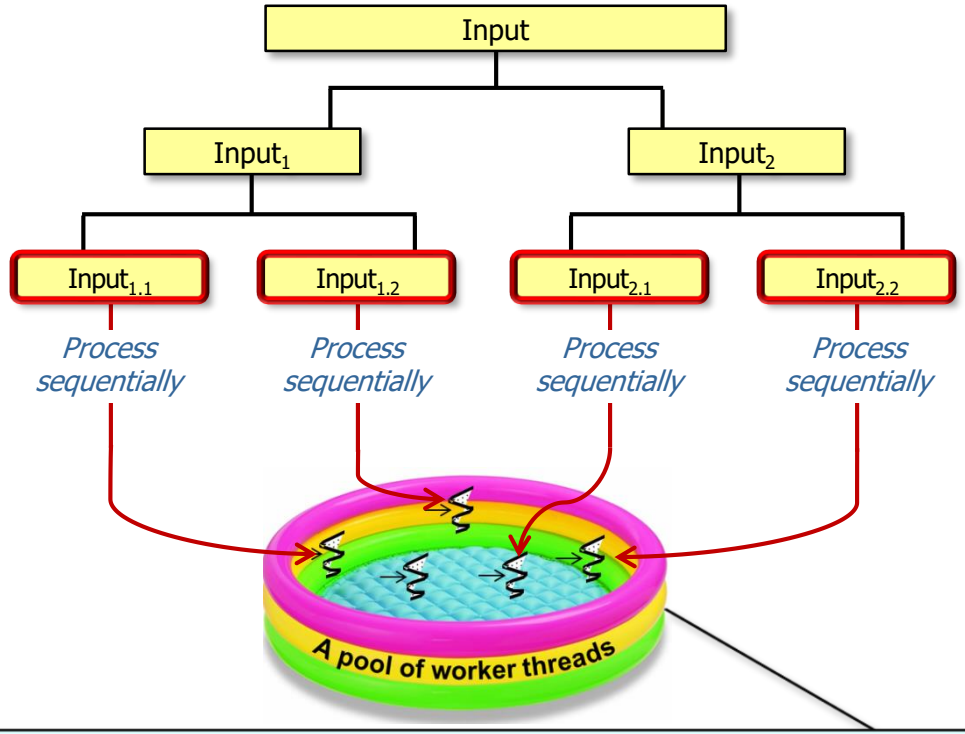

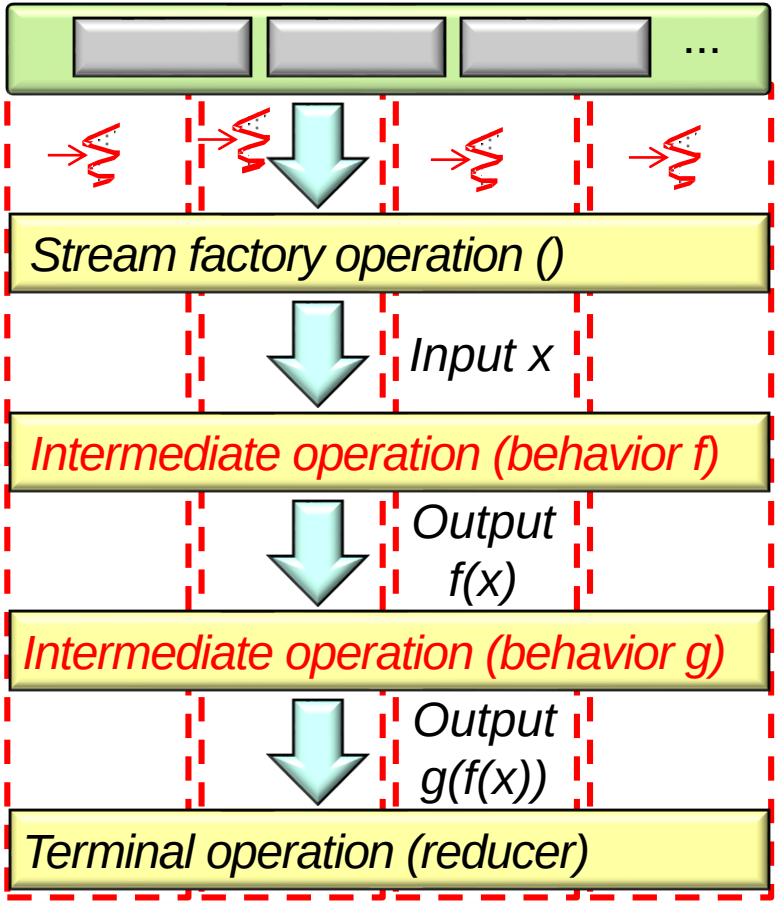

The ordering can exhibit different behaviors on different runs, even for the same input

Java Parallel Stream Processing Order

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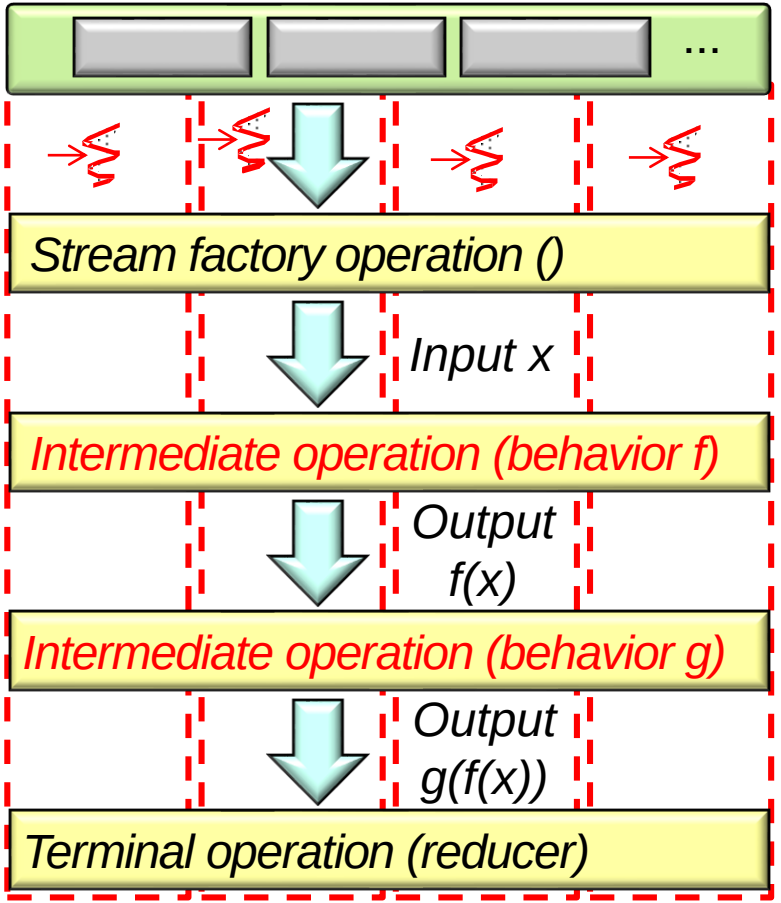
  - Programmers have little/no control over how chunks are processed



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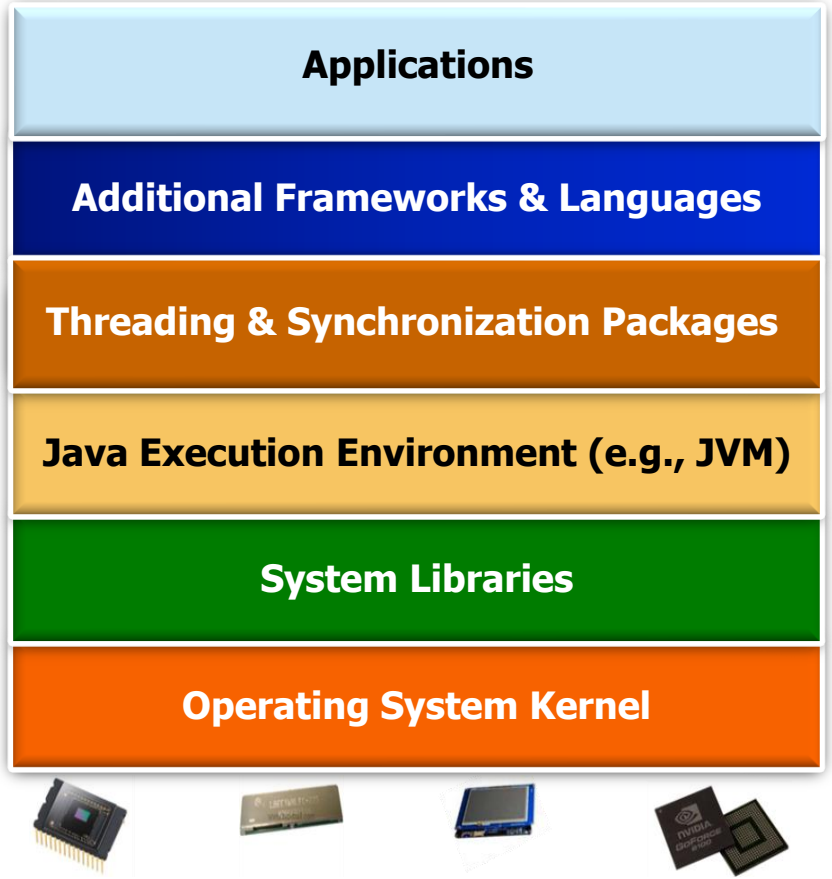
  - Non-determinism enables optimizations at multiple layers!



e.g., scheduling & execution of tasks via fork-join pool, JVM, hardware cores, etc.

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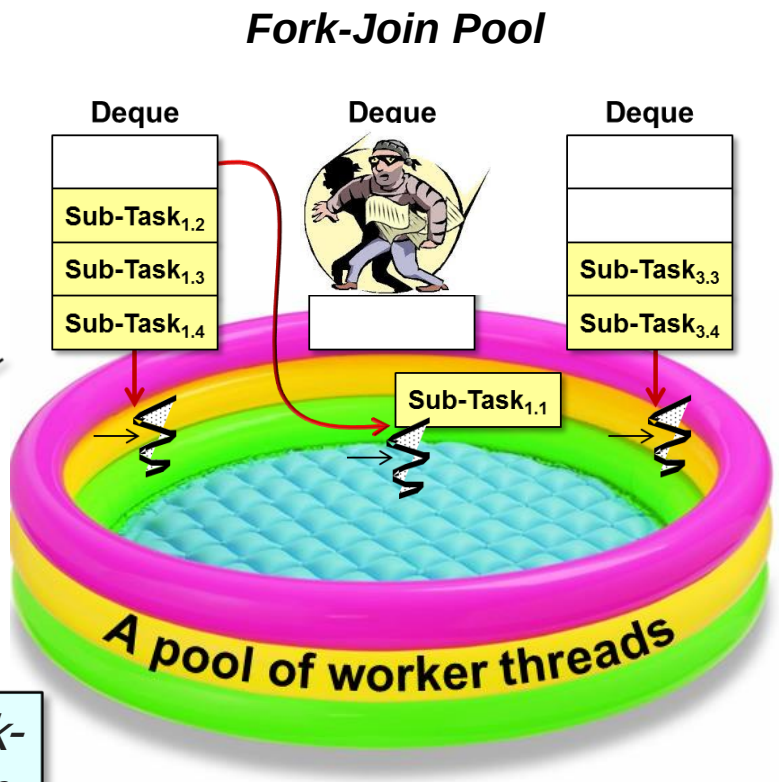

e.g., fork-join framework's support for work-stealing is a non-deterministic optimization

See upcoming lessons on "*The Java Fork-Join Framework*"

End of Java Parallel Stream Internals: Order of Processing