

ORACLE®

Lesson 2-4: Stream Sources in JDK 8

JDK 8 Libraries

- There are 95 methods in 23 classes that return a Stream
 - Many of them, though are intermediate operations in the Stream interface
- 71 methods in 15 classes can be used as practical Stream sources

Collection Interface

- `stream()`
 - Provides a sequential stream of elements in the collection
- `parallelStream()`
 - Provides a parallel stream of elements in the collection
 - Uses the fork-join framework for implementation

Arrays Class

- `stream()`
 - An array is a collection of data, so logical to be able to create a stream
 - Provides a sequential stream
 - overloaded methods for different types
 - `double, int, long, Object`

Files Class

- `find(Path, BiPredicate, FileVisitOption)`
 - A stream of `File` references that match a given `BiPredicate`
- `list(Path)`
 - A stream of entries from a given directory
- `lines(Path)`
 - A stream of strings that are the lines read from a given file
- `walk(Path, FileVisitOption)`
 - A stream of file references walking from a given `Path`

Random Numbers

Generating Infinite Streams

- Three random related classes
 - Random, ThreadLocalRandom, SplittableRandom
- Methods to produce finite or infinite streams of random numbers
 - ints(), doubles(), longs()
 - Four versions of each
 - Finite or infinite
 - With and without seed

Miscellaneous Classes And Methods

- `JarFile/ZipFile: stream()`
 - Returns a `File` stream of the contents of the compressed archive
- `BufferedReader: lines()`
 - Returns a stream of strings that are the lines read from the input
- `Pattern: splitAsStream()`
 - Returns a stream of strings of matches of a pattern
 - Like `split()`, but returns a stream rather than an array

Miscellaneous Classes And Methods

- **CharSequence**
 - `chars()`: Char values as ints for the sequence
 - `codePoints()`: Code point values for this sequence
- **BitSet**
 - `stream()`: Indices of bits that are set

Stream Static Methods

IntStream, DoubleStream, LongStream

- These interfaces are primitive specialisations of the Stream interface
- `concat(Stream, Stream), empty()`
 - Concatenates two specified streams, returns an empty stream
- `of(T... values)`
 - A stream that consists of the specified values
- `range(int, int), rangeClosed(int, int)`
 - A stream from a start to an end value (exclusive or inclusive)
- `generate(IntSupplier), iterate(int, IntUnaryOperator)`
 - An infinite stream created by a given Supplier
 - `iterate()` uses a seed to start the stream

Section 4

Summary

- Numerous places to get stream sources
 - Useful methods for retrieving lines from files, files from archives, etc.
- Only `Collection` can provide a parallel stream directly

ORACLE®