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®