Key Action Operators in the Flux Class (Part 2)

Douglas C. Schmidt
d.schmidt@vanderbilt.edu
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

- Recognize key Flux operators
  - Concurrency & scheduler operators
  - Factory method operators
  - Action operators
    - These operators don't modify a Flux, but instead use it for side effects
      - e.g., doFinally()

Key Action Operators in the Flux Class

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- The doFinally() operator
  - Add a behavior triggered after the Flux terminates for any reason

```
Flux<T> doFinally
  (Consumer<SignalType> onFinally)
```

See projectreactor.io/docs/core/release/api/reactor/core/publisher/Flux.html#doFinally

Key Action Operators in the Flux Class

- The doFinally() operator
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    - The param is called when the Flux signals onError() or onComplete() or is disposed by the downstream

```
Flux<T> doFinally
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```

Interface Consumer<T>

Type Parameters:

T - the type of the input to the operation

All Known Subinterfaces:

Stream.Builder<T>

Functional Interface:

This is a functional interface and can therefore be used as the assignment target for a lambda expression or method reference.

See docs.oracle.com/javase/8/docs/api/java/util/function/Consumer.html

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      - i.e., it is a "callback"

```
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See en.wikipedia.org/wiki/Callback_(computer_programming)

Key Action Operators in the Flux Class

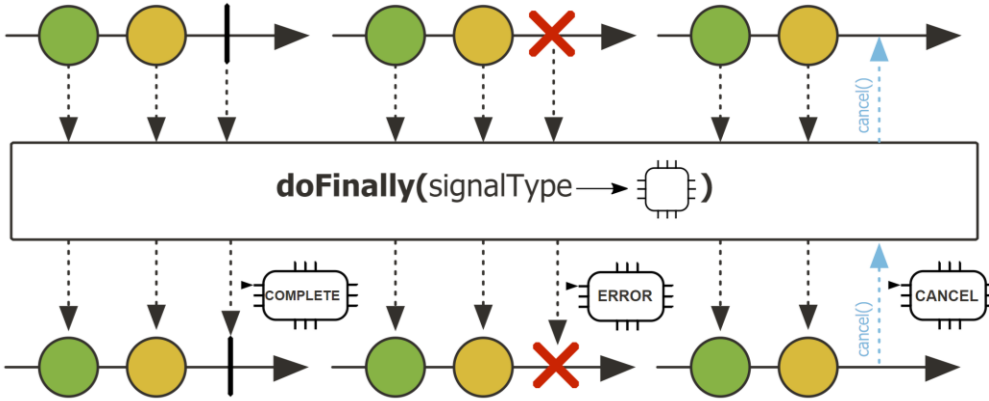
- The doFinally() operator
  - Add a behavior triggered after the Flux terminates for any reason
    - The param is called when the Flux signals onError() or onComplete() or is disposed by the downstream
  - Returns the new unchanged Flux instance
    - i.e., it only has a "side-effect"

```
Flux<T> doFinally
  (Consumer<SignalType> onFinally)
```

See en.wikipedia.org/wiki/Side_effect_(computer_science)

Key Action Operators in the Flux Class

- The doFinally() operator
  - Add a behavior triggered after the Flux terminates for any reason
  - Does not operate by default on a particular Scheduler



Key Action Operators in the Flux Class

- The doFinally() operator
  - Add a behavior triggered after the Flux terminates for any reason
  - Does not operate by default on a particular Scheduler
  - Can't change the type or value of elements it processes


```
Scheduler subscriber = Schedulers.newParallel("subscriber", 1);
return Flux
   .create(makeAsyncFluxSink())
   .publishOn(subscriber)
   ...
   .doFinally(___ -> subscriber.dispose()) ...
```

This operator is called after the Flux completes

See Reactive/flux/ex2/src/main/java/FluxEx.java

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```

This callback disposes the subscriber thread

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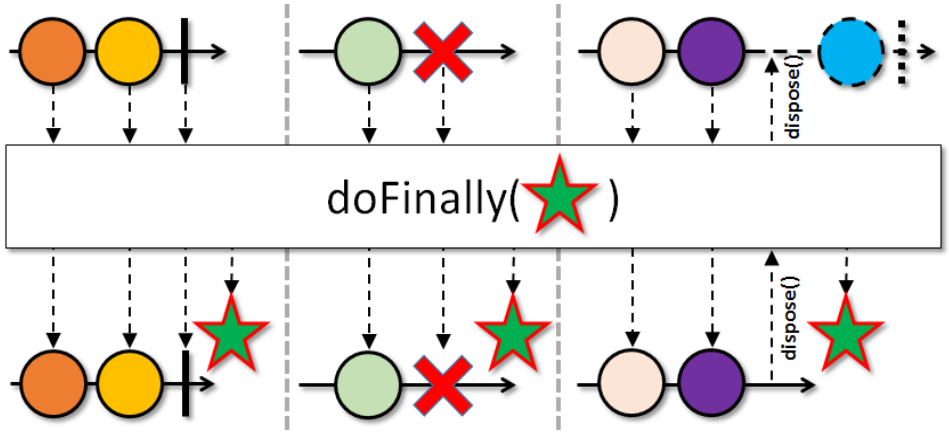

- RxJava's operator Observable .doFinally() works the same

Print BigIntegers to aid debugging

```
Observable
    .create(ObservableEx::emitAsync)
    .observeOn(Schedulers.newThread()) ...
    .doFinally(() -> BigFractionUtils.display(sb.toString()))
```

See reactivex.io/RxJava/3.x/javadoc/io/reactivex/rxjava3/core/Observable.html#doFinally

End of Key Action Operators in the Flux Class (Part 2)