Applying Key Operators in the Flux Class: Case Study ex3 (Part 2)

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Learning Objectives in this Part of the Lesson

- Part 2 of case study ex3 explores the use of Flux operators `filter()`, `generate()`, `flatMap()`, `fromIterable()`, `reduce()`, `collect()`, & the parallel thread pool to create, reduce, multiply, & display `BigFraction` objects asynchronously in a parallel thread pool.

```java
return Flux
    .generate(bigFractionEmitter)
    .take(sMAX_FRACTIONS)
    .flatMap(unreducedFraction ->
        reduceAndMultiplyFraction(unreducedFraction,
           Schedulers.parallel()))
    .collect(toList())
    .flatMap(list -> BigFractionUtils.sortAndPrintList(list,
        sb));
```

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- It also shows the use of Mono operators like `doOnNext()`, `map()`, `firstWithSignal()`, `subscribeOn()`, `flatMap()`, `fromCallable()`, & `then()`

```java
return Mono
    .fromCallable(() -> BigFraction
        .reduce(unreducedFrac))
    .subscribeOn(scheduler)
    .doOnNext(result ->
        logBigFractionResult
            (unreducedFrac,
             sBigReducedFraction,
             result, sb))
    .map(reducedFraction ->
        reducedFraction
            .multiply
            (sBigReducedFraction));
```

Applying Key Operators in the Flux Class to ex3
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```java
/**
 * Test an asynchronous Flux stream consisting of generate(),
 * take(), flatMap(), collect(), and a pool of threads to perform
 * BigFraction reductions and multiplications.
 */

@public static Mono<Void> testFractionMultiplications1() {
    StringBuffer sb =
        new StringBuffer(">> Calling testFractionMultiplications1()\n");
    sb.append(" Printing sorted results: ");

    // Process the function in a flux stream.
    return Flux
        // Generate a stream of random, large, and unreduced big
        // fractions.
        .generate((SynchronousSink<BigFraction> sink) -> sink
            // Emit a random big fraction every time a
            // request is made.
```
End of Applying Key Methods in the Flux Class: Case Study ex3 (Part 2)