Applying Key Operators in Project Reactor: Case Study ex4 (Part 3)

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Learning Objectives in this Part of the Lesson

- Part 3 of case study ex4 applies Flux operators create(), flatMap(), & subscribe(), as well as FluxSink to create, multiply, & display BigFraction objects asynchronously

```
Flux
  .create(makeEmitter(count,
                      sb),
          FluxSink
          .OverflowStrategy
          .ERROR)

  .flatMap(bf1 ->
     multiplyFraction(bf1,
        sBigReducedFraction,
        Schedulers.parallel(),
        sb))

  .subscribe
     (blockingSubscriber);
```

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This example applies an overflow strategy

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- Part 3 of case study ex4 applies Flux operators create(), flatMap(), & subscribe(), as well as FluxSink to create, multiply, & display BigFraction objects asynchronously
  - It also shows how to use Mono operators fromSupplier() & subscribeOn()

```
Mono<BigFraction>
multiplyFraction(BigFraction bf1,
                 BigFraction bf2,
               Scheduler scheduler,
                StringBuffer sb) {
  return Mono
    .fromSupplier(() -> bf1
                     .multiply(bf2))

    .subscribeOn(scheduler);
}
```

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- Part 3 of case study ex4 applies Flux operators create(), flatMap(), & subscribe(), as well as FluxSink to create, multiply, & display BigFraction objects asynchronously
  - It also shows how to use Mono operators fromSupplier() & subscribeOn()
  - In addition, it shows how to create & use a generic blocking Subscriber
    - Can be applied to workaround the lack of a blockingSubscribe() operator

```
class BlockingSubscriber<T>
      implements Subscriber<T> {
  ...
  final CountDownLatch mLatch;
  ...
  @Override
  public void onComplete() {
    ...
    mLatch.countDown();
  }
  ...
}
```

However, this subscriber is "backpressure unaware"

Applying Key Operators in Project Reactor to ex4

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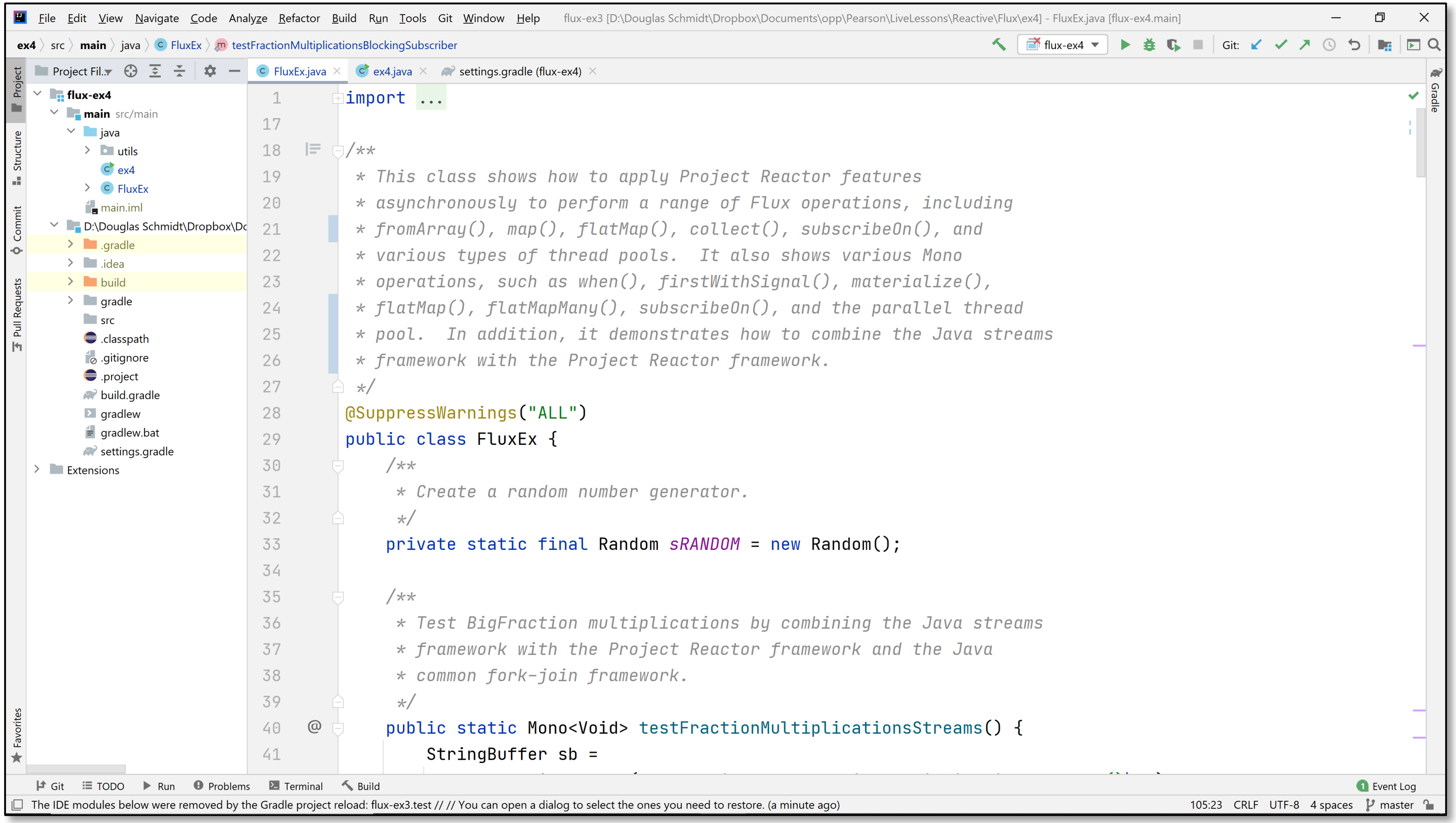

File Edit View Navigate Code Analyze Refactor Build Run Tools Git Window Help
flux-ex3 [D:\Douglas Schmidt\Dropbox\Documents\opp\Pearson\LiveLessons\Reactive\Flux\ex4] - FluxEx.java [flux-ex4.main]
ex4 src main java FluxEx testFractionMultiplicationsBlockingSubscriber
flux-ex4
Git:
Project Fil.
FluxEx.java
ex4.java
settings.gradle (flux-ex4)
flux-ex4
main src/main
java
utils
ex4
FluxEx
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.gradle
.idea
build
gradle
src
.classpath
.gitignore
.project
build.gradle
gradlew
gradlew.bat
settings.gradle
Extensions
Project
Structure
Commit
Pull Requests
Favorites
Gradle
Git
TODO
Run
Problems
Terminal
Build
Event Log
105:23 CRLF UTF-8 4 spaces master

```java
import ...

/**
 * This class shows how to apply Project Reactor features
 * asynchronously to perform a range of Flux operations, including
 * fromArray(), map(), flatMap(), collect(), subscribeOn(), and
 * various types of thread pools.  It also shows various Mono
 * operations, such as when(), firstWithSignal(), materialize(),
 * flatMap(), flatMapMany(), subscribeOn(), and the parallel thread
 * pool.  In addition, it demonstrates how to combine the Java streams
 * framework with the Project Reactor framework.
 */
@SuppressWarnings("ALL")
public class FluxEx {
    /**
     * Create a random number generator.
     */
    private static final Random sRANDOM = new Random();

    /**
     * Test BigFraction multiplications by combining the Java streams
     * framework with the Project Reactor framework and the Java
     * common fork-join framework.
     */
    public static Mono<Void> testFractionMultiplicationsStreams() {
        StringBuffer sb =
```

The IDE modules below were removed by the Gradle project reload: flux-ex3.test // // You can open a dialog to select the ones you need to restore. (a minute ago)

See github.com/douglascraigschmidt/LiveLessons/tree/master/Reactive/flux/ex4

End of Applying Key Methods in Project Reactor: Case Study ex4 (Part 3)