

Rx Recipes

From noob to practical use cases



Agenda

- Streams (Java)
- Reactive programming
- Symbols
- RxJava
- RxAndroid
- Useful recipes

Streams (Java)

- Collection API evolution
- Available since Java 8
- Declarative processing
- Provides tools for filtering, conversion, group and others

<http://www.oracle.com/technetwork/pt/articles/java/streams-api-java-8-3410098-ptb.html>

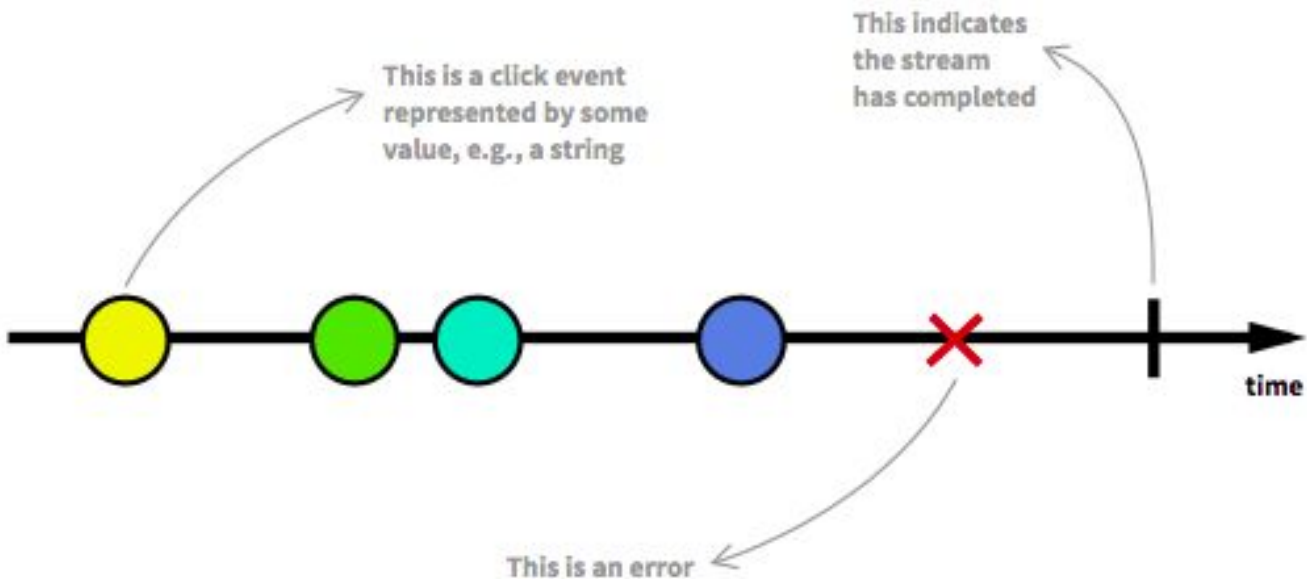
Reactive programming

- Streams can be Synchronous or Asynchronous
- Adds new tools to iterate sequences
- You can have a Stream of any type
- Increases level of abstraction

<http://reactivex.io/intro.html>

<https://gist.github.com/staltz/868e7e9bc2a7b8c1f754>

Symbols



RxJava

- Is the Java VM implementation for Reactive Extensions through the Observable class
- Allows to compose asynchronous code and event based data in a sequential pipeline
- Extends the Observable pattern while supporting all methods and actions from sequences
- Add operations that allows sequence merge in a declarative way
- Abstract the code needed to deal with Thread-Safe, synchronism and concurrency

<https://gist.github.com/staltz/868e7e9bc2a7b8c1f754>

<https://github.com/ReactiveX/RxJava>

Cold vs Hot

- Observables are lazy
- Observables can be Cold or Hot
- Cold observables have its data produced inside themselves
- Hot observables have its data produced outside

<https://medium.com/@luukgruijs/understanding-hot-vs-cold-observables-62d04cf92e03>

RxJava

Main operations

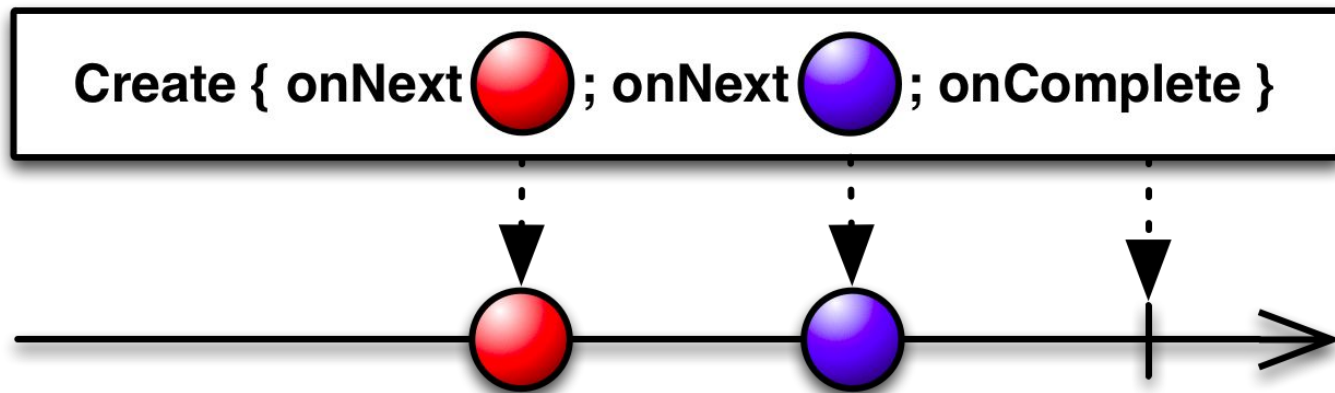
- Creation
- Transformation
- Filtering
- Combine / Merge
- Error Handling
- Threading

RxJava

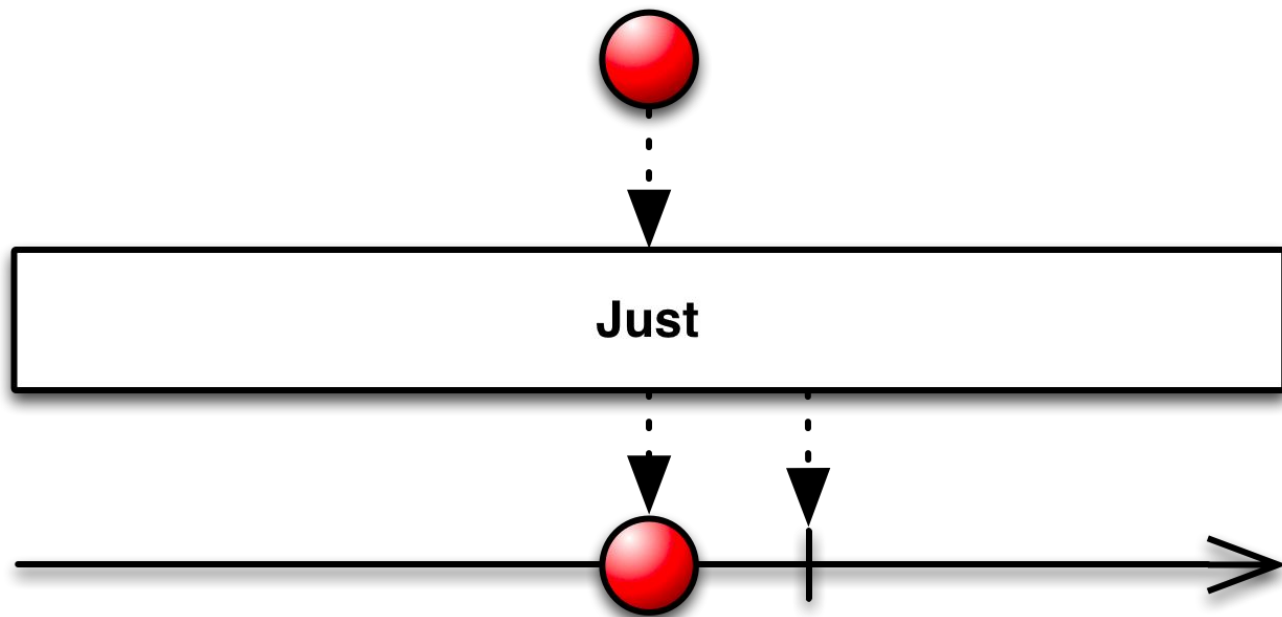
Main methods for creating an Observable

- `Observable.create`
- `Observable.just`
- `Observable.from`
- `Observable.range`

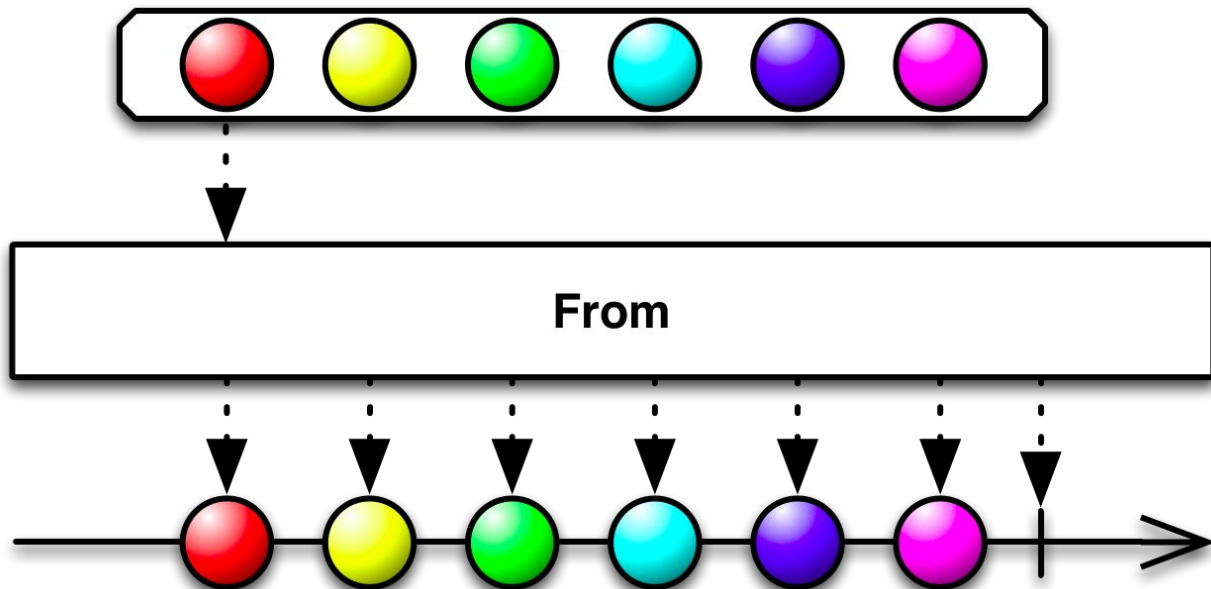
RxJava



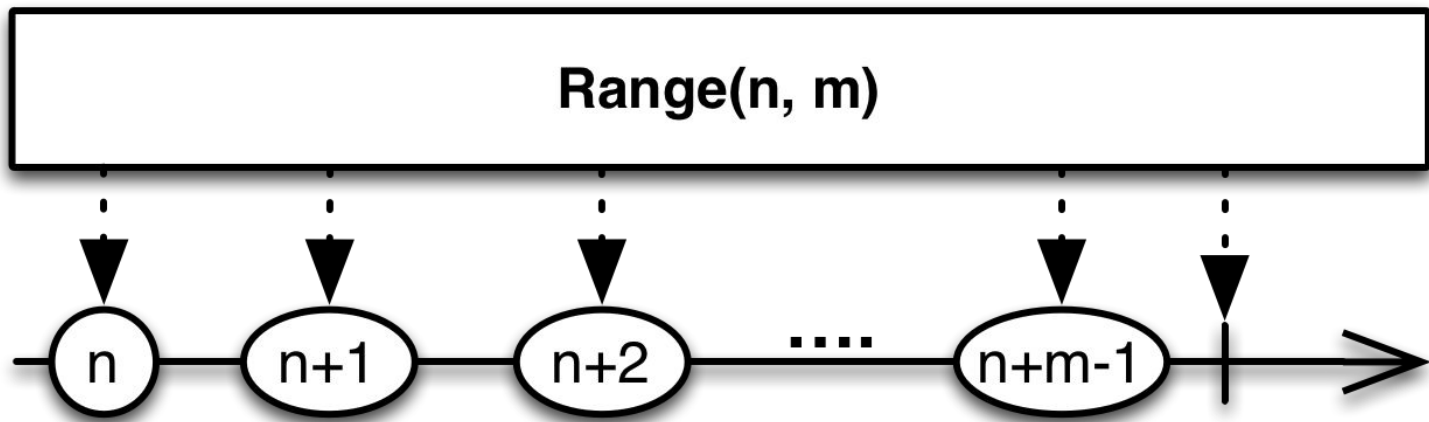
RxJava



RxJava



RxJava



RxJava

Main methods for transformation

- Map
- FlatMap

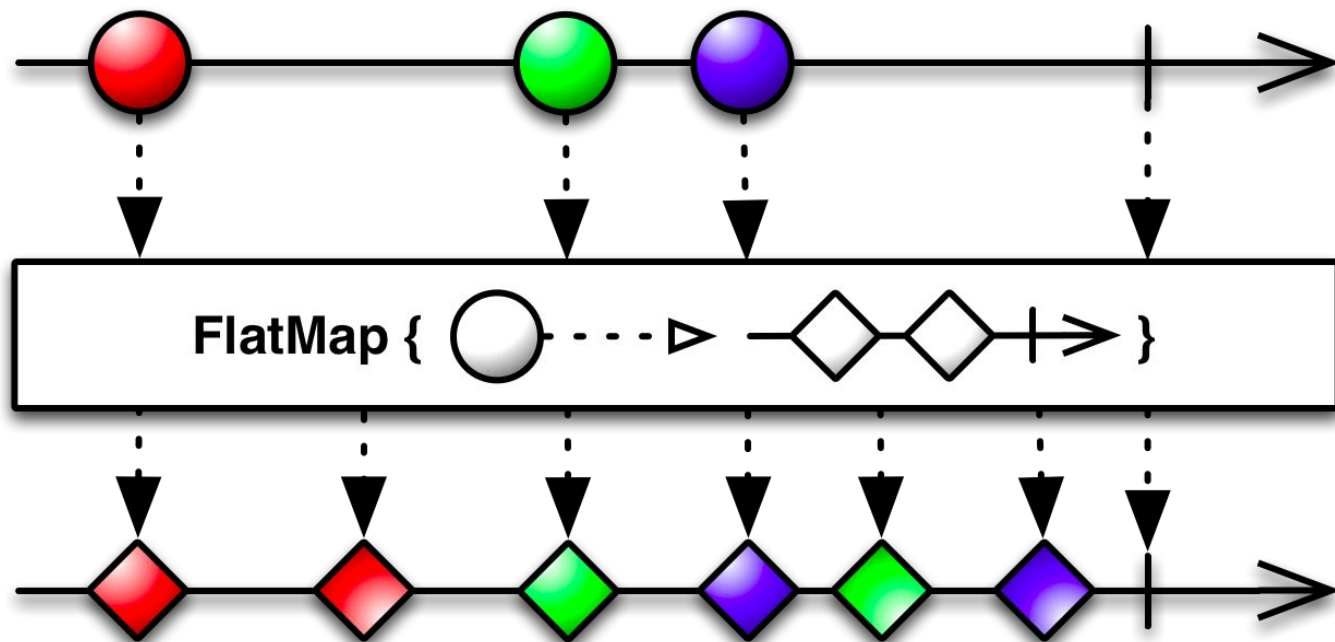
RxJava



`map(x => 10 * x)`



RxJava

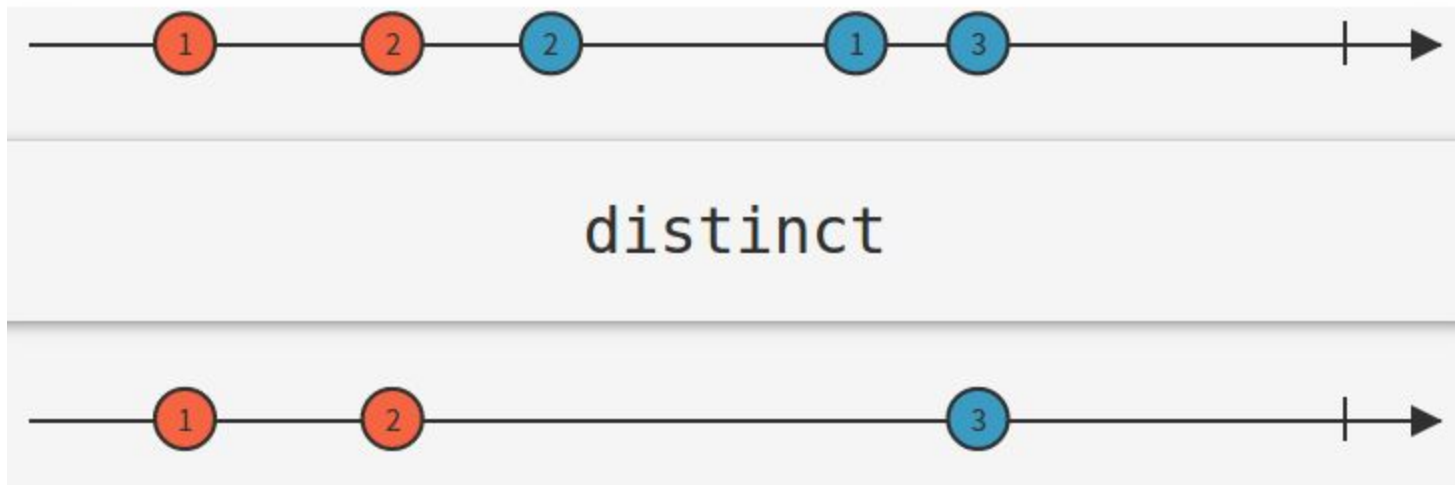


RxJava

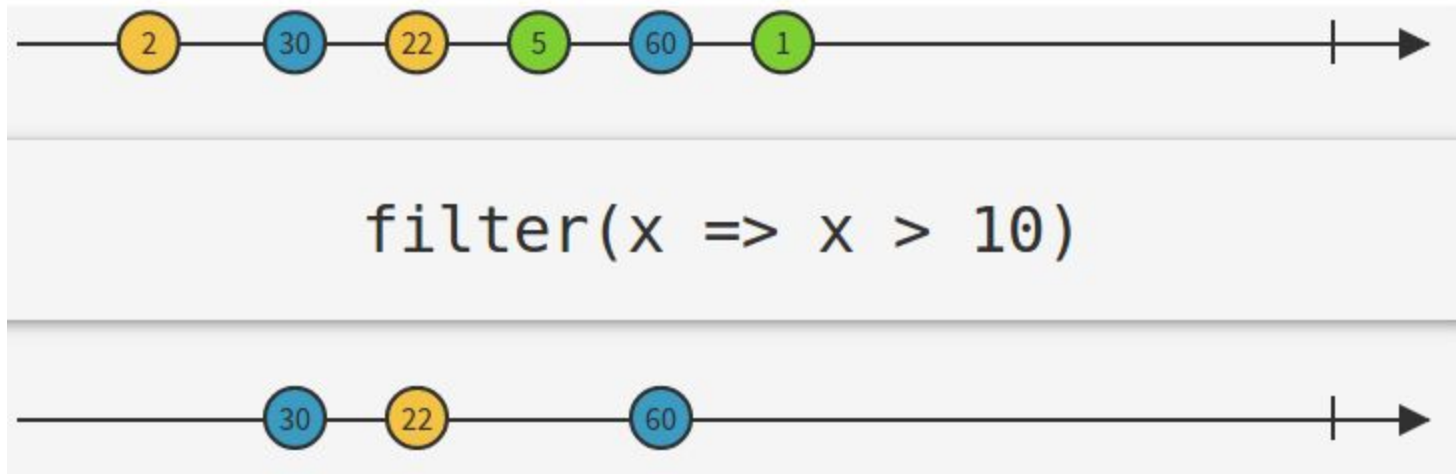
Main methods to filter

- Distinct
- Filter

RxJava



RxJava

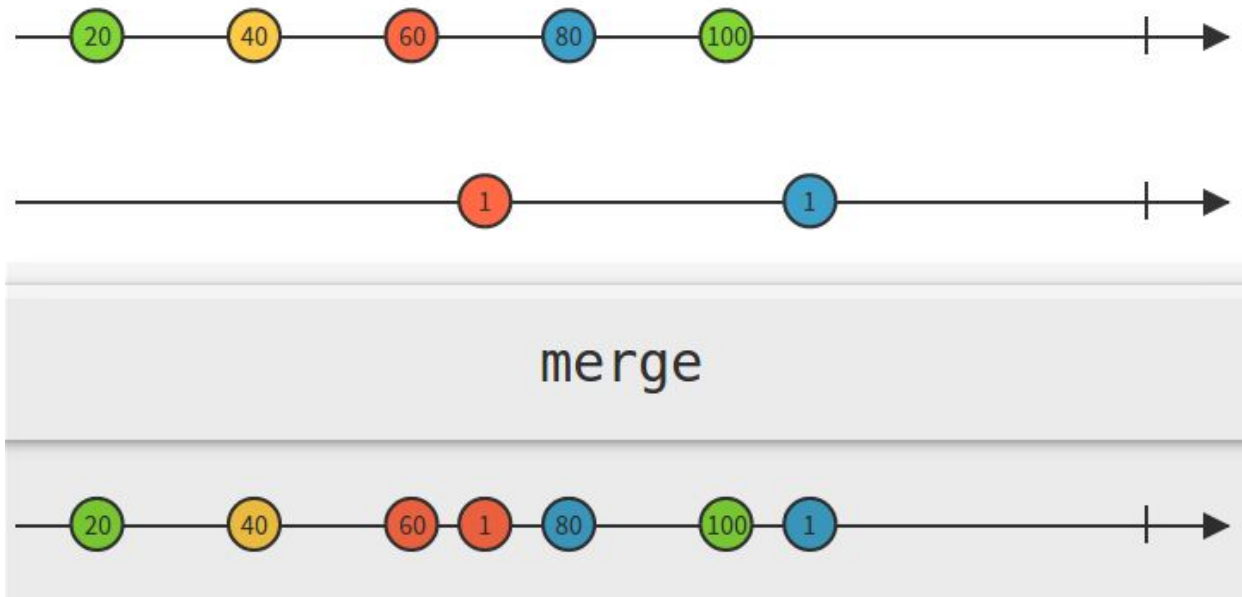


RxJava

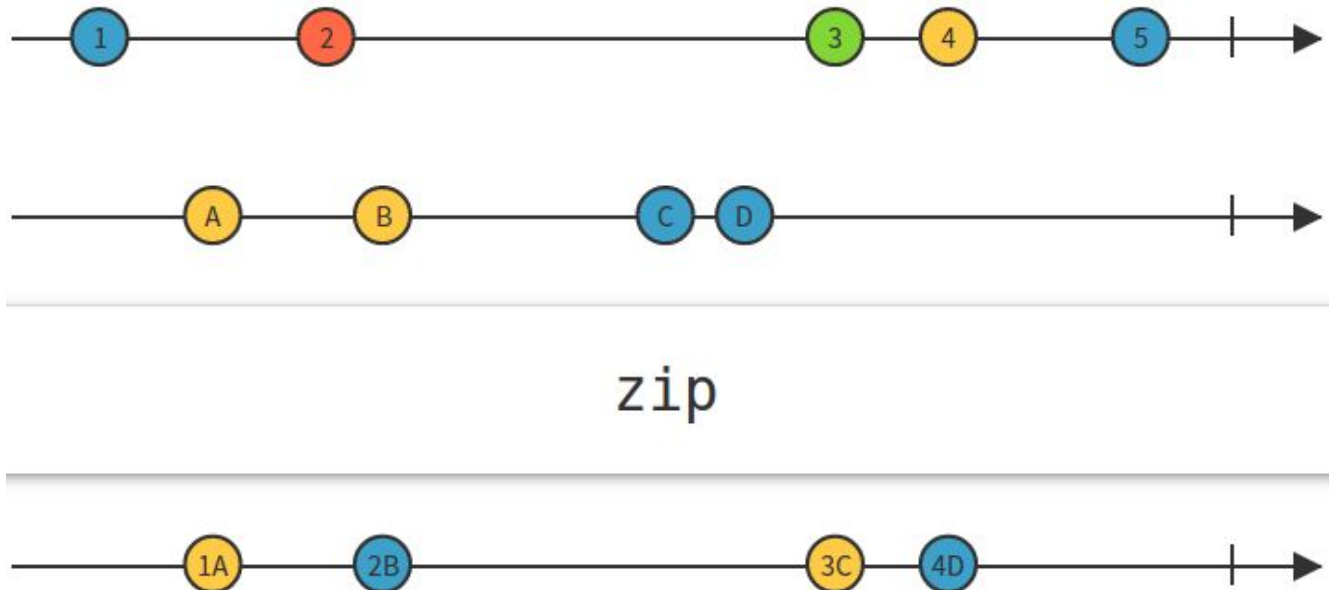
Main methods to combine Observables

- Merge
- Zip

RxJava



RxJava

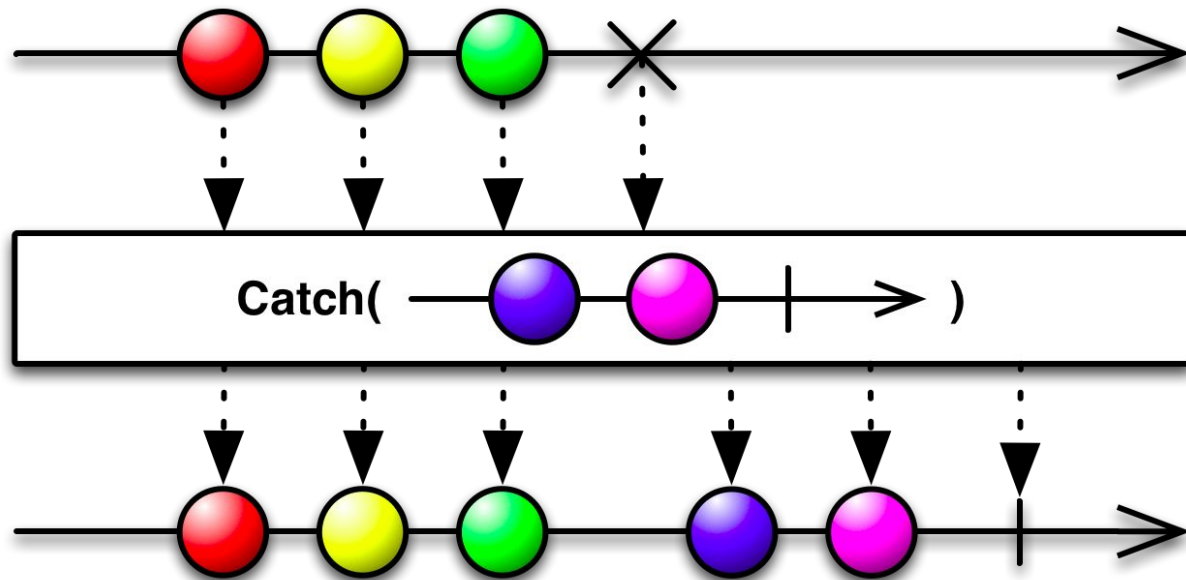


RxJava

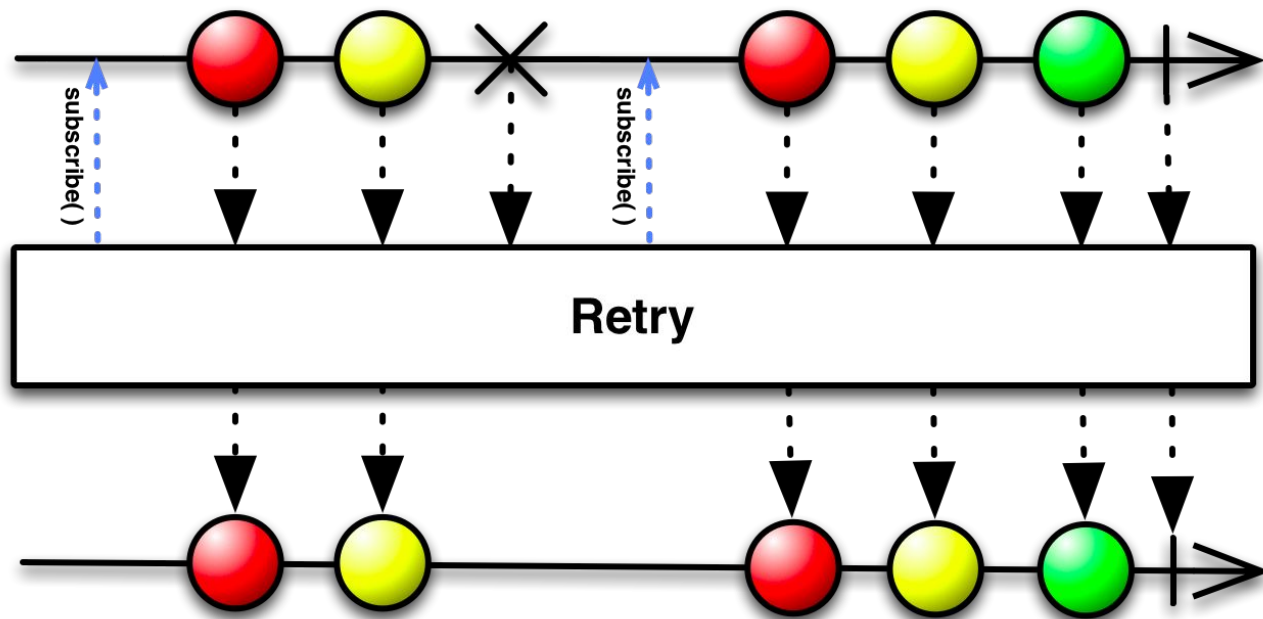
Main methods for Error Handling

- `onErrorReturn(Catch)`
- `Retry`

RxJava



RxJava

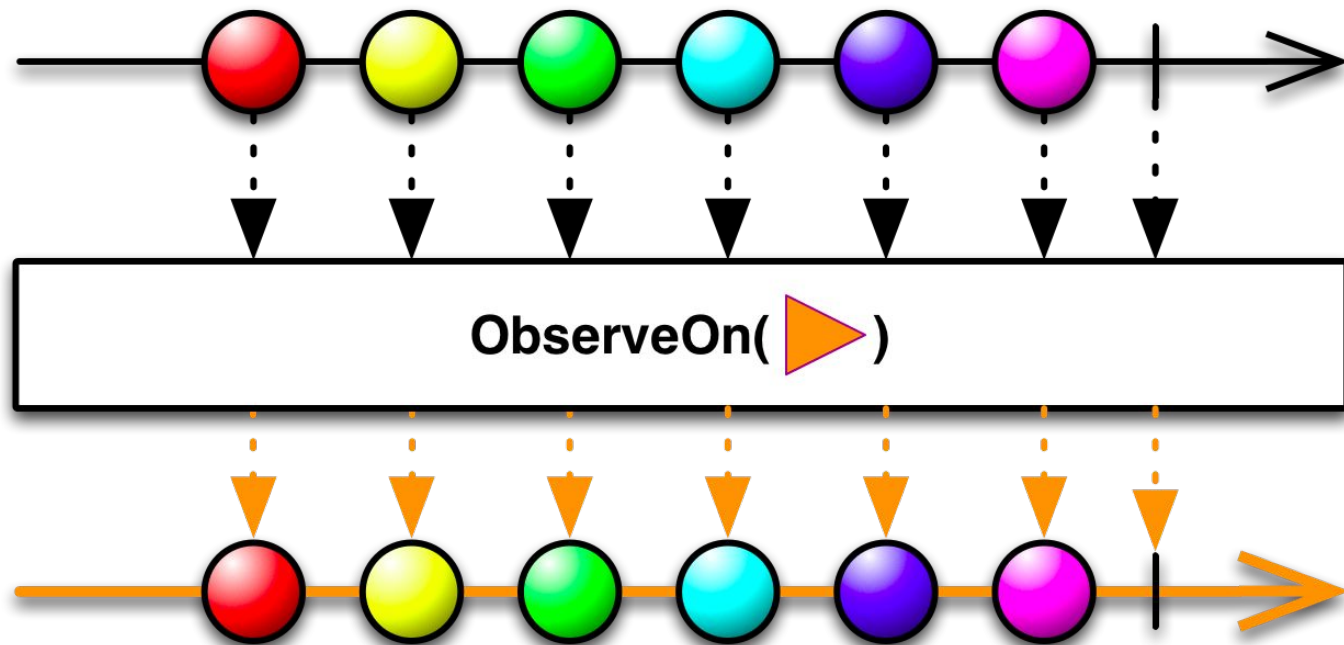


RxJava

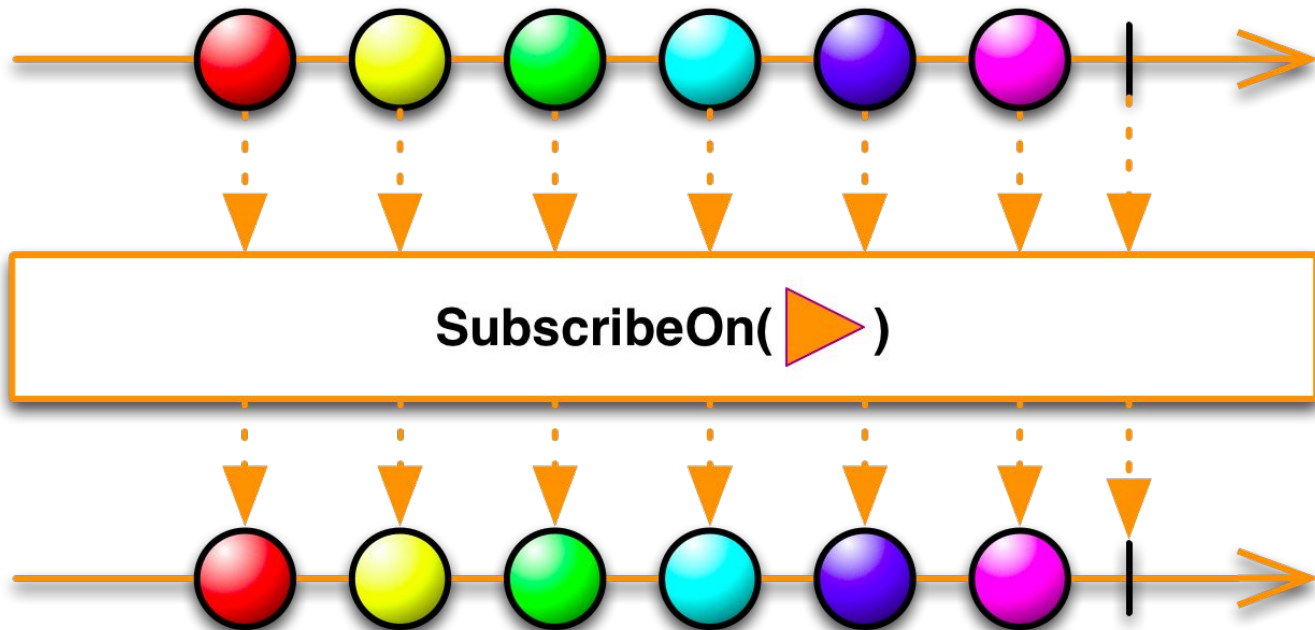
Main methods for Threading control

- ObserveOn
- SubscribeOn

RxJava



RxJava



RxAndroid

- `AndroidSchedulers.mainThread`
- Provide an alternative to `AsyncTask`
- Allow the developer to “Reactify” Android events

Useful recipes

- Simplifying network access
- Multiple network call in sequence
- OnClickListener
- Search field with keypress handling
- BroadcastReceiver com Rx
- Bluetooth communication

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