

# Learning RxJS Operators by Example Playbook

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RXJS 101



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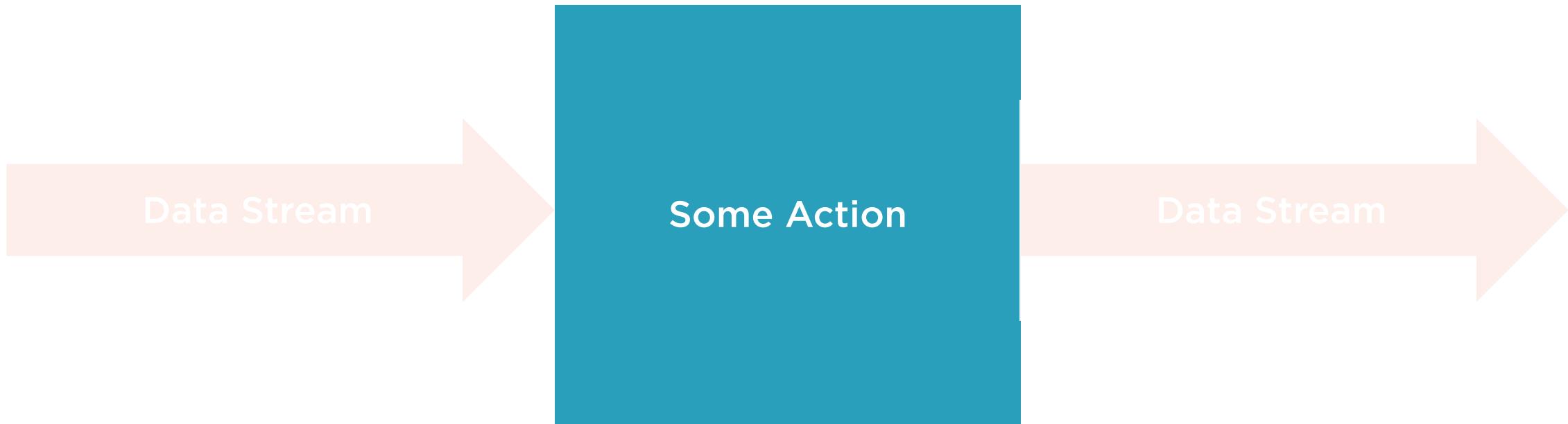
|                      |                         |                   |               |                |
|----------------------|-------------------------|-------------------|---------------|----------------|
| audit                |                         |                   |               |                |
| auditTime            |                         |                   |               |                |
| buffer               |                         |                   |               |                |
| bufferCount          |                         |                   |               |                |
| bufferTime           |                         |                   |               |                |
| bufferToggle         |                         |                   |               |                |
| bufferWhen           |                         |                   |               |                |
| catchError           |                         |                   |               |                |
| combineAll           |                         |                   |               |                |
| combineLatest        |                         |                   |               |                |
| concat               |                         |                   |               |                |
| concatAll            |                         |                   |               |                |
| concatMap            |                         |                   |               |                |
| concatMapTo          |                         |                   |               |                |
| count                |                         |                   |               |                |
| debounce             |                         |                   |               |                |
| debounceTime         |                         |                   |               |                |
| defaultIfEmpty       |                         |                   |               |                |
| delay                |                         |                   |               |                |
| delayWhen            |                         |                   |               |                |
| dematerialize        |                         |                   |               |                |
| distinct             | merge                   |                   |               |                |
| distinctUntilChanged | mergeAll                |                   |               |                |
|                      | distinctUntilKeyChanged | mergeMapTo        | sequenceEqual | timeoutWith    |
|                      | elementAt               | mergeScan         | share         | timestamp      |
|                      | endWith                 | min               | shareReplay   | toArray        |
|                      | every                   | multicast         | single        | window         |
|                      | exhaust                 | observeOn         | Skip          | windowCount    |
|                      | exhaustMap              | onErrorResumeNext | skipLast      | windowTime     |
|                      | expand                  | pairwise          | skipUntil     | windowToggle   |
|                      | filter                  | partition         | skipWhile     | windowWhen     |
|                      | finalize                | pluck             | startWith     | withLatestFrom |
|                      | find                    | publish           | subscribeOn   | zip            |
|                      | findIndex               | publishBehavior   | switchAll     | zipAll         |
|                      | first                   | publishLast       | switchMap     |                |
|                      | flatMap                 | publishReplay     | switchMapTo   |                |
|                      | groupBy                 | race              | take          |                |
|                      | ignoreElements          | reduce            | takeLast      |                |
|                      | isEmpty                 | refCount          | takeUntil     |                |
|                      | last                    | repeat            | takeWhile     |                |
|                      | map                     | repeatWhen        | tap           |                |
|                      | mapTo                   | retry             | throttle      |                |
|                      | materialize             | retryWhen         | throttleTime  |                |
|                      | max                     | sample            | throwIfEmpty  |                |
|                      | merge                   | sampleTime        | timeInterval  |                |
|                      | mergeAll                | scan              | timeout       |                |



# Reactive Programming



# Reactive Programming



# Reactive Programming





# Stream?

One-way  
Asynchronous  
Independent





# Stream?

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**Immutable**  
**Finite / Infinite**



# Stream?

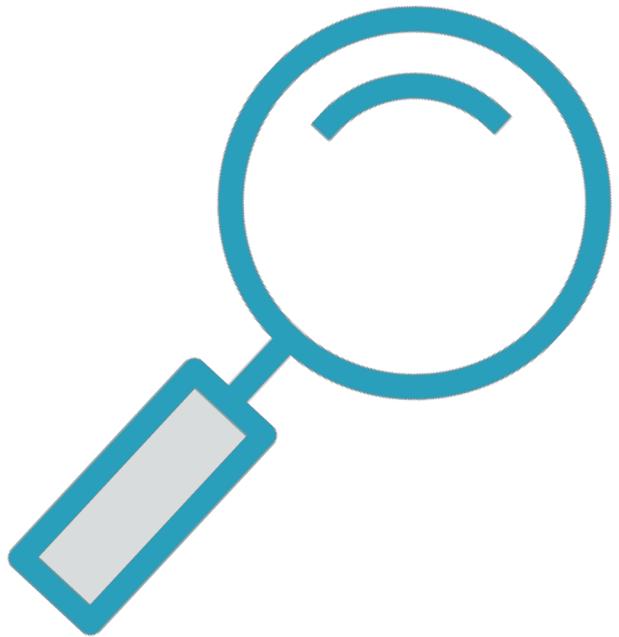


Twitter Feed

Click Events

HTTP Calls





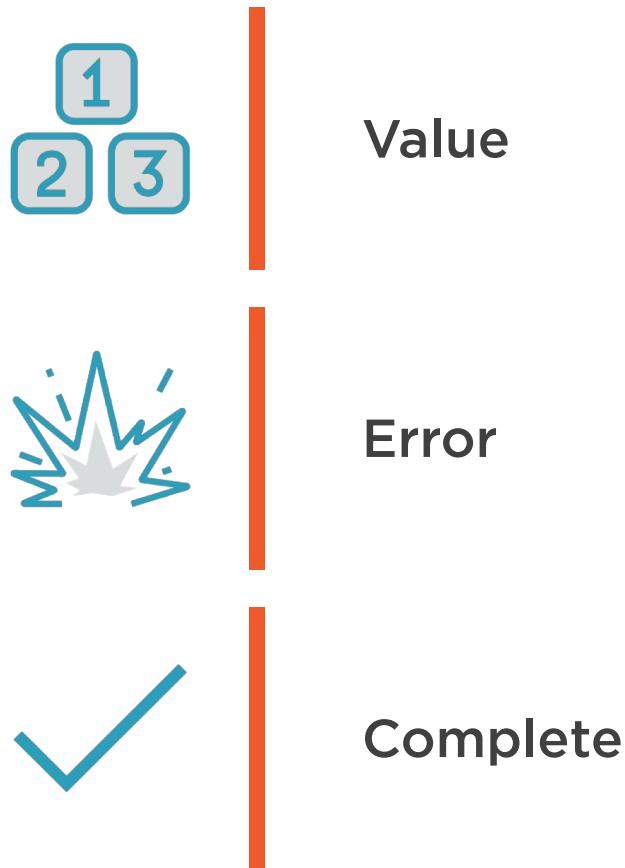
**Observables**  
**Observer**



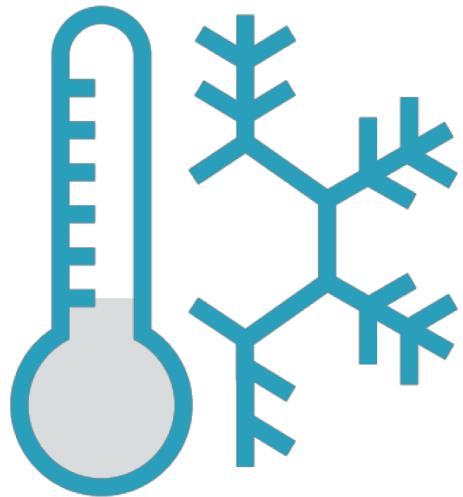


The stream exists

# Subscribe



# Types of Observables



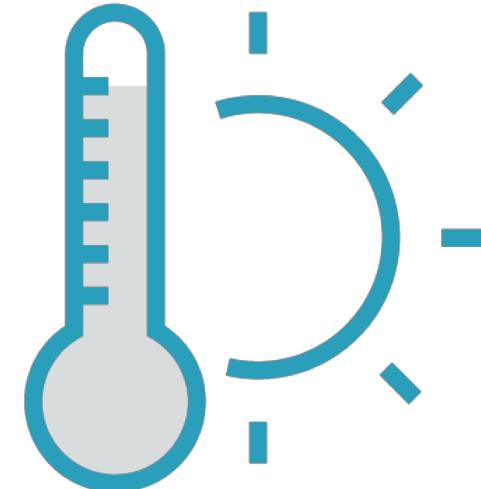
## Cold Observables

Netflix / movie @ home

File read

HTTP request

DB query



## Hot Observables

Movie Theater

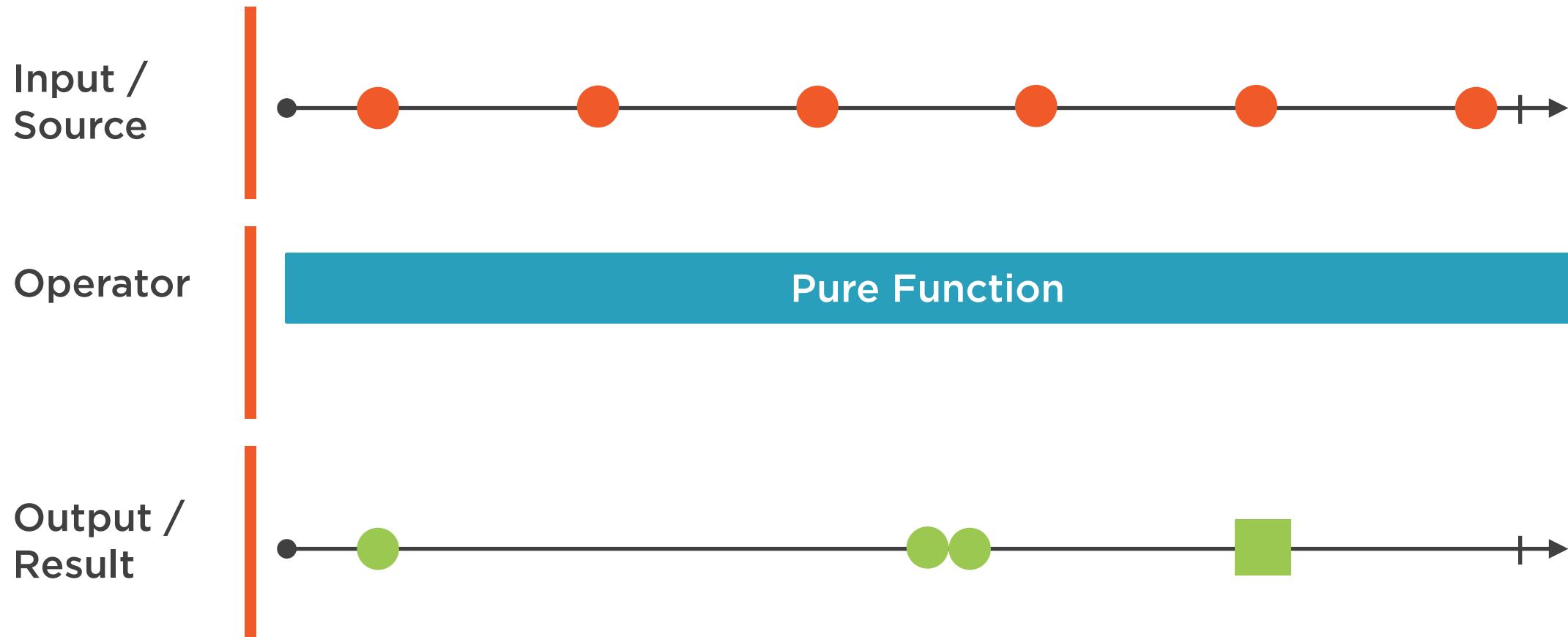
Mouse

Keyboard

System Events



# Marble Diagrams



|                      |                         |                   |               |                |
|----------------------|-------------------------|-------------------|---------------|----------------|
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| auditTime            |                         |                   |               |                |
| buffer               |                         |                   |               |                |
| bufferCount          |                         |                   |               |                |
| bufferTime           |                         |                   |               |                |
| bufferToggle         |                         |                   |               |                |
| bufferWhen           |                         |                   |               |                |
| catchError           |                         |                   |               |                |
| combineAll           |                         |                   |               |                |
| combineLatest        |                         |                   |               |                |
| concat               |                         |                   |               |                |
| concatAll            |                         |                   |               |                |
| concatMap            |                         |                   |               |                |
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| debounceTime         |                         |                   |               |                |
| defaultIfEmpty       |                         |                   |               |                |
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| delayWhen            |                         |                   |               |                |
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|                      | last                    | repeat            | takeWhile     |                |
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|                      | mapTo                   | retry             | throttle      |                |
|                      | materialize             | retryWhen         | throttleTime  |                |
|                      | max                     | sample            | throwIfEmpty  |                |
|                      | merge                   | sampleTime        | timeInterval  |                |
|                      | mergeAll                | scan              | timeout       |                |



# Syntax

```
of(1, 2, 3)
  .pipe(count())
.subscribe(x => console.log(x));
// Output:
// 3
```



# Syntax

```
of(1, 2, 3)
    .pipe(count())
        .subscribe(
            val => console.log(val),
            e => console.log('error: ', e),
            () => console.log('complete'));
// Output:
// 3
```



# Code...Lots of Code



- JS** audit.js
- JS** auditTime.js
- JS** buffer.js
- JS** bufferCount.js
- JS** bufferTime.js
- JS** bufferToggle.js
- JS** bufferWhen.js
- JS** windowToggle.js
- JS** windowWhen.js
- JS** withLatestFrom.js
- JS** zip.js
- JS** zipAll.js

150+ code examples  
Every operator

