

# Sela.



RX

## Reactive Extension



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# Reactive Extension

RX - Version: 1

## 2 days course

### Description:

2 days that target the Reactive Extension (RX) library.

Rx is a functional programming library designed to handle complex event processing. The course deep-dives into the library's concept and guidelines. It will cover topics like exception handling, testing, remote processing, and scheduling. Students will master both practice and theory and become familiar with numerous RX operators.

### Intended Audience:

.NET developers or team leaders with:

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### Objectives:

- Appreciate the architectural and design principles of the RX programming model
- Practice complex event processing
- Learn to handle exceptions
- Test complex event pipeline
- Know how to design RX flow
- Master advanced topics like remote execution and scheduling



## Topics:

- **Introduction**

- What is Rx?
- Push standard
- LINQ-able
- Like Events but better
- Course Goals
- Why Rx

- **Push vs. pull**

- **Test Case: Cloud search**

- **Get started**

- NuGet

- **Concept**

- Producer / Consumer

- **Library structure**

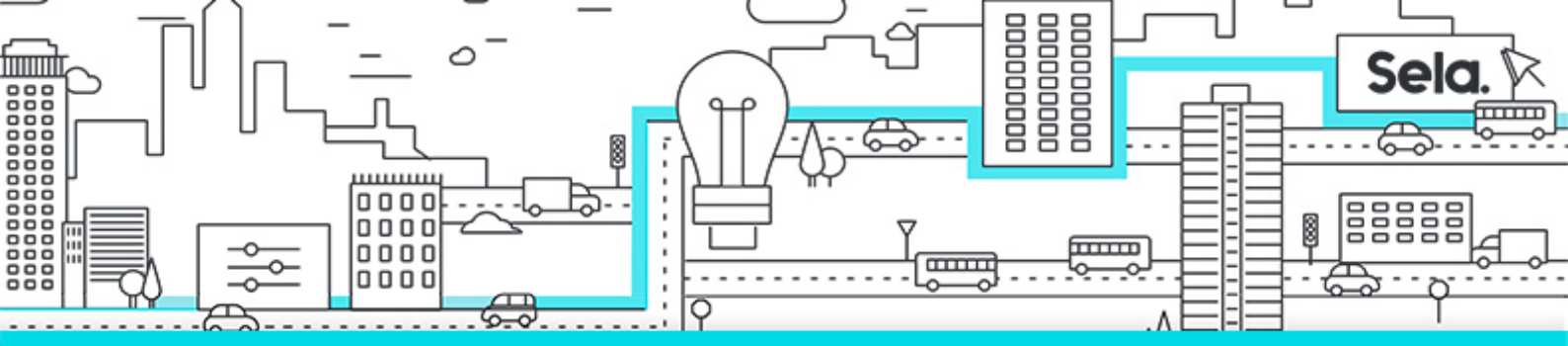
- Different offering
- Enlighten concept

- **Marble Diagram**

- Concept
- Select
- Where

- **Built-in factories**

- Interval
- Timer



- Range
- Return
- Create
- Generate

- **Monitoring**

- Do operator
- Visual RX
- LAB

- **Concurrency model**

- Scheduler
- Built-in Scheduler
- ObserveOn
- SubscribeOn

- **Backwards compatibility**

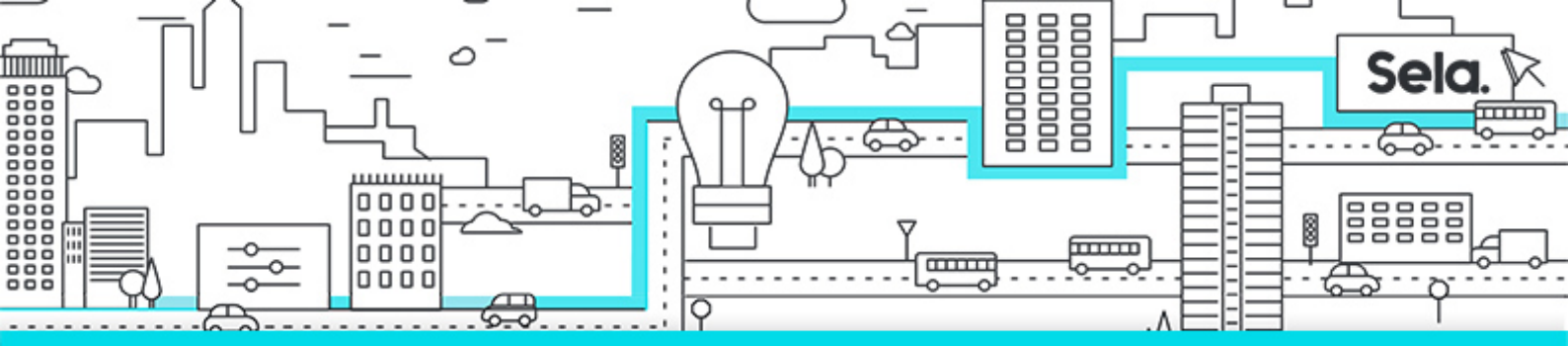
- Composite events

- **Exception Handling**

- Retry
- Catch
- Finally
- SubscribeSafe
- LAB

- **Producer nature**

- Hot Vs. Cold Observables
- Publish
- RefCount



- **Subjects**

- Subject
- Replay and ReplaySubject

- **Operators**

- District
- DistinctUntilChanged
- Sample
- Aggregate
- Scan

- **Common Combinators**

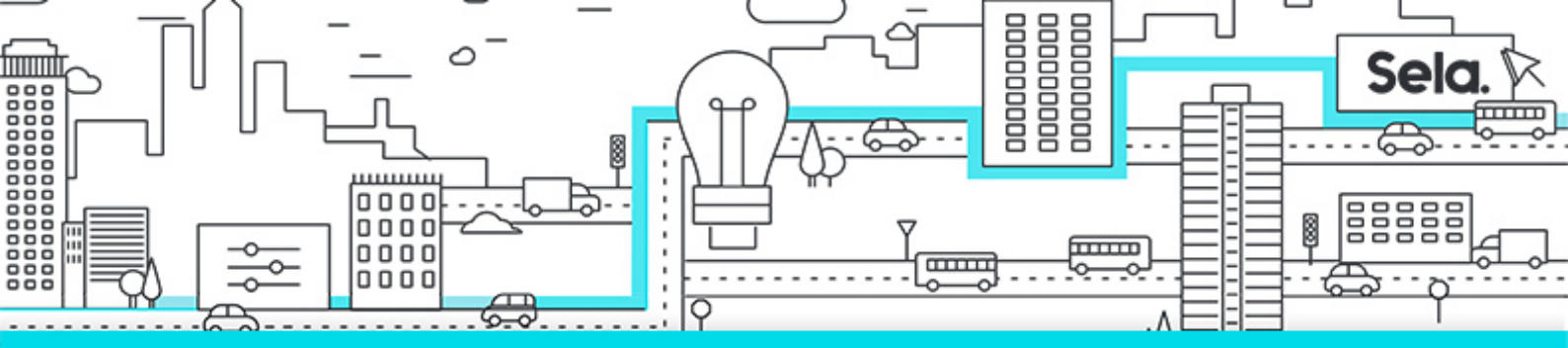
- Merge
- Zip
- CombineLatest
- Amb

- **Splitting**

- Buffer
- Window
- Select Many
- Group By
- LAB

- **Time-oriented**

- Interval
- Timeout
- Timestamp
- TimeInterval
- Throttle
- Sample



- Take and Skip
- Generate Delay
- Delay Subscription

### • Time-based Combinators

- Join
- Group Join

### • Disposables

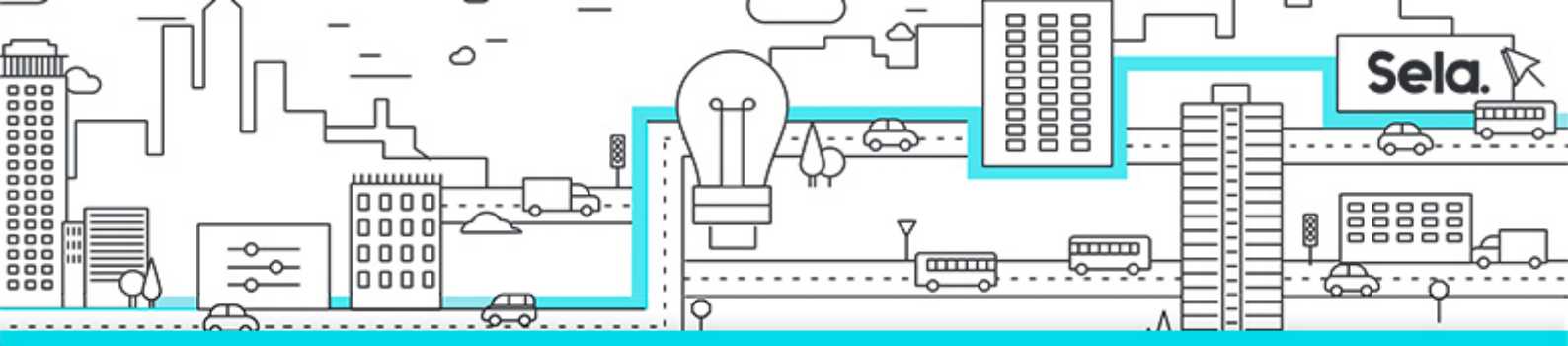
- Create
- CompositeDisposable
- RefCountDisposable
- CancellationDisposable
- BooleanDisposable
- ContextDisposable
- ScheduledDisposable
- SingleAssignmentDisposable
- MultipleAssignmentDisposable
- SerialDisposable
- LAB

### • Scheduling

- Custom Scheduler
- Virtual time
- Historical Scheduler

### • Testing

- Notification
- TestScheduler
- CreateHotObservable / CreateColdObservable



- **Custom Operations**

- Defer
- Extending the framework
- LAB

- **Remote**

- Rx-Remoting
- IObservable

- **Guidelines**

- Design, design, design
- Serialized Fashion
- Resources
- Unsubscribe
- Subscription
- Hot vs. Cold Observable
- LINQ query syntax
- Limit buffering
- Scheduler
- ObserveOn
- Design for Testability
- Custom operators

- **Summary**