

# RxJS in Angular: Reactive Development

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## INTRODUCTION



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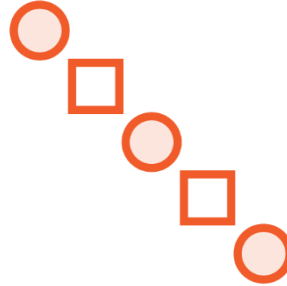




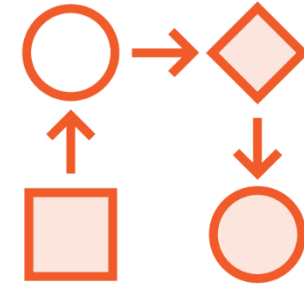
# Goals for This Course



Add clarity



Examine reactive patterns



Improve state management



Merge RxJS streams



Minimize  
subscriptions



Improve UI  
performance



# Module Overview



**What is RxJS?**

**How is RxJS used in Angular?**

**What is reactive development?**

**Getting the most from this course**

**Course outline**



# What Is RxJS?



Reactive Extensions for JavaScript

Reactive Extensions were originally developed by Microsoft as Rx.NET

RxJava, RxPy, Rx.rb, RxJS



"RxJS is a library for composing asynchronous and event-based programs by using observable sequences."

<https://rxjs.dev/guide/overview>







# Manage Data as It Flows through Time

**Collect**

**Pipe through a set of operations**

- Transform
- Filter
- Process

**Combine**

**Cache**





"RxJS is a library for composing asynchronous and event-based programs by using observable sequences."

<https://rxjs.dev/guide/overview>



"RxJS is a library for composing asynchronous and event-based programs by using observable sequences."

**<https://rxjs.dev/guide/overview>**

RxJS is a library for composing observable streams and optionally processing each item in the stream using an extensive set of operators.



# Why RxJS Instead Of...

**Callbacks**

**Promises**

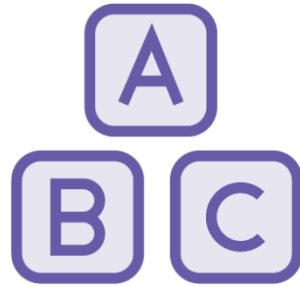
`async/await`



# Why RxJS?



One technique to rule them all



Compositional



Watchful



Lazy



Handles errors



Cancellable





Angular uses RxJS.



# How Is RxJS Used in Angular?



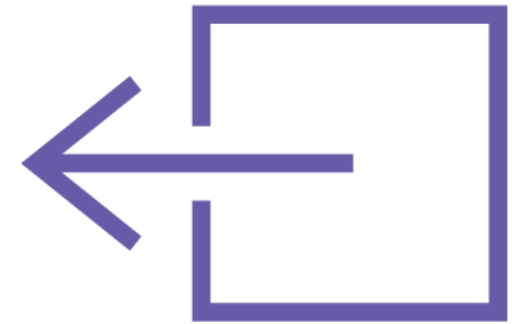
## Routing

```
this.route.paramMap  
  this.route.data  
this.router.events
```



## Reactive Forms

```
this.productForm.valueChanges().subscribe() {  
  return this.http.get<Product[]>(this.url);  
}
```



## HttpClient

"... a declarative programming paradigm concerned with data streams and the propagation of change."

**Wikipedia**

[https://en.wikipedia.org/wiki/Reactive\\_programming](https://en.wikipedia.org/wiki/Reactive_programming) 4/15/19



"The essence of functional reactive programming is to specify the dynamic behavior of a value completely at the time of declaration."

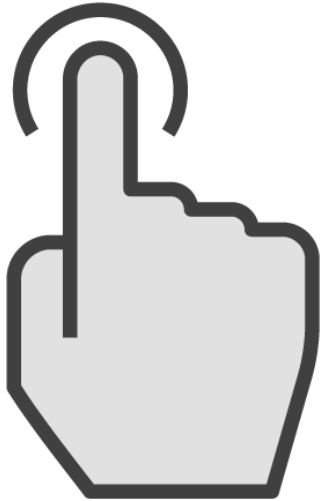
**Heinrich Apfelmus**

<https://apfelmus.nfshost.com/blog/2011/03/28-essence-frp.html>





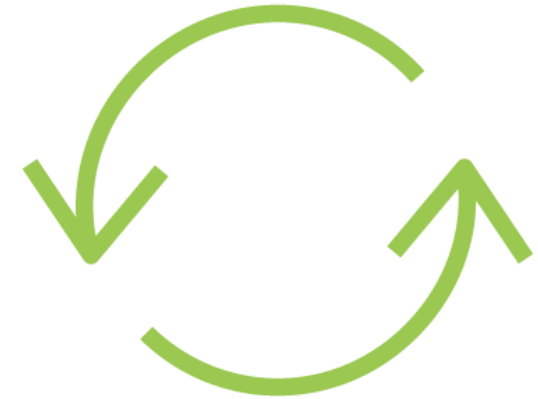
# Reactive Development



Quick to react to user interactions



Resilient to failure



Reactive to state changes

# Prerequisites

## Required

- Components
- Templates
- Services
- Observables / HttpClient

## Suggested

- Angular: Getting Started
- Angular: First Look

## Not Required

- Extensive knowledge of RxJS



# Thoughts? Comments? Questions?

Table of contents

Description

Transcript

Exercise files

**Discussion**

Learning Check

**@deborahkurata**



# Checklist



Review module concepts

Code along assistance

Revisit as you build





# GitHub Repository

The screenshot shows the GitHub repository page for **DeborahK / Angular-RxJS**. At the top, there are buttons for **Unwatch** (2), **Star** (10), and **Fork** (4). Below this is a navigation bar with tabs for **Code**, **Issues** (0), **Pull requests** (0), **Projects** (0), **Wiki**, **Insights**, and **Settings**.

The repository description is "Sample Angular application that uses RxJS for reactive development." with an **Edit** button. Below this is a "Manage topics" link.

A summary bar shows: **8 commits**, **1 branch**, **0 releases**, **1 contributor**, and **MIT** license. Below this bar are buttons for **Branch: master**, **New pull request**, **Create new file**, **Upload files**, **Find File**, and a green **Clone or download** button.

The commit history section shows a commit by **DeborahK** titled "Added change log" with the latest commit hash **ee81129** made "a minute ago". Below this is a table of files:

APM-Final	Update of bootstrap to newer version.	7 minutes ago
APM-Start	Update of bootstrap to newer version.	7 minutes ago
.gitignore	Added change log	a minute ago

<https://github.com/DeborahK/Angular-RxJS>

# Course Outline



RxJS terms and syntax

RxJS operators

Going reactive

Mapping returned data

Combining streams

Reacting to actions

Caching Observables

Higher-order mapping operators

Combining all the streams

