Using Angular observable pipe with example

8 Comments / 4 minutes of reading / March 9, 2023

← Observable from event Angular Tutorial Angular Map →

The pipe method of the Angular Observable is used to chain multiple operators together. We can use the `pipe` as a standalone method, which helps us to reuse it at multiple places or as an instance method. In this tutorial, we will take a look at the `pipe` and learn how to use it in an Angular Application. We will show you examples of `pipe` using `map`, `filter` & `tap` operators.

Table of Contents

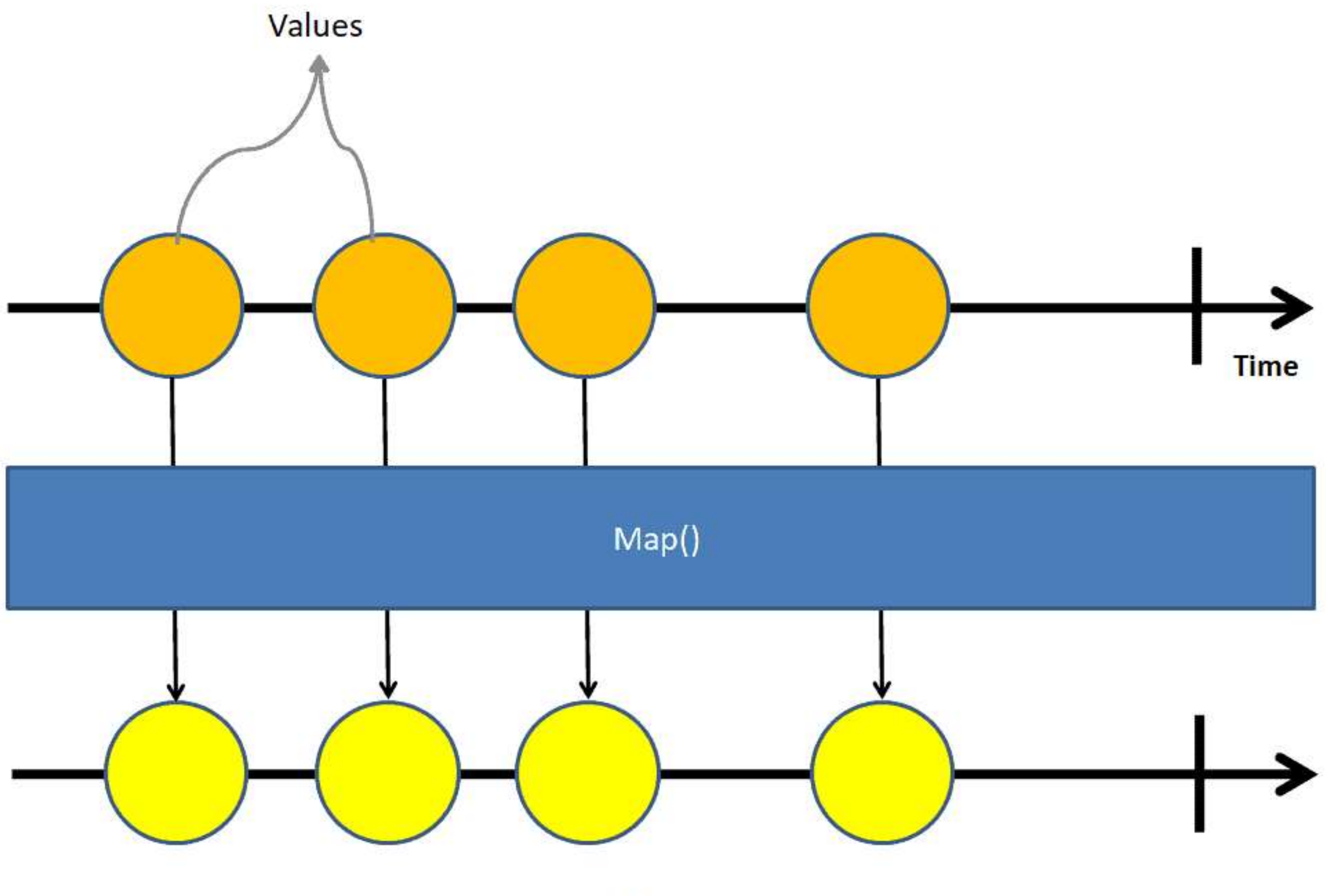
RxJs Operators

The operators are very important components of the Rxjs library. They are functions that take an observable as input and transform it into a new observable and return it. We use them to manipulate the observable data stream.

For Example.

`Map` operator applies a given project function to each value emitted by the source Observable and emits the resulting values as an Observable.

`Filter` operator filter items from the source observable based on some condition and returns the filtered value as a new observable



Example of RxJs operator

The following table lists some of the commonly used operators

AREA	OPERATORS
Combination	combineLatest, concat, merge, startWith , withLatestFrom, zip

AREA	OPERATORS
Filtering	debounceTime, distinctUntilChanged, filter, take, takeUntil, takeWhile, takeLast, first, last, single, skip, skipUntil, skipWhile, skipLast,
Transformation	bufferTime, concatMap, map, mergeMap, scan, switchMap, ExhaustMap, reduce
Utility	tap, delay, delaywhen
Error Handling	throwerror, catcherror, retry, retrywhen
Multicasting	share

Using pipe to combine operators

The pipe method accepts operators such as filter , map , as arguments. Each argument must be separated by a comma. The order of the operators is important because when a user subscribes to an observable, the pipe executes the operators in a sequence in which they are added.

There are two ways we can use the pipe. One as an instance of observable and the other way is to use if as standalone method

To use observable we need it to import from the rxjs library. If you are intend to use the pipe standalone function, then you also need to import it as well. All the operators are available in the library rxjs/operators .

```

import { Observable, of, pipe} from 'rxjs';
import { map, filter, tap } from 'rxjs/operators'

```

Pipe as an instance method

The pipe as an instance method is used as below. We the operators `op1`, `op2` etc are passed as the argument to `pipe` method. The output of `op1` method becomes input of the `op2` operator and so forth.

```

obs.pipe(
  op1(),
  op2(),
  op3(),
  op3(),
)

```

Example : Pipe with Map, Filter & Tap

Here is the example of using pipe with `map` & `filter` operator.

```

import { Component, OnInit } from '@angular/core';
import { Observable, of} from 'rxjs';
import { map, filter, tap } from 'rxjs/operators'


@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent implements OnInit {

  obs = new Observable((observer) => {
    observer.next(1)
    observer.next(2)
    observer.next(3)
    observer.next(4)
    observer.next(5)
    observer.complete()
  }).pipe(
    filter(data => data > 2),                    //filter Operator
    map((val) => {return val as number * 2}),    //map operator
  )

 data = [];

  ngOnInit() {
    this.obs1.subscribe(
      val => {
        console.log(this.data)
      }
    )
  }

}


//result
[6, 8, 10]

```

The following example makes use of pipe with `map`, `filter` & `tap` operator. The `tap` operator returns a new observable which is a mirror copy of the source observable. We use it mostly for debugging purposes (for example for logging the values of observable as shown below).

```

import { Component, OnInit } from '@angular/core';
import { Observable, of, pipe } from 'rxjs';
import { map, filter, tap } from 'rxjs/operators'


@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent implements OnInit {

  obs = new Observable((observer) => {
    observer.next(1)
    observer.next(2)
    observer.next(3)
    observer.next(4)
    observer.next(5)
    observer.complete()
  }).pipe(
    tap(data => console.log('tap '+data)),          //tap
    filter(data => data > 2),                       //filter
    tap(data => console.log('filter '+data)),       //tap
    map((val) => { return val as number * 2 }),     //map
    tap(data => console.log('final '+data)),        //tap
  )


  data = [];

  ngOnInit() {

    this.obs.subscribe(
      val => {
        this.data.push(val)
        console.log(this.data)
      }
    )

  }
}

```

Pipe as stand alone method

We can also use the `pipe` as a standalone function to compose operators and re use the `pipe` at other places.

Example

```

import { Component, OnInit } from '@angular/core';
import { Observable, of, pipe } from 'rxjs';
import { map, filter, tap } from 'rxjs/operators'


@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent implements OnInit {


  customOperator = pipe(
    tap(data => console.log('tap '+data)),
    filter(data => data > 2),
    tap(data => console.log('filter '+data)),
    map((val) => {
      return val as number * 2
    }),
    tap(data => console.log('final '+data)),
  );


  obs = new Observable((observer) => {
    observer.next(1)
    observer.next(2)
    observer.next(3)
    observer.next(4)
    observer.next(5)
    observer.complete()
  }).pipe(
    this.customOperator,
    tap(data => console.log('final '+data)),
  )


  data = [];

  ngOnInit() {

    this.obs.subscribe(
      val => {
        this.data.push(val)
        console.log(this.data)
      }
    )

  }
}

```

You can also use the stand alone pipe as shown below.

```

  customOperator = pipe(
    tap(data => console.log('tap '+data)),
    filter(data => data > 2),
    tap(data => console.log('filter '+data)),
    map((val) => {
      return val as number * 2
    }),
    tap(data => console.log('final '+data)),
  );


  obs = new Observable((observer) => {
    observer.next(1)
    observer.next(2)
    observer.next(3)
    observer.next(4)
    observer.next(5)
    observer.complete()
  })

  ngOnInit() {
    this.customOperator(this.obs).subscribe();
  }

```

References

1. RxJs Library
2. Operators
3. Pipe API
4. Map API
5. Tap API
6. Filter API

Read More

1. Angular Observable Tutorial
2. Create Observable using array, number & string etc
3. Create Observable from event using fromEvent