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Lesson Objectives

- The HTTP providers
- Injecting the providers
- GET call
- Handling error
- About Observables
- POST request
- Working with headers

Instructor Notes:

HTTP

- Angular applications often obtain data using http
- Application issues http get requests to a web server which returns http response-Observable to the application.
- Application then processes that data

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Observables

- Observables is a part of ReactiveX library also known as rxjs

  ```
  import { Observable } from 'rxjs/Observable';
  ```

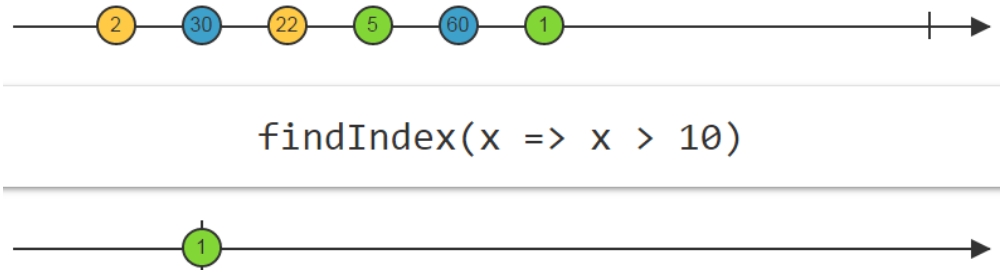
- Observables is like an array whose items arrived asynchronously. The role of ReactiveX to provide asynchronously programming
- Observable help to manage asynchronous data, such as data coming from a backend service. That data we are going to subscribe
- Observable work with multiple value
- Observable are cancellable
- Observable use javaScript function such as map filter & reduce

Data sequences can take many forms such as a stream of data from a backend web service or a set of system notifications or a series of events such as user input.

Reactive extensions represent a data sequence as an observable sequence commonly just called an observable.

A method can be subscribed to an observable to receive asynchronous notifications as new data arrives. The method can then react with the arrived data. The method is notified when there is no more data or one an error occurs. Since an observable works like an array we can use the map operator.

We can visualizing observable sequences with interactive diagrams from http://rxmarbles.com/



Marble diagram

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Introducing RxJs

- RxJs stands for Reactive Extensions for Javascript, and its an implementation of Observables for Javascript.
- It is a ReactiveX library for JavaScript.
- It provides an API for asynchronous programming with observable streams.
- ReactiveX is a combination of the best ideas from the Observer pattern, the Iterator pattern, and functional programming.
- Observable is a RxJS API. Observable is a representation of any set of values over any amount of time. All angular Http methods return instance of Observable. Find some of its operators.
- map: It applies a function to each value emitted by source Observable and returns finally an instance of Observable.
- catch: It is called when an error is occurred. catch also returns Observable.

The RxJS library is quite large.

It's up to us to add the operators we need

// Add map operator
https://cdnjs.cloudflare.com/ajax/libs/rxjs/4.1.0/rx.map

// Add all operators to Observable
https://cdnjs.cloudflare.com/ajax/libs/rxjs/4.1.0/rx.all.js

// Add map operator
import 'rxjs/add/operator/map'*;*

// Add all operators to Observable
import 'rxjs/Rx';

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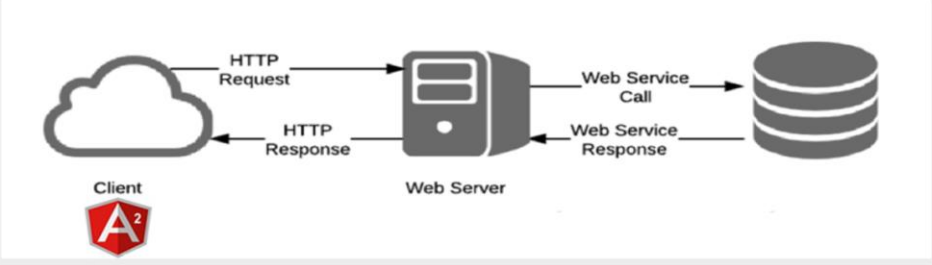
Angular2 HTTP

- The HttpModule is not a core Angular module. HttpModule is Angular's optional approach to web access. It exists as a separate add-on module called @angular/http and is shipped in a separate script file as part of the Angular npm package.
- We need to import from @angular/http because systemjs.config configured SystemJS to load that library when you need it.
- From Angular client we request from web server & we get the data back from in response
- To allow access to these services from anywhere in the app, add HttpModule to the imports list of the AppModule.



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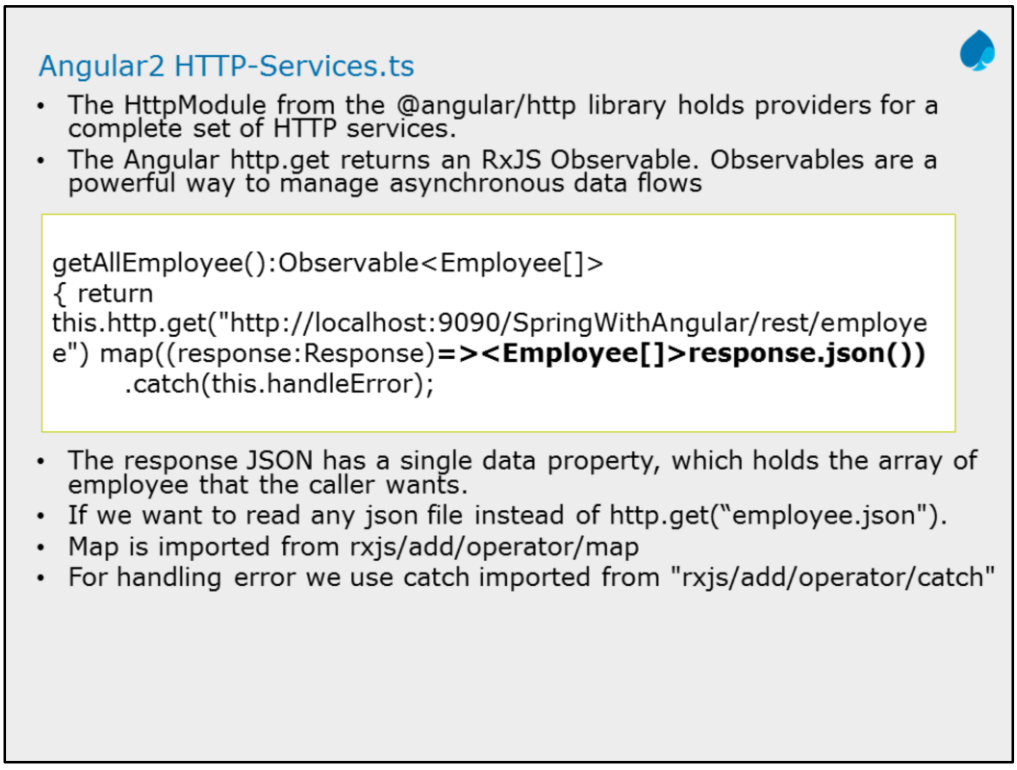

So basically, map() allows you to perform some kind of action on the values inside a container. And the same thing is true with the then() method in a promise. You can call then() on a promise to call some function on the value inside of a promise. And then that returns a new promise with whatever new value you created..

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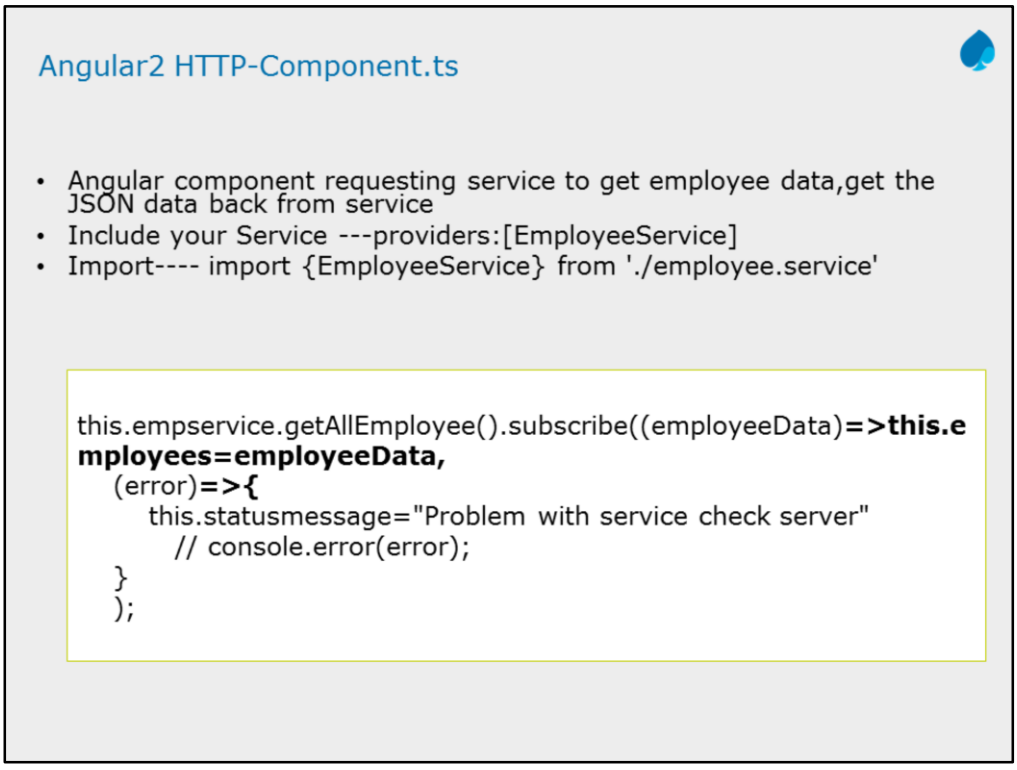

the subscribe() method as if we were calling then() on a promise that was returned, or if you think about this as an array, subscribe() is like the forEach() method on an array. It's kind of like map() in that it receives whatever is inside of the array, or in this case the observable.

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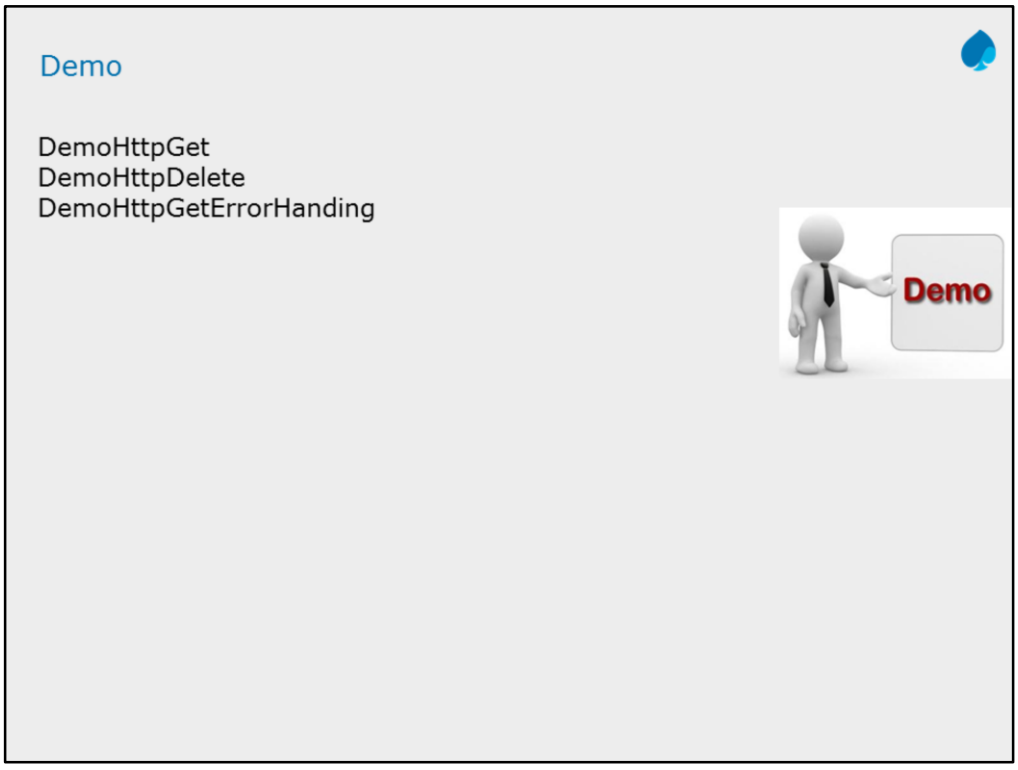

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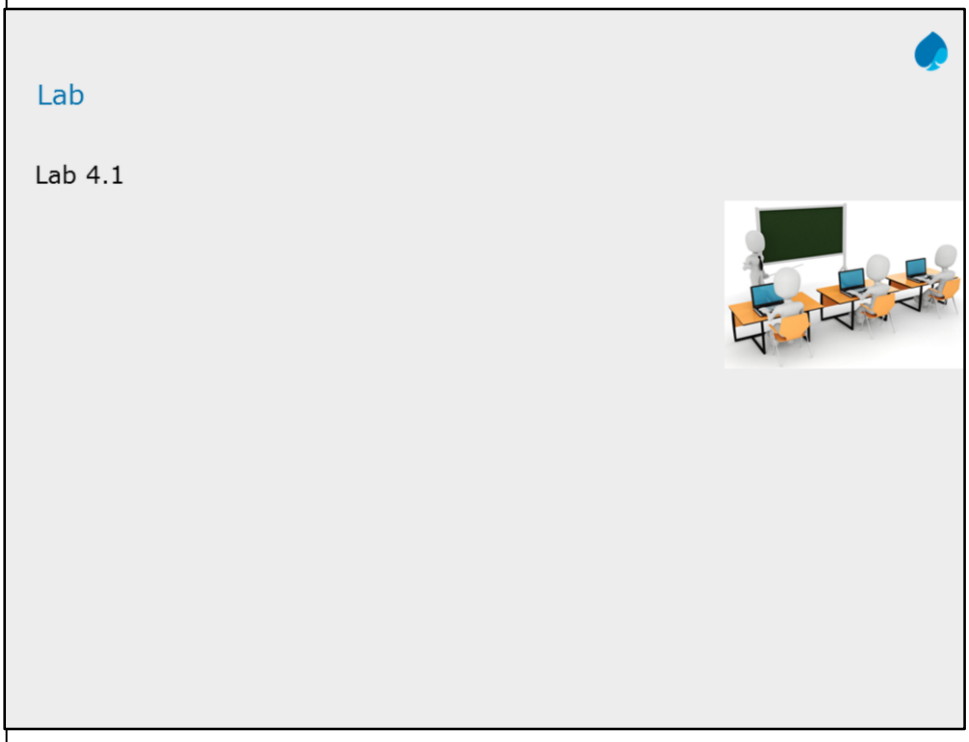

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Summary

- Observables is like an array whose items arrived asynchronously.
- Observable help to manage asynchronous data, such as data coming from a backend service.
- Observables are proposed feature for ES 2016 the next version of JavaScript. To use observables now angular uses a third party library called reactive extensions.
- Angular applications often obtain data using http
- Application issues http get requests to a web server which returns http response to the application.
- Application then processes that data