

A blurred background image of a woman with brown hair, wearing a grey long-sleeved shirt, smiling and looking up at the camera while riding an escalator. The escalator has black railings and a grey carpeted floor.

IK WIL

Angular Fundamentals module 1 - Inleiding

Over jullie...



Voorkennis webdevelopment, (mobile/web-)
apps?

Kennis AngularJS 1.x?

Voorkennis andere (web)talen?

Verwachtingen van de cursus?

Concrete projecten?

Agenda - 3 dagen

- Introductie & geschiedenis - waarom Angular 2?
- Angular 2 vs. Angular 1
- Hello World in Angular 2 – inzicht in boilerplate-code
- Angular 2 in depth:
 - Components
 - ECMAScript 2015 + TypeScript
 - Data binding
 - Dependency Injection (DI) – more components
 - Services en http, Observables (RxJS)
 - Routing, Forms
- BEST PRACTICES / STYLE GUIDE

Materialen

Software (downloads)

Handouts (PDF – Mijn Vijfhart)

Oefeningen (Mijn Vijfhart)

Websites (online)



angular.io/

2 Richtlijnen

1. Oefeningen

- Maar: neem ook vooral zijpaden, experimenteer, lees verder, maak een eigen project, app, website...

2. Voorbeeldcode

- Als ondersteuning bij de oefeningen, zie boven
- Work in progress – check de Angular2-site!
- <https://github.com/PeterKassenaar/voorbeeldenAngular2>

Vragen?

Kennis maken met Angular 2



Angular 1 = MV*
Framework



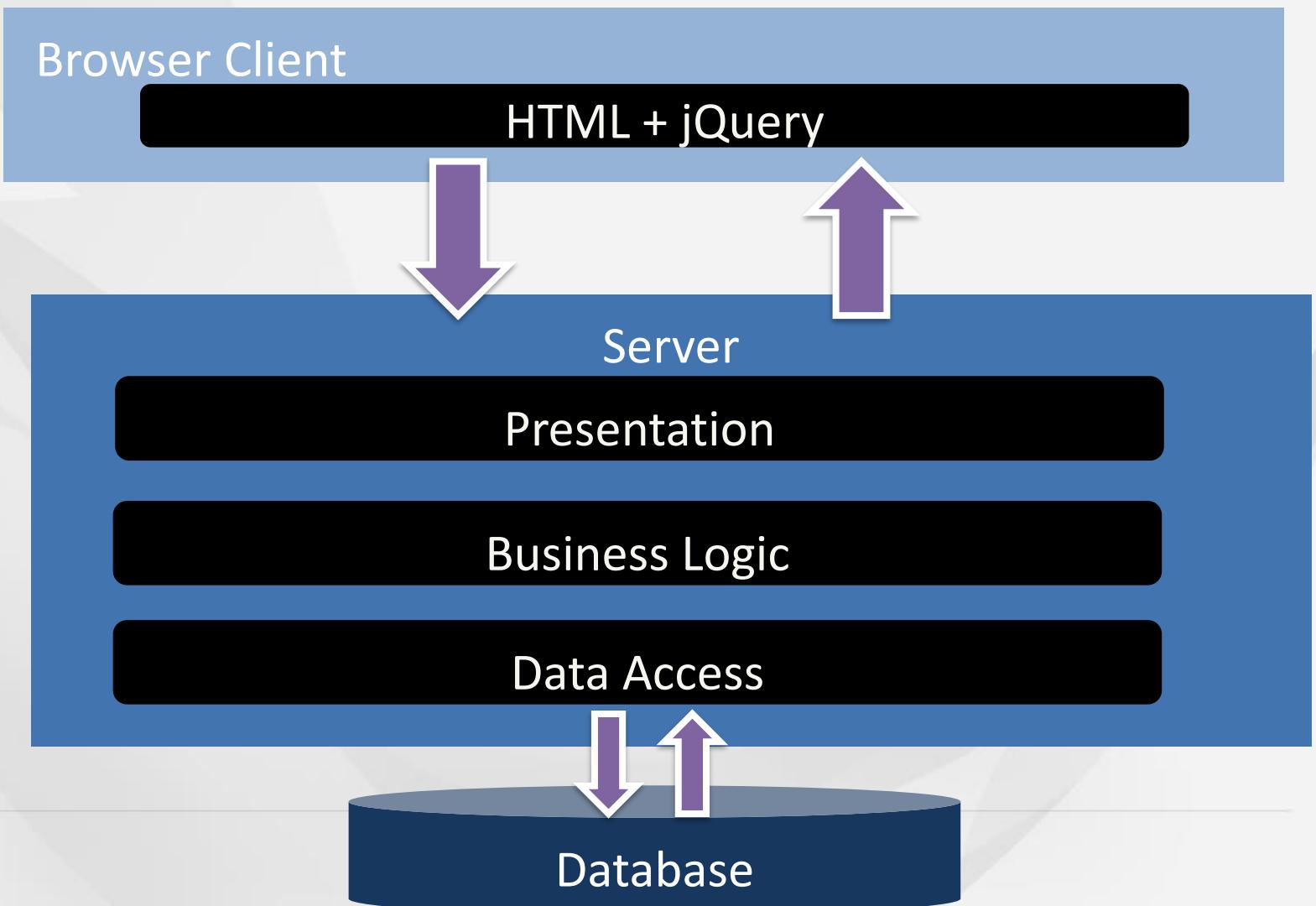
Angular 2 = Platform

Framework to Platform

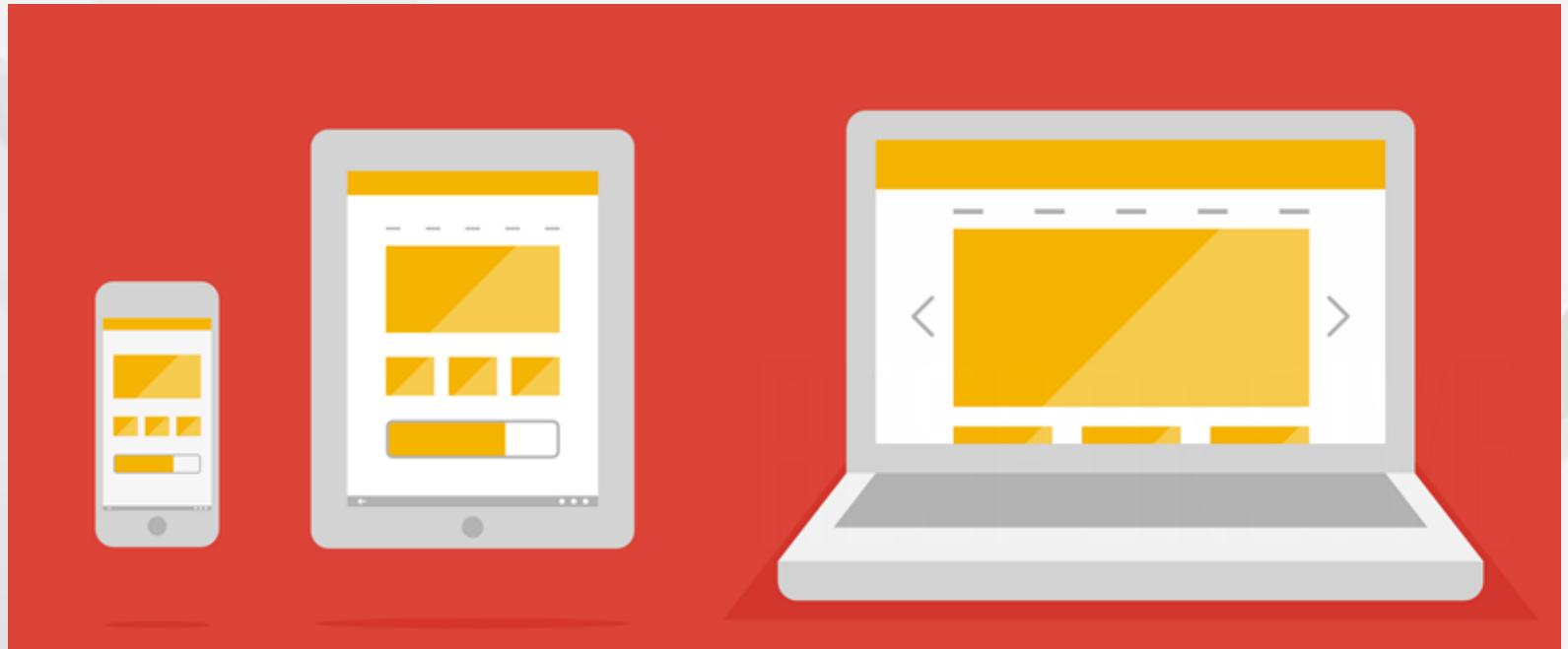
	Scaffolding	Code completion & Refactoring	Debugging
Tooling	Angular CLI	Language Services	Augury
Libraries	Material 2	Mobile	Universal
Core	(AOT)Compile	Change Detection	Renderer
	Components & Dependency Injection	Decorators	Zones

Conventional Web App

2000 - 2013

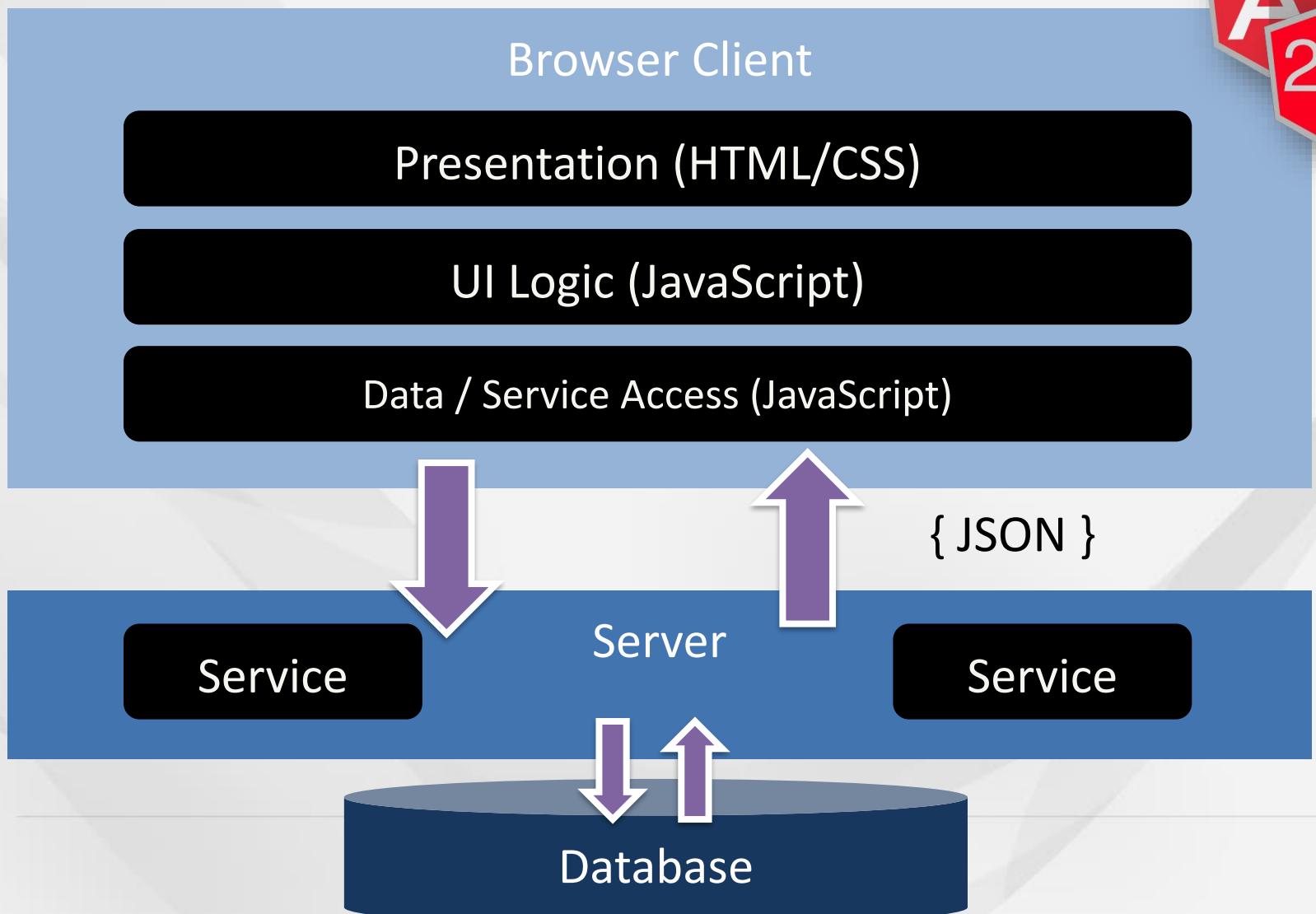


Maar: ca. 2010 -



Single Page Application

2010 – 20??





Summary

Angular 4

March 2017

Backwards Compatible w/ Angular 2

Blijft altijd backwards compatible naar Angular 2! Vandaar ook de naam Angular 2+



Evolving Angular

Predictable, Transparent & Incremental Evolution

Angular 5 - September / October 2017

Angular 6 - March 2018

Angular 7 - September / October 2018

(tentative schedule)

“It's just
Angular”

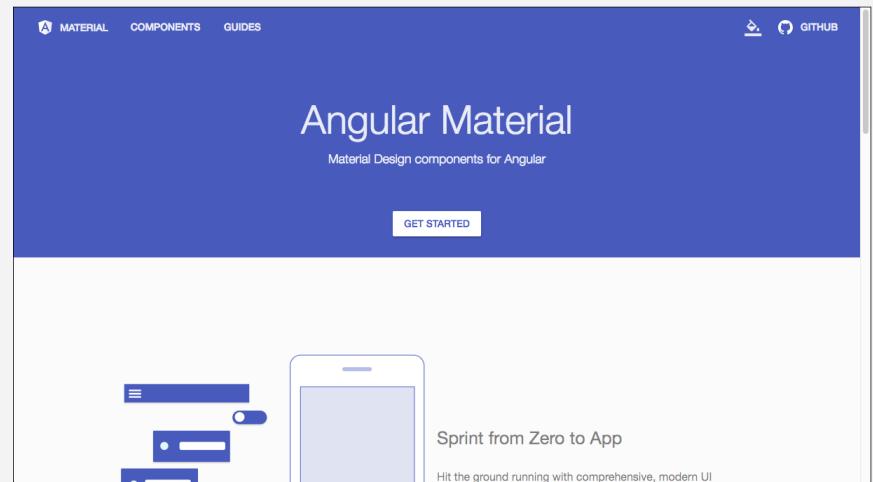
Angular as a Platform

© Copyright 2017 Vijhart



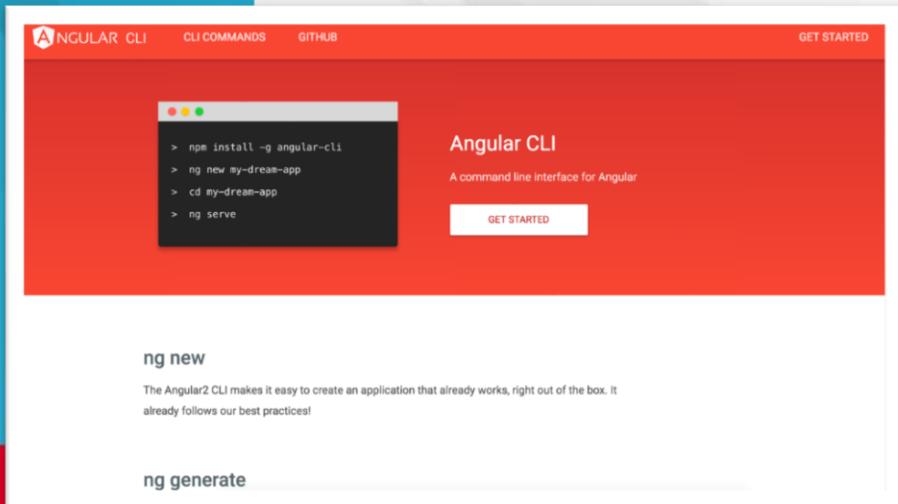
The screenshot shows the main landing page for Angular. It features a large red hexagonal logo with a white stylized letter 'A'. Below the logo, the text 'One framework. Mobile & desktop.' is displayed. A 'GET STARTED' button is located below this text. At the bottom left, there's a callout for 'ANGULAR MIX' with the text 'Join us at our newest event, October 2017' and a 'LEARN MORE' button.

<https://angular.io/>



The screenshot shows the Angular Material homepage. It features a blue header with the 'MATERIAL' tab selected. Below the header, the text 'Angular Material' and 'Material Design components for Angular' is displayed. A 'GET STARTED' button is present. In the center, there's a graphic showing a smartphone next to some UI components like a switch and a slider. Below the graphic, the text 'Sprint from Zero to App' and 'Hit the ground running with comprehensive, modern UI' is shown.

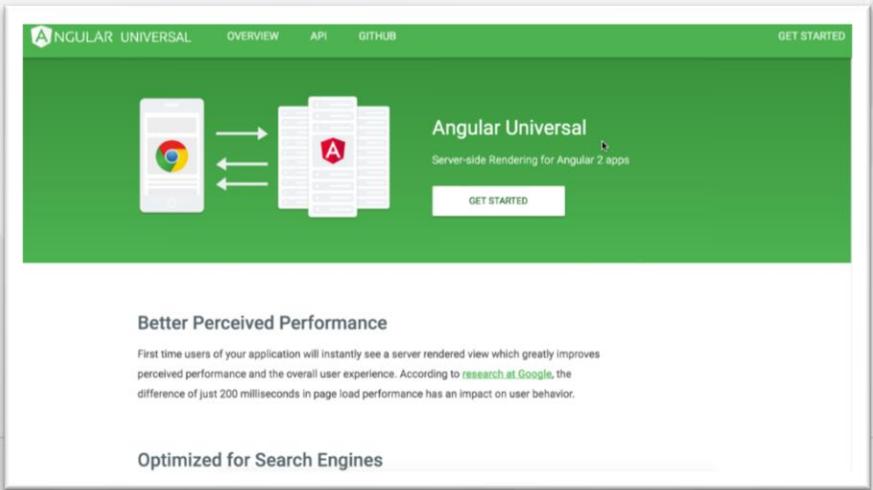
<https://material.angular.io/>



The screenshot shows the Angular CLI homepage. It features a large orange background area containing a terminal window showing command-line instructions for creating a new Angular application. To the right of the terminal, the text 'Angular CLI' and 'A command line interface for Angular' is displayed, along with a 'GET STARTED' button. Below this, sections for 'ng new' and 'ng generate' are shown, each with a brief description and a 'GET STARTED' button.

ng generate

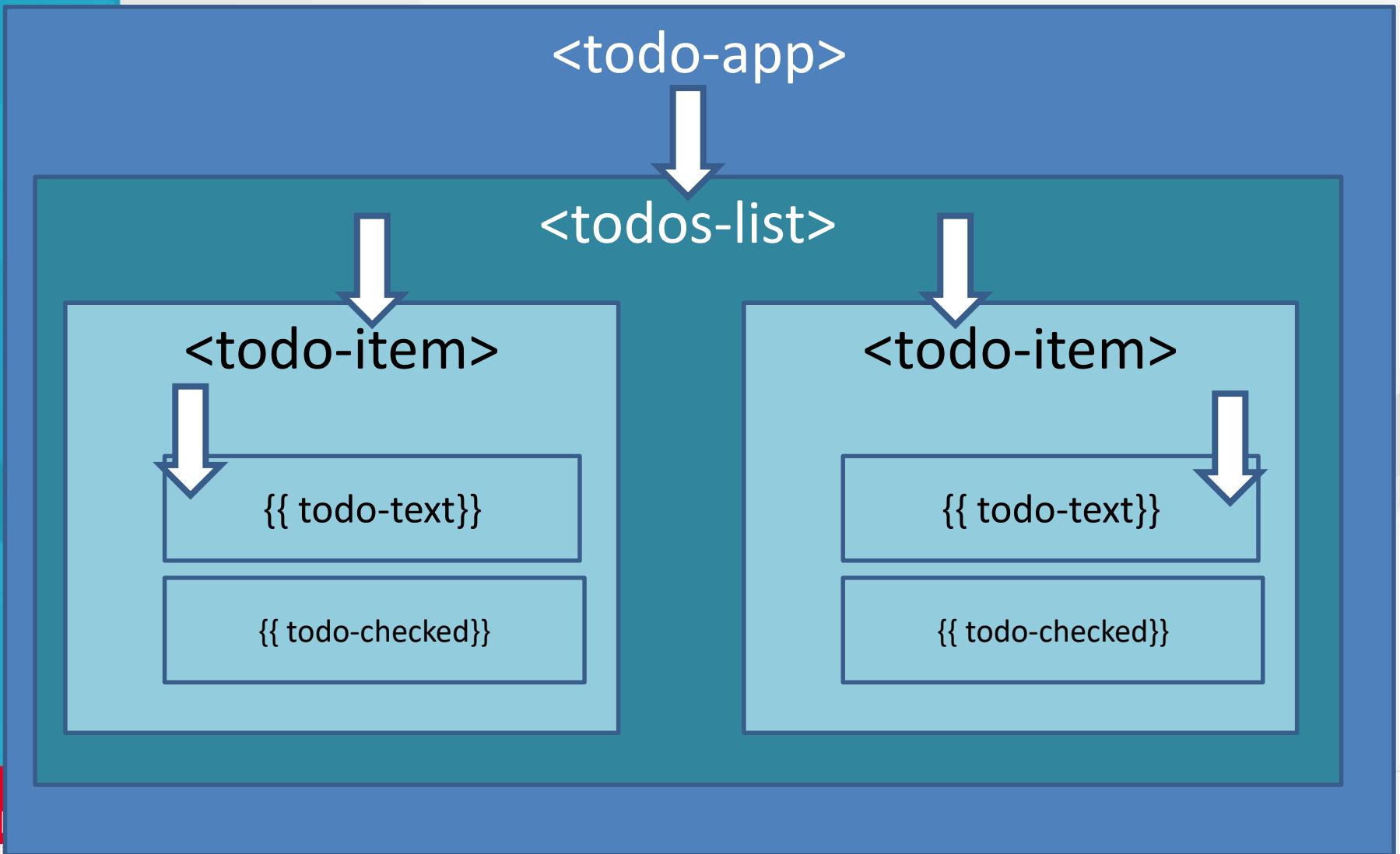
<https://cli.angular.io/>



The screenshot shows the Angular Universal homepage. It features a green header with the 'OVERVIEW' tab selected. Below the header, the text 'Angular Universal' and 'Server-side Rendering for Angular 2 apps' is displayed, along with a 'GET STARTED' button. A diagram illustrates the server-side rendering process. Below the diagram, sections for 'Better Perceived Performance' and 'Optimized for Search Engines' are shown, each with a brief description.

<https://universal.angular.io/>

Angular 2 - components



“Een Angular-app is een tree van componenten”

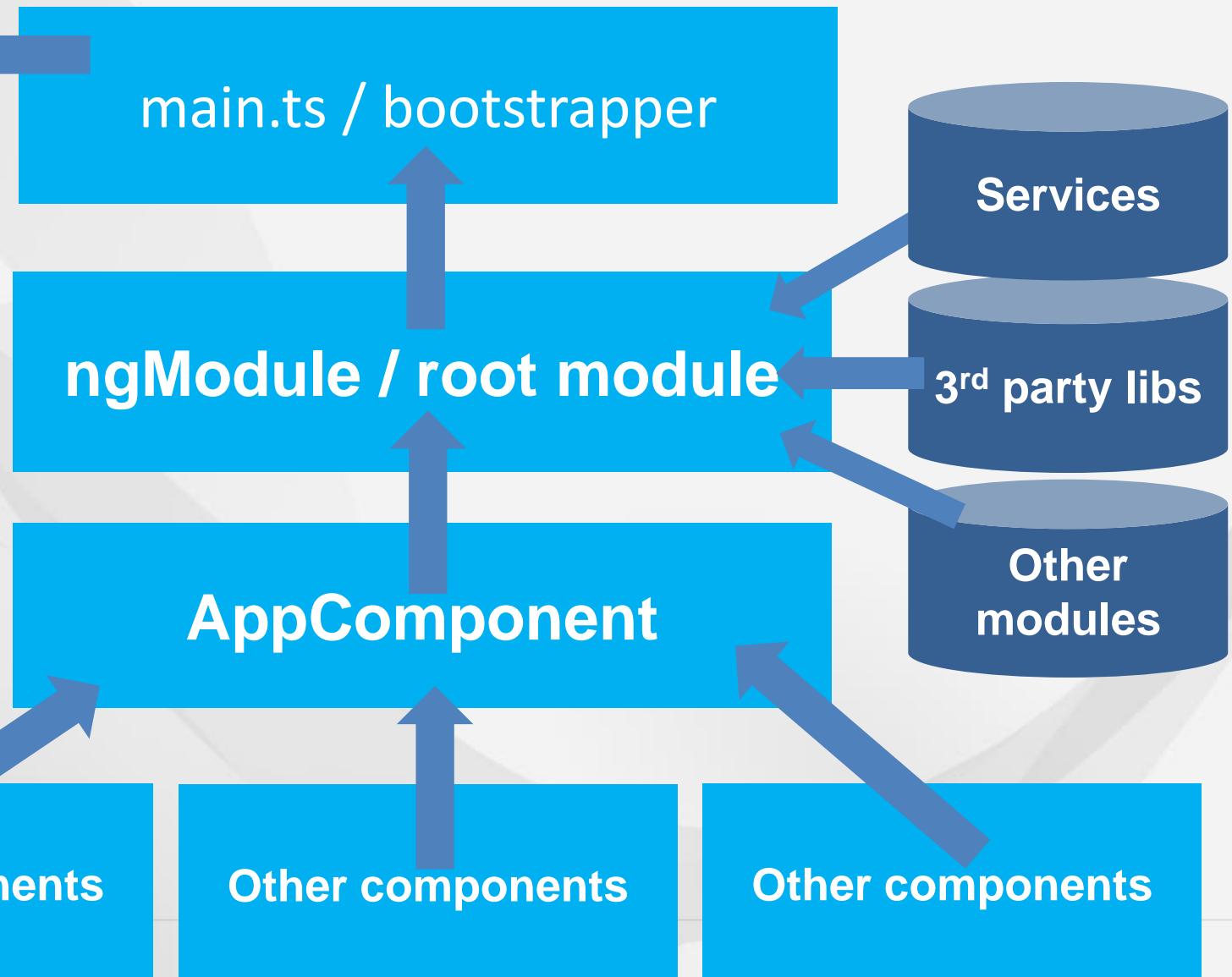
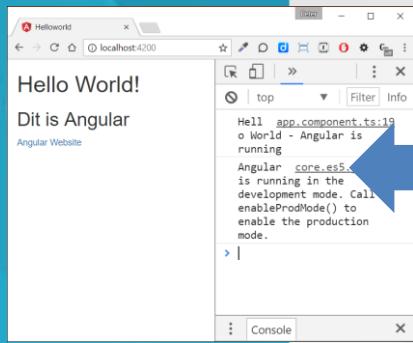
Componenten – visueel

Header Component

Menu
Component

Todo Component

Footer Component



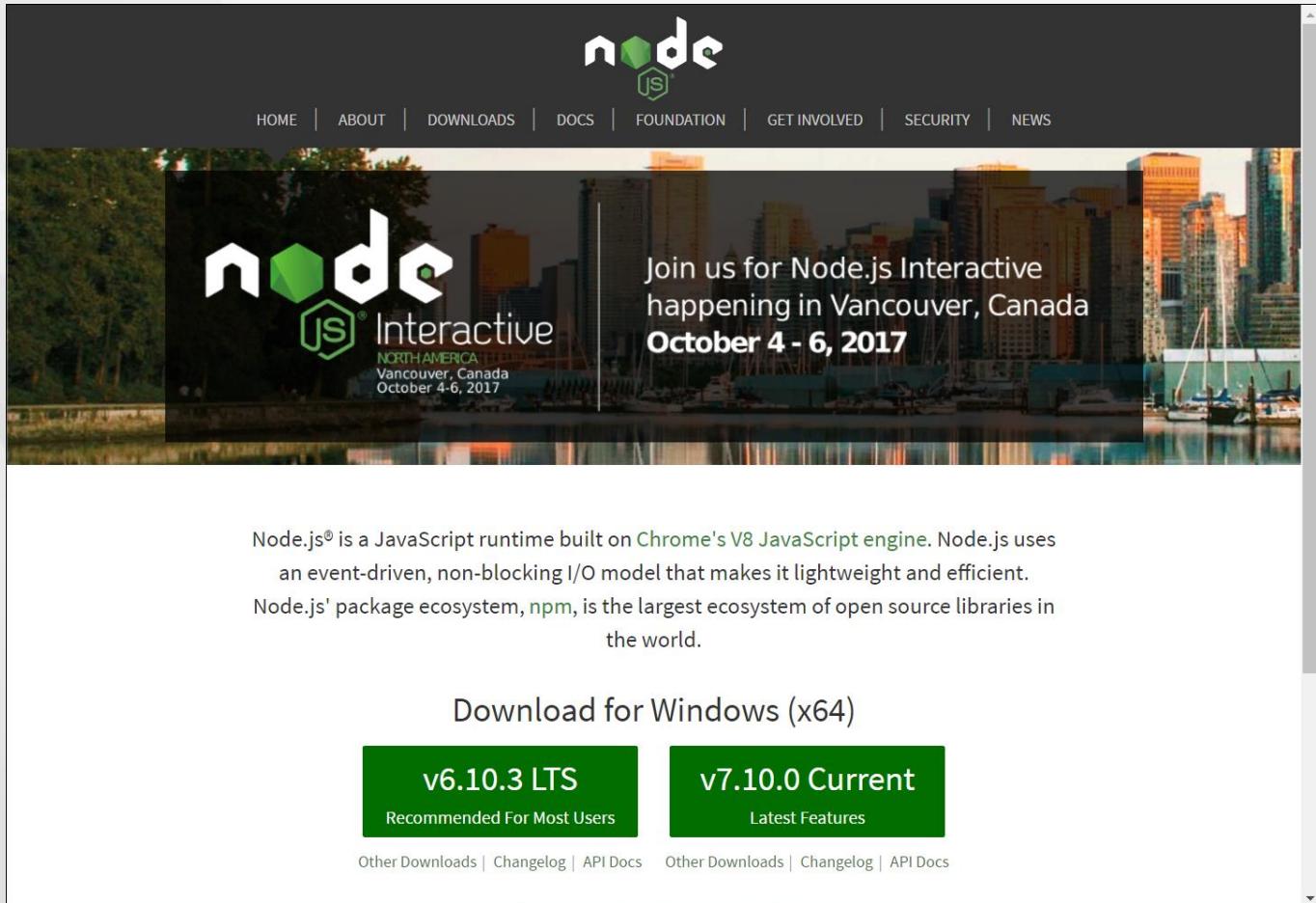
Let's write some code

Hello World in Angular 2

Angular 1:

```
<script src="angular.min.js"></script>
```

Angular development dependency: NodeJS 6.9+



The screenshot shows the official Node.js website. At the top, there's a navigation bar with links for HOME, ABOUT, DOWNLOADS, DOCS, FOUNDATION, GET INVOLVED, SECURITY, and NEWS. Below the navigation is a banner for "Node.js Interactive NORTH AMERICA Vancouver, Canada October 4-6, 2017". The main content area contains text about Node.js being a JavaScript runtime built on Chrome's V8 engine, using an event-driven, non-blocking I/O model. It also mentions the large npm package ecosystem. Two download buttons are visible: "v6.10.3 LTS" (Recommended For Most Users) and "v7.10.0 Current" (Latest Features). At the bottom, there are links for Other Downloads, Changelog, API Docs, and similar links for the current version.

Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient. Node.js' package ecosystem, [npm](#), is the largest ecosystem of open source libraries in the world.

Download for Windows (x64)

v6.10.3 LTS
Recommended For Most Users

v7.10.0 Current
Latest Features

Other Downloads | Changelog | API Docs Other Downloads | Changelog | API Docs

Exercise

- Download or clone

<https://github.com/PeterKassenaar/voorbeeldenAngular2>

`cd oefeningen`

`cd 100-helloworld`

`npm install (or yarn install)`

`npm start`

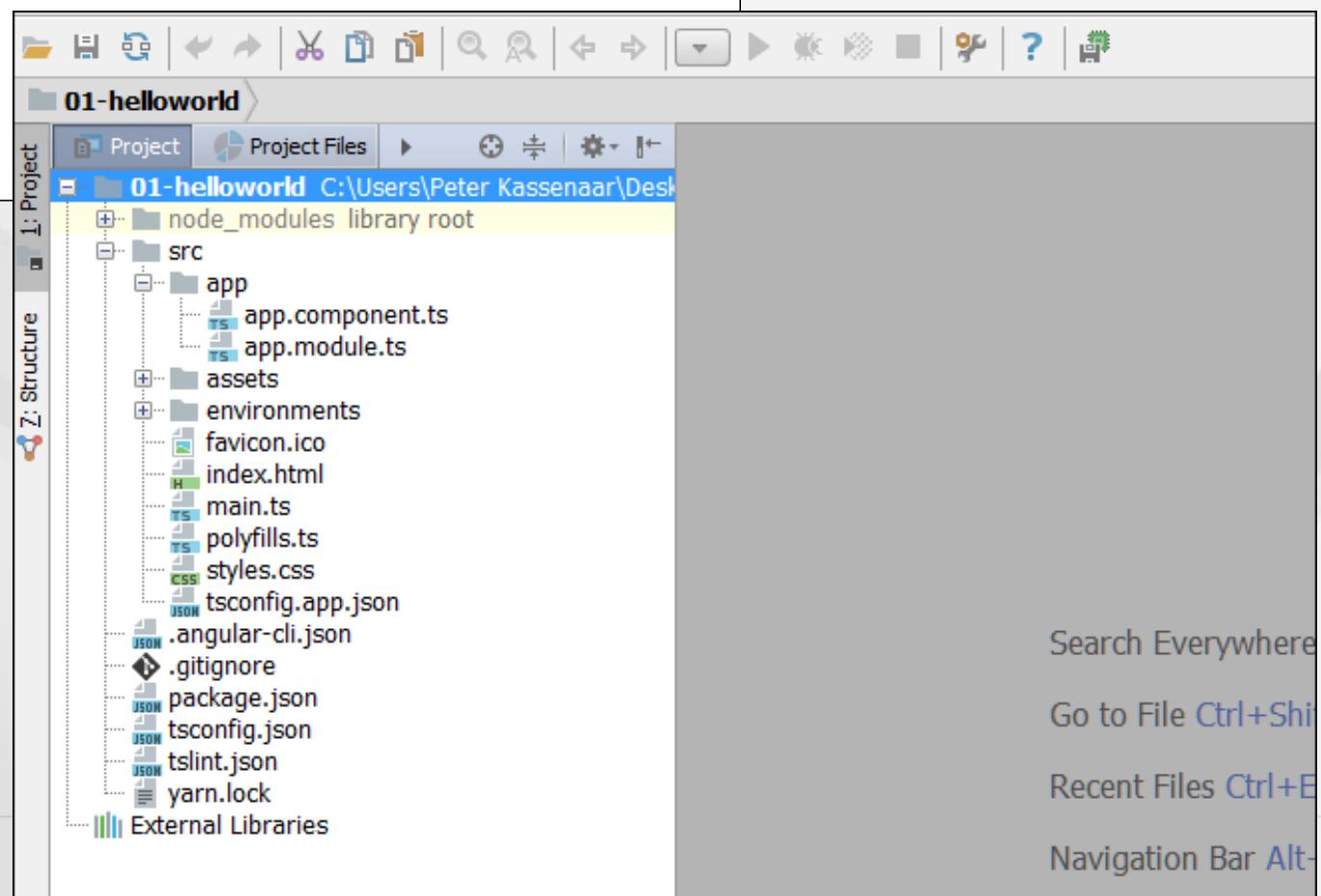
- Go to browser: <http://localhost:4200>

localhost:4200

Hello World!

Dit is Angular

Angular Website



Boilerplate code for Hello World

Steps

1. Set up environment, boilerplate & libraries (dependencies)
2. Write Angular Root Component
3. Write @NgModule Component
4. Bootstrap module
5. Write HTML-pagina (index.html)

In praktijk: gebruik ALTIJD een tool die dit voor je doet!

Vaak nog serve
(ivm Angular-
cli)

Voorbeeld?

Boilerplate files #1 - package.json

```
{  
  "name"          : "hello-angular",  
  "version"       : "1.0.0",  
  "scripts"       : {  
    "start"        : "tsc && concurrently \"npm run tsc:w\" \"npm run lite\"",  
    "lite"         : "lite-server",  
    "postinstall"  : "typings install",  
    "tsc"          : "tsc",  
    "tsc:w"        : "tsc -w",  
    "typings"      : "typings"  
  },  
  "license"       : "ISC",  
  "dependencies"  : {  
    "@angular/compiler"      : "^4.0.0",  
    "@angular/core"         : "^4.0.0",  

```

Boilerplate files #2 - tsconfig.json

```
{  
  "compileOnSave": false,  
  "compilerOptions": {  
    "outDir": "./dist/out-tsc",  
    "baseUrl": "src",  
    "sourceMap": true,  
    "declaration": false,  
    "moduleResolution": "node",  
    "emitDecoratorMetadata": true,  
    "experimentalDecorators": true,  
    "target": "es5",  
    "typeRoots": [  
      "node_modules/@types"  
    ],  
    "lib": [  
      "es2016",  
      "dom"  
    ]  
  }  
}
```

Boilerplate files #3 – `.angular-cli.json`

```
{  
  "$schema": "./node_modules/@angular/cli/lib/config/schema.json",  
  "project": {  
    "name": "helloworld"  
  },  
  "apps": [  
    {  
      "root": "src",  
      "outDir": "dist",  
      "assets": [  
        "assets",  
        "favicon.ico"  
      ],  
      "index": "index.html",  
      "main": "main.ts",  
      "prefix": "app",  
      "styles": [  
        "styles.css"  
      ],  
      "scripts": [],  
      "environmentSource": "environments/environment.ts",  
      ...  
    }  
  ].....  
}
```

"Nice to have" - non-essential files

The screenshot shows a GitHub repository page for 'angular / quickstart'. The file 'non-essential-files.txt' is displayed. The commit message is: "wardbell chore: add bs-config.e2e.json to non-essential files". The file contains 16 lines (15 sloc) and 226 Bytes. The contents of the file are:

```
1 .git
2 .gitignore
3 .travis.yml
4 *.spec*.ts
5 bs-config.e2e.json
6 CHANGELOG.md
7 e2e
8 favicon.ico
9 karma.conf.js
10 karma-test-shim.js
11 LICENSE
12 non-essential-files.txt
13 non-essential-files.osx.txt
14 protractor.config.js
15 README.md
```

<https://github.com/angular/quickstart/blob/master/non-essential-files.txt>

Step 2 – Component

Convention - components in directory /src/app

Or: edit in .angular-cli.json

Filename: src/app/app.component.ts

```
import {Component} from '@angular/core';
@Component({
  selector: 'hello-world',
  template: '<h1>Hello Angular 2</h1>'
})
export class AppComponent {  
}
```

Step 3 – @NgModule

Convention - filename: /src/app.module.ts

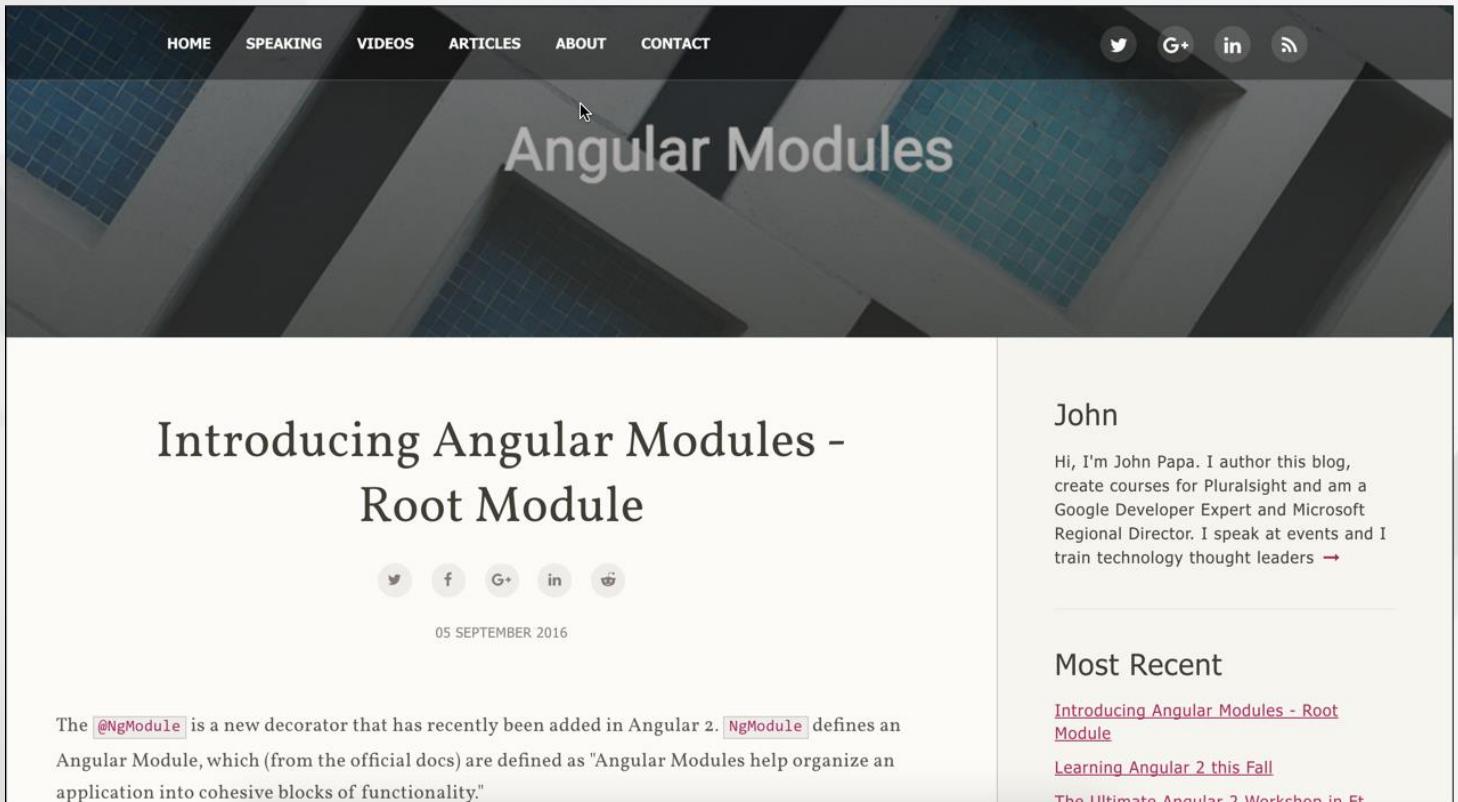
```
// Angular Modules
import {NgModule}      from '@angular/core';
import {BrowserModule} from '@angular/platform-browser';

// Custom Components
import {AppComponent} from './app.component';

// Module declaration
@NgModule({
  imports      : [BrowserModule],
  declarations: [AppComponent],
  bootstrap    : [AppComponent]
})
export class AppModule {
```

Entry entry point of the application

Some background info on Root Module



The screenshot shows a blog post titled "Introducing Angular Modules - Root Module" by John Papa. The post discusses the @NgModule decorator and its purpose in organizing Angular applications. It includes social sharing icons and a timestamp of 05 SEPTEMBER 2016. To the right, there is a sidebar featuring a bio for John Papa and links to his most recent posts.

Angular Modules

Introducing Angular Modules - Root Module

05 SEPTEMBER 2016

The `@NgModule` is a new decorator that has recently been added in Angular 2. `NgModule` defines an Angular Module, which (from the official docs) are defined as "Angular Modules help organize an application into cohesive blocks of functionality."

John

Hi, I'm John Papa. I author this blog, create courses for Pluralsight and am a Google Developer Expert and Microsoft Regional Director. I speak at events and I train technology thought leaders →

Most Recent

- [Introducing Angular Modules - Root Module](#)
- [Learning Angular 2 this Fall](#)
- [The Ultimate Angular 2 Workshop in Ft](#)

<https://johnpapa.net/introducing-angular-modules-root-module/>

Step 4 - bootstrap component

Best practice: bootstrap app in separate component

Convention: main.ts, or app.main.ts.

```
import {enableProdMode} from '@angular/core';
import {platformBrowserDynamic} from '@angular/platform-browser-dynamic';

import {AppModule} from './app/app.module';
import {environment} from './environments/environment';

if (environment.production) {
  enableProdMode();
}

platformBrowserDynamic().bootstrapModule(AppModule);
```

Hier gaat het om:
vaak untouched!

Step 5 – index.html

index.html - simple HTML file - expanded at runtime by WebPack

```
<html>

<head>
  <meta charset="utf-8">
  <title>Helloworld</title>
  <base href="/">

  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="icon" type="image/x-icon" href="favicon.ico">
  <link rel="stylesheet" href="../node_modules/bootstrap/dist/css/bootstrap.min.css">
</head>
```

Body van index.html

Verwijzing naar de root-component:

```
<body>  
  <hello-world>  
    Bezig met laden...  
  </hello-world>  
</body>
```

Run the app

npm start – draait de scriptopdracht start uit package.json.

ng serve - start globale angular-cli instantie

The terminal window shows the following webpack build output:

```
+ chunk {0} polyfills.bundle.js, polyfills.bundle.js.map (polyfills) 157 kB {4} [initial] [rendered]
x
chunk {1} main.bundle.js, main.bundle.js.map (main) 3.73 kB {3} [initial] [rendered]
chunk {2} styles.bundle.js, styles.bundle.js.map (styles) 9.78 kB {4} [initial] [rendered]
chunk {3} vendor.bundle.js, vendor.bundle.js.map (vendor) 2.1 MB [initial] [rendered]
chunk
webpack:
```

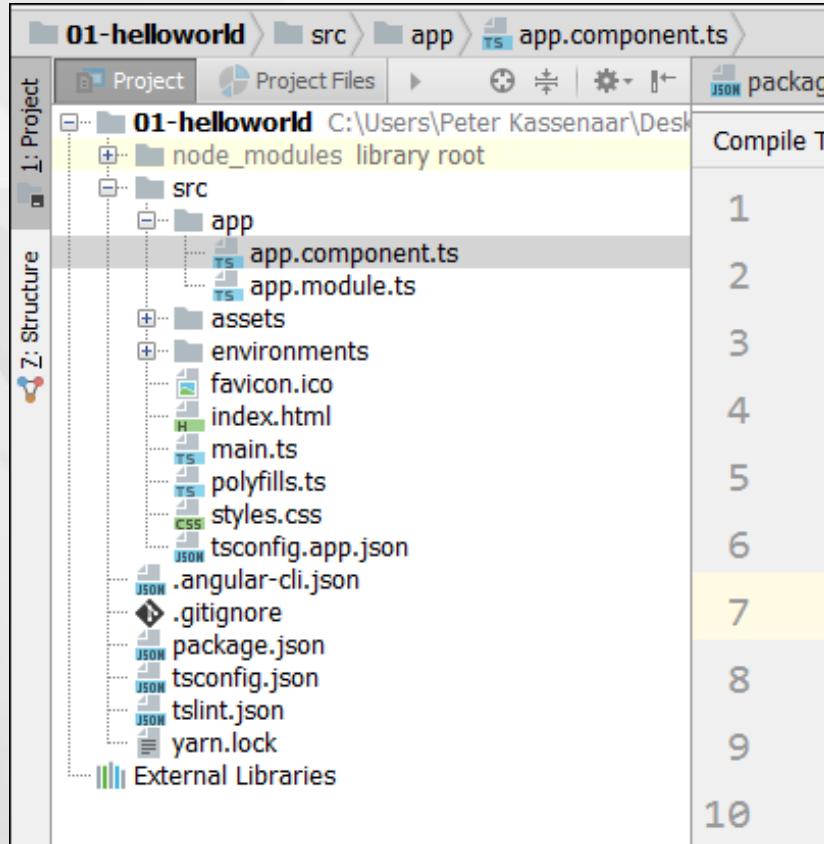
The browser screenshot shows the Angular application running at `localhost:4200`. The page displays "Hello World!" and "Dit is Angular". The developer tools console shows the following logs:

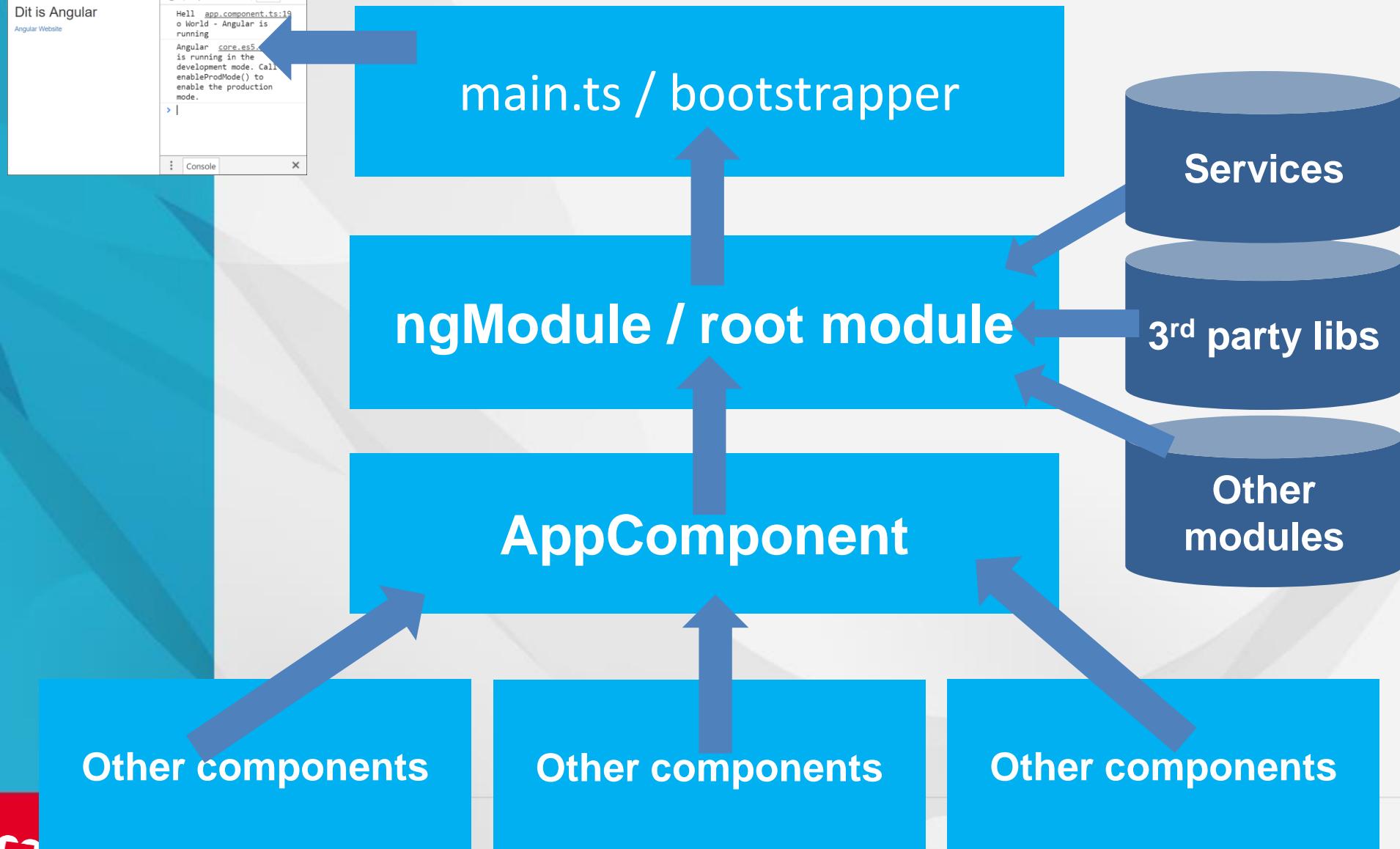
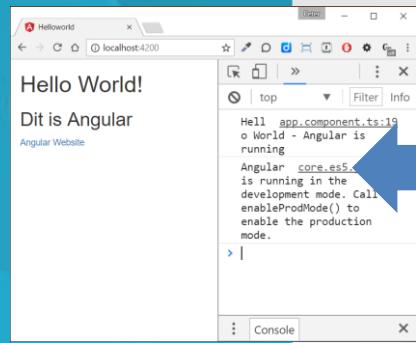
```
Hello World - Angular is running
Angular is running in the development mode. Call enableProdMode() to enable the production mode.
app.component.ts:19
core.es5.js:3025
```

Daarna: wijzigingen aanbrengen in `app.component.ts`

– worden opgepikt door **Live Reload (wauw)**

Structuur

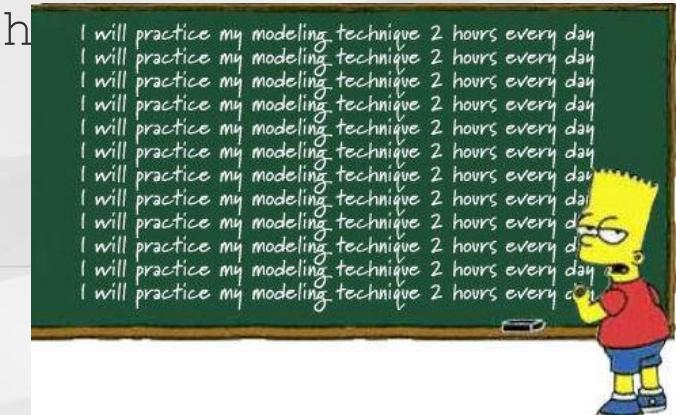




Checkpoint

- Er is aardig wat boilerplate code nodig om een Angular-app te starten
- Vier stappen
 1. Set up environment, boilerplate & libraries
 2. Schrijf Angular Root Component voor de app
 3. Bootstrap de component
 4. Schrijf HTML-pagina (`index.html`)
- Daarna: app gaan uitbreiden

Oefening....



Assets

github.com/PeterKassenaar/voorbeeldenAngular2

Oefeningen en meer voorbeeldcode

Angular CLI

Snel nieuwe projecten instellen via de command line

Angular-CLI to the rescue

- Het *is* mogelijk nieuwe Angular-projecten from scratch te starten.
- Met de CLI is eenvoudiger.
- CLI-options:
 - Scaffolding (= in de steigers zetten)
 - Generating
 - Testing
 - Building
 - AOT-Compiling
 - ...

Scaffolding - Angular CLI

Projecten, componenten, routes en meer
definiëren vanaf de command line

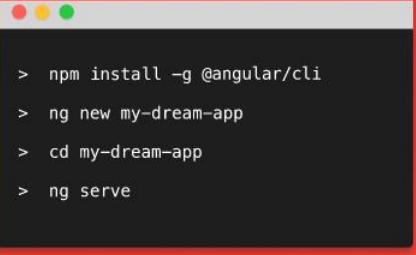
<https://github.com/angular/angular-cli>

en

<https://cli.angular.io/>

```
npm install -g @angular/cli
```

ANGULAR CLI DOCUMENTATION GITHUB GET STARTED



Angular CLI
A command line interface for Angular
[GET STARTED](#)

ng new

The Angular CLI makes it easy to create an application that already works, right out of the box. It already follows our best practices!

ng generate

Generate components, routes, services and pipes with a simple command. The CLI will also create simple test shells for all of these.

The screenshot shows a GitHub repository page for 'Angular-CLI'. At the top, there's a file list with 'typings.json', 'chore(): add typings files to assist devs' (4 months ago), and 'README.md'. Below the README, the title 'Angular-CLI' is displayed. There are two buttons: 'chat on gitter' and 'build passing'. Below these are status badges for 'dependencies up to date', 'devDependencies up to date', and 'npm v1.0.0-beta.5'. A note states: 'Prototype of a CLI for Angular 2 applications based on the ember-cli project.' A 'Note' section follows, stating: 'This project is very much still a work in progress. We still have a long way before getting out of our alpha stage. If you wish to collaborate while the project is still young, check out [our issue list](#).' A 'Prerequisites' section notes: 'The generated project has dependencies that require **Node 4 or greater**.' A 'Table of Contents' section lists the following items:

- Installation
- Usage
- Generating a New Project
- Generating Components, Directives, Pipes and Services
- Generating a Route
- Creating a Build
- Running Unit Tests
- Running End-to-End Tests
- Deploying the App via GitHub Pages
- Linting and formatting code
- Support for offline applications
- Commands autocompletion
- CSS preprocessor integration
- 3rd Party Library Installation

```
npm install -g @angular/cli
```



<https://www.youtube.com/watch?v=wHZe6gGI5RY>

Main commands

```
ng new PROJECT_NAME
```

```
cd PROJECT_NAME
```

```
ng serve
```

‘npm start’ mag ook (bevat o.a. ng serve)

- directory wijzigen kan (--directory)
- poort wijzigen kan (ng serve in .angular-cli.json)

Project is served on <http://localhost:4200>

The image shows the Scotch.io website. On the left, there's a sidebar with the Scotch logo (a glass with orange and yellow liquid), the text "scotch.io" and "code on the rocks", and sections for "LEARN" (Tutorials, Bar Talk, Community, Scotch School), and "OUR STUFF" (About, Shop, Join Us On Slack, Hire Us). The main content area has a red header with the Angular logo and the title "Use the Angular CLI for Faster Projects". Below it, a large section titled "Use the Angular CLI For Faster Angular 2 Projects" discusses the benefits of the Angular CLI. A search bar at the top right says "Search Scotch for Cool Stuff", and there are links for "Login / Sign Up", "Write a Post", and "More". To the right, a sidebar lists "Popular Scotchers" with profiles for Chris Sevilleja, Nicholas Cerminara, Holly Lloyd, Ado Kukic, Ryan Chenkie, Ken Wheeler, Alex Sears, and Chris Nwamba. There's also a link to "Become a Scotcher!".

Search Scotch for Cool Stuff

Login / Sign Up Write a Post More

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Popular Scotchers

- Chris Sevilleja
- Nicholas Cerminara
- Holly Lloyd
- Ado Kukic
- Ryan Chenkie
- Ken Wheeler
- Alex Sears
- Chris Nwamba
- Become a Scotcher!

<https://scotch.io/tutorials/use-the-angular-cli-for-faster-angular-2-projects>

≡  sitepoint

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HTML & CSS JAVASCRIPT PHP DESIGN & UX WEB WORDPRESS SEO BY WOORANK MICROSOFT TECH

JavaScript - April 25, 2017 - By Jurgen Van de Moere

The Ultimate Angular CLI Reference Guide

Related Topics:

- React
- Tools & Libraries
- Node.js
- Raw JavaScript
- npm
- More...



f
in
tw

2017.04.25: As of March 24, Angular CLI v1.0 was released. This article has been updated to reflect the latest changes. If you want to add the latest features of Angular CLI v1.0 to your existing Angular project that was generated with an earlier version of Angular CLI, check out the [Angular CLI v1.0 migration guide](#).

2017.02.17: As of February 9, 2017, the `ng deploy` command has been removed

SPONSORS



JAVASCRIPT

An Introduction to Component Routing with Angular Router

Jurgen Van de Moere, 12 hours ago



<https://www.sitepoint.com/ultimate-angular-cli-reference/>

Angular 2 Code - Backend

Kort over TypeScript en ES6

Programmeertalen



ES6



TS

TypeScript

ES6

ES5

ES6 en TypeScript

De toekomst van JavaScript is ES6/ES2015

Major update van JavaScript als
programmeertaal

Modules, classes en meer

Helpt bij het ontwikkelen in Angular 2

TypeScript breidt ES6 verder uit

Annotaties & types

Interfaces

Compiler

TypeScript – tooling support

Types, Autocompletion.

Compile-time checking in editors.

Alles is optioneel. Je kunt
altijd nog gewoon JavaScript
gebruiken.

Onderdelen van een Component Class

imports

```
import { Component } from '@angular/core';
import { DataService } from './services/data-
service';
```

Decorators/
annotations

```
@Component({
  selector: 'orders',
  templateUrl: 'orders-component.html',
})
```

class

```
export class
OrdersComponent {
  ...
}
```

Checkpoint

- Angular 2 is een totaal ander framework dan Angular 1
- Component-based vs. Page-based
- Nieuwe syntaxis
- Nieuwe programmeertalen en andere nieuwe kenmerken
- Concepten komen – deels – overeen
- Voorlopig: veel boilerplate-code nodig voor een