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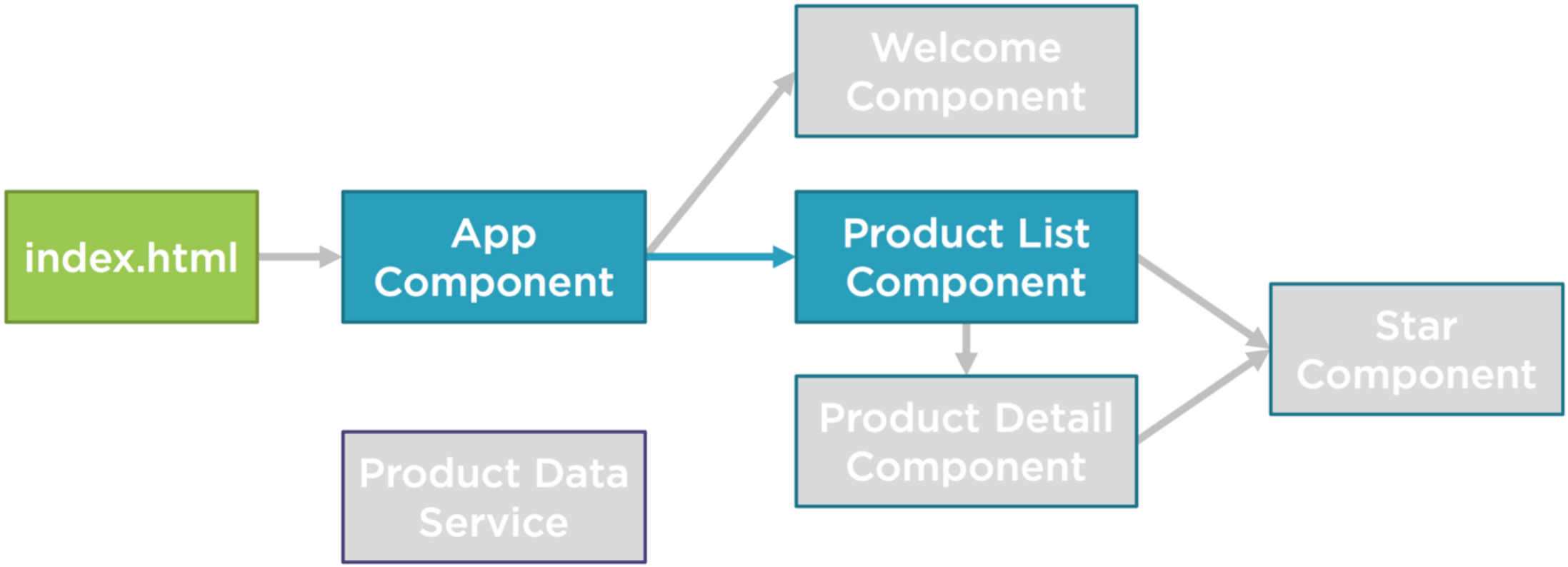
Angular

More on components

Module Overview

- Defining an interface
- Encapsulating component styles
- Using Lifecycle hooks
- Building a custom pipe
- Defining relative paths with module id (commonJS)

Application Architecture



Strong typing

```
export class ProductListComponent {
  pageTitle: string = 'Title';
  showImage: boolean = false;
  listFilter: string = 'cart';
  message: string;
  products: Array<any> = […];

  toggleImage(): void {
    this.showImage = !this.showImage;
  }
  onRatingClicked(message: string): void {
    this.message = message;
  }
}
```

Interface

- A **specification** identifying a related set of properties and methods
- A class commits to supporting the specification by **implementing** the interface
- Use the interface as a **Data Type**
- Development time only!!!

Interface is a Specification

```
export interface IProduct {
  id: number;
  productName: string;
  productCode: string;
  releaseDate: Date;
  price: number;
  description: string;
  startRating: number;
  imageUrl: string;
  calculateDiscount(percent: number): number;
}
```

Using an interface as a Data Type

```
import { IProduct } from './product';
export class ProductListComponent implements IProduct {
  pageTitle: string = 'Title';
  showImage: boolean = false;
  listFilter: string = 'cart';
  products: Array<IProduct> = […];

  toggleImage(): void {
    this.showImage = !this.showImage;
  }
}
```

Handling Unique Component Styles

- Templates sometimes require unique styles
- Different ways to do it:
  - Inline directly the style into the HTML
  - Use a specific stylesheet and link it into the index.html
  - Or better:
    use a specific stylesheet and link it to the component

Encapsulating Component Styles

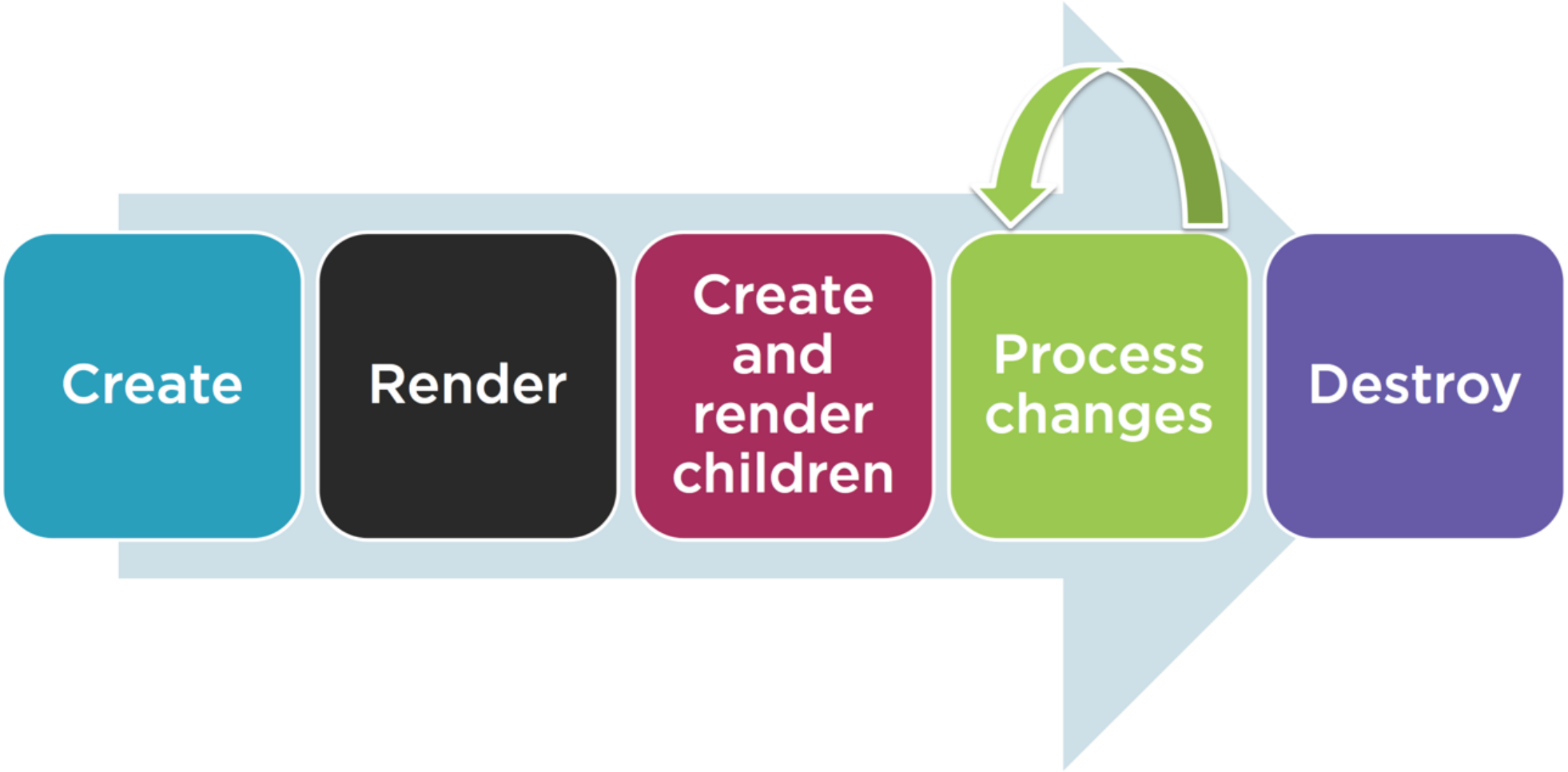
styles

```
@Component({
  selector: 'nat-products',
  templateUrl: 'app/products/product-list.component.html',
  styles: [ 'thead {color: #337AB7;}' ]
})
```

styleUrls

```
@Component({
  selector: 'nat-products',
  templateUrl: 'app/products/product-list.component.html',
  styleUrls: [ 'app/products/product-list.component.css' ]
})
```

Component Lifecycle



Component Lifecycle Hooks

- **OnInit**
  Perform component initialization, retrieve data
- **OnChanges**
  Perform action after change to input properties
- **OnDestroy**
  Perform cleanup

Using a Lifecycle hook

```
import { OnInit } from '@angular/core';
export class ProductListComponent implements OnInit {
  pageTitle: string = 'Title';
  showImage: boolean = false;
  listFilter: string = 'cart';
  products: Array<any> = […];

  toggleImage(): void {
    this.showImage = !this.showImage;
  }

  ngOnInit(): void {}
}
```

Transforming Data with Pipes

- Pure functions which transform properties before display
- Built-in pipes
  - date
  - number, decimal, percent, currency
  - json, slice,
  - More on the angular.io documentation http://
- Custom pipes

Pipe Examples

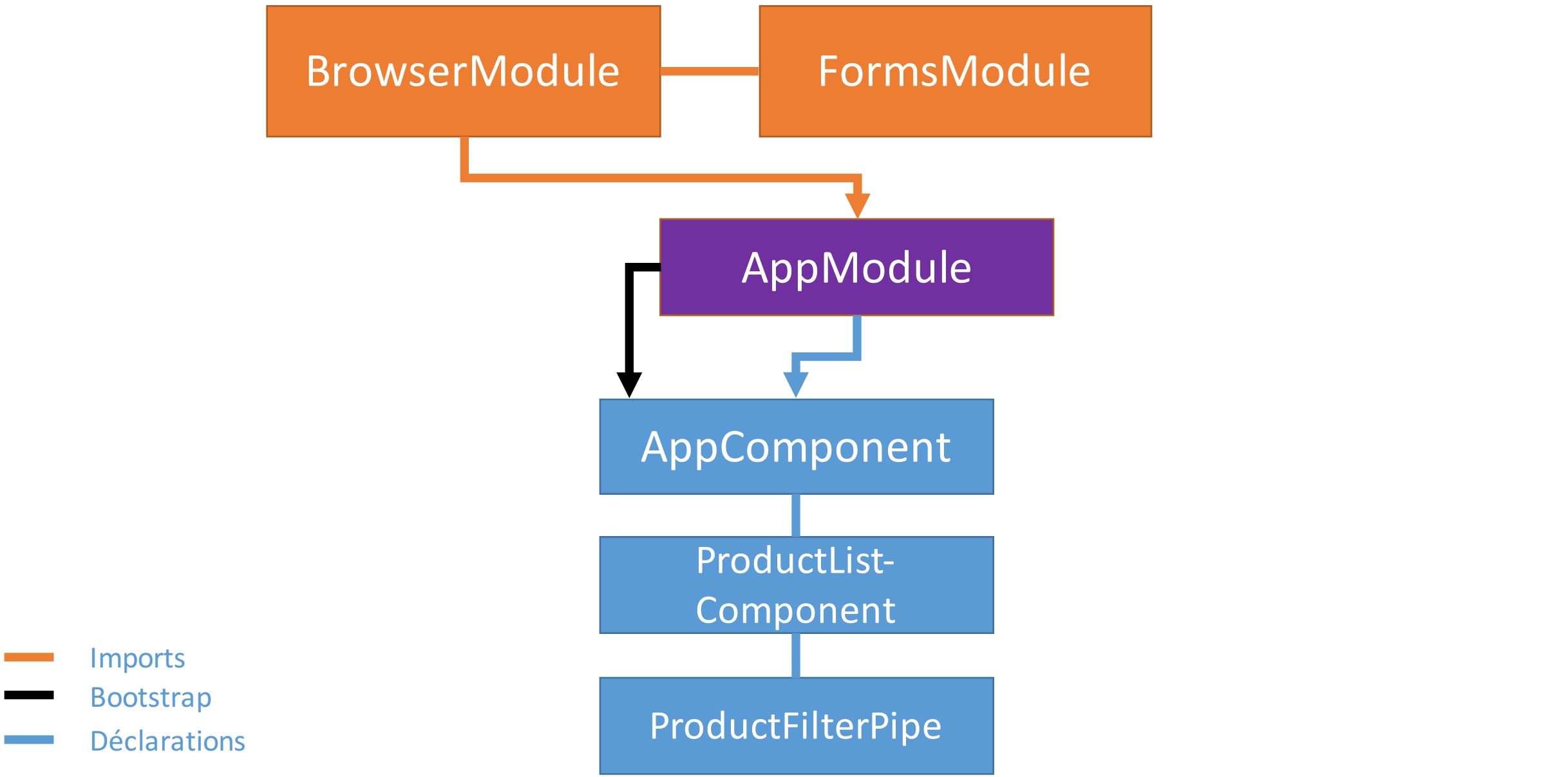
```
{{ product.productCode | lowercase }}

<img src="product.imageUrl"
     [title]="product.productName | uppercase">

{{ product.price | currency | lowercase }}

{{ product.price | currency:'USD':true:'1.2-2'}}
```

Building a custom pipe

```
import { Pipe, PipeTransform } from '@angular/core';

@Pipe({
  name: 'productFilter'
})
export class ProductFilterPipe implements PipeTransform {
  transform(value: Iproduct[], filterBy: string): Iproduct[] {
    …
  }}
```

Use a custom pipe

```
<input type="text" [(ngModel)]="listFilter" />

<!-- … some code -->

<tr *ngFor="let product of products | productFilter:
listFilter">
```


BrowserModule
FormsModule
AppModule
AppComponent
ProductList-
Component
ProductFilterPipe
Imports
Bootstrap
Déclarations

Use a custom pipe

```
// product-list.component.html
<tr *ngFor="let product of products | productFilter: listFilter">


// app.module.ts
import { ProductFilterPipe } from ’app/products/product-filter.pipe';
@NgModule({
  imports: [
    BrowserModule, FormsModule
  ],
  declarations: [
    AppComponent, ProductListComponent,
    ProductFilterPipe
  ],
  bootstrap: [ AppComponent ]
})
export class AppModule {}
```

More on ES6 Modules!

CommonJS vs AMD

- http://requirejs.org/docs/whyamd.html#commonjs

Typescript output into CommonJS

- Can be customizable into the tsconfig.json

Require a module loader

- Like **SystemJS**

Checklist: Interfaces

- ✓ Defines custom types
- ✓ Create interfaces:
  - ✓ **interface** keyword
  - ✓ export it
- ✓ Implementing interfaces:
  - ✓ **implements** keyword & interface name
  - ✓ write code for each property & method

Checklist: Encapsulating styles

- ✓ styles property
  - ✓Specify an array of style strings
- ✓ styleUrls property
  - ✓ Specify an array of stylesheet paths

Checklist: Using Lifecycle Hooks

- ✓ Import the lifecycle hook interface
- ✓ Implement the lifecycle hook interface
- ✓ Write code for the hook method

Checklist: Building a custom pipe

- ✓ Import Pipe and Pipe Transform
- ✓ Create a class that implements PipeTransform
  - ✓ export the class
- ✓ Write code for the Transform method
- ✓ Decorate the class with the Pipe decorator

Checklist: Using a custom pipe

- ✓Import the custom pipe
- ✓Add the pipe tot the declarations array of an Angular Module
- ✓Any template associated with a component that is also declared in that Angular module can use that pipe
- ✓Use the Pipe in the template
  - ✓Pipe character
  - ✓Pipe name
  - ✓Pipe arguments (colon-seperated)

Checklist: Relative Paths with Module Id

- ✓Set the moduleId property of the component decorator to module.id
- ✓Change the Url to a component-relative path:
  - ✓ templateUrl
  - ✓ styleUrls

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Application Architecture