Templates, Interpolation, and Directives

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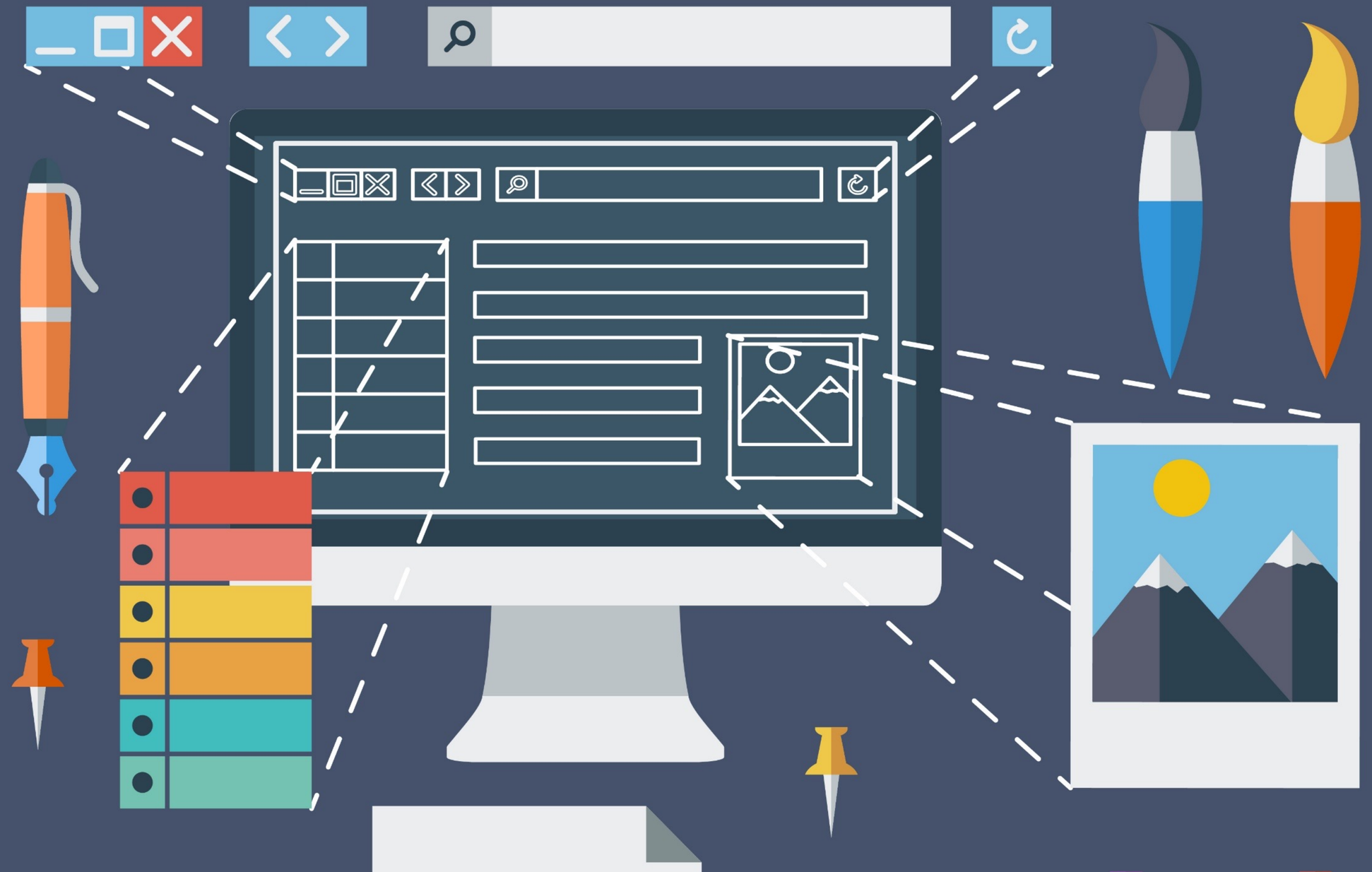
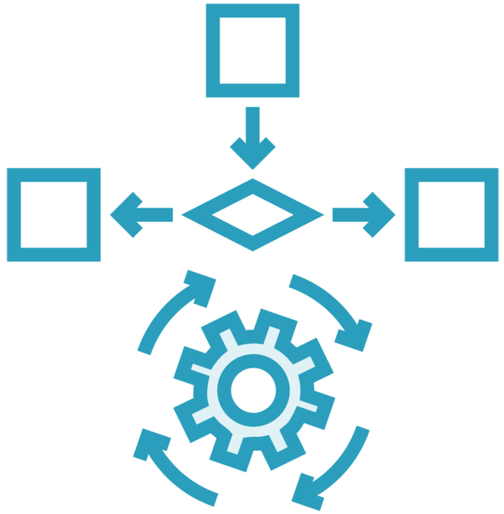


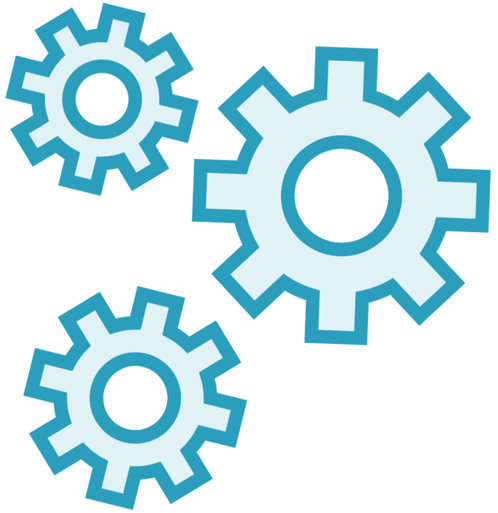
Power up HTML

Data binding



Angular directives

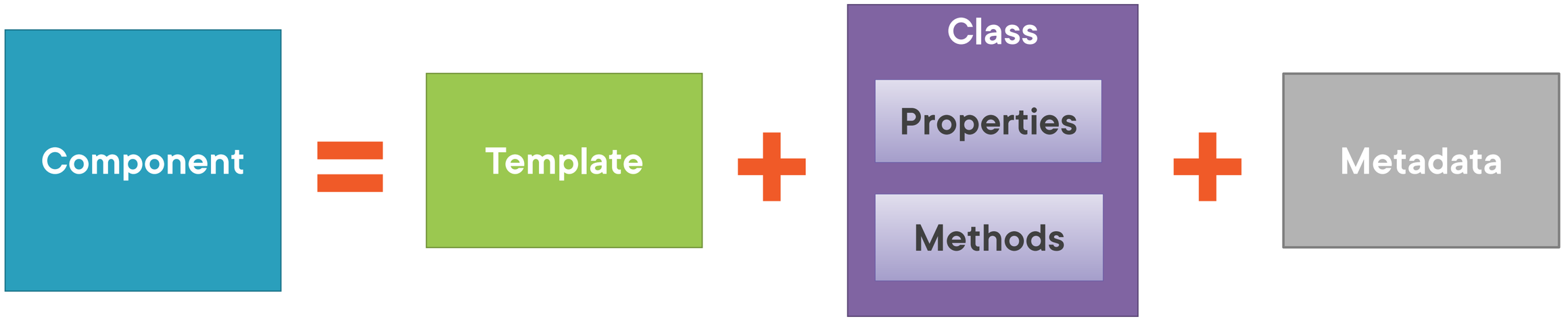
(Custom HTML syntax)



Angular components

(Custom Directives)

Component



Module Overview

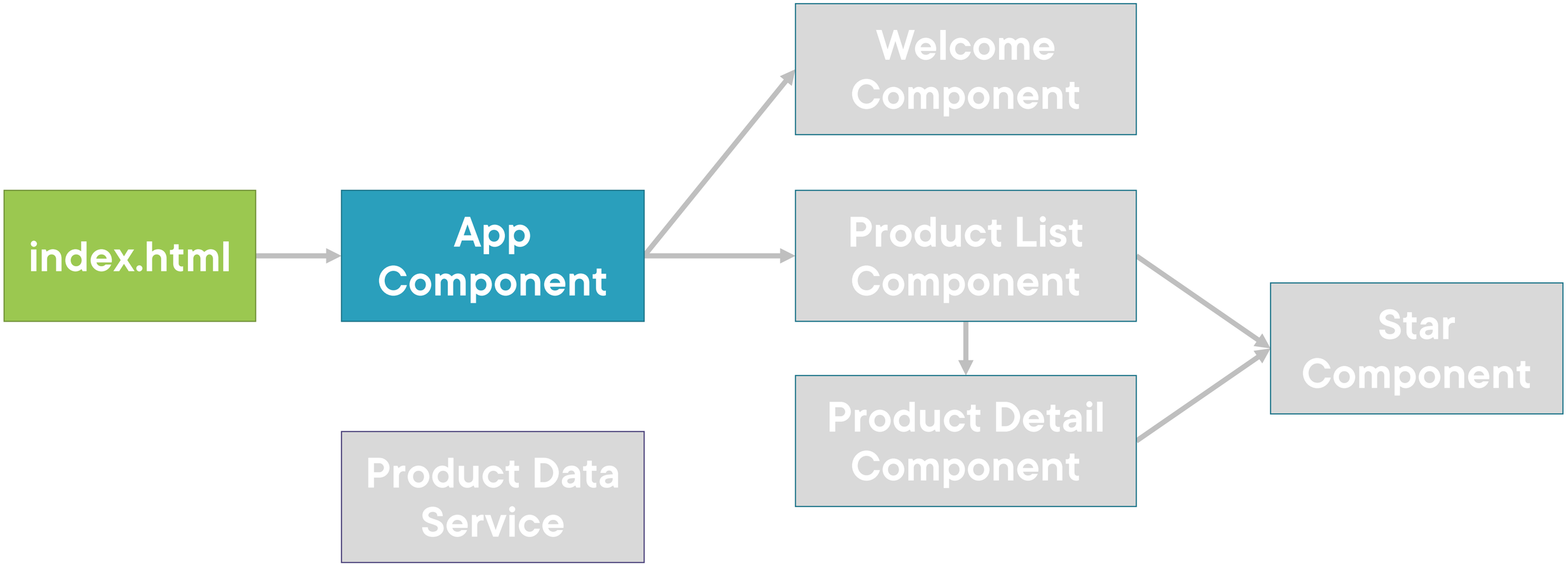
Building a template

Using a component as a directive

Binding with interpolation

Adding logic with directives

Application Architecture



Component

app.component.ts

```
import { Component } from '@angular/core';

@Component({
    selector: 'pm-root',
    template: `
    <div><h1>{{pageTitle}}</h1>
        <div>My First Component</div>
    </div>
    `
})
export class AppComponent {
 pageTitle: string = 'Acme Product Management';
}
```

Defining a Template in a Component

Inline Template

```
template:
"<h1>{{pageTitle}}</h1>"
```

Inline Template

```
template: `
<div>
 <h1>{{pageTitle}}</h1>
 <div>
     My First Component
 </div>
</div>
`
```

ES 2015
Back Ticks

Linked Template

```
templateUrl:
'./product-list.component.html'
```

Product List View

Product List

Filter by:

Show Image

Product	Code	Available	Price	5 Star Rating
Leaf Rake	gdn 0011	March 19, 2021	$19.95	
Garden Cart	gdn 0023	March 18, 2021	$32.99	
Hammer	tbx 0048	May 21, 2021	$8.90	
Saw	tbx 0022	May 15, 2021	$11.55	
Video Game Controller	gmg 0042	October 15, 2020	$35.95	

Product List View

Product List

Filter by: am

Filtered by: am

Show Image	Product	Code	Available	Price	5 Star Rating
	Hammer	tbx 0048	May 21, 2021	$8.90	★★★★★
	Video Game Controller	gmg 0042	October 15, 2020	$35.95	★★★★½

Product List View

Product List

Filter by: am

Filtered by: am

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Product List View

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https://getbootstrap.com/ https://fontawesome.com

Building the Component

product-list.component.ts

```
import { Component } from '@angular/core';

@Component({
    selector: 'pm-products',
    templateUrl: './product-list.component.html'
})
export class ProductListComponent {
 pageTitle: string = 'Product List';
}
```

Using a Component as a Directive

app.component.ts

```
@Component({
 selector: 'pm-root',
 template: `
  <div><h1>{{pageTitle}}</h1>
   <div>My First Component</div>
  </div>`
})
export class AppComponent { }
```

product-list.component.ts

```
@Component({
  selector: 'pm-products',
  templateURL:
    './product-list.component.html'
})
export class ProductListComponent { }
```

Using a Component as a Directive

app.component.ts

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 selector: 'pm-root',
 template: `
   <div><h1>{{pageTitle}}</h1>
     <pm-products></pm-products>
   </div>`
})
export class AppComponent { }
```

1

product-list.component.ts

```
@Component({
   selector: 'pm-products',
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export class ProductListComponent { }
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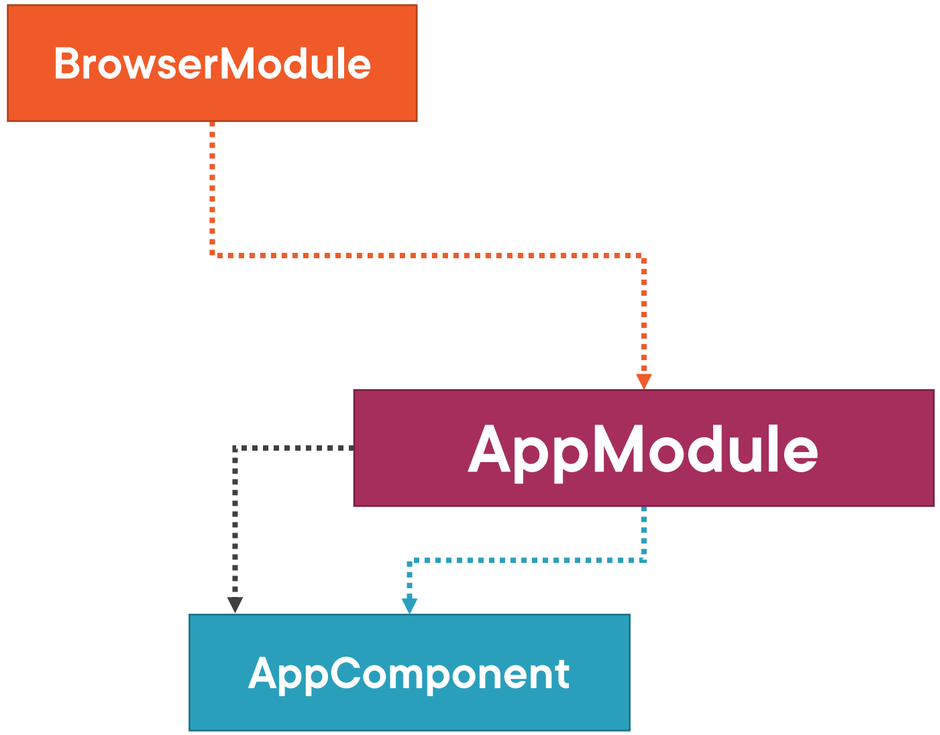
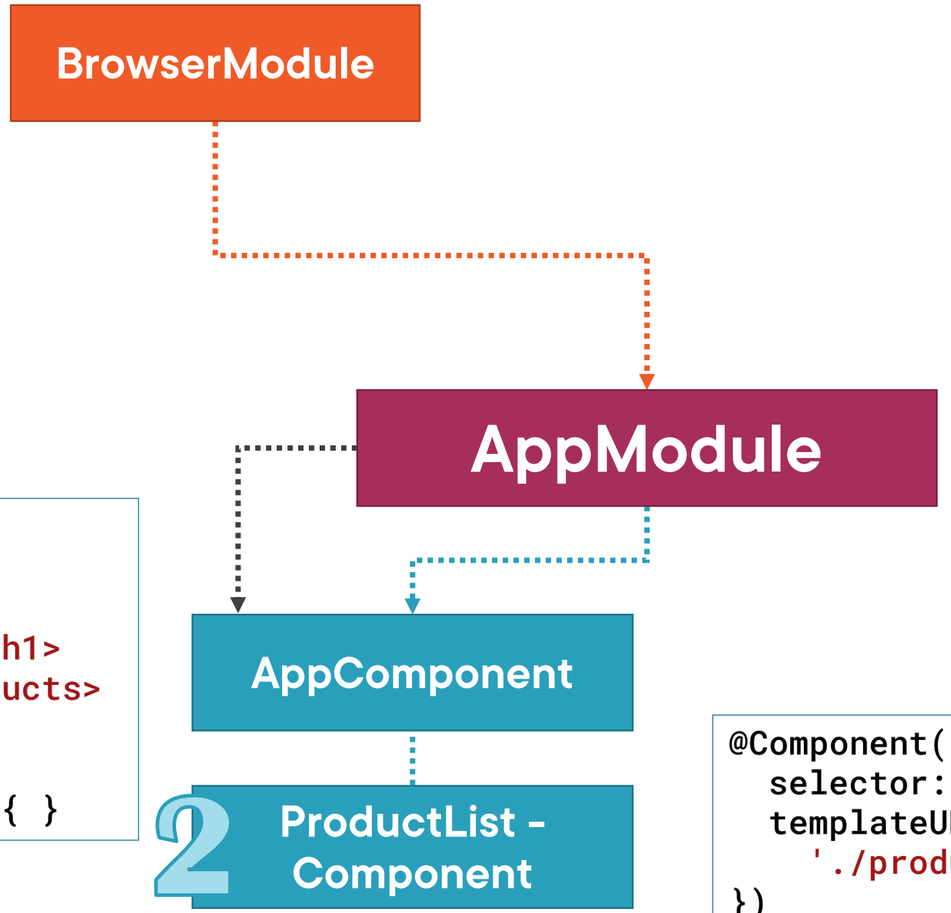


Imports

Exports

Declarations

Bootstrap

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  selector: 'pm-products',
  templateURL:
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})
export class ProductListComponent { }
```

Imports

Exports

Declarations

Bootstrap

Binding

Coordinates communication between the component's class and its template and often involves passing data.

Interpolation

Template

```
<h1>{{pageTitle}}</h1>

{{'Title: ' + pageTitle}}

{{2*20+1}}

<h1 innerText={{pageTitle}}></h1>
```

Class

```
export class AppComponent {
 pageTitle: string =
      'Acme Product Management';
}
```

Directive

Custom HTML element or attribute used to power up and extend our HTML.

- **Custom**
- **Built-In**

Custom Directives

app.component.ts

```
@Component({
  selector: 'pm-root',
  template: `
    <div><h1>{{pageTitle}}</h1>
      <pm-products></pm-products>
    </div>
    `
})
export class AppComponent { }
```

product-list.component.ts

```
@Component({
  selector: 'pm-products',
  templateURL:
   './product-list.component.html'
})
export class ProductListComponent { }
```

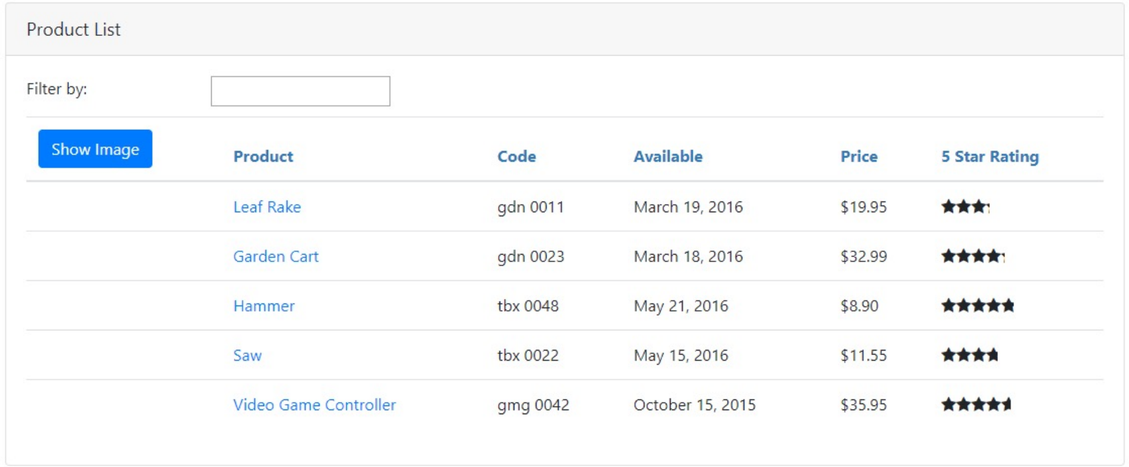
Angular Built-in Directives

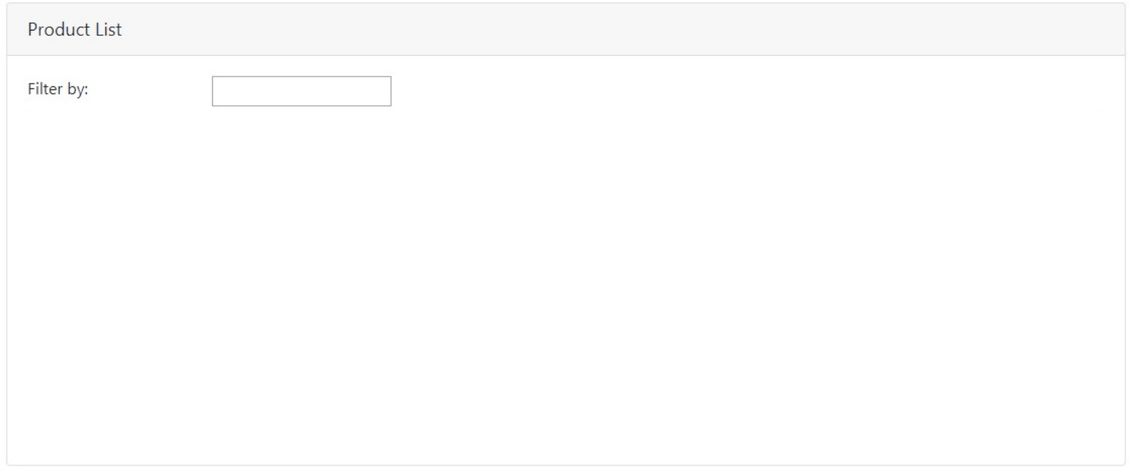
Structural Directives

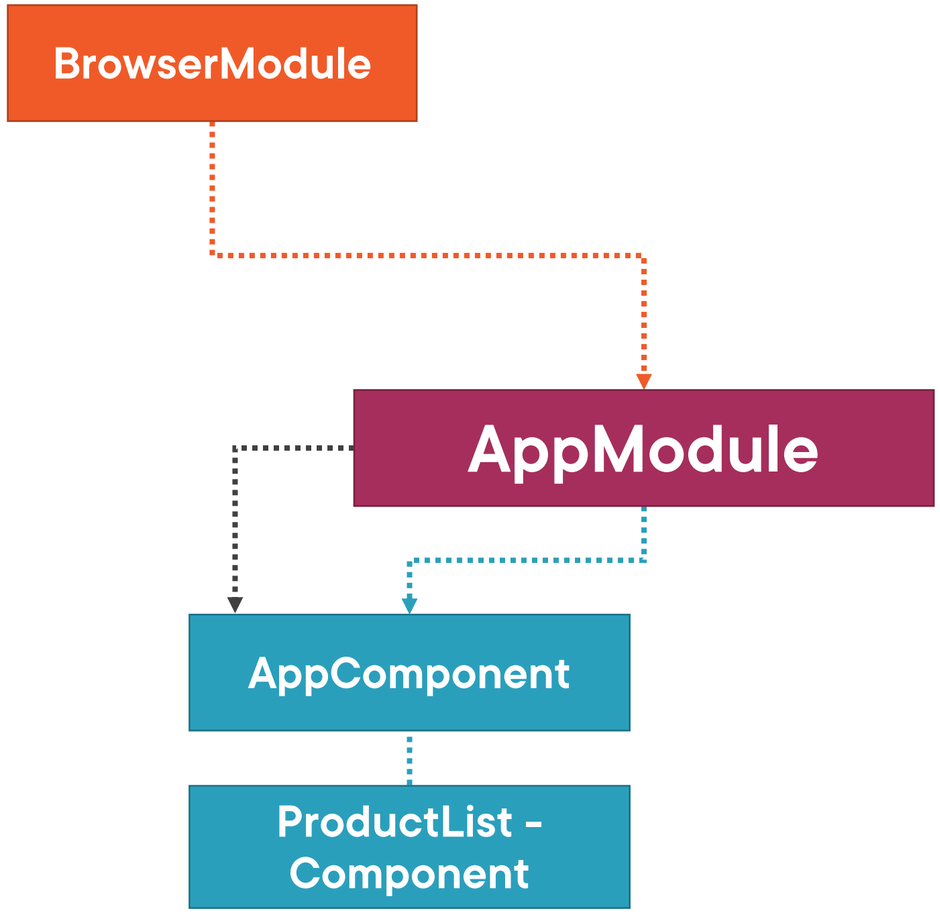
- **`*ngIf`: If logic**
- **`*ngFor`: For loops**

*ngIf Built-In Directive

```
<div class='table-responsive'>
 <table class='table' *ngIf='products.length'>
  <thead> ...
  </thead>
  <tbody> ...
  </tbody>
 </table>
</div>
```







Imports

Exports

Declarations

Bootstrap

*ngFor Built-In Directive

```
<tr *ngFor='let product of products'>
    <td></td>
    <td>{{ product.productName }}</td>
    <td>{{ product.productCode }}</td>
    <td>{{ product.releaseDate }}</td>
    <td>{{ product.price }}</td>
    <td>{{ product.starRating }}</td>
</tr>
```

for...of vs for...in

for...of

- **Iterates over iterable objects, such as an array.**
- **Result: di, boo, punkeye**

```
let nicknames= ['di', 'boo', 'punkeye'];

for (let nickname of nicknames) {
  console.log(nickname);
}
```

for...in

- **Iterates over the properties of an object.**
- **Result: 0, 1, 2**

```
let nicknames= ['di', 'boo', 'punkeye'];

for (let nickname in nicknames) {
  console.log(nickname);
}
```

*ngFor Built-In Directive

```
<tr *ngFor='let product of products'>
    <td></td>
    <td>{{ product.productName }}</td>
    <td>{{ product.productCode }}</td>
    <td>{{ product.releaseDate }}</td>
    <td>{{ product.price }}</td>
    <td>{{ product.starRating }}</td>
</tr>
```

Template Checklist: Inline Template

For short templates

Specify the `template` property

Use the ES 2015 back ticks for multiple lines

Watch syntax

```
template: `
 <div><h1>{{pageTitle}}</h1>
  <div>My First Component</div>
 </div>`
```

Template Checklist: Linked Template

For longer templates

Specify the `templateUrl` property

Define the path to the HTML file

```
templateURL: './product-list.component.html'
```

Checklist: Component as a Directive

product-list.component.ts

```
@Component({
  selector: 'pm-products',
  templateURL:
    './product-list.component.html'
})
export class ProductListComponent { }
```

app.component.ts

```
@Component({
 selector: 'pm-root',
 template: `
  <div><h1>{{pageTitle}}</h1>
    <pm-products></pm-products>
  </div>`
})
export class AppComponent { }
```

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app.module.ts

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

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Template Checklist: Interpolation

One way binding
- From component class property to an element property

Defined with double curly braces
- Contains a template expression
- No quote needed

```
<td>{{ product.productName }}</td>
```

Template Checklist: Structural Directives

`*ngIf` **and** `*ngFor`

- **Prefix with an asterisk**
- **Assign to a quoted string expression**

Template Checklist: *ngIf

Add or remove an element and its children from the DOM

Expression is evaluated:

- true: elements added to the DOM
- false: elements removed from the DOM

```
<table *ngIf='products'>
```

Template Checklist: *ngFor

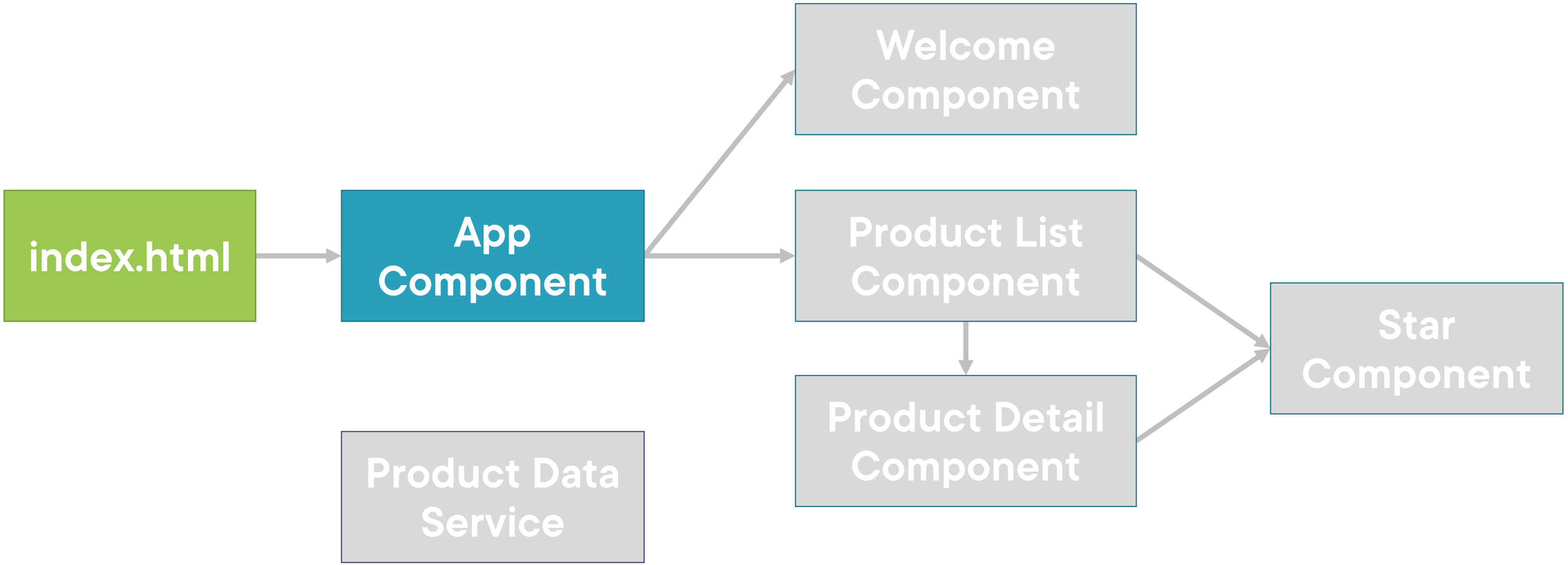
Repeat an element and its children in the DOM
- **For each object in an iterable list**

Define the local variable with `let`

Specify `'of'`

```
<tr *ngFor='let product of products’>
  ...
</tr>
```

Application Architecture



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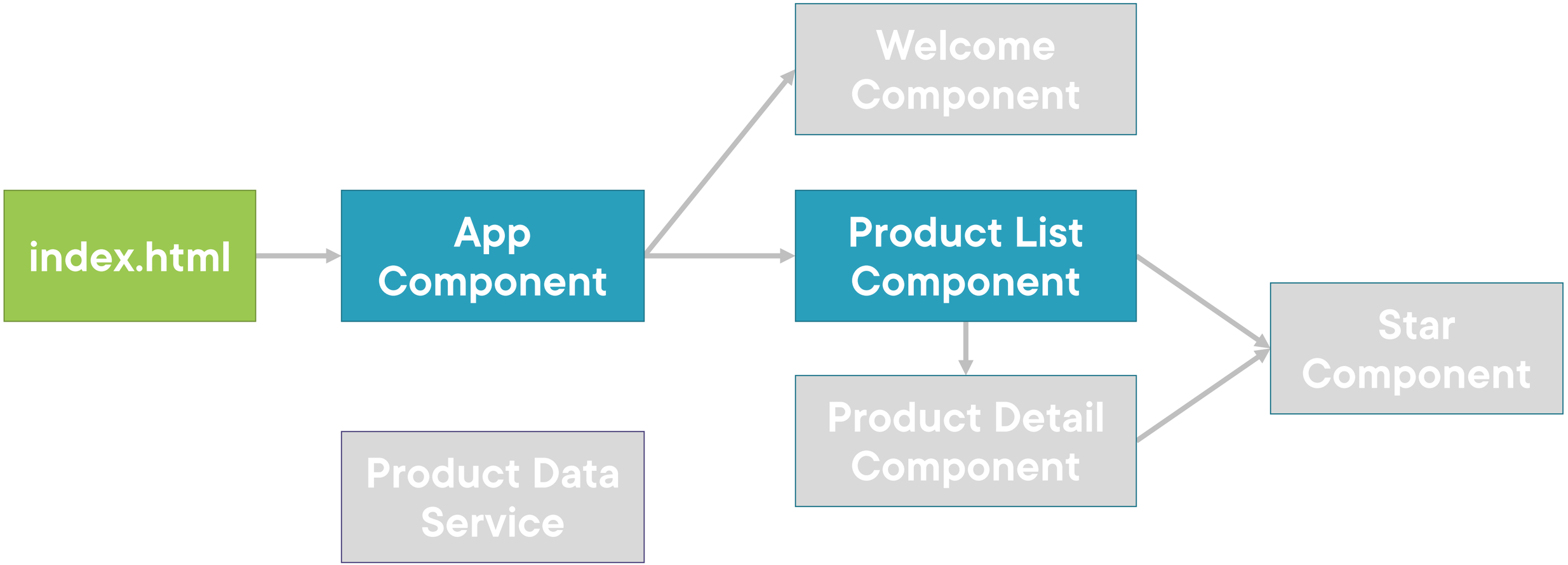

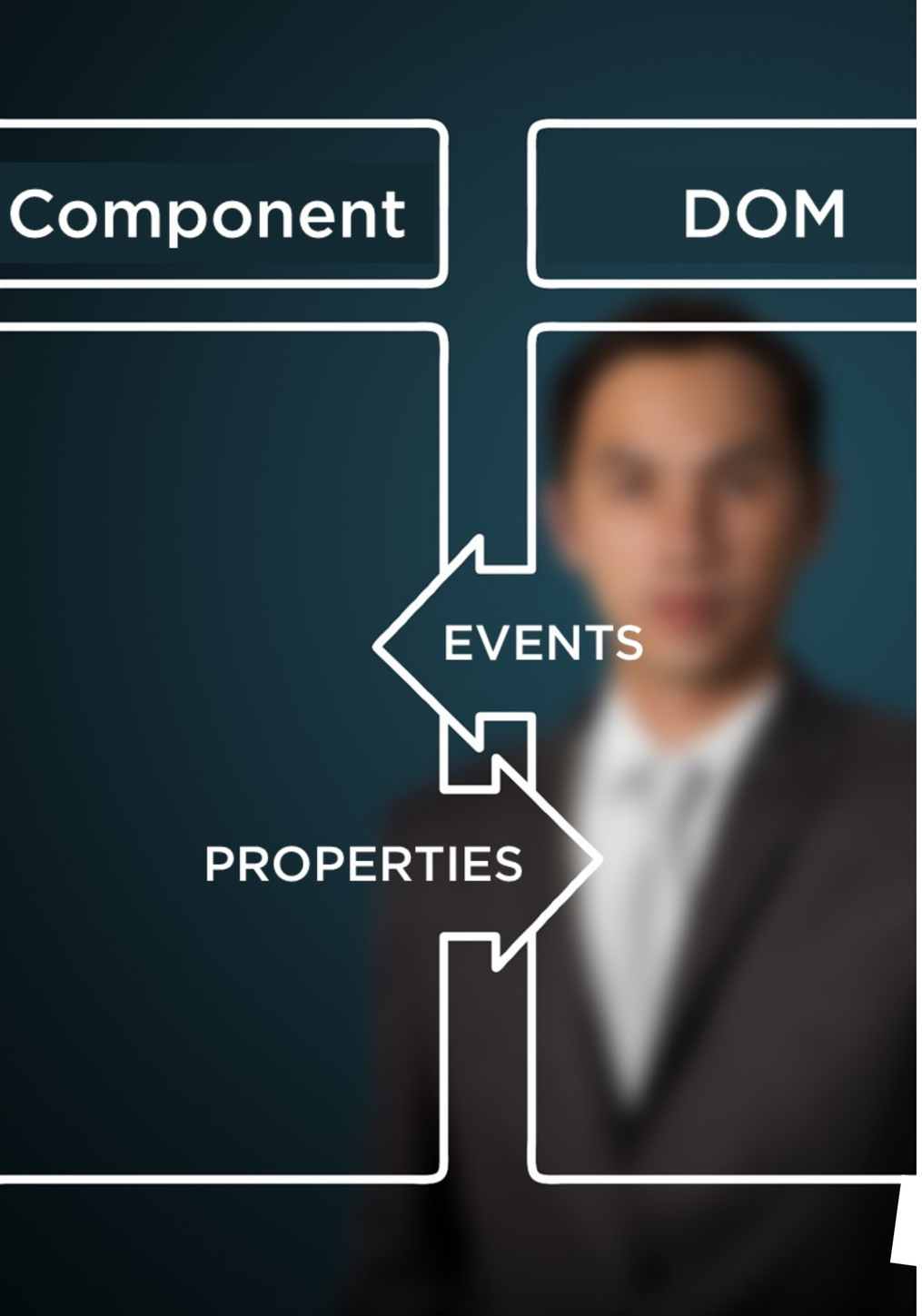

Coming up next ...

Data Binding & Pipes