

Templates, Interpolation, and Directives



Deborah Kurata

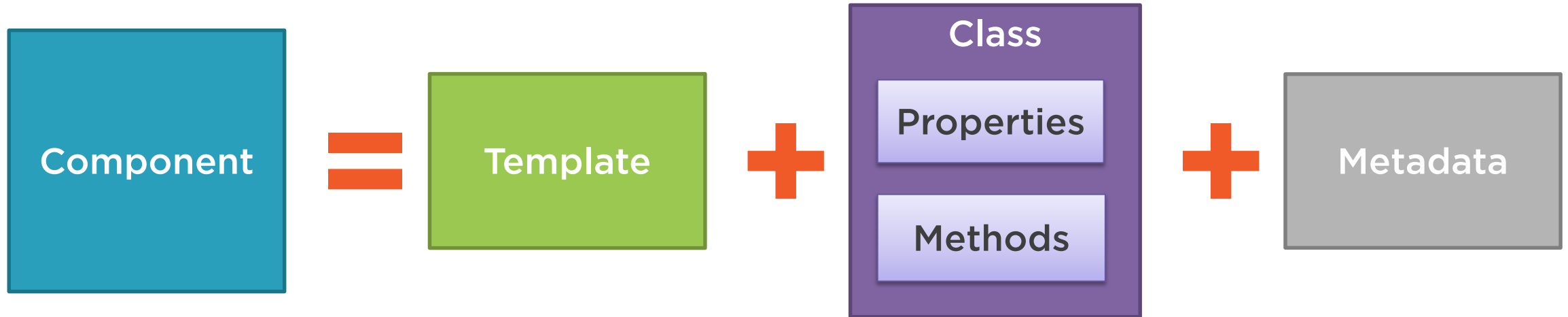
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Component



Module Overview



Building a Template

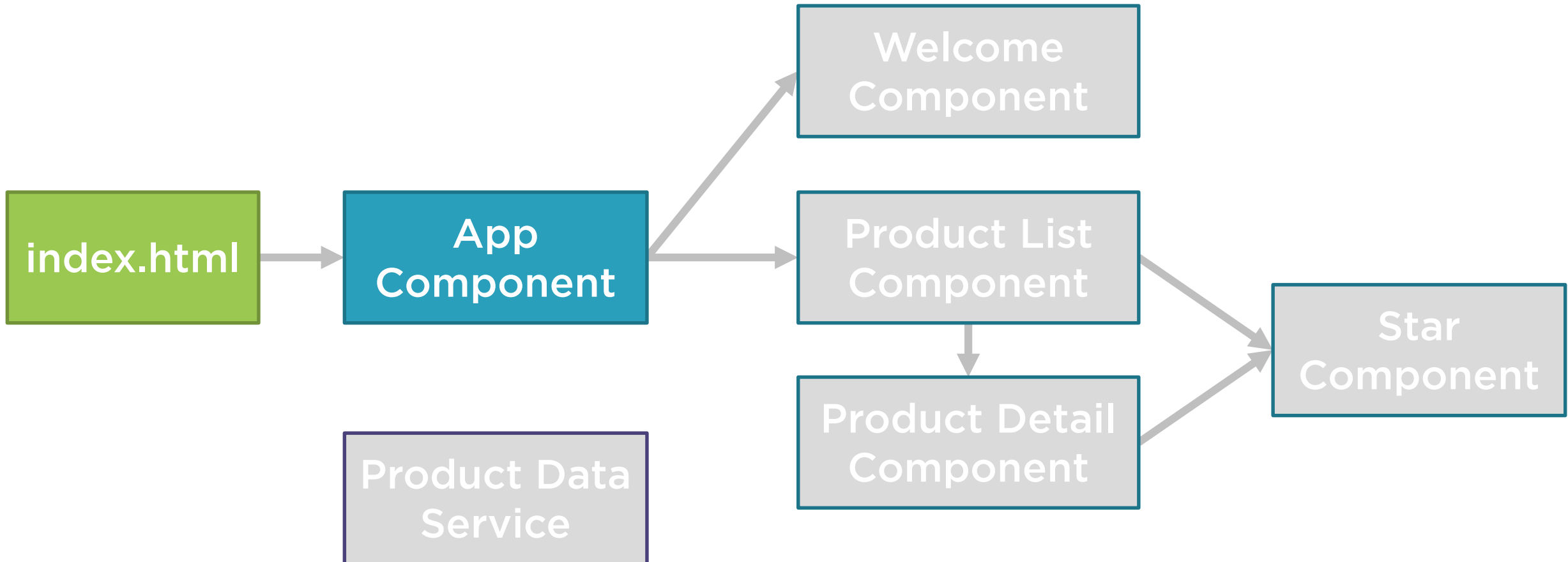
Using a Component as a Directive

Binding with Interpolation

Adding Logic with Directives



Application Architecture



Component

app.component.ts

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

@Component({
  selector: 'pm-app',
  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

Mar 19, 2016

\$19.95

★★★★

Garden Cart

GDN-0023

Mar 18, 2016

\$32.99

★★★★

Hammer

TBX-0048

May 21, 2016

\$8.99

★★★★★

Saw

TBX-0022

May 15, 2016

\$11.55

★★★★

Video Game Controller

GMG-0042

Oct 15, 2015

\$35.95

★★★★★



Product List View

Product List

Filter by: x

Filtered by: am

Show Image

Product

Code

Available

Price

5 Star Rating

Hammer

TBX-0048

May 21, 2016

\$8.99

★★★★★

Video Game Controller

GMG-0042

Oct 15, 2015

\$35.95

★★★★★



Product List View

Product List

Filter by:

Filtered by: am

Hide Image

Product

Code

Available

Price

5 Star Rating



Hammer

TBX-0048

May 21, 2016

\$8.99

★★★★★



Video Game Controller

GMG-0042

Oct 15, 2015

\$35.95

★★★★★



Product List View

Product List					
Filter by:	<input type="text"/>				
Show Image	Product	Code	Available	Price	5 Star Rating
	Leaf Rake	GDN-0011	Mar 19, 2016	\$19.95	★★★
	Garden Cart	GDN-0023	Mar 18, 2016	\$32.99	★★★★
	Hammer	TBX-0048	May 21, 2016	\$8.99	★★★★★
	Saw	TBX-0022	May 15, 2016	\$11.55	★★★★
	Video Game Controller	GMG-0042	Oct 15, 2015	\$35.95	★★★★★

<http://getbootstrap.com/>



Building the Component

product-list.component.ts

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

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



Using a Component as a Directive

app.component.ts

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

product-list.component.ts

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



Using a Component as a Directive

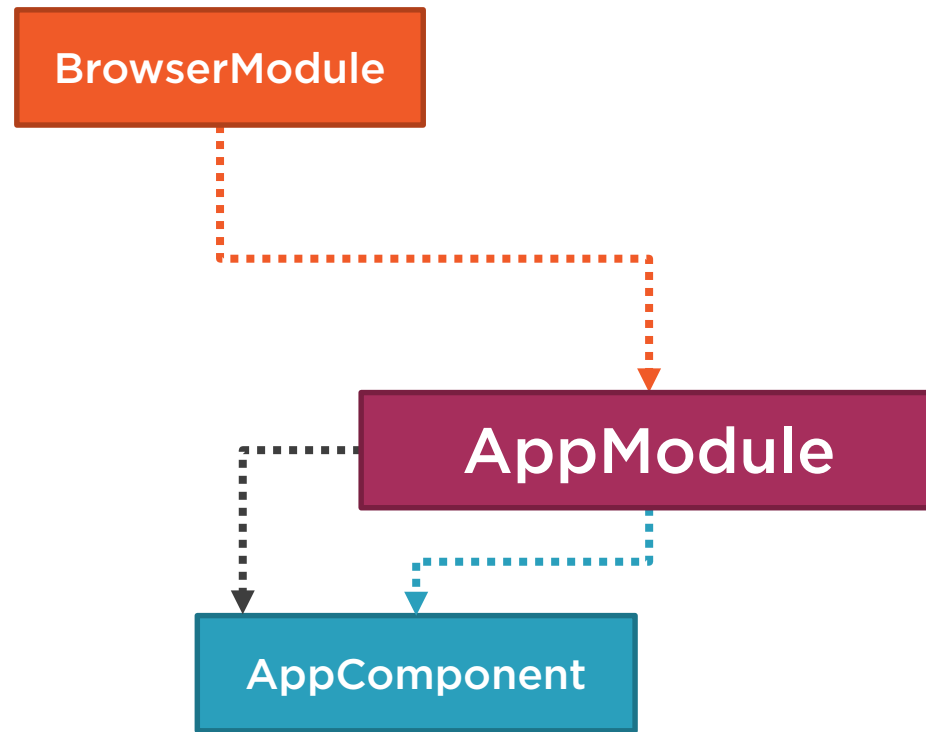
app.component.ts

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

product-list.component.ts

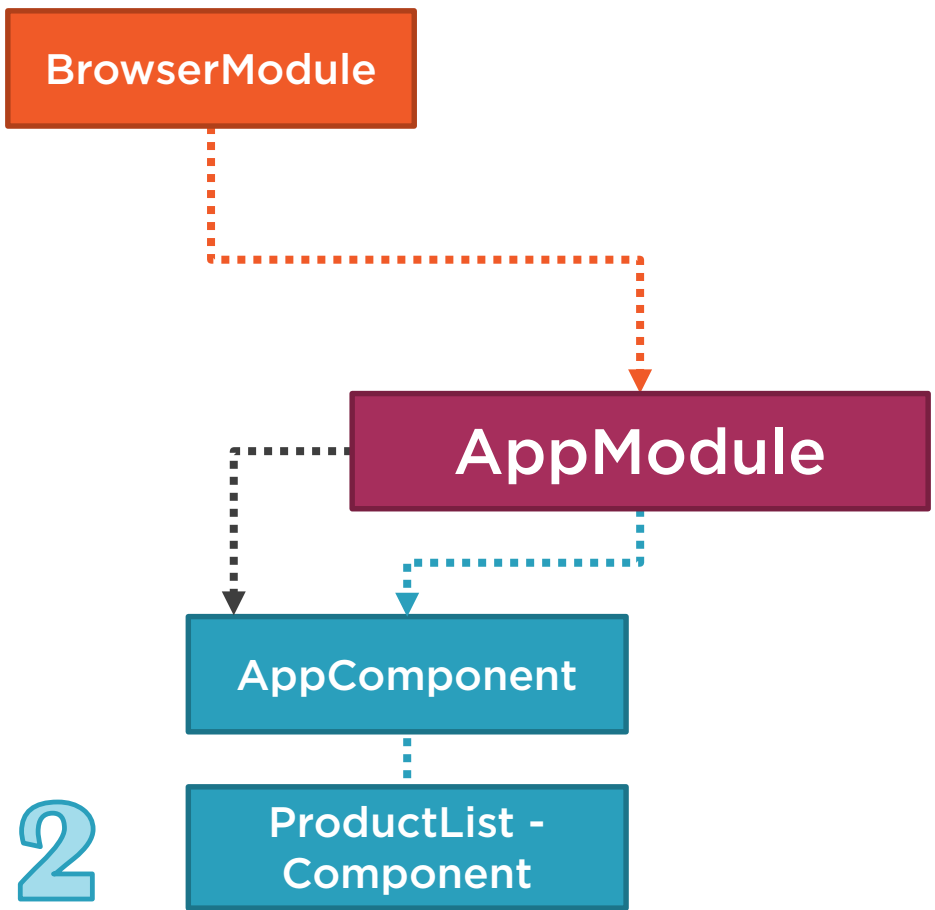
```
@Component({
  selector: 'pm-products',
  templateUrl:
    'app/products/product-list.component.html'
})
export class ProductListComponent { }
```





- Imports
- Exports
- Declarations
- Providers
- Bootstrap



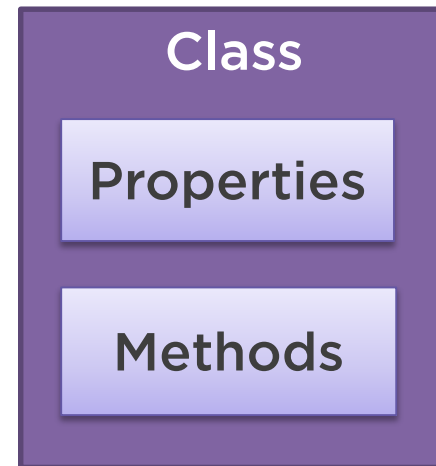


- Imports
- Exports
- Declarations
- Providers
- Bootstrap



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}}
{{'Title: ' + getTitle()}}
<h1 innerText={{pageTitle}}></h1>
```

Class

```
export class AppComponent {
  pageTitle: string =
    'Acme Product Management';
  getTitle(): string {...};
}
```



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

product-list.component.ts

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



Angular Built-in Directives

Structural Directives

***ngIf: If logic**

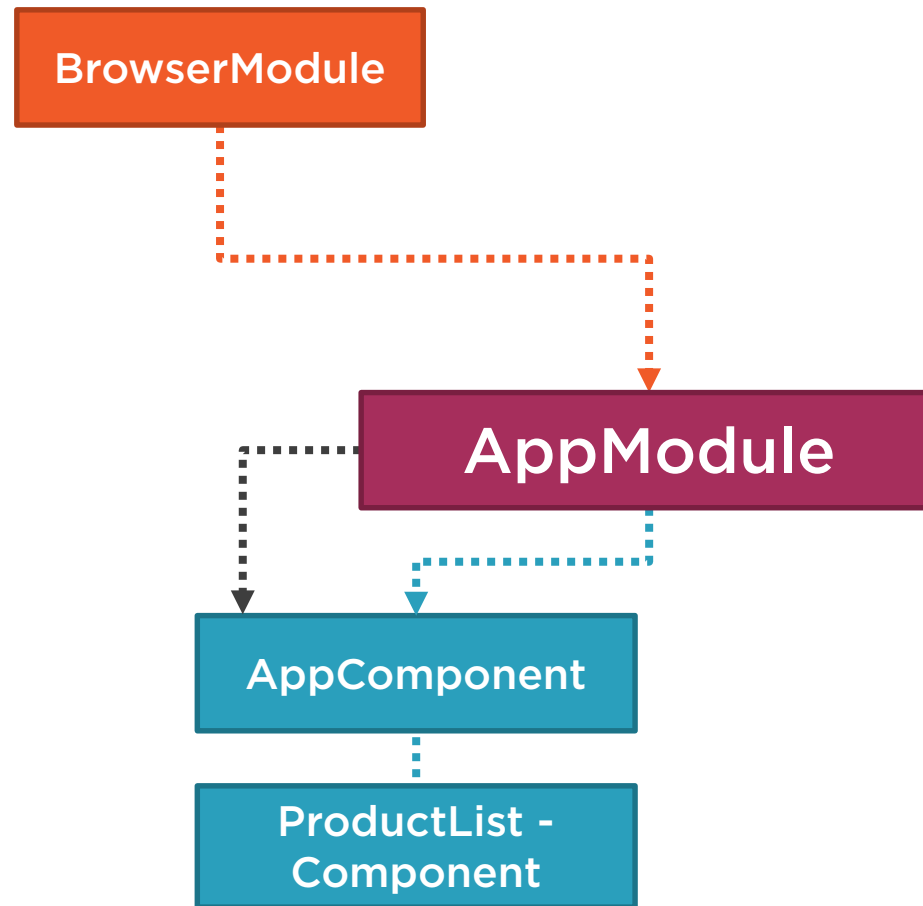
***ngFor: For loops**



*ngIf Built-In Directive

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





- Imports
- Exports
- Declarations
- Providers
- 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>
```

Template
input variable



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>
```



Checklist: Template



Inline template

- For short templates
- Specify the **template** property
- Use the ES 2015 back ticks for multiple lines
- Watch syntax

Linked template

- For longer templates
- Specify the **templateUrl** property
- Define the path to the HTML file



Checklist: Component as a Directive

app.component.ts

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

product-list.component.ts

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

app.module.ts

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



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

Checklist: Structural Directives



***ngIf and *ngFor**

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

***ngIf**

- Expression is evaluated as a true or false value

***ngFor**

- Define the local variable with **let**
- Specify 'of': **'let product of products'**



Summary



Building a Template

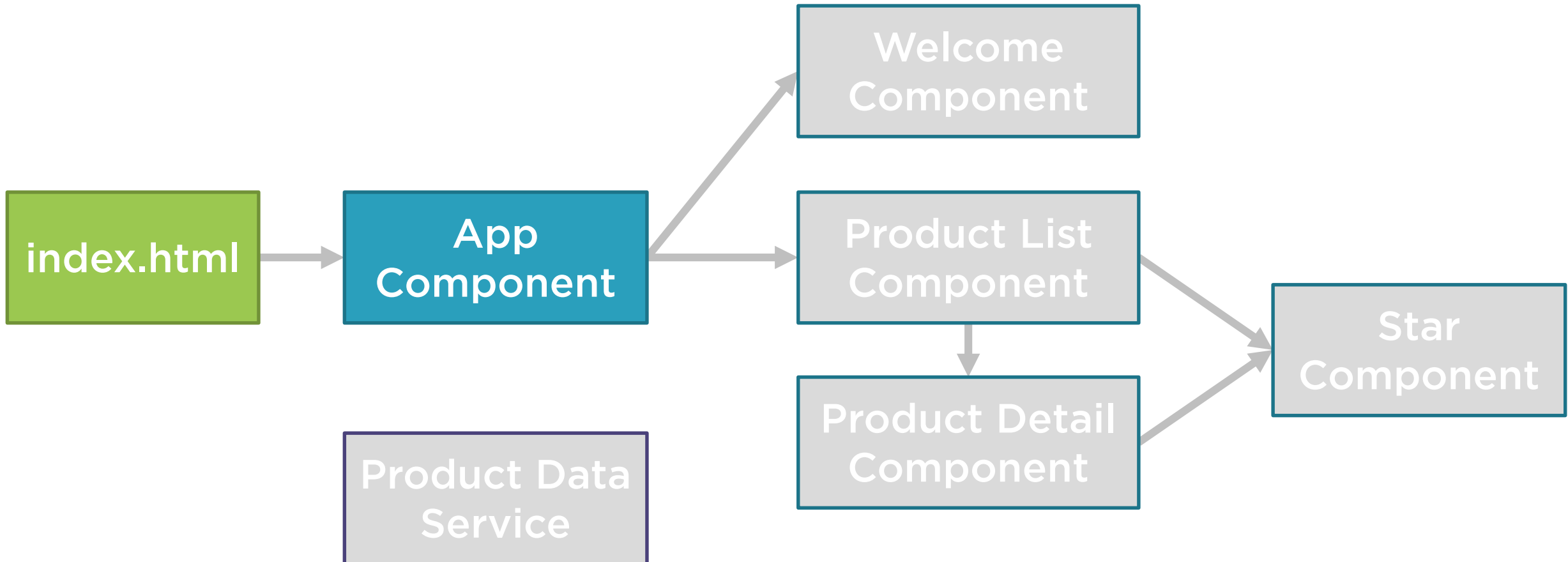
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Application Architecture



Application Architecture

