Templates, Interpolation, and Directives

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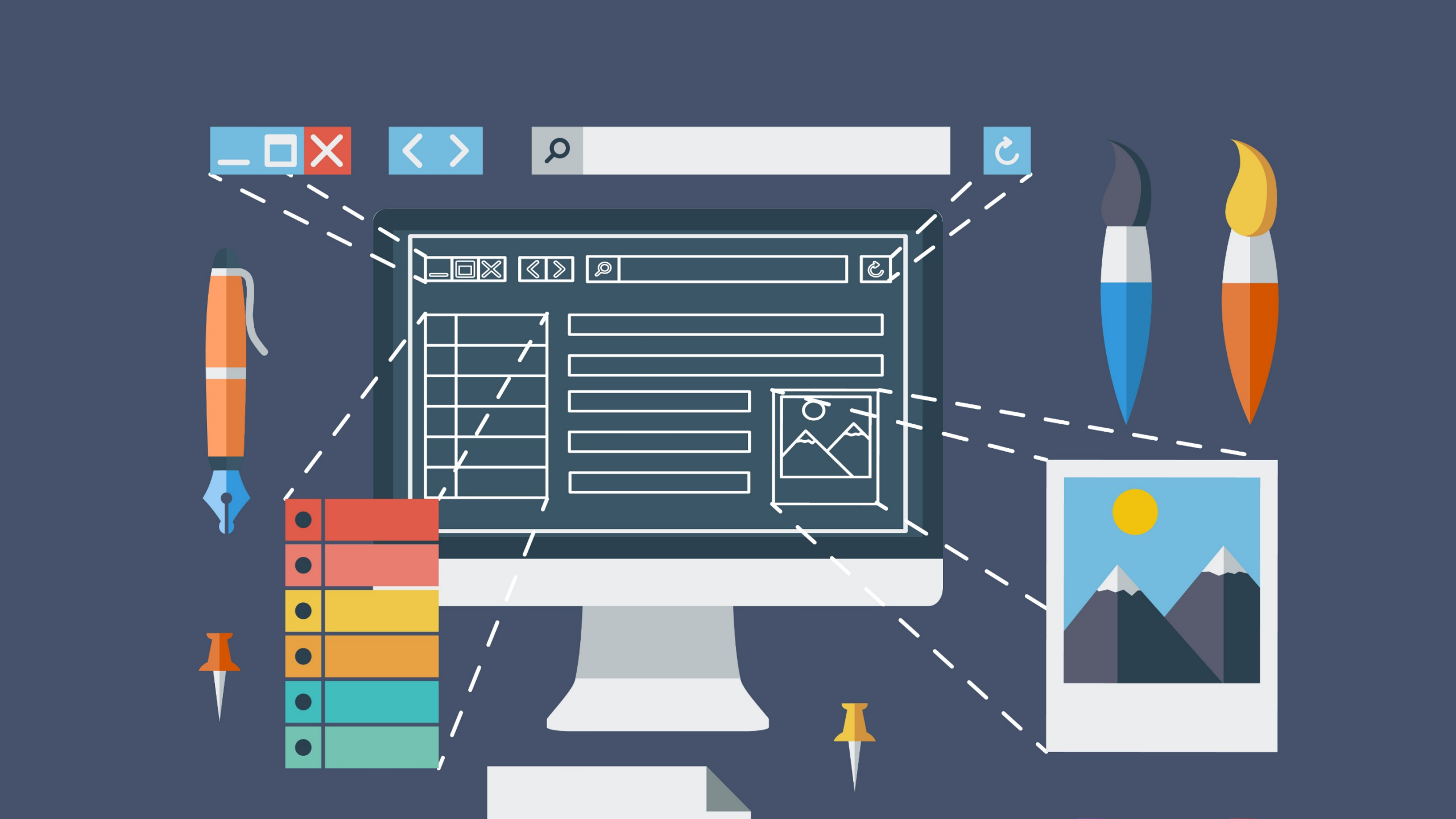
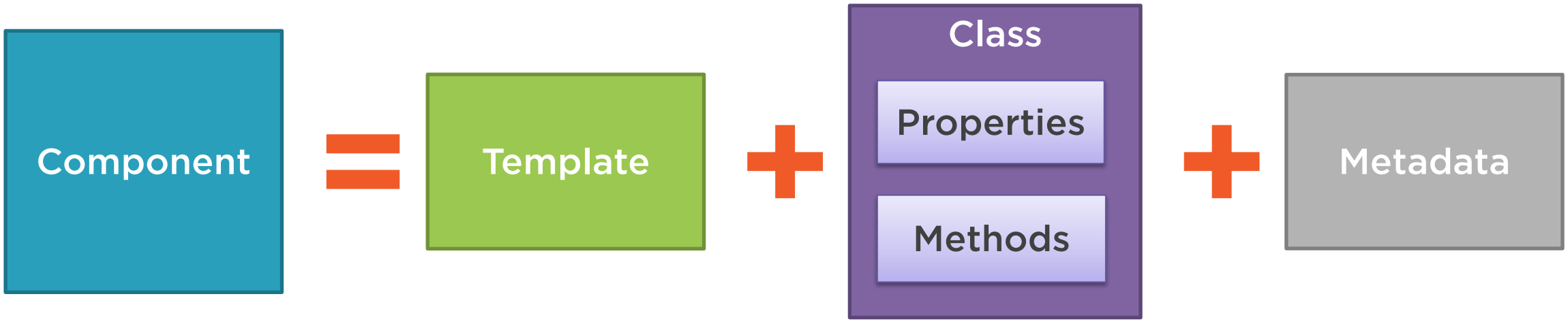


Component



Module Overview

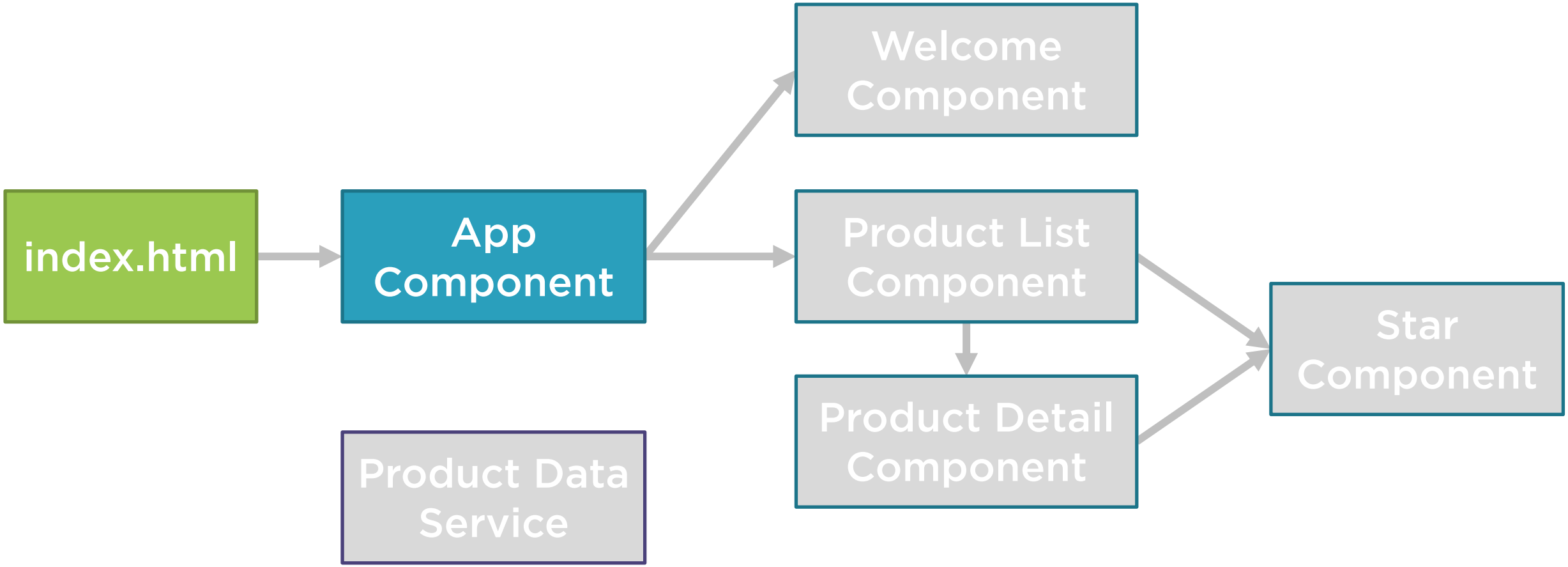
Building a Template

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-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, 2016	$19.95	
Garden Cart	gdn 0023	March 18, 2016	$32.99	
Hammer	tbx 0048	May 21, 2016	$8.90	
Saw	tbx 0022	May 15, 2016	$11.55	
Video Game Controller	gmg 0042	October 15, 2015	$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, 2016	$8.90	★★★★★
	Video Game Controller	gmg 0042	October 15, 2015	$35.95	★★★★½

Product List View

Product List

Filter by: am

Filtered by: am

Hide Image	Product	Code	Available	Price	5 Star Rating
	Hammer	tbx 0048	May 21, 2016	$8.90	★★★★★
	Video Game Controller	gmg 0042	October 15, 2015	$35.95	★★★★½

Product List View

Product List

Filter by:

Show Image

Product	Code	Available	Price	5 Star Rating
Leaf Rake	gdn 0011	March 19, 2016	$19.95	★★★½
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Video Game Controller	gmg 0042	October 15, 2015	$35.95	★★★★½

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

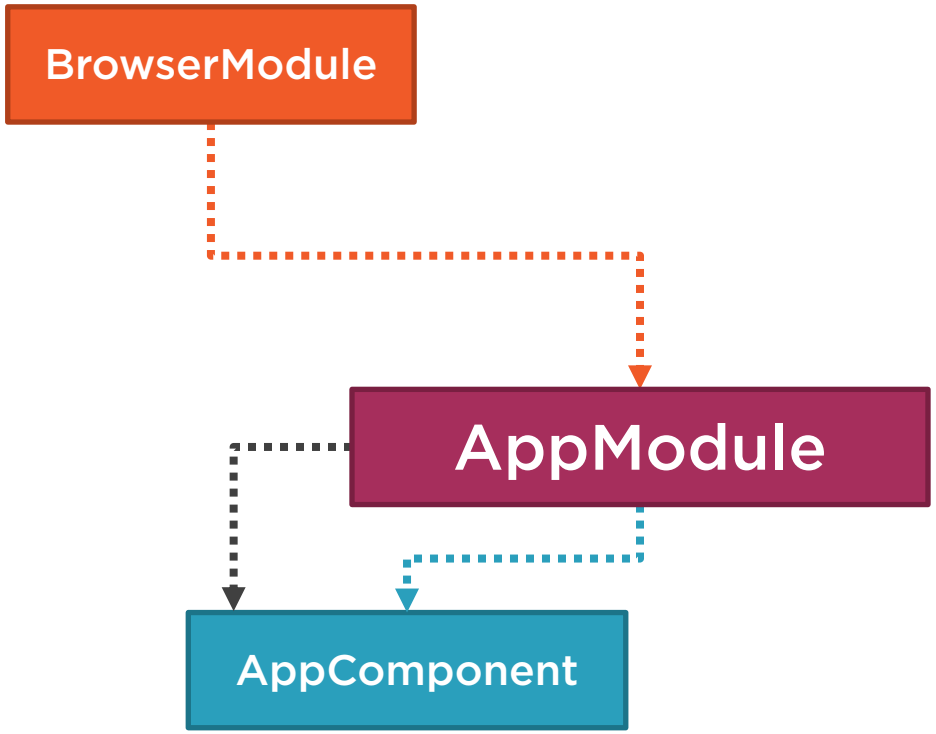
app.component.ts

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



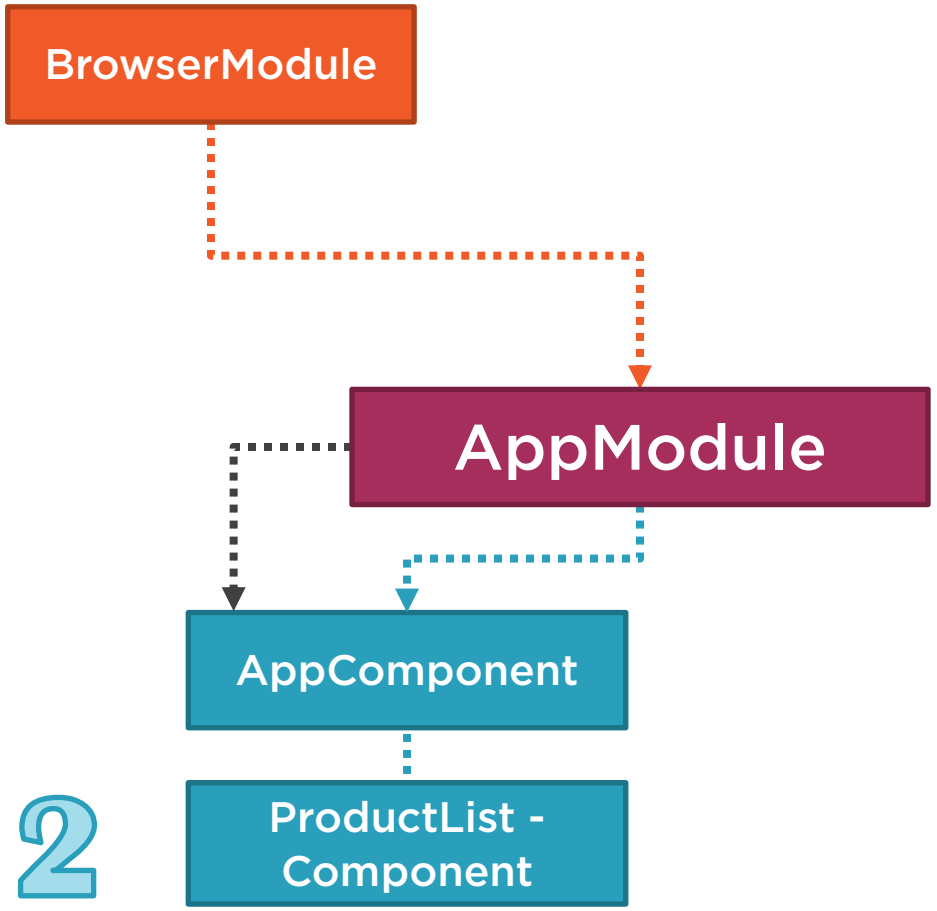
Imports

Exports

Declarations

Providers

Bootstrap



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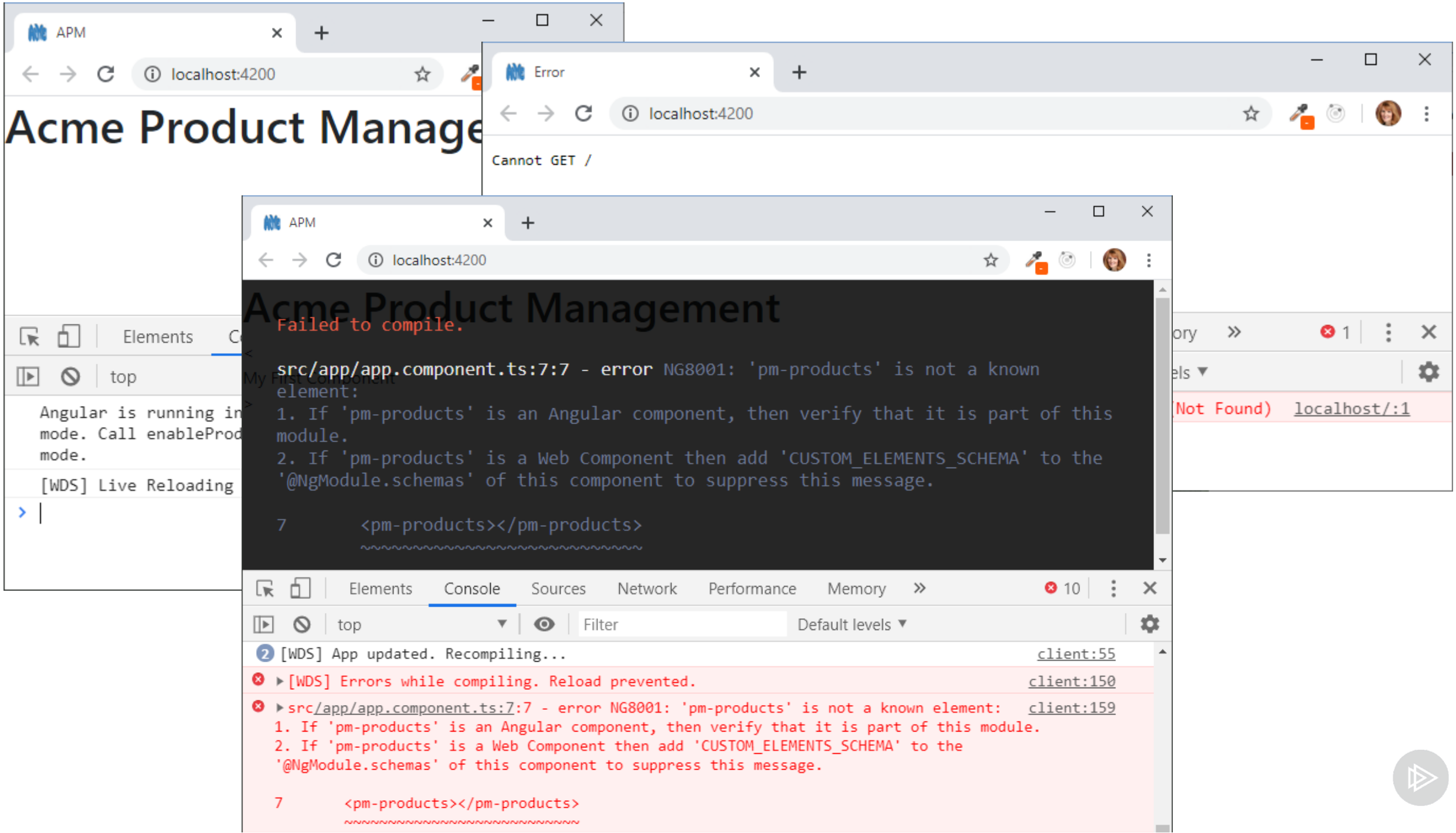

APM
localhost:4200
Acme Product Manage
Error
localhost:4200
Cannot GET /
APM
localhost:4200
Acme Product Management
Failed to compile.
src/app/app.component.ts:7:7 - error NG8001: 'pm-products' is not a known element:
1. If 'pm-products' is an Angular component, then verify that it is part of this module.
2. If 'pm-products' is a Web Component then add 'CUSTOM_ELEMENTS_SCHEMA' to the '@NgModule.schemas' of this component to suppress this message.
7 <pm-products></pm-products>
Elements
Console
Sources
Network
Performance
Memory
top
Filter
Default levels
[WDS] App updated. Recompiling...
client:55
[WDS] Errors while compiling. Reload prevented.
client:150
src/app/app.component.ts:7:7 - error NG8001: 'pm-products' is not a known element:
client:159
1. If 'pm-products' is an Angular component, then verify that it is part of this module.
2. If 'pm-products' is a Web Component then add 'CUSTOM_ELEMENTS_SCHEMA' to the '@NgModule.schemas' of this component to suppress this message.
7 <pm-products></pm-products>
Elements
top
Angular is running in mode. Call enableProd mode.
[WDS] Live Reloading
(Not Found)
localhost/:1

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-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 { }
```

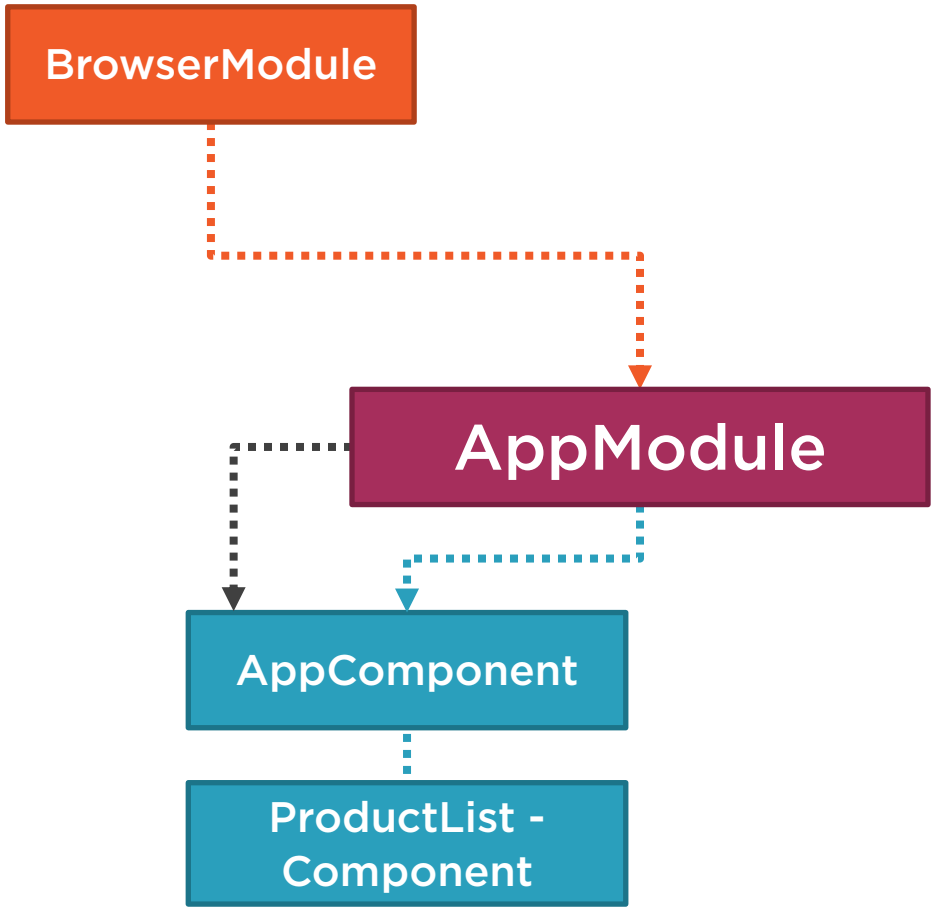
Angular Built-in Directives

Structural Directives

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

*ngIf Built-In Directive

```
<div class='table-responsive'>
 <table class='table' *ngIf='products && 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

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 { }
```

1

app.module.ts

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

2

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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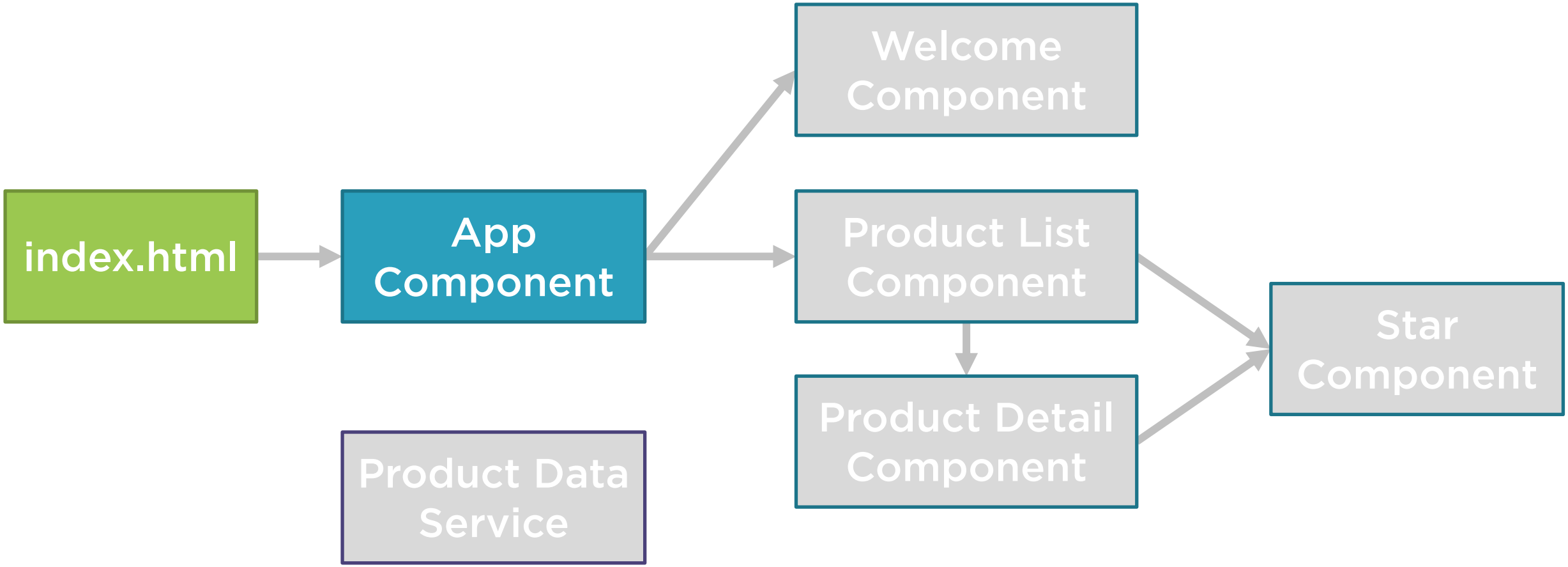
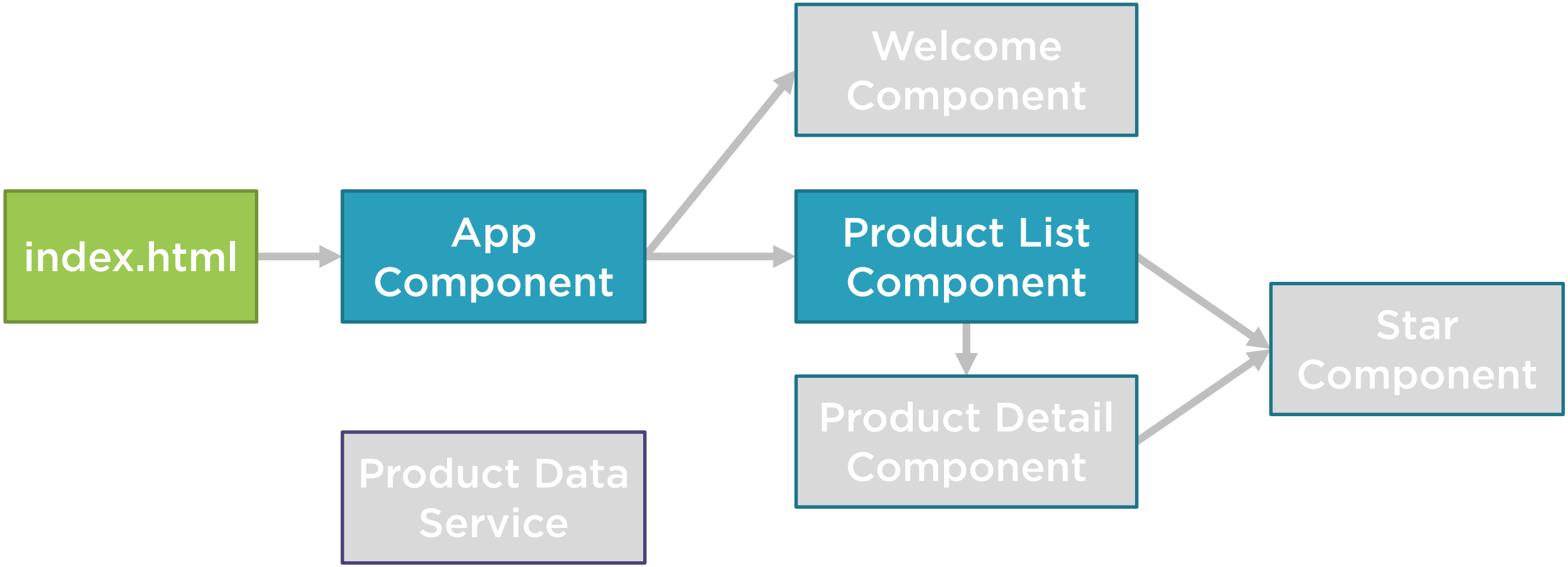
Application Architecture



Application Architecture