Front End Development 1
Sesi 21

Angular Expressions

Template Expressions

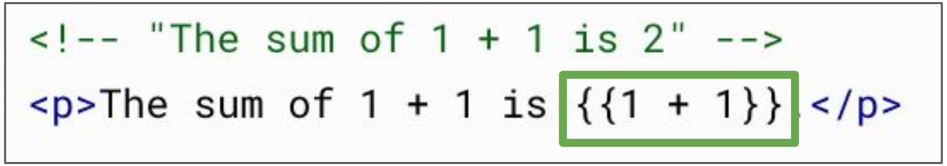
Expression adalah kode sederhana yang menghasilkan value. Template Expression dalam Angular hampir mirip dengan Expression dari Javascript. Dalam Angular, value yang dihasilkan akan convert menjadi string dengan interpolasi **{{ }}**

KIta tidak bisa menggunakan javascript expression yang menyebabkan *side-effects* (mengubah suatu value variable yang sudah ada). Termasuk:

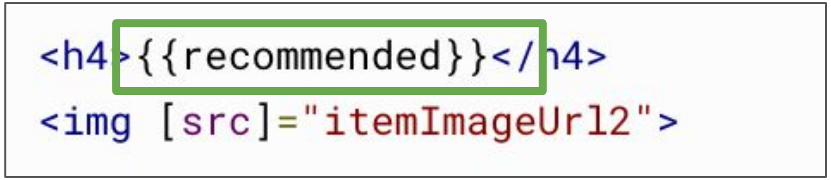
- Assignments (=, +=, -=, ...)
- Operators seperti: new, typeof, atau instanceof
- Chaining expressions with ; or ,
- increment dan decrement operators: ++   --
- Beberapa ES2015+ operators

Referensi: https://angular.io/guide/interpolation

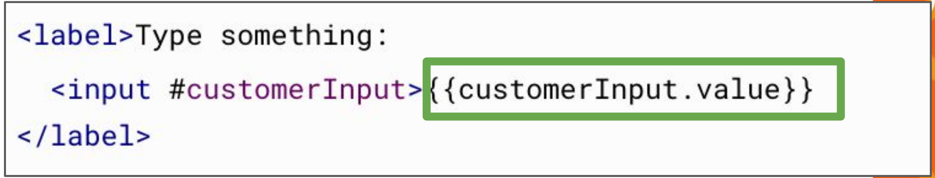
Template Expressions: Contoh



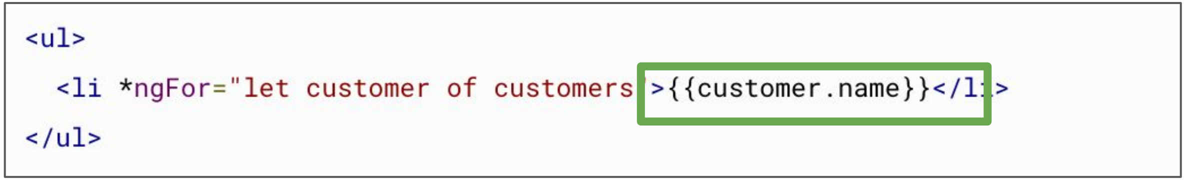
```html
<!-- "The sum of 1 + 1 is 2" -->
<p>The sum of 1 + 1 is {{1 + 1}}.</p>
```



```html
<h4>{{recommended}}</h4>
<img [src]="itemImageUrl2">
```



```html
<label>Type something:
  <input #customerInput>{{customerInput.value}}
</label>
```

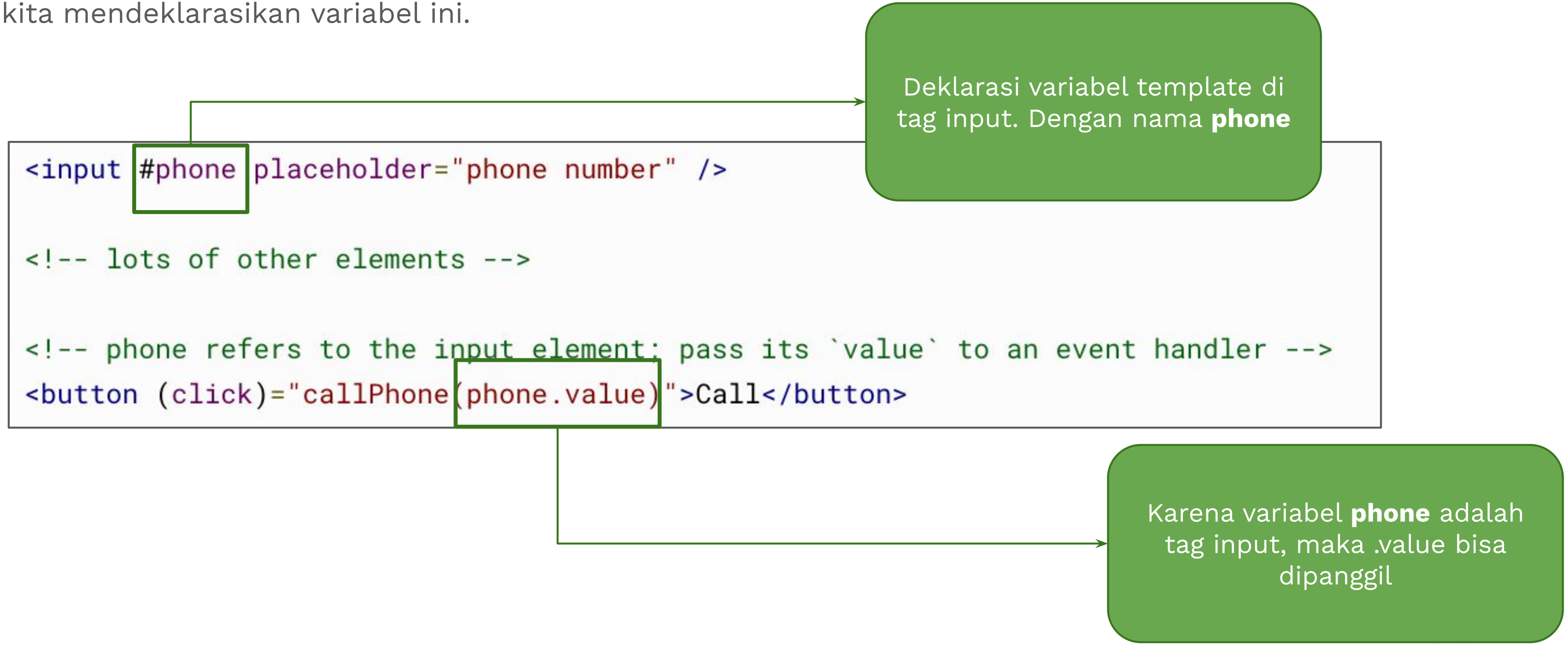


```html
<ul>
  <li *ngFor="let customer of customers">{{customer.name}}</li>
</ul>
```

Referensi: https://angular.io/guide/interpolation

Variabel Template

Dalam template, kita bisa menggunakan simbol **#** untuk mendeklarasi variabel template. Variabel Template dapat dideklarasikan di komponen, tag html, ng-template. Value yang diassign ke variabel template, tergantung dimana kita mendeklarasikan variabel ini.



```
<input #phone placeholder="phone number" />

<!-- lots of other elements -->

<!-- phone refers to the input element; pass its `value` to an event handler -->
<button (click)="callPhone(phone.value)">Call</button>
```

Deklarasi variabel template di tag input. Dengan nama **phone**

Karena variabel **phone** adalah tag input, maka .value bisa dipanggil

Referensi: https://angular.io/guide/template-reference-variables

Angular Directives

Angular Directives

Directives adalah class-class yang menambah behavior dalam elemen di aplikasi ANgular. Kita bisa menggunakan built-in directives untuk memanage forms,list, styles dan appaun yang user akan lihat.

Tipe-tipe Directives dalam Angular:

- **Components**: directives dengan template.
- **Directive Attribute**: Directive yang mengganti penampilan atau perilaku dari suatu elemen, komponen atau directive lainnya
- **Directive Structural**: Directive yang mengganti layout DOM dengan menambah dan menghapus elemen DOM

Referensi: https://angular.io/guide/built-in-directives

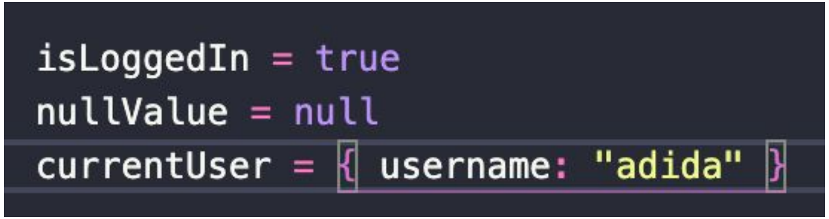
Structural Directives

Beberapa Built-in Directive Structural:

- **NgIf**: Membuat kondisi untuk membuat atau menghapus subview dari suatu template
- **NgFor**: Mengulangi node dari setiap item dalam suatu list.
- **NgSwitch:** Dapat menukar/mengganti dengan alternatif view lainnya.

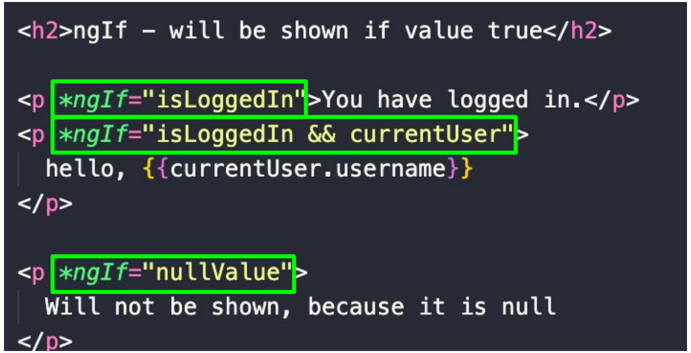
Referensi: https://angular.io/guide/structural-directives

Structural Directives: NgIf



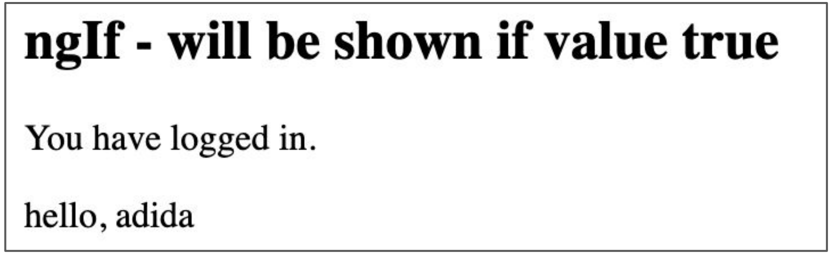
```
isLoggedIn = true
nullValue = null
currentUser = { username: "adida" }
```

Dalam file .component.ts



```
<h2>ngIf - will be shown if value true</h2>

<p *ngIf="isLoggedIn">You have logged in.</p>
<p *ngIf="isLoggedIn && currentUser">
  hello, {{currentUser.username}}
</p>

<p *ngIf="nullValue">
  Will not be shown, because it is null
</p>
```

Dalam file .component.html



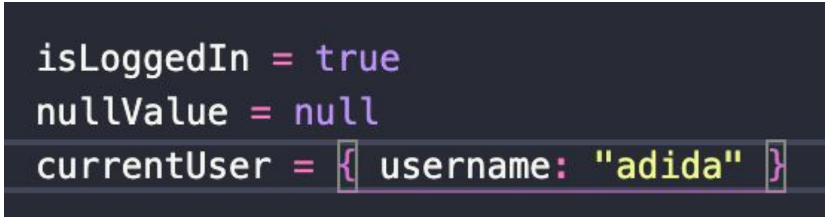
```
ngIf - will be shown if value true

You have logged in.

hello, adida
```

Output di browser

Untuk elemen-elemen yang tidak muncul karena **jika value tidak terpenuhi, maka elemen tidak akan muncul pada dom html.**

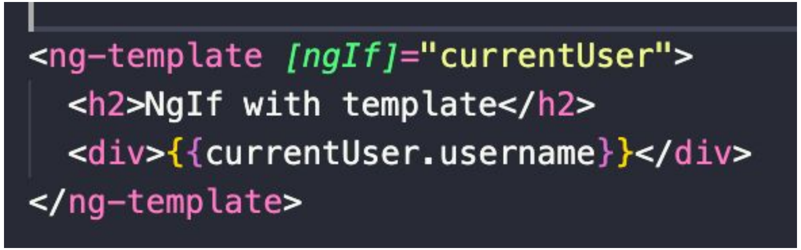
Referensi: https://angular.io/guide/structural-directives

Structural Directives: NgIf template



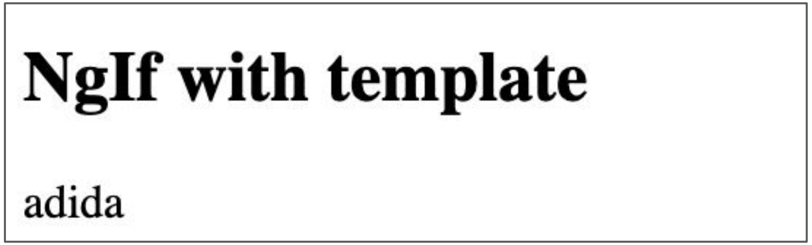
```
isLoggedIn = true
nullValue = null
currentUser = { username: "adida" }
```

Dalam file .component.ts



```
<ng-template [ngIf]="currentUser">
  <h2>NgIf with template</h2>
  <div>{{currentUser.username}}</div>
</ng-template>
```

Dalam file .component.html



NgIf with template

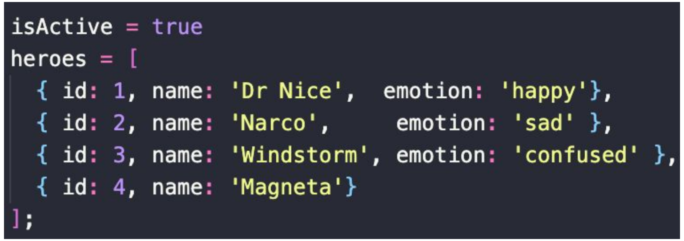
adida

Output di browser

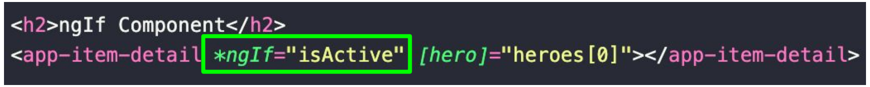
Referensi: https://angular.io/guide/structural-directives

Structural Directives: NgIf Component

Parent Component:

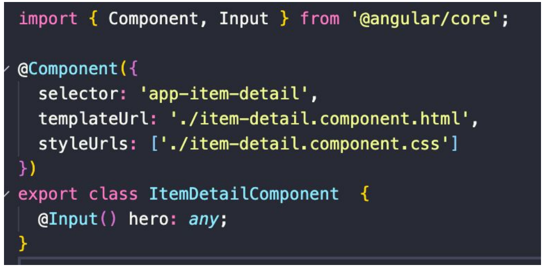


```
isActive = true
heroes = [
  { id: 1, name: 'Dr Nice',  emotion: 'happy'},
  { id: 2, name: 'Narco',     emotion: 'sad' },
  { id: 3, name: 'Windstorm', emotion: 'confused' },
  { id: 4, name: 'Magneta'}
];
```

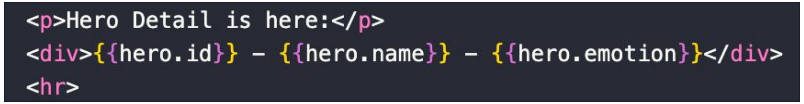


```
<h2>ngIf Component</h2>
<app-item-detail *ngIf="isActive" [hero]="heroes[0]"></app-item-detail>
```

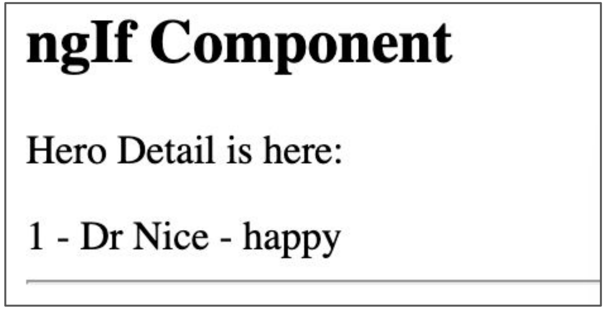
Child Component:



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

@Component({
  selector: 'app-item-detail',
  templateUrl: './item-detail.component.html',
  styleUrls: ['./item-detail.component.css']
})
export class ItemDetailComponent  {
  @Input() hero: any;
}
```



```
<p>Hero Detail is here:</p>
<div>{{hero.id}} - {{hero.name}} - {{hero.emotion}}</div>
<hr>
```



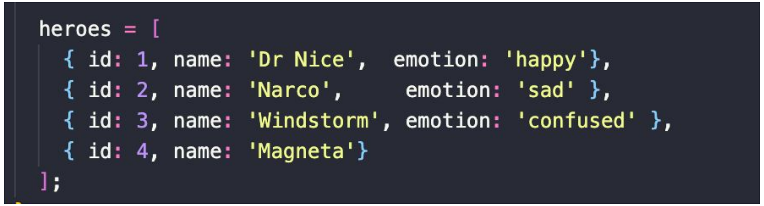
ngIf Component

Hero Detail is here:

1 - Dr Nice - happy

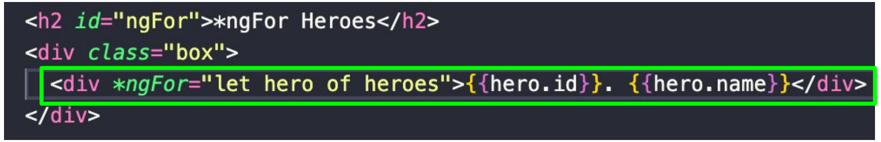
Referensi: https://angular.io/guide/structural-directives

Structural Directives: NgFor



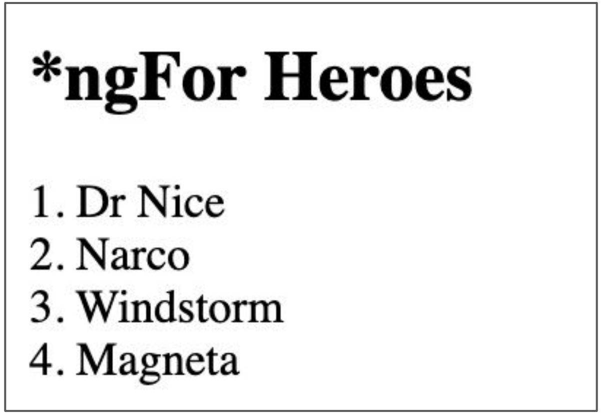
```
heroes = [
  { id: 1, name: 'Dr Nice',  emotion: 'happy'},
  { id: 2, name: 'Narco',     emotion: 'sad' },
  { id: 3, name: 'Windstorm', emotion: 'confused' },
  { id: 4, name: 'Magneta'}
];
```

Dalam file .component.ts



```
<h2 id="ngFor">*ngFor Heroes</h2>
<div class="box">
  <div *ngFor="let hero of heroes">{{hero.id}}. {{hero.name}}</div>
</div>
```

Dalam file .component.html



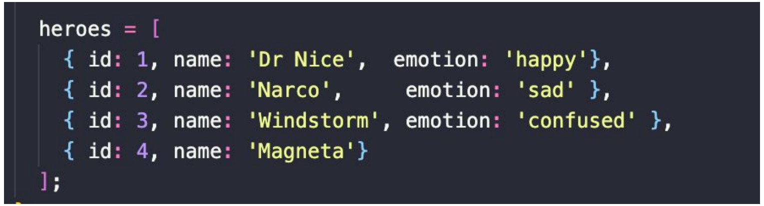
*ngFor Heroes

1. Dr Nice
2. Narco
3. Windstorm
4. Magneta

Output di browser

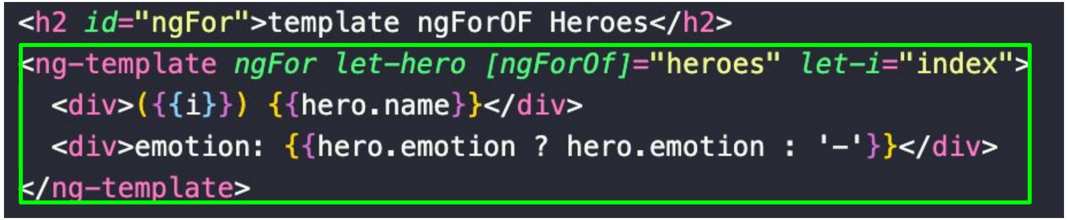
Referensi: https://angular.io/guide/structural-directives

Structural Directives: NgFor template



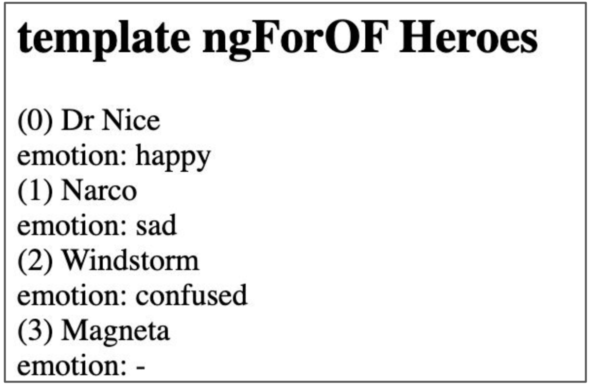
```
heroes = [
  { id: 1, name: 'Dr Nice',  emotion: 'happy'},
  { id: 2, name: 'Narco',     emotion: 'sad' },
  { id: 3, name: 'Windstorm', emotion: 'confused' },
  { id: 4, name: 'Magneta'}
];
```

Dalam file .component.ts



```
<h2 id="ngFor">template ngForOF Heroes</h2>
<ng-template ngFor let-hero [ngForOf]="heroes" let-i="index">
  <div>({{i}}) {{hero.name}}</div>
  <div>emotion: {{hero.emotion ? hero.emotion : '-'}}</div>
</ng-template>
```

Dalam file .component.html



template ngForOF Heroes

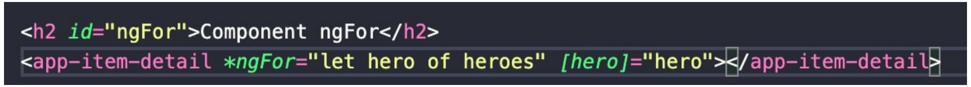
(0) Dr Nice
emotion: happy
(1) Narco
emotion: sad
(2) Windstorm
emotion: confused
(3) Magneta
emotion: -

Output di browser

Referensi: https://angular.io/guide/structural-directives

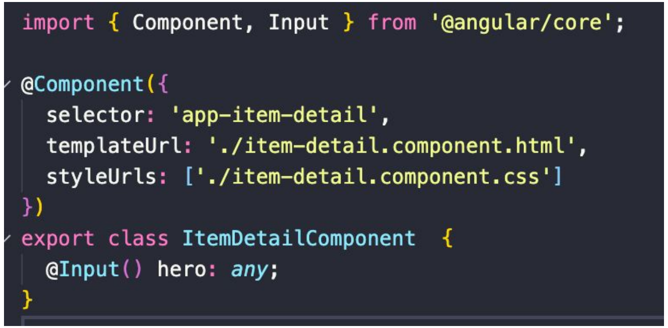
Structural Directives: NgFor component

Parent Component:

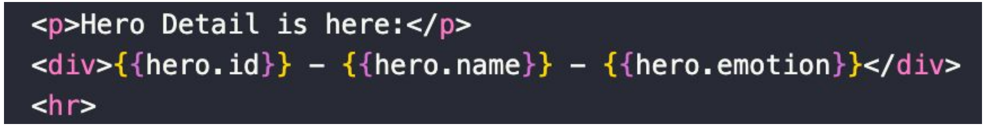


```
<h2 id="ngFor">Component ngFor</h2>
<app-item-detail *ngFor="let hero of heroes" [hero]="hero"></app-item-detail>
```

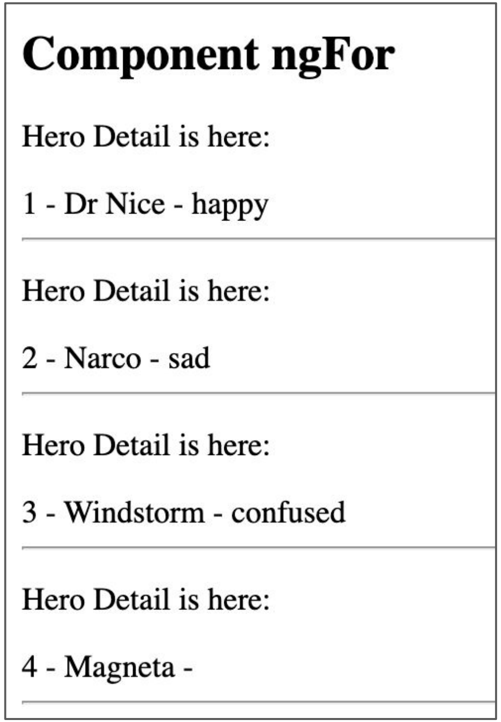
Child Component:



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

@Component({
  selector: 'app-item-detail',
  templateUrl: './item-detail.component.html',
  styleUrls: ['./item-detail.component.css']
})
export class ItemDetailComponent  {
  @Input() hero: any;
}
```



```
<p>Hero Detail is here:</p>
<div>{{hero.id}} - {{hero.name}} - {{hero.emotion}}</div>
<hr>
```



Component ngFor

Hero Detail is here:

1 - Dr Nice - happy

Hero Detail is here:

2 - Narco - sad

Hero Detail is here:

3 - Windstorm - confused

Hero Detail is here:

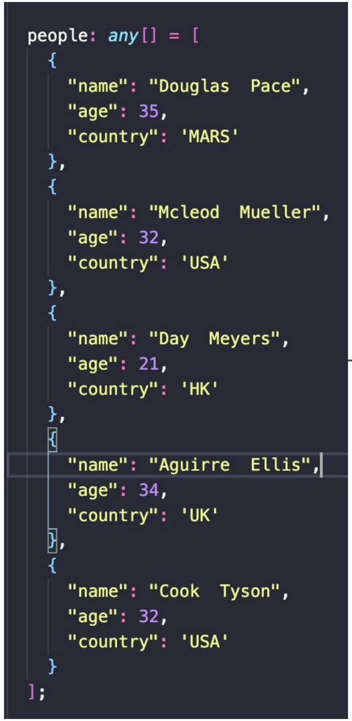
4 - Magneta -

Referensi: https://angular.io/guide/structural-directives

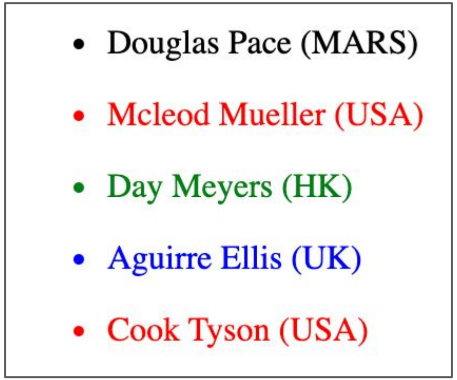
Study Case

Diketahui data orang beserta asal negara. Bagaimana cara menampilkan warna text berdasar asal negara?

- USA - text merah
- HK - text hijau
- UK - text biru
- Selain 3 diatas, text hitam



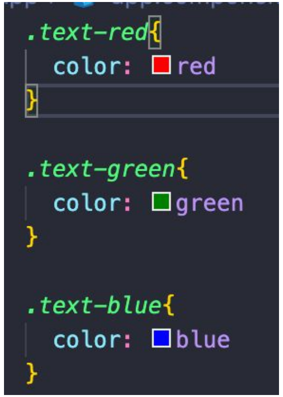
```
people: any[] = [
  {
    "name": "Douglas  Pace",
    "age": 35,
    "country": 'MARS'
  },
  {
    "name": "Mcleod  Mueller",
    "age": 32,
    "country": 'USA'
  },
  {
    "name": "Day  Meyers",
    "age": 21,
    "country": 'HK'
  },
  {
    "name": "Aguirre  Ellis",
    "age": 34,
    "country": 'UK'
  },
  {
    "name": "Cook  Tyson",
    "age": 32,
    "country": 'USA'
  }
];
```



- Douglas Pace (MARS)
- Mcleod Mueller (USA)
- Day Meyers (HK)
- Aguirre Ellis (UK)
- Cook Tyson (USA)

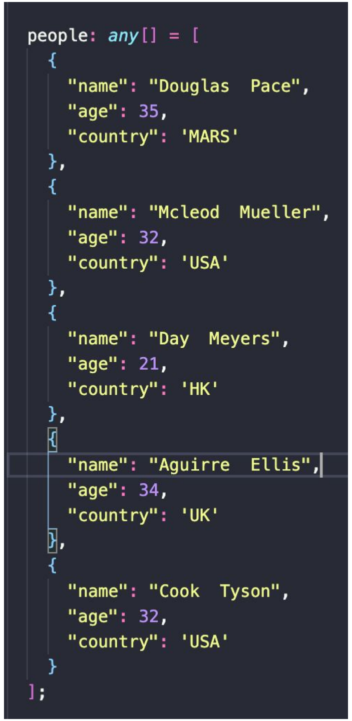
Referensi: https://angular.io/guide/structural-directives

Sturdy Case: Solusi Menggunakan NgIf



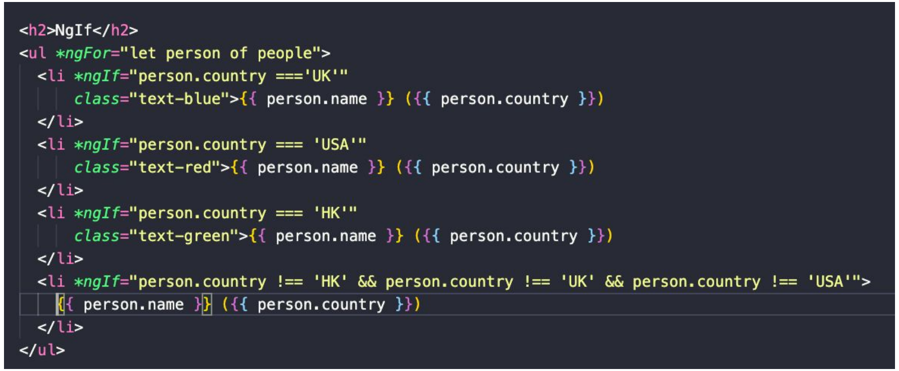
```css
.text-red{
  color: 🟥red
}

.text-green{
  color: 🟩green
}

.text-blue{
  color: 🟦blue
}
```

Dalam file .component.css

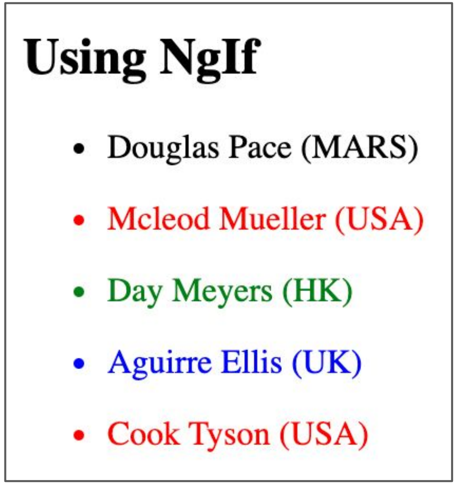


```typescript
people: any[] = [
  {
    "name": "Douglas  Pace",
    "age": 35,
    "country": 'MARS'
  },
  {
    "name": "Mcleod  Mueller",
    "age": 32,
    "country": 'USA'
  },
  {
    "name": "Day  Meyers",
    "age": 21,
    "country": 'HK'
  },
  {
    "name": "Aguirre  Ellis",
    "age": 34,
    "country": 'UK'
  },
  {
    "name": "Cook  Tyson",
    "age": 32,
    "country": 'USA'
  }
];
```

Dalam file .component.ts



```html
<h2>NgIf</h2>
<ul *ngFor="let person of people">
  <li *ngIf="person.country ==='UK'"
      class="text-blue">{{ person.name }} ({{ person.country }})
  </li>
  <li *ngIf="person.country === 'USA'"
      class="text-red">{{ person.name }} ({{ person.country }})
  </li>
  <li *ngIf="person.country === 'HK'"
      class="text-green">{{ person.name }} ({{ person.country }})
  </li>
  <li *ngIf="person.country !== 'HK' && person.country !== 'UK' && person.country !== 'USA'">
    {{ person.name }} ({{ person.country }})
  </li>
</ul>
```

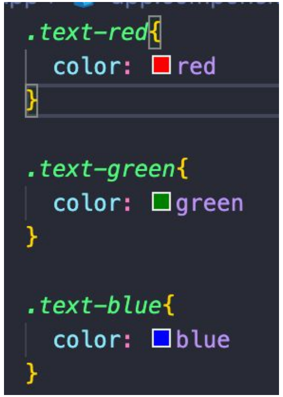


Using NgIf

- Douglas Pace (MARS)
- Mcleod Mueller (USA)
- Day Meyers (HK)
- Aguirre Ellis (UK)
- Cook Tyson (USA)

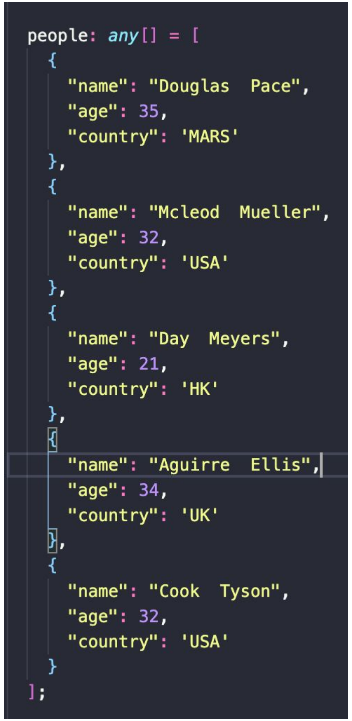
Referensi: https://angular.io/guide/structural-directives

Structural Directives: Solusi Menggunakan NgSwitch



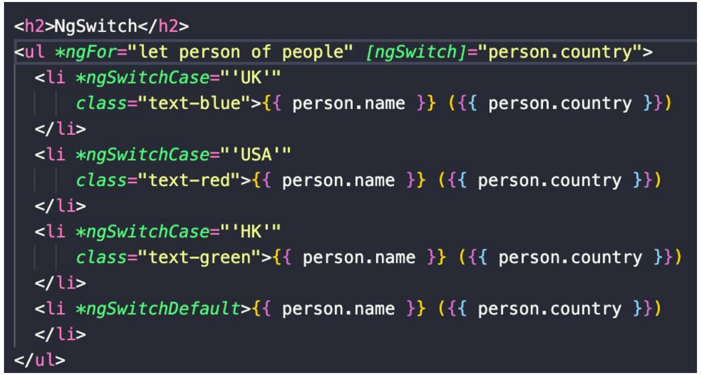
```css
.text-red{
  color: 🟥red
}

.text-green{
  color: 🟩green
}

.text-blue{
  color: 🟦blue
}
```

Dalam file .component.css

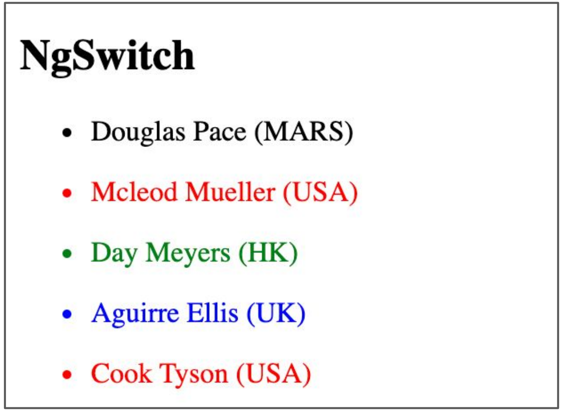


```typescript
people: any[] = [
  {
    "name": "Douglas  Pace",
    "age": 35,
    "country": 'MARS'
  },
  {
    "name": "Mcleod  Mueller",
    "age": 32,
    "country": 'USA'
  },
  {
    "name": "Day  Meyers",
    "age": 21,
    "country": 'HK'
  },
  {
    "name": "Aguirre  Ellis",
    "age": 34,
    "country": 'UK'
  },
  {
    "name": "Cook  Tyson",
    "age": 32,
    "country": 'USA'
  }
];
```

Dalam file .component.ts



```html
<h2>NgSwitch</h2>
<ul *ngFor="let person of people" [ngSwitch]="person.country">
  <li *ngSwitchCase="'UK'"
      class="text-blue">{{ person.name }} ({{ person.country }})
  </li>
  <li *ngSwitchCase="'USA'"
      class="text-red">{{ person.name }} ({{ person.country }})
  </li>
  <li *ngSwitchCase="'HK'"
      class="text-green">{{ person.name }} ({{ person.country }})
  </li>
  <li *ngSwitchDefault>{{ person.name }} ({{ person.country }})
  </li>
</ul>
```



NgSwitch

- Douglas Pace (MARS)
- Mcleod Mueller (USA)
- Day Meyers (HK)
- Aguirre Ellis (UK)
- Cook Tyson (USA)

Referensi: https://angular.io/guide/structural-directives

Structural Directives: Struktur NgSwitch

NgSwitch merupakan set yang terdiri dari 3 directive:

- **NgSwitch**
- **NgSwitchCase**: struktural directive yang menambah elemen dalam DOM ketika value sama dengan switch value. Dan menghapus elemen ketika value tidak sama dengan switch value,
- **NgSwitchDefault**—structural directive yang menambah elemen ke dalam DOM ketika tidak satupun kondisi **NgSwitchCase** terpenuhi.

Referensi: https://angular.io/guide/structural-directives

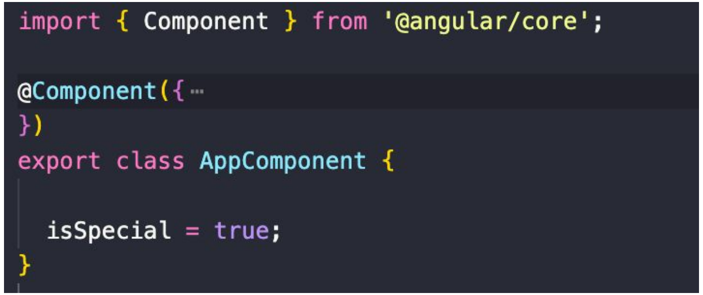
Attribute Directives

Built-in attribute directives:

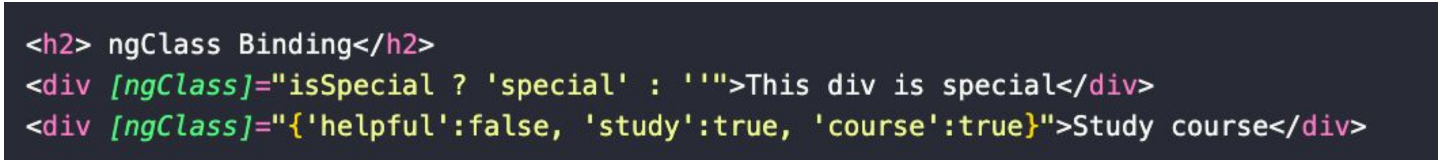
- **NgClass**: Menambah dan menghapus set CSS class.
- **NgStyle:** Menambah dan menghapus HTML style.
- **NgModel:** Menambah two-way data binding ke elemen form HTML.

Referensi: https://angular.io/guide/attribute-directives

Attribute Directives: NgClass

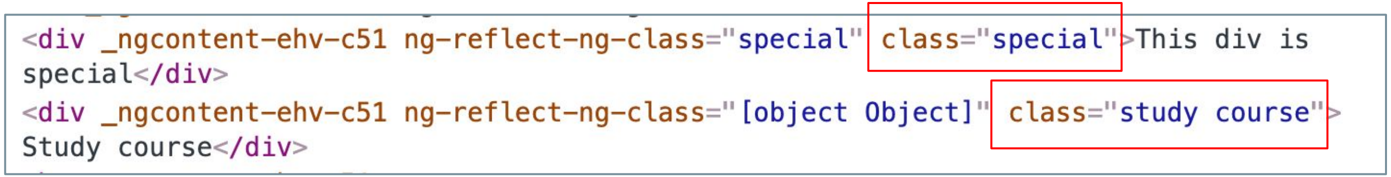


```
import { Component } from '@angular/core';

@Component({⋯
})
export class AppComponent {

  isSpecial = true;
}
```



```
<h2> ngClass Binding</h2>
<div [ngClass]="isSpecial ? 'special' : ''">This div is special</div>
<div [ngClass]="{'helpful':false, 'study':true, 'course':true}">Study course</div>
```

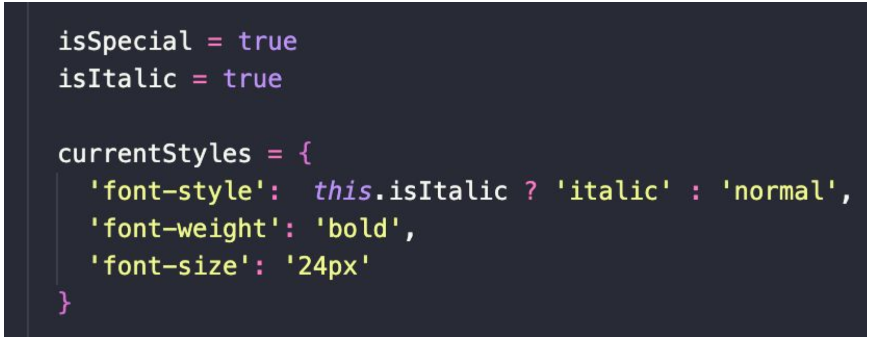
Hasil Generate DOM:



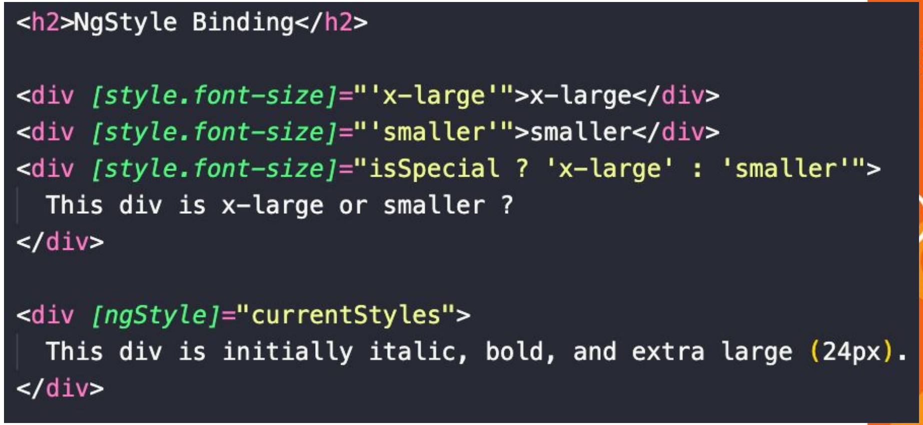
```
<div _ngcontent-ehv-c51 ng-reflect-ng-class="special" class="special">This div is
special</div>
<div _ngcontent-ehv-c51 ng-reflect-ng-class="[object Object]" class="study course">
Study course</div>
```

Referensi: https://angular.io/guide/attribute-directives

Attribute Directives: NgStyle

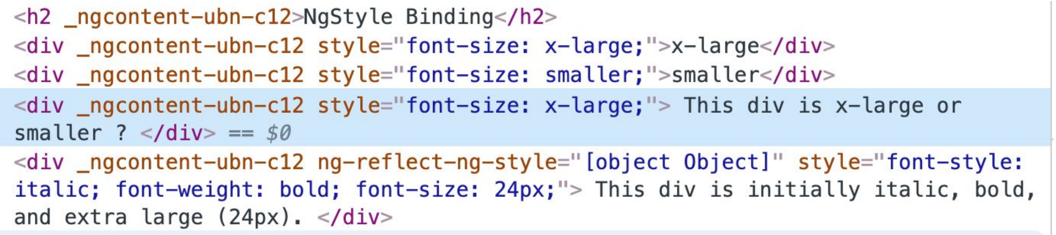


```
isSpecial = true
isItalic = true

currentStyles = {
  'font-style':  this.isItalic ? 'italic' : 'normal',
  'font-weight': 'bold',
  'font-size': '24px'
}
```

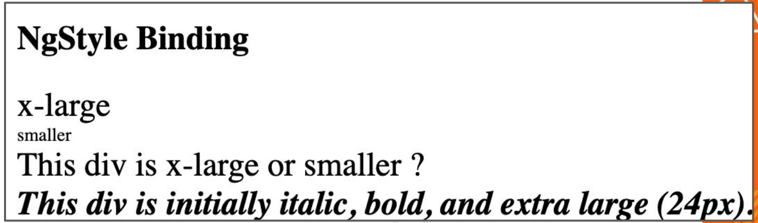


```
<h2>NgStyle Binding</h2>

<div [style.font-size]="'x-large'">x-large</div>
<div [style.font-size]="'smaller'">smaller</div>
<div [style.font-size]="isSpecial ? 'x-large' : 'smaller'">
  This div is x-large or smaller ?
</div>

<div [ngStyle]="currentStyles">
  This div is initially italic, bold, and extra large (24px).
</div>
```

Hasil Generate DOM:



```
<h2 _ngcontent-ubn-c12>NgStyle Binding</h2>
<div _ngcontent-ubn-c12 style="font-size: x-large;">x-large</div>
<div _ngcontent-ubn-c12 style="font-size: smaller;">smaller</div>
<div _ngcontent-ubn-c12 style="font-size: x-large;"> This div is x-large or
smaller ? </div> == $0
<div _ngcontent-ubn-c12 ng-reflect-ng-style="[object Object]" style="font-style:
italic; font-weight: bold; font-size: 24px;"> This div is initially italic, bold,
and extra large (24px). </div>
```



NgStyle Binding

x-large

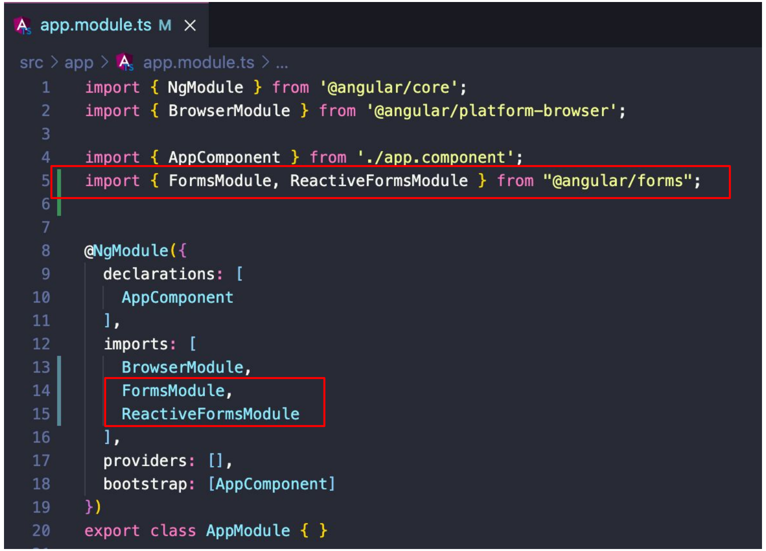
smaller

This div is x-large or smaller ?

This div is initially italic, bold, and extra large (24px).

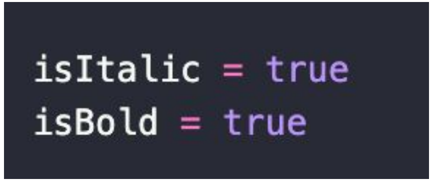
Referensi: https://angular.io/guide/attribute-directives

Attribute Directives: NgModel

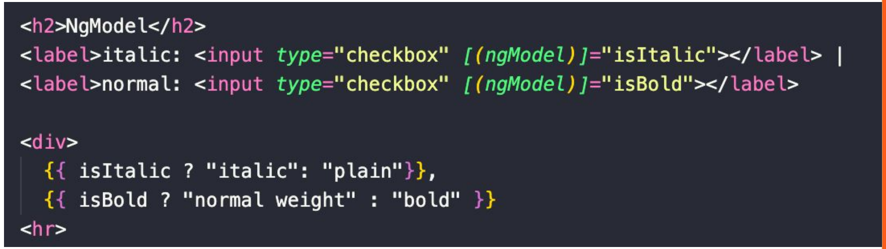


```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';

import { AppComponent } from './app.component';
import { FormsModule, ReactiveFormsModule } from "@angular/forms";


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

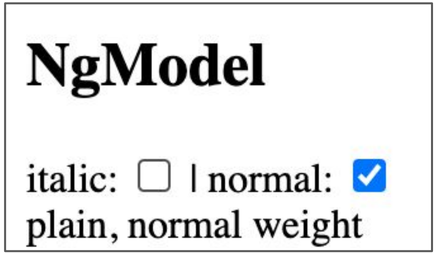
Import FormsModule dan ReactiveFormsModule di app.module, agar binding input dapat berjalan di angular app.



```
isItalic = true
isBold = true
```



```
<h2>NgModel</h2>
<label>italic: <input type="checkbox" [(ngModel)]="isItalic"></label> |
<label>normal: <input type="checkbox" [(ngModel)]="isBold"></label>

<div>
  {{ isItalic ? "italic": "plain"}},
  {{ isBold ? "normal weight" : "bold" }}
<hr>
```



NgModel

italic: ☐ | normal: ☑
plain, normal weight

Referensi: https://angular.io/guide/attribute-directives