Template-driven vs. Reactive Forms

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Template-driven

Reactive

Module Overview

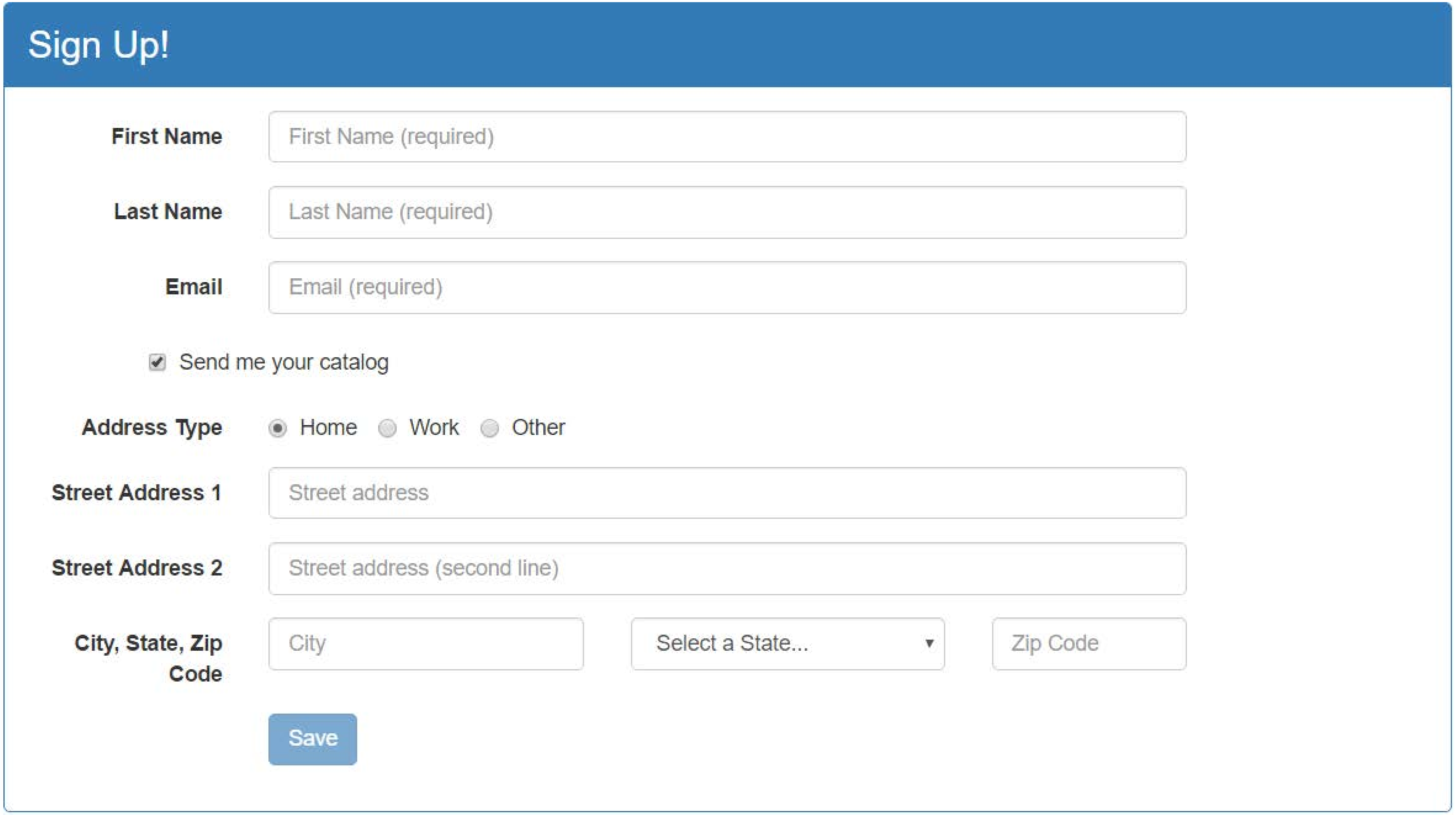
Angular Form Building Blocks

- FormGroup
- FormControl

Template Syntax for Forms

Template-driven Forms

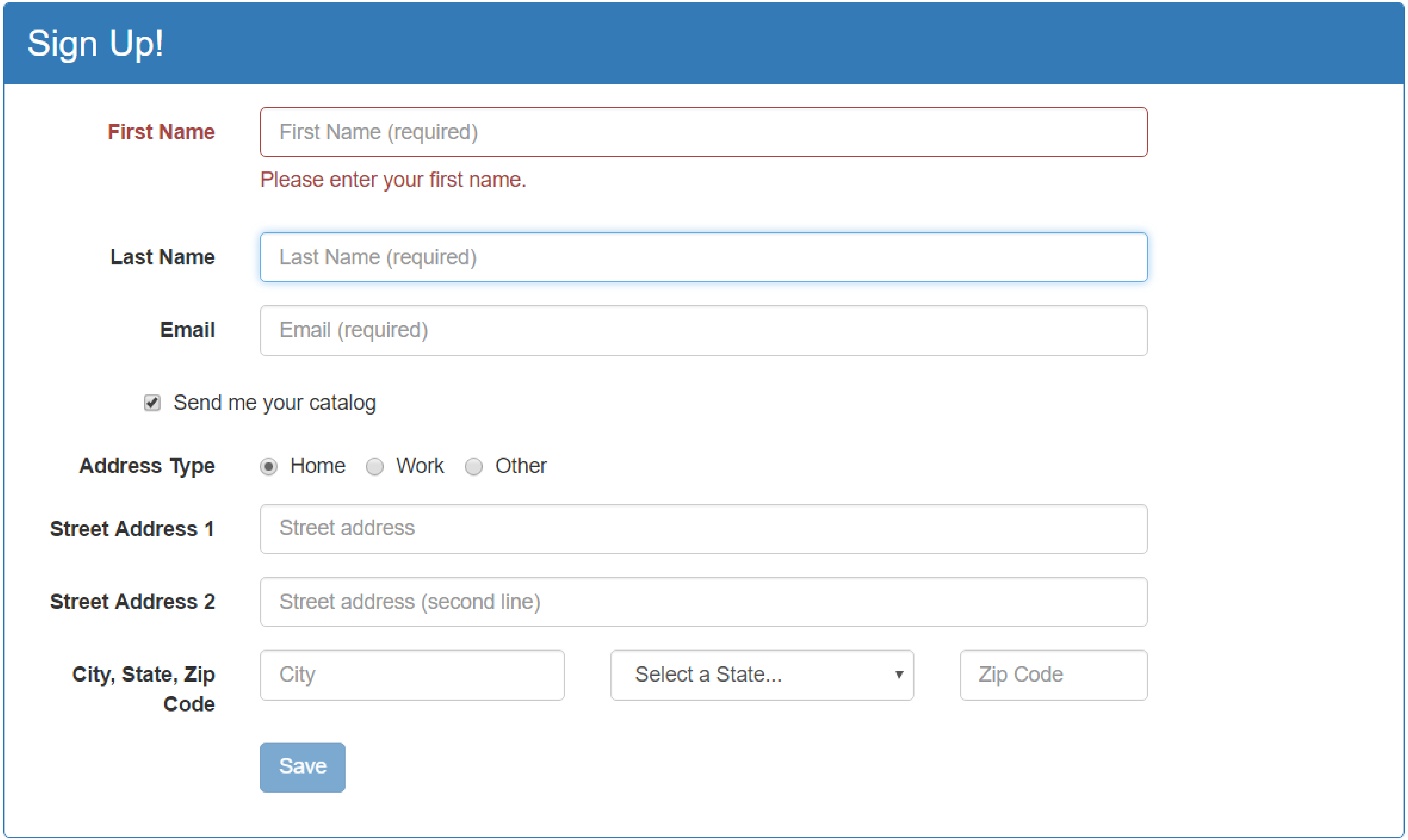
Complex Scenarios



Sign Up!

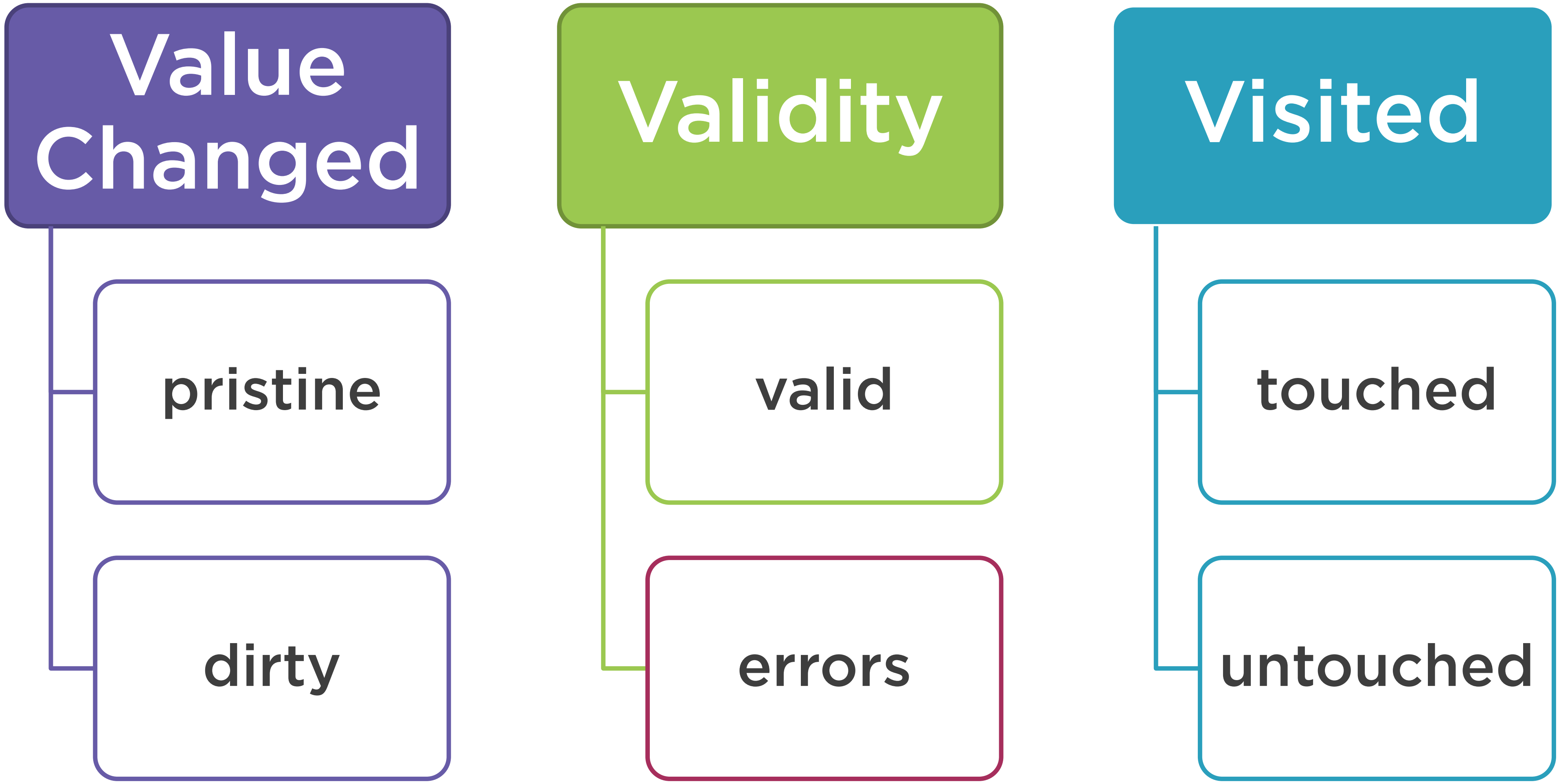
First Name	First Name (required)
Last Name	Last Name (required)
Email	Email (required)
[✓] Send me your catalog	
Address Type	[● Home] ○ Work ○ Other
Street Address 1	Street address
Street Address 2	Street address (second line)
City, State, Zip Code	City · Select a State... · Zip Code

Save


Sign Up!

First Name	First Name (required)		
	Please enter your first name.		
Last Name	Last Name (required)		
Email	Email (required)		
✓ Send me your catalog			
Address Type	[✓ Home] Work Other		
Street Address 1	Street address		
Street Address 2	Street address (second line)		
City, State, Zip Code	City	Select a State...	Zip Code

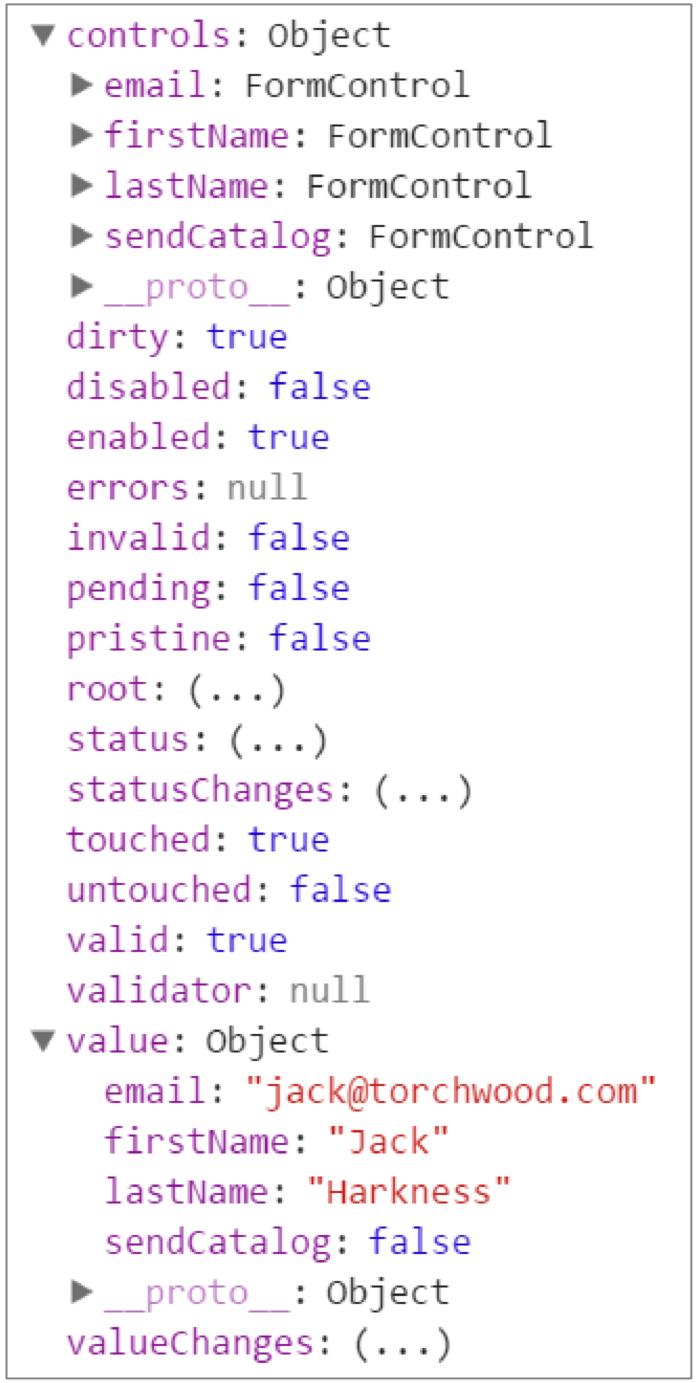
State


Value Changed
pristine
dirty
Validity
valid
errors
Visited
touched
untouched

Form Building Blocks

FormControl

FormGroup

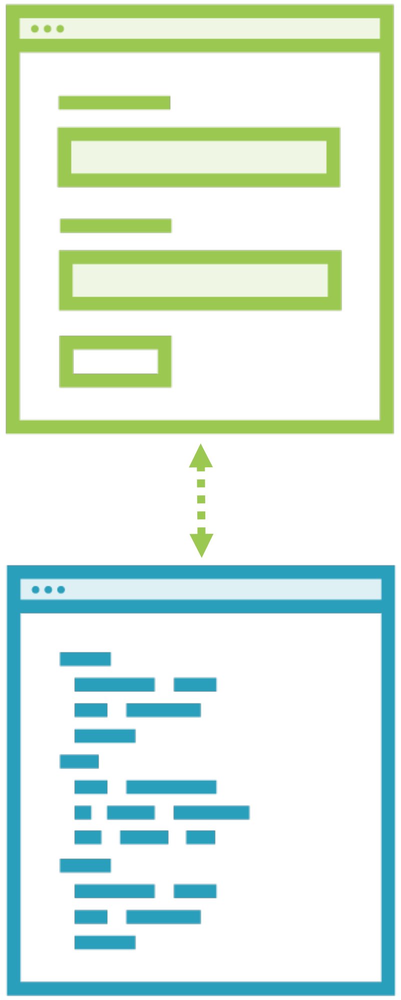


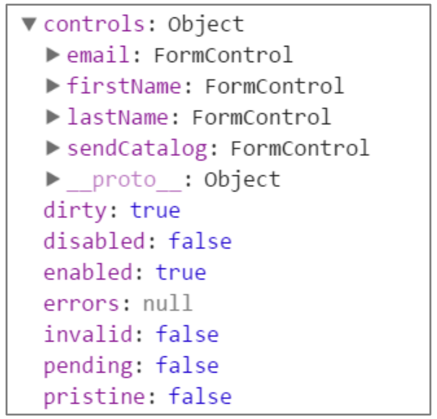
```
▼ controls: Object
  ▶ email: FormControl
  ▶ firstName: FormControl
  ▶ lastName: FormControl
  ▶ sendCatalog: FormControl
  ▶ __proto__: Object
  dirty: true
  disabled: false
  enabled: true
  errors: null
  invalid: false
  pending: false
  pristine: false
  root: (...)
  status: (...)
  statusChanges: (...)
  touched: true
  untouched: false
  valid: true
  validator: null
▼ value: Object
    email: "jack@torchwood.com"
    firstName: "Jack"
    lastName: "Harkness"
    sendCatalog: false
  ▶ __proto__: Object
  valueChanges: (...)
```

Form Model

- Retains form state
- Retains form value
- Retains child controls
  - FormControls
  - Nested FormGroups

Template-driven Forms





```
▼ controls: Object
  ▶ email: FormControl
  ▶ firstName: FormControl
  ▶ lastName: FormControl
  ▶ sendCatalog: FormControl
  ▶ __proto__: Object
  dirty: true
  disabled: false
  enabled: true
  errors: null
  invalid: false
  pending: false
  pristine: false
```

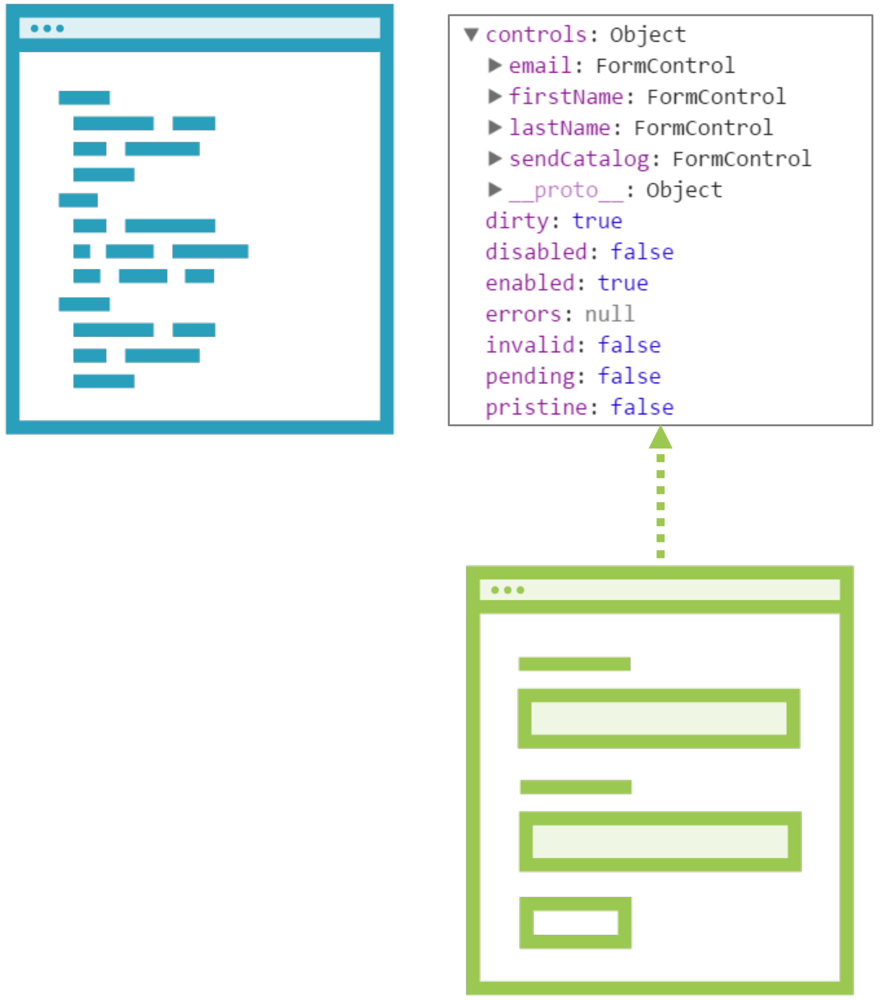
Template

- Form element
- Input element(s)
- Data binding
- Validation rules (attributes)
- Validation error messages
- Form model automatically generated

Component Class

- Properties for data binding (data model)
- Methods for form operations, such as submit

Reactive Forms



```
▼ controls: Object
  ▶ email: FormControl
  ▶ firstName: FormControl
  ▶ lastName: FormControl
  ▶ sendCatalog: FormControl
  ▶ __proto__: Object
  dirty: true
  disabled: false
  enabled: true
  errors: null
  invalid: false
  pending: false
  pristine: false
```

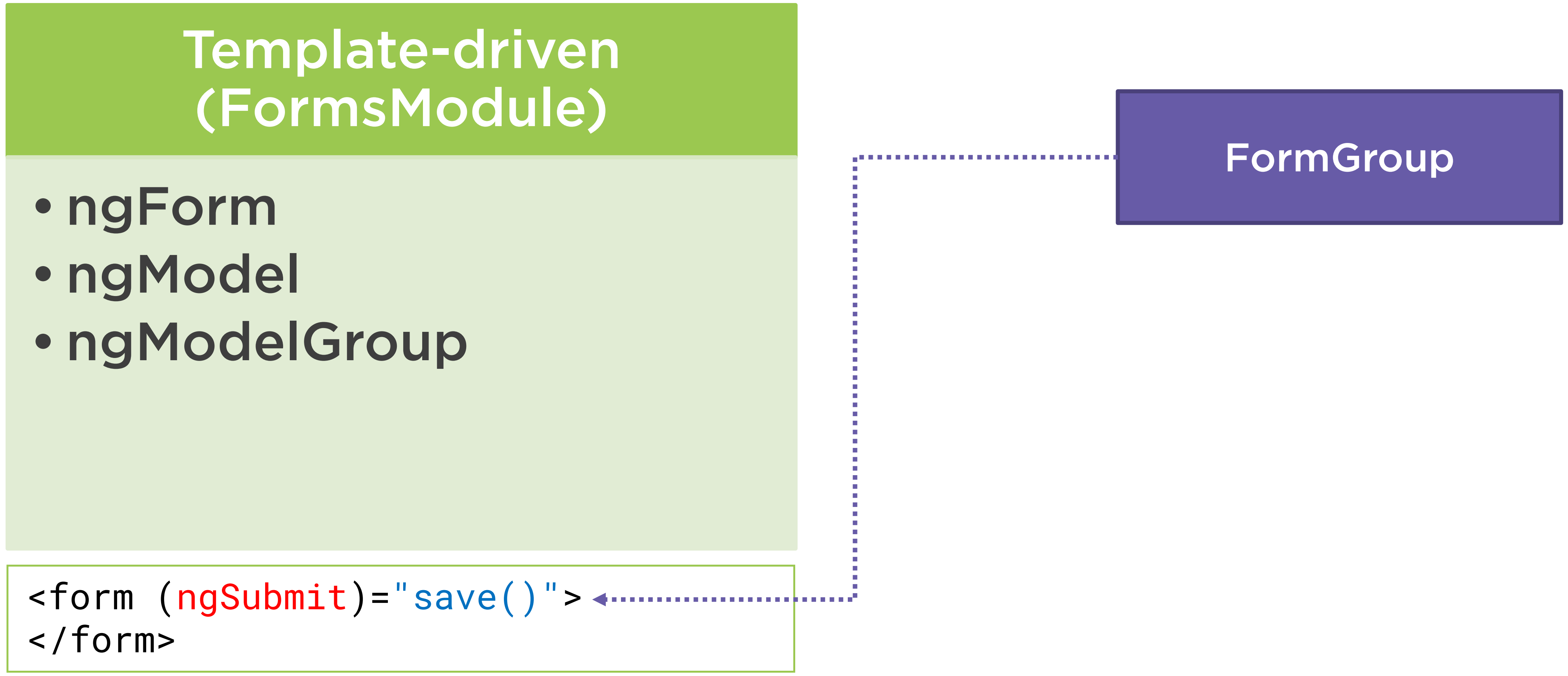
Component Class

- Form model
- Validation rules
- Validation error messages
- Properties for managing data (data model)
- Methods for form operations, such as submit

Template

- Form element
- Input element(s)
- Binding to form model

Directives



Template-driven (FormsModule)

- ngForm
- ngModel
- ngModelGroup

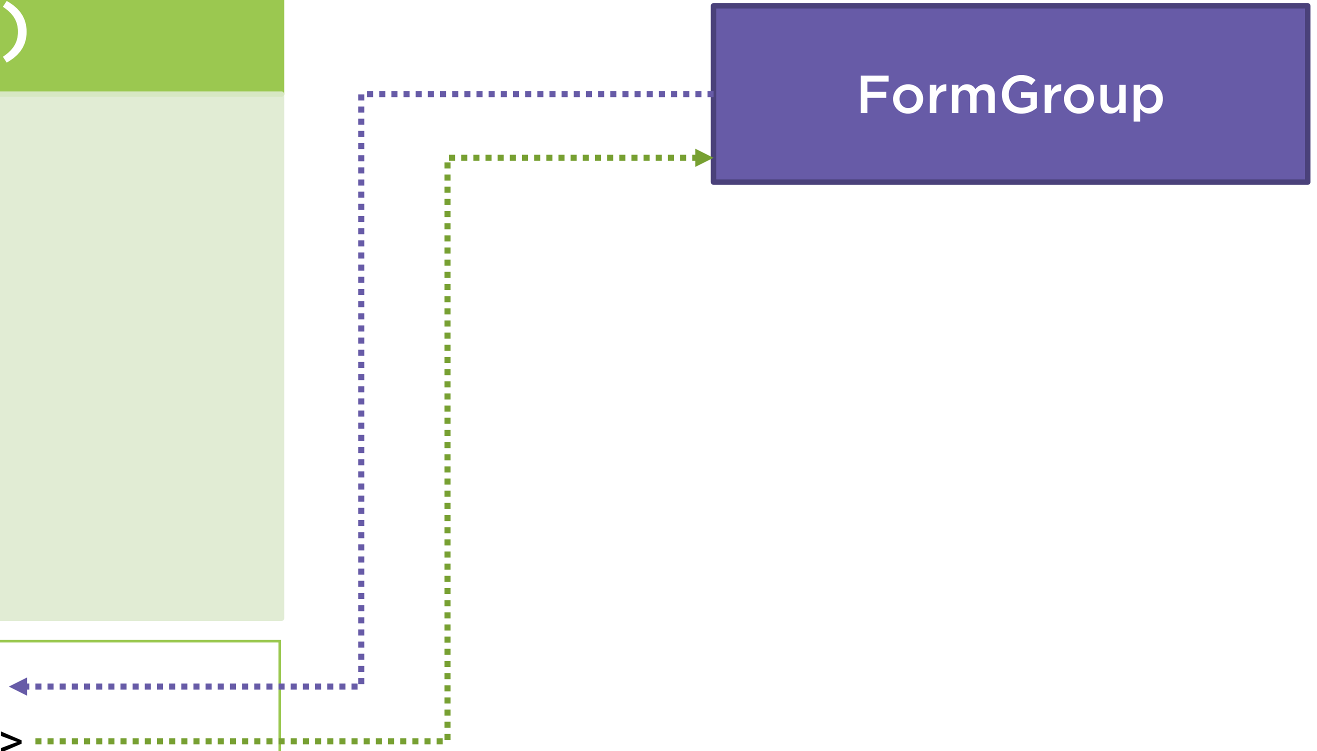
```
<form (ngSubmit)="save()">
</form>
```

Directives

Template-driven (FormsModule)

- ngForm
- ngModel
- ngModelGroup

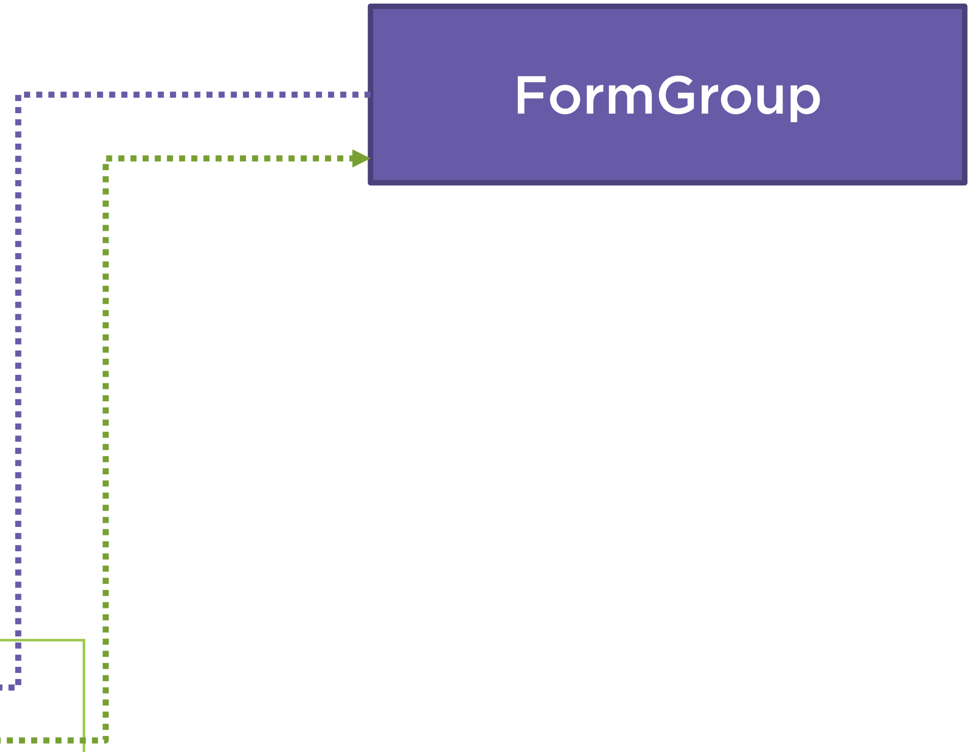
```
<form (ngSubmit)="save()"
      #signupForm="ngForm">
</form>
```



Directives

Template-driven (FormsModule)

- ngForm
- ngModel
- ngModelGroup



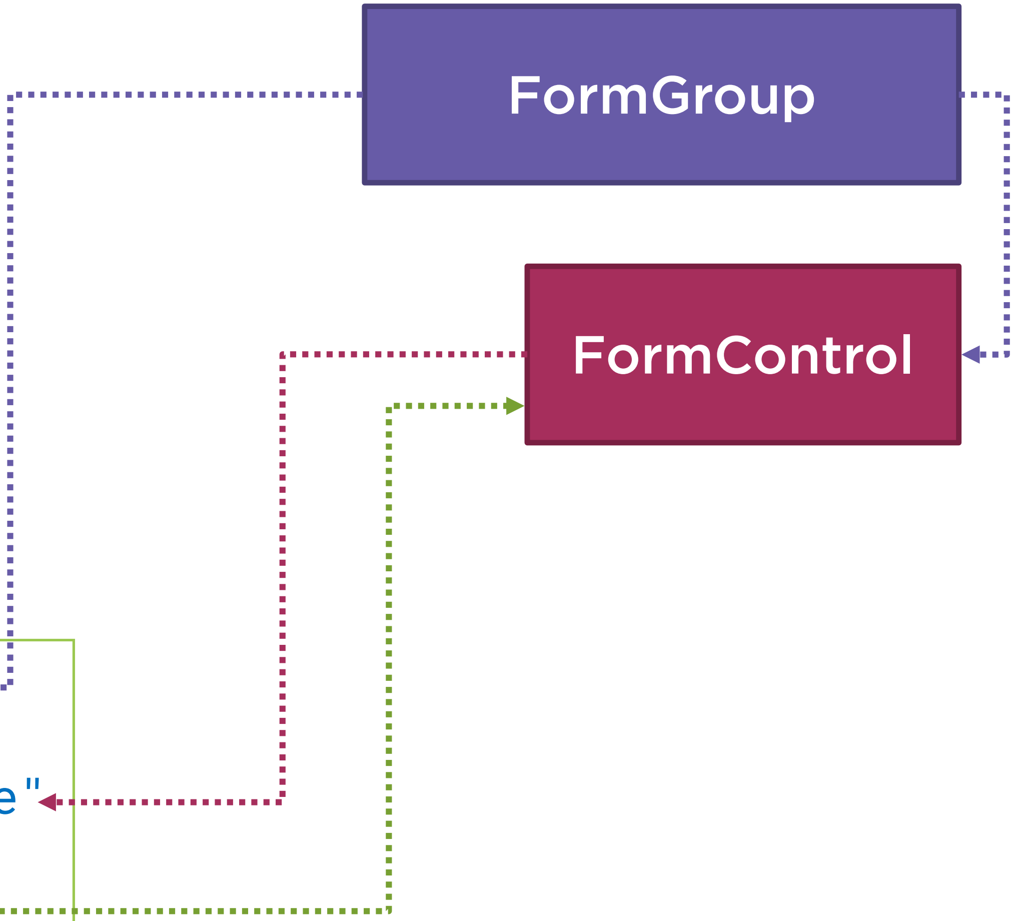
```
<form (ngSubmit)="save()"
      #signupForm="ngForm">
 <button type="submit"
          [disabled]="!signupForm.valid">
   Save
  </button>
</form>
```

Directives

Template-driven (FormsModule)

- ngForm
- ngModel
- ngModelGroup

```
<form (ngSubmit)="save()">
 <input id="firstNameId" type="text"
        [(ngModel)]="customer.firstName"
        name="firstName"
        #firstNameVar="ngModel"/>
</form>
```



Directives

Template-driven (FormsModule)	Reactive (ReactiveFormsModule)
• ngForm	• formGroup
• ngModel	• formControl
• ngModelGroup	• formControlName
	• formGroupName
	• formArrayName

HTML Form

customer.component.html

```html
<form>
  <fieldset>
    <div>
      <label for="firstNameId">First Name</label>
      <input id="firstNameId" type="text"
             placeholder="First Name (required)"
             required
             minlength="3" />
    </div>
    ...
    <button type="submit">Save</button>
  </fieldset>
</form>
```

Template-driven Form

customer.component.html

```
<form (ngSubmit)="save()">
  <fieldset>
    <div [ngClass]="{'has-error': firstNameVar.touched && !firstNameVar.valid }">
      <label for="firstNameId">First Name</label>
      <input id="firstNameId" type="text"
             placeholder="First Name (required)"
             required
             minlength="3"
             [(ngModel)]="customer.firstName"
             name="firstName"
             #firstNameVar="ngModel" />
      <span *ngIf="firstNameVar.touched && firstNameVar.errors">
        Please enter your first name.
      </span>
    </div>
    ...
    <button type="submit">Save</button>
  </fieldset>
</form>
```

Reactive Form

customer.component.html

```
<form (ngSubmit)="save()" [formGroup]="signupForm">
  <fieldset>
    <div [ngClass]="{'has-error': formError.firstName }">
      <label for="firstNameId">First Name</label>
      <input id="firstNameId" type="text"
             placeholder="First Name (required)"
             formControlName="firstName" />
      <span *ngIf="formError.firstName">
        {{formError.firstName}}
      </span>
    </div>
    ...
    <button type="submit">Save</button>
  </fieldset>
</form>
```

Demo

Template-driven Form

Complex Scenarios

- Dynamically add input elements
- Watch what the user types
- Wait validation until typing stops
- Different validation for different situations
- Immutable data structures

Angular Forms

Template-driven	Reactive
Generated form model	Manually created form model
HTML validation	Validation in the class
Two-way data binding	No two-way data binding

Summary

Angular Form Building Blocks

- FormGroup
- FormControl

Template Syntax for Forms

Template-driven Forms

Complex Scenarios