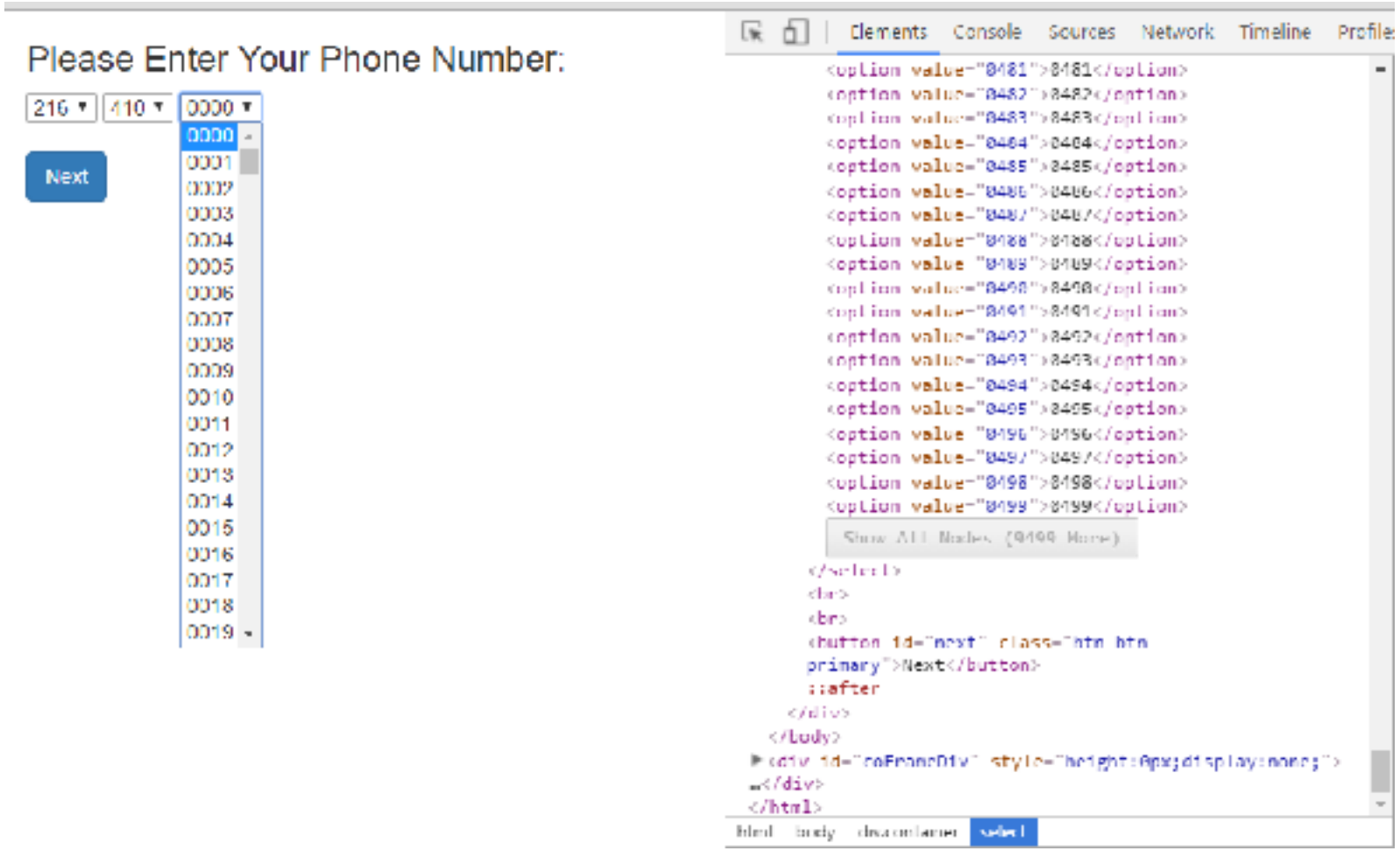
Forms

Forms



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Forms

- Process user data
- Validation
- React to input

Forms - Two styles

- Template Driven
  - `FormsModule`
- Model Driven
  - `ReactiveFormsModule`

Reactive Forms

- Observable streams
- Angular minded
- Angular classes

Reactive Forms

```
@NgModule({
   imports: [ ReactiveFormsModule ]
})
```

Reactive Forms - classes

- FormControl
- FormGroup
- FormArray
- FormBuilder

Reactive Forms

FormGroup & FormControl

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl()
  });

}
```

```
<form [formGroup]="contactForm">

  <input
    formControlName="name" />

</form>
```

Reactive Forms

FormGroup & FormControl

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl()
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}
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Reactive Forms

FormGroup & FormControl

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@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl()
  });

}
```

```
<form [formGroup]="contactForm">

  <input
    formControlName="name" />

</form>
```

Reactive Forms - events

- (ngSubmit)
- .valueChanges
- .statusChanges
- updateOn

Reactive Forms

Submit

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl()
  });

  submit() {
    console.log(
      this.contactForm.value
    );
  }
}
```

```
<form [formGroup]="contactForm"
      (ngSubmit)="submit()">

  <input
    formControlName="name" />

  <button type="submit">
    Send
  </button>

</form>
```

Reactive Forms

Submit

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl()
  });

  submit() {
    console.log(
       this.contactForm.value
    );
  }
}
```

```
<form [formGroup]="contactForm"
      (ngSubmit)="submit()">

  <input
    formControlName="name" />

  <button type="submit">
    Send
  </button>

</form>
```

Reactive Forms - validators

- Validators.required
- Validators.minLength(i)
- Validators.pattern(//)
- `(c: FormControl): ValidationErrors | null => { }`

Reactive Forms

This is what we had...

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl()
  });

  submit() {
    console.log(
      this.contactForm.value
    );
  }
}
```

```
<form [formGroup]="contactForm"
      (ngSubmit)="submit()">

  <input
    formControlName="name" />

  <button type="submit">
    Send
  </button>

</form>
```

Reactive Forms

... now with validators

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl('',
            [ Validators.required,
              Validators.minLength(3)]
      )
  });

  get name() { return
    this.contactForm.get('name')
  }

}
```

```
<form [formGroup]="contactForm"
      (ngSubmit)="submit()">

  <input
    formControlName="name" />

  <span *ngIf="name.invalid">
    Name is required.
  </span>

</form>
```

Reactive Forms

Validators

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl('',
            [ Validators.required,
              Validators.minLength(3)]
      )
  });

  get name() { return
    this.contactForm.get('name')
  }

}
```

```
<form [formGroup]="contactForm"
      (ngSubmit)="submit()">

  <input
    formControlName="name" />

  <span *ngIf="name.invalid">
    Name is required.
  </span>

</form>
```

Reactive Forms

getters as shortcut for readability

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm = new FormGroup({
      name: new FormControl('',
            [ Validators.required,
              Validators.minLength(3)]
      )
  });

  get name() { return
    this.contactForm.get('name')
  }

}
```

```
<form [formGroup]="contactForm"
      (ngSubmit)="submit()">

  <input
    formControlName="name" />

  <span *ngIf="name.invalid">
    Name is required.
  </span>

</form>
```

Reactive Forms - form builder

More extensive forms

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

   contactForm = new FormGroup({
        name: new FormControl('',
            [ Validators.required, Validators.minLength(3)]
        ),
        surname: new FormControl('',
            [ Validators.required, Validators.minLength(1)]
        ),
        surnameprefix: new FormControl(''),
        address: new FormGroup({
           zipcode: new FormControl('',
             [ Validators.required, Validators.pattern(/.*/)],
             [ validZipCodeBackendValidator ]),
           street: new FormControl('',
             [ Validators.required,  Validators.pattern(/.*/)])
        }),
        birthdate: new FormControl('',
            [ Validators.required, Validators.minLength(1)]
        ),

   });
}
```

Reactive Forms - form builder

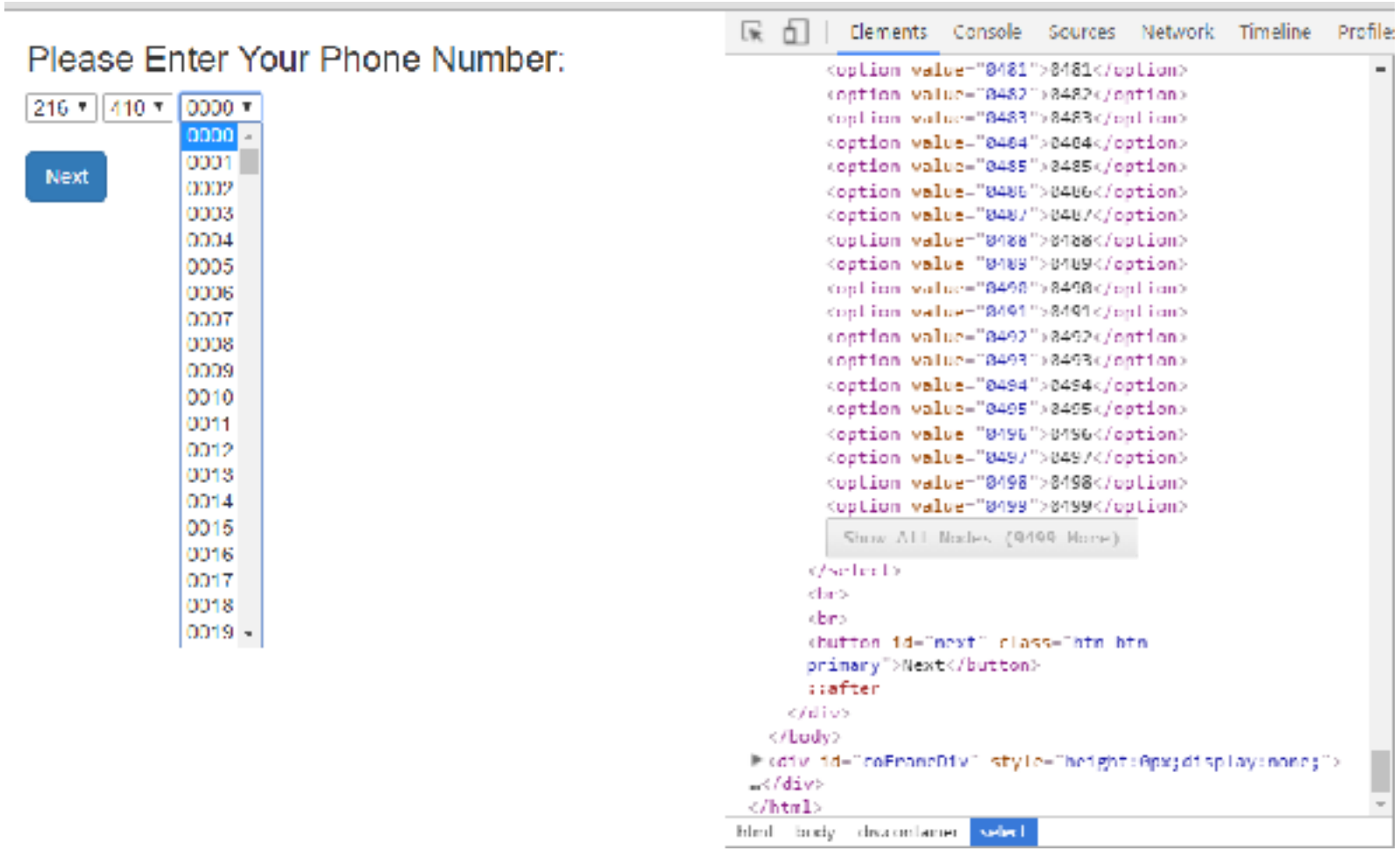
Shorter notation

```
@Component({ selector: 'contacts' })
export class ContactsComponent {

  contactForm: FormGroup;

  constructor(private fb: FormBuilder) {}

  ngOnInit() {
    this.contactForm = this.fb.group({
      name: ['', [ Validators.required, Validators.minLength(3) ] ],
      surname: ['', [ Validators.required, Validators.minLength(1)] ],
      surnameprefix: '',
      address: this.fb.group({
        zipcode: ['', [ Validators.required, Validators.pattern(/.*/) ],
                      [ validZipCodeBackendValidator ] ],
        street: ['', [ Validators.required,  Validators.pattern(/.*/) ] ]
      }),
      birthdate: ['',[ Validators.required, Validators.minLength(1) ] ]
    });
  }
});
```

Recap: Reactive Forms

- FormGroup, FormControl
- Events
- Validation
- FormBuilder

Demo



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FormsModule

- Mostly from the template
- Targeted at AngularJS developers
- Less "DSL"

FormsModule

```
@NgModule({
   imports: [ FormsModule ]
})
```

NgForm

NgForm is automatically bound to <form>

```
<form>
  <input …>
</form>
```

Template reference variable

#var makes a variable of any element

```
<form #newContactForm>
  <input …>
  {{ newContactForm.action }}
</form>
```

Template reference variable

#var="ngForm" provides a variable with an instance of NgForm

```
<form #newContactForm="ngForm">

  <input …>

  <button type="submit"
     [disabled]="newContactForm.invalid">
  </button>

</form>
```

NgForm properties

- valid | invalid
- hasError(‘required’, ‘fieldname’)
- touched | untouched
- dirty | pristine
- submitted
- resetForm()

Connecting fields

ngModel connects the field to NgForm

```
<form #newContactForm="ngForm">

  <input ngModel name="name">

  <button type="submit"
     [disabled]="newContactForm.invalid">
  </button>

</form>
```

Template reference variable

works on almost any directive

```
<form #newContactForm="ngForm">

  <input ngModel name="name" #name="ngModel">

  <button type="submit"
     [disabled]="newContactForm.invalid">
  </button>

</form>
```

Adding validation

Angular supports HTML5 validators

```
<form #newContactForm="ngForm">

  <input ngModel name="name" #name="ngModel" required>

  <button type="submit"
     [disabled]="newContactForm.invalid">
   </button>

</form>
```

Showing field status

Get the state of the field from NgModel

```
<form #newContactForm="ngForm">

  <input ngModel name="name" #name="ngModel" required>

  <div *ngIf="name.invalid"> Name is required </div>

  <button ...> </button>
</form>
```

ngModel properties

- valid, invalid
- errors, hasError(‘required’)
- touched | untouched
- dirty | pristine

HTML5 validators

- required
- pattern
- minlength
- (maxlength)

Send the form

(ngSubmit) also sets "submitted" flag on NgForm

```
<form #newContactForm="ngForm"
  (ngSubmit)="submit(newContactForm)">

  <input ngModel name="name">

 <button type="submit"
     [disabled]="newContactForm.invalid">
 </button>

</form>
```

ngModel CSS

- ng-valid | ng-invalid
- ng-touched | ng-untouched
- ng-dirty | ng-pristine

FormsModule - pro's

- FormsModule
- Comparable to AngularJS
- ngModel for data binding
- Validation mostly in HTML

FormsModule - cons

- Unit tests are "harder"
- Validation logic in templates
- Works best for about ~5 fields
- Less control

Reactive Forms - pro's

- Validation logic in class
- Easier to unit test
- More control
- Observable streams
- >5 fields

Reactive Forms - cons

- More Angular specific
- FormBuilder, FormGroup, FormArray, FormControl
- Observable streams