WebApp
Conf

REACTIVE FORMS
for examples

Google Developers Experts

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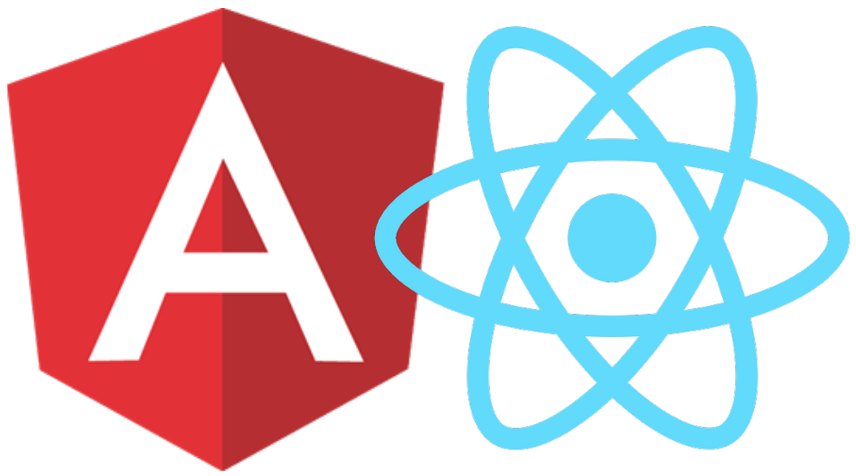
TRAINING AND MENTORING



FACEBOOK GROUPS

ANGULAR
developer italiani

JAVASCRIPT
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REACT
developer italiani

OPPORTUNITÀ per DEVELOPER ITALIANI

(jobs / collaborations / training and more)

TOPICS

- Template-Driven Forms quick intro
- Forms & RxJS
- Reactive Forms Introduction
- Dynamic Input Validators
- Nested Form Groups
- Group Custom Validators
- Form Array
- Split Forms in components
- Dynamic Forms from JSON

TEMPLATE-DRIVEN-FORMS

INPUT VALIDATORS

```
@Component({
  selector: 'my-form',
  template: `
    <input
      placeholder="your email address"
      [ngModel]
      name="email"
      #emailInput="ngModel"
      required
      pattern="\\b[A-Za-z0-9._%+-]+@[A-Za-z0-9.-]+\\.[A-Za-z]{2,6}\\b"

      [style.background]="emailInput.valid ? 'green' : 'red'"
    >
     <button [disabled]="emailInput.invalid">Send</button>
  `
})
export class MyFormComponent {}
```

CUSTOM VALIDATORS

ITX37ABC

```
@Component({
  selector: 'my-form',
  template: `
    <div [ngClass]="{ 'error': ibanInput.errors?.invalidIBAN}">
      <input
        placeholder="your IBAN"
        [ngModel]
        name="iban"
        #ibanInput="ngModel"
        required
        IBANValidator
      >
      <button [disabled]="ibanInput.invalid">Send</button>
    </div>
  `
})
export class MyFormComponent {}
```

```
// i.e. IT28W8000000292100645211123
const regEx = /IT\d{2}[ ][a-zA-Z]\d{3}[ ]\d{4}[ ]\d{4}[ ]\d{4}[ ]\d{4}[ ]\d{3}|IT\d{2}[a-zA-Z]\d{22}/;

@Directive({
  selector: '[IBANValidator]',
  providers: [
    { provide: NG_VALIDATORS, useExisting: forwardRef(() => IBANValidator), multi: true }
  ]
})
export class IBANValidator implements Validator {
  validate(c: AbstractControl): { [key: string]: any } {
    let v = c.value;
    if (v && !v.match(regEx)) {
      return {'invalidIBAN': true};
    }
    return null;
  }
}
```

FORM VALIDATION

Mario Rossi

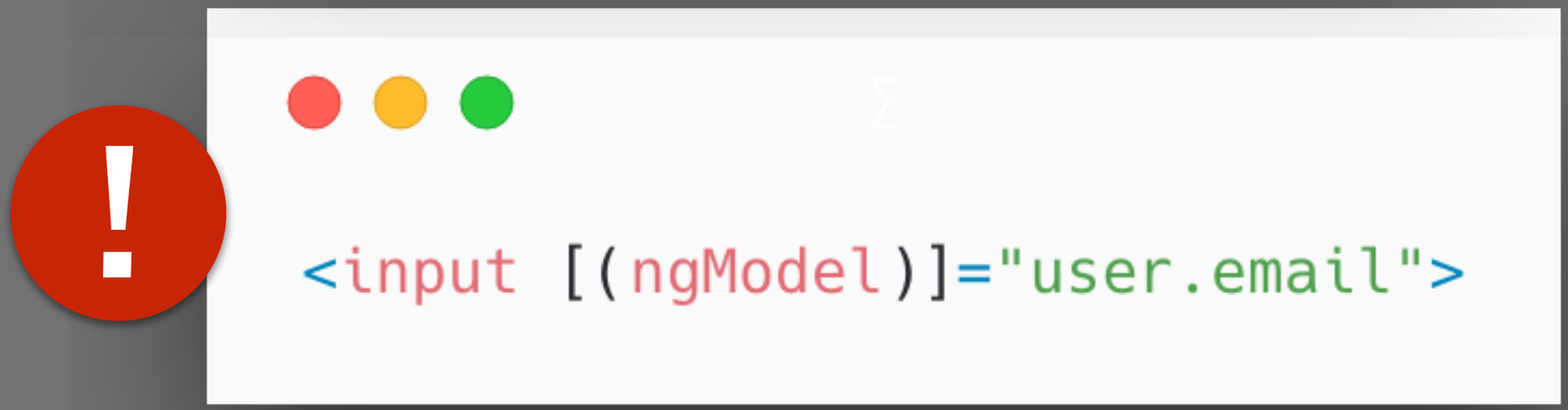
****

ADD

```
<form #f="ngForm" (ngSubmit)="add(f.value)">
  <img class="spinner" *ngIf="usernameRef.pending">
  <input type="text"
    name="username"
    [ngModel]
    #usernameRef="ngModel"
    required
    UsernameAsyncValidator
    [ngClass]="{
      'required': usernameRef.errors?.required,
      'exists': usernameRef.errors?.alreadyExists
    }"
  >
  <input
    type="password"
    name="password"
    [ngModel]
    #passwordRef="ngModel"
    required
    minlength="6"
  >
  <button [disabled]="f.invalid || f.pending">Add User</button>
</form>
```

1-WAY or 2-WAYS BINDING


<input [ngModel]="user.email">


<input [(ngModel)]="user.email">

REACTIVE FORMS

FORMS &  RXJS

Mario Biondi

```
@Component({
  selector: 'my-form',
  template: `
    <input type="text" #usernameRef />
  `
})
export class MyFormComponent implements OnInit {
  @ViewChild('usernameRef') username: ElementRef;

  ngOnInit(): void {
    fromEvent(this.username.nativeElement, 'keyup')
      .pipe(
        map(e => e.target.value),
        filter((text: string) => text.length > 3),
        debounceTime(1000),
        distinctUntilChanged()
      )
      .subscribe((text: string) => {
        console.log ('submit: ', text);
      });
  }
}
```

MY FIRST REACTIVE FORM

New York

```
@Component({
  selector: 'my-form',
  template: `
    <input type="text" [formControl]="term">
    <meteo-search [text]="search"></meteo-search>
`
})
export class MyFormComponent {
  search = 'Rome';
  term: FormControl;

  constructor() {
    this.term = new FormControl(this.search);
    this.term.valueChanges
      .pipe(
        debounceTime(400),
        distinctUntilChanged()
      )
      .subscribe(term => this.search = term );
  }
}
```

FORM BUILDER

username

password

confirm pass

```
@Component({
  selector: 'lost-pass',
  template: `
    <div>{{email.errors | json}}</div>
    <form [formGroup]="myForm" (ngSubmit)="submit()" >
      <input formControlName="email">
      <button [disabled]="myForm.invalid">SUBMIT</button>
    </form>`
})
export class LostPassComponent implements OnInit{
  myForm: FormGroup;
  email: AbstractControl;

  constructor( private fb: FormBuilder) {
    this.myForm = fb.group({
      'email':  ['', Validators.compose([
        Validators.required, Validators.minLength(4), myCustomValidator
      ])],
    });
    this.myForm.valueChanges.subscribe(data => console.log(data));
  }

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

CUSTOM VALIDATORS

f@b1o_b1Ond1

```
constructor(private fb: FormBuilder) {
  this.form = fb.group({
    'company': [
      null,
      Validators.compose([Validators.required, companyValidator])
    ],
  });
}
```

```
export function companyValidator(c: FormControl): { [s: string]: boolean } {
  const regEx = /^[ANY_REGEX]$/;
  if (c.value && !c.value.match(regEx)) {
    return {wrongName: true};
  }
}
```

ENABLE / DISABLE VALIDATORS

Mario Biondi

```
constructor(private fb: FormBuilder) {
  this.form = fb.group({
    'company': [null],
  });
  this.form.get('company').disable();
}

enableField() {
  this.form.get('company').enable();
}
```

UPDATE VALIDATORS

☒ is a company?

your company name

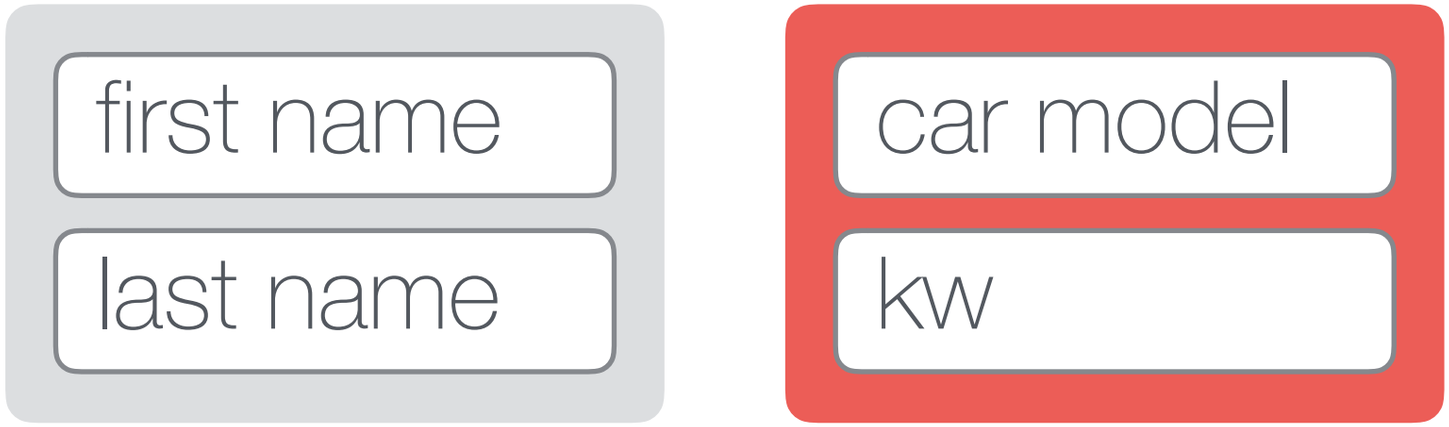
Your name

```
initForm() {
  // ...
  this.inputName = this.form.get('name');
  this.form.get('isCompanyCheckbox')
    .valueChanges
    .subscribe(value => {
      if (value) {
        this.setCompanyValidator();
      } else {
        this.setUserValidator()
      }
      this.inputName.updateValueAndValidity();
    });
}

setCompanyValidator() {
  this.inputName.setValidators(
    Validators.compose([Validators.required, companyValidator])
  );
}

setUserValidator() {
  this.inputName.setValidators([userValidator]);
}
```

NESTED FORM GROUPS



```
@Component({
  selector: 'insurance',
  template: `
    <form [formGroup]="form" (submit)="send()">
      <input type="text" formControlName="username">
      <div formGroupName="carInfo"
           [ngClass]="{'invalid': form.get('carInfo').invalid}>
          <input type="text" formControlName="model">
          <input type="number" formControlName="kw">
      </div>
      <button [disabled]="form.invalid">SEND</button>
    </form>
  `,
})
export class RegistrationComponent {
  form: FormGroup;

  constructor(private fb: FormBuilder) {
    this.form = fb.group({
      'username': ['', Validators.required]),
      'carInfo': fb.group(
        {
          'model': ['', Validators.required],
          'kw': ['', Validators.required]
        }
      )
    });
  }
  send() { console.log(this.form.value) }
}
```

GROUP CUSTOM VALIDATORS

first name

last name

****

******

passwords don't match

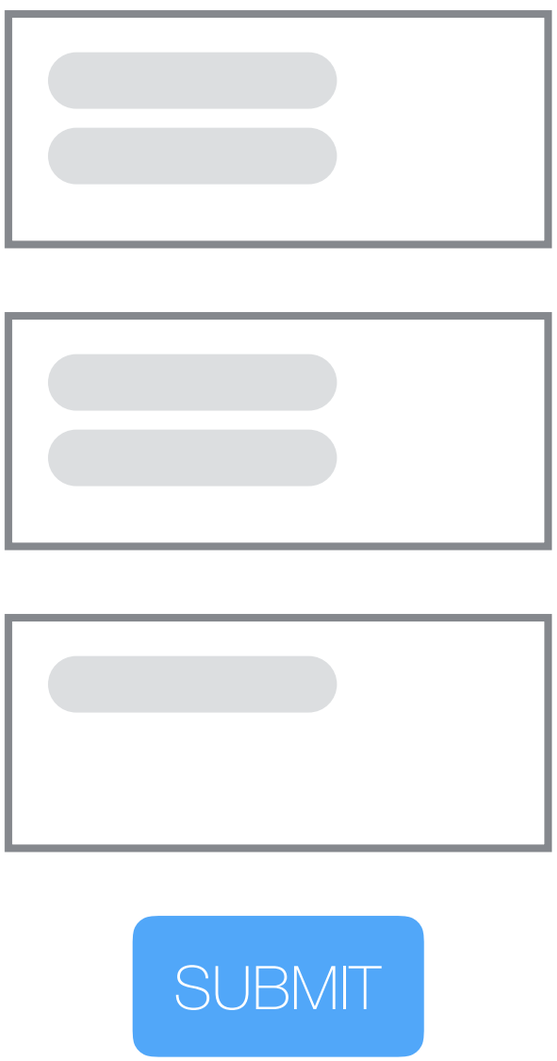
```
<form [formGroup]="signupForm" (submit)="register()">
  <input type="text" formControlName="username">
  <div formGroupName="passwords"
    [ngClass]="{'invalid': signupForm.get('passwords').errors?.notTheSame}">
      <input type="text" formControlName="password1" placeholder="password">
      <input type="text" formControlName="password2" placeholder="confirm password">
  </div>
  ...
</form>
```

```
loginForm: FormGroup;

initForm(private fb: FormBuilder) {
  this.loginForm = fb.group({
    'username': ['', Validators.compose([
          Validators.required, Validators.minLength(4), usernameValidator
      ])
    ],
    'passwords': fb.group({
        'password1': ['', Validators.compose([Validators.required, Validators.minLength(3)])],
        'password2': ['', Validators.compose([Validators.required, Validators.minLength(3)])]
      },
      { validator: passwordMatch('password1', 'password2') }
    )
  });
}
```

```
export function passwordMatch(field1, field2) {
  return (group) => {
    if (group.get(field1).value !== group.get(field2).value) {
      group.get(field2).setErrors({notTheSame: true});
    } else {
      group.get(field2).setErrors(null);
    }
  };
}
```

SPLIT FORMS IN COMPONENTS



```html
<div>
  <form [formGroup]="form" (submit)="add(form.value)">
    <input type="text" formControlName="name">
    <insurance-step-1 [group]="form"></insurance-step-1>
    <insurance-step-2 [group]="form"></insurance-step-2>
    <input type="submit" [disabled]="form.invalid">
  </form>
</div>
```

```ts
form: FormGroup;

initForm(private fb: FormBuilder) {
  this.form = fb.group({
    'name': [null, [Validators.required, Validators.minLength(3)]],
    'step1': fb.group({
      'brand': [null, Validators.required],
      'model': [null, Validators.required],
    }),
    'step2': fb.group({
      'kw': [null, [Validators.required, Validators.min(0), Validators.max(700)]],
      'year': [2018, [Validators.required, Validators.min(1970), Validators.max(2018)]],
    }),
  });
}
```

```
@Component({
  selector: 'insurance-step-1',
  template: `
    <div [formGroup]="group.get('step1')">
        <i class="fa fa-check" *ngIf="group.get('step1').valid"></i>
        <div [ngClass]="{
          'has-error': group.get('step1').controls['brand'].invalid
        }">
          <input type="text" formControlName="brand">
        </div>

        <div [ngClass]="{
          'has-error': group.get('step1').controls['model'].invalid
        }">
          <input type="text" formControlName="model">
        </div>
    </div>
  `
})
export class InsuranceStep1Component {
  @Input('group') group;
}
```

FORM ARRAY

Nutella | 4.99 ⊖

Biscotti | 2.50 ⊖

item name | price ⊕

```
orderForm: FormGroup;
items: FormArray;

initForm(private fb: FormBuilder) {
  this.orderForm = this.fb.group({
    customer: '',
    items: this.fb.array([ this.createItem() ]) as AbstractControl
  });
  this.items = this.orderForm.get('items') as FormArray;
}

submit() { console.log (this.orderForm.value); }
createItem(): FormGroup { return this.fb.group({ name: '', price: '' }) }
addItem() { this.items.push(this.createItem()); }
removeItem(item) {
  const index = this.items.controls.indexOf(item);
  this.items.removeAt(index);
}
```

```
<form [formGroup]="orderForm">
  <input formControlName="customer" required>
  <div formArrayName="items" *ngFor="let item of items.controls; let i = index">
    <div [formGroupName]="i" [ngClass]="{'ok': items.controls[i].valid}">
      <input formControlName="name" required>
      <input formControlName="price" required>
    </div>
  </div>
  ...
</form>
```

DYNAMIC FORMS
from JSON
(simplest way)

```
config = [
  {
    type: 'text',
    label: 'Full name',
    key: 'name',
    placeholder: 'Enter your name',
    required: true
  },
  {
    type: 'list',
    label: 'Car Brand',
    key: 'brands',
    options: [ {value: 'BMW', key: 0 },  {value: 'Fiat', key: 1 }],
    placeholder: 'Select an option',
    required: true
  },
  {
    label: 'Submit',
    key: 'submit',
    type: 'button',
  },
];
```

```
<form (ngSubmit)="onSubmit()" [formGroup]="form">
  <div *ngFor="let control of config">
    <div [ngSwitch]="control.type">
      <input
        *ngSwitchCase="'text'"
        [formControlName]="control.key"
        [type]="control.type"
        [required]="control.required"
      >

      <select
        *ngSwitchCase="'list'"
        [formControlName]="control.key"
      >
        <option *ngFor="let opt of control.options" [value]="opt.key">
          {{opt.value}}
        </option>
      </select>
    </div>
  </div>
</form>
```

DYNAMIC FORMS

(create components @ runtime)

```
initForm() {
  this.form = this.createGroup();
}

createGroup() {
  const group = this.fb.group({});
  this.config.forEach(control => group.addControl(
    control.name, this.createControl(control)
  ));
  return group;
}

createControl(config: FieldConfig) {
  const { value = '' } = config;
  return this.fb.control(value);
}
```

```ts
import {Type} from '@angular/core';
import {Field} from '../models/field.interface';
import {FormInputComponent} from './form-input.component';
import {FormButtonComponent} from './form-button.component';
import {FormSelectComponent} from './select.component';

export const components: {[type: string]: Type<Field>} = {
  text: FormInputComponent,
  list: FormSelectComponent
  submit: FormButtonComponent
};
```

```
<form
  [formGroup]="form"
  (submit)="handleSubmit($event)">
  <ng-container
    *ngFor="let field of config;"
    dynamicField
    [fieldConfig]="field"
    [group]="form">
  </ng-container>
</form>
```

```
@Directive({
  selector: '[dynamicField]'
})
export class DynamicFieldDirective implements OnInit {
  @Input() group: FormGroup;
  @Input() fieldConfig: any;
  component: ComponentRef<Field>;

  constructor(
    private resolver: ComponentFactoryResolver,
    private container: ViewContainerRef
  ) {}

  ngOnInit() {
    const cFactory =
      this.resolver.resolveComponentFactory<Field>(
        components[this.fieldConfig.type]
      );
    this.component = this.container.createComponent(cFactory);
    this.component.instance.config = this.fieldConfig;
    this.component.instance.group = this.group;
  }
}
```

```
@Component({
  selector: 'form-input',
  template: `
    <div [formGroup]="group">
      <label>{{ config.label }}</label>
      <input
        [type]="config.type"
        [required]="config.required"
        [attr.placeholder]="config.placeholder"
        [formControlName]="config.name" />
    </div>
  `,
})
export class FormInputComponent implements Field {
  group: FormGroup;
  config: any;
}
```

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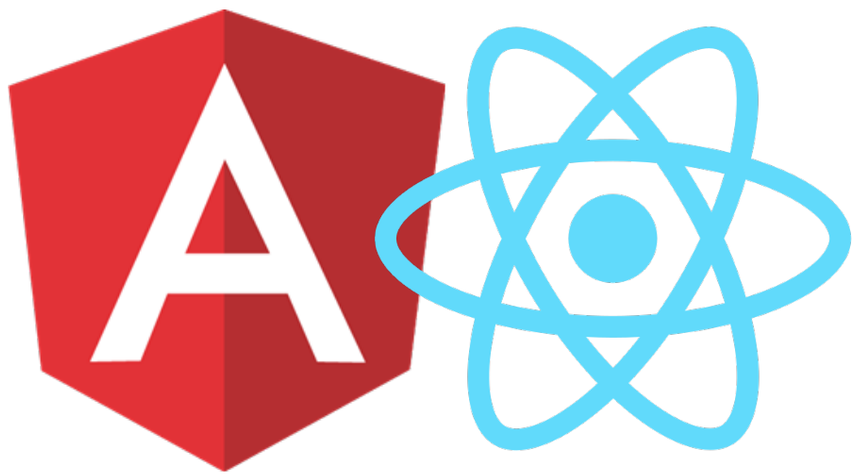

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