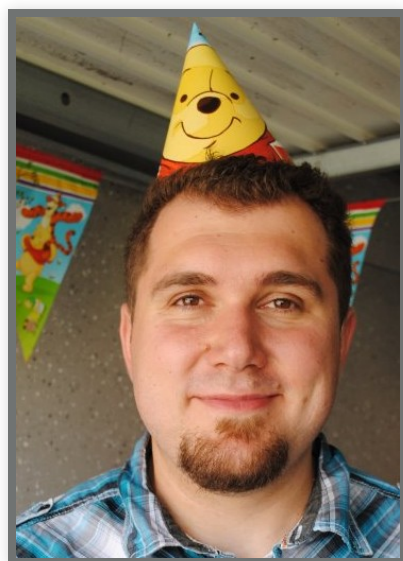


ANGULAR WORKSHOP

MAXIMILIAN BERGHOFF - 25.08.2018 - FROSCON

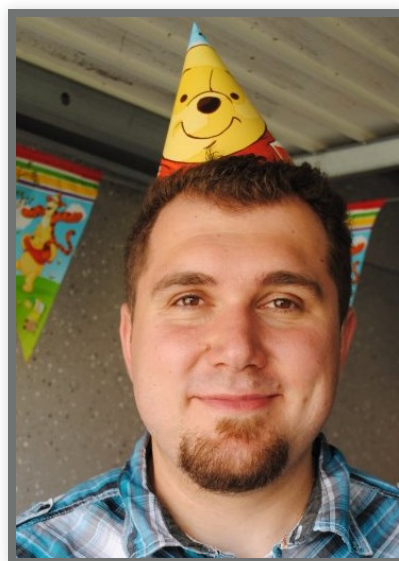




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AUSBLICK

- Basics: Templating, Komponenten Services
- Advanced: Forms vs. Reactive Forms

HISTORY

- Angular 1.x heißt jetzt AngularJS
- Angular 2 und 4 sind Angular
- Entwickelt in Community, der auch Google angehört

ANGULARJS VS. ANGULAR

ANGULAR JS

- Controller als Standard für ein "MVC"
- Komponenten durch Direktiven möglich
- Data-Binding everywhere

ANGULAR

- Fokus auf Komponenten
- Data-Binding kann/muss in der Verantwortung des Entwicklers
- Modul Struktur
- Typescript als Basis

- faktisch keine Migration von AngularJS auf Angular möglich (außer Rewrite)
- Angular 2 lässt sich einfach auf 6 migrieren

AUSBLICK - THEMEN

- Bootstrapping - Installation einer Skeleton App mit dem CLI
- Basics:
 - ■ Templating, Komponenten, App-Struktur, DI
- Advanced:
 - ■ Forms - Data-Binding oder Reactive
 - ■ Events - Inter-Komponenten-Kommunikation
 - ■ Async - Kommunikation mit einem Server

LOS GEHT'S

TASK 1: BOOTSTRAPING

```
# install CLI
npm install -g @angular/cli

# Create new skeleton app
ng new example-app
cd example-app

# run it
ng serve -o
```

BASICS - STRUKTUR

BASIS - TEMPLATING

TEMPLATING - INTERPOLATION

```
{{ 'ich bin ein string'}}  
<!-- String -->  
  
{{ ichBinEineVariable}}  
<!-- public property in component -->  
  
{{ 'ich bin ein string' + ichBinEineVariable}}  
<!-- Concatenation -->  
  
{{ gibString() }}  
<!-- Method Call -->
```

```
export class AppComponent {  
  ichBinEineVariable = 'app';  
  gibString(): string {  
    return 'Ich bin ein String';  
  }  
}
```

TEMPLATING - EXPRESSIONS

```
[property]="expression"
```

TEMPLATING - EXPRESSIONS

```
<span [hidden]="isUnchanged">changed</span>  
<!-- Sichtbarkeit von Span Element -->  
  
<div *ngFor="let task of tasks">{{task.name}}</div>  
<!-- Angular interne Direktive -->
```

```
export class AppComponent {  
  isUnchanged: bool = true;  
  tasks: Task[] = [];  
}
```


TEMPLATING - STATEMENTS

```
<button (click)="onClick()">Drück mich</button>  
<!-- Event Handler -->
```

```
export class AppComponent {  
  onClick(): void {  
    alert('ich wurde gedrückt');  
  }  
}
```

TEMPLATES - DATA BINDING

Data direction	Syntax	Type
One-Way from data source to view template	{{expression}}, [target]="expression"	Interpolation, Property, Attribute, Class, Style
One-way from view target to data source	(target)="statement"	Event
Two-Way	[(target)]="expression"	Two-Way

BASICS - TESTING

TESTING - UNIT-TESTS*

* TESTEN DER KOMPONENTEN SIND EIGENTLICH KEINE UNIT-TESTS, SOLLEN HIER ABER UNSERE KLEINSTE EINHEIT DARSTELLEN.

```
import { TestBed, async } from '@angular/core/testing';
import { AppComponent } from './app.component';
describe('AppComponent', () => {
  beforeEach(async(() => {
    TestBed.configureTestingModule({
      declarations: [
        AppComponent
      ],
    }).compileComponents();
  }));

  it('should create the app', async(() => {
    const fixture = TestBed.createComponent(AppComponent);
    const app = fixture.debugElement.componentInstance;
    expect(app).toBeTruthy();
  }));
});
```

-

```
it(`should have as title 'app'`, async(() => {
  const fixture = TestBed.createComponent(AppComponent);
  const app = fixture.debugElement.componentInstance;
  expect(app.title).toEqual('app');
}));

it('should render title in a h1 tag', async(() => {
  const fixture = TestBed.createComponent(AppComponent);
  fixture.detectChanges();
  const compiled = fixture.debugElement.nativeElement;
  expect(compiled.querySelector('h1').textContent)
    .toContain('Welcome to app!');
}));
```

BASICS - ROUTING

ROUTING - DEFINITION

```
import { RouterModule, Routes } from '@angular/router';

const appRoutes: Routes = [
  { path: 'crisis-center', component: CrisisListComponent },
  { path: 'hero/:id', component: HeroDetailComponent },
  { path: 'heroes', component: HeroListComponent, data: {
    title: 'Heroes List'
  }},
  { path: '', redirectTo: '/heroes', pathMatch: 'full'},
  { path: '**', component: PageNotFoundComponent }
];

@NgModule({
  imports: [RouterModule.forRoot(appRoutes),
  ...
  ])
export class AppModule { }
```


ROUTING - IM TEMPLATE

```
<router-outlet></router-outlet>
```

ROUTING - AUFRUF

```
<nav>
  <a routerLink="/crisis-center" routerLinkActive="active">
    Crisis Center
  </a>
  <a routerLink="/heroes" routerLinkActive="active">
    Heroes
  </a>
</nav>
```

BASICS - DEPENDENCY INJECTION

DEPENDENCY INJECTION

```
import { Injectable } from '@angular/core';  
import { HEROES } from './mock-heroes';  
  
@Injectable()  
export class HeroService {  
  getHeroes() { return HEROES; }  
}
```

DEPENDENCY INJECTION

```
import { Injectable } from '@angular/core';
import { HEROES } from './mock-heroes';

const heroesPromise = Promise.resolve(HEROES);

@Injectable()
export class HeroService {
  getHeroes(): Promise<Hero[]> { return heroesPromise; }
}
```

DEPENDENCY INJECTION

```
import { Component }      from '@angular/core';
import { HeroService }    from './hero.service';

@Component({
  selector: 'my-heroes',
  providers: [HeroService],
  template: `
    <h2>Heroes</h2>
    <hero-list></hero-list>
  `
})
export class HeroesComponent {
  constructor (private service: HeroService) {}
}
```

BASICS - CONCLUSION

ADVANCED

ADVANCED - EVENTS

EVENTS - EINE IDEE

MESSAGEBUS

MESSAGEBUS

```
import { Injectable } from '@angular/core';
import { Observable, Subject } from 'rxjs/Rx';
interface Message {channel: string; data: any;}
@Injectable()
export class MessageService {
  private subject = new Subject<Message>();

  public publish<T>(message: T): void {
    const channel = (<any>message.constructor).name;
    this.subject.next({ channel: channel, data: message });
  }
  public of<T>(messageType: { new(...args: any[]): T }): Observable<any> {
    const channel = (<any>messageType).name;
    return this.subject.filter(m => m.channel === channel).map(m => m.data);
  }
}
```

EVENTS - INNER COMPONENT

```
import {Component, EventEmitter, Input, Output} from "@angular/core";
@Component({
  selector: 'inner-component',
  template: '<h1>{{title}}</h1>'
})
export class InnerComponent {
  @Input() title: string = '';
}
```

EVENTS -- INNER COMPONENT - SUBMIT EVENT

```
import {Component, EventEmitter, Input, Output} from "@angular/core";
@Component({
  selector: 'inner-component',
  template: `
    <h1>{{title}}</h1>
    <p><button (click)="onClick()">Klick mich</button></p>
  `
})
export class InnerComponent {
  @Input() title: string = '';
  @Output() onClick: EventEmitter<void> = new EventEmitter();
  onClick() {
    this.onClick.emit();
  }
}
```

EVENTS - OUTER COMPONENT

```
import {Component} from "@angular/core";
@Component({
  selector: 'outer-component',
  template: '<inner-component [title]="title"></inner-component>'
})
export class OuterComponent {
  title: string = 'Title';

  onInnerClick(): void {
    alert('Innen wurde gedrückt');
  }
}
```

EVENTS - OUTER COMPONENT - CATCHING

```
import {Component} from "@angular/core";
@Component({
  selector: 'app',
  template: `
    <outer-component (onClick)="onInnerClick()">
    </outer-component>`
})
export class AppComponent {
}
```

ADVANCED - FORMS

FORMS

```
import {Component} from "@angular/core";
@Component({
  selector: 'app',
  template: `
    <form>
      <input
        type="text"
        [(ngModel)]="name"
        name="name"
        id="name" />
    </form>
  `
})
export class AppComponent {
  name: string = 'Max';
}
```

FORMS - REACTIVE FORMS

FORMS - REACTIVE FORMS

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

import { AppComponent }  from './app.component';
@NgModule({
  imports: [
    BrowserModule,
    ReactiveFormsModule
  ],
  declarations: [
    AppComponent
  ],
  bootstrap: [ AppComponent ]
})
export class AppModule { }
```

FORMS - REACTIVE FORMS - TEMPLATE

```
<h2>Hero Detail</h2>
<h3><i>FormControl in a FormGroup</i></h3>
<form [formGroup]="heroForm" novalidate>
  <div class="form-group">
    <label class="center-block">Name:
      <input class="form-control" formControlName="name">
    </label>
  </div>
</form>
```

FORMS - REACTIVE FORMS - COMPONENT

```
import { Component }           from '@angular/core';
import { FormBuilder, FormGroup } from '@angular/forms';
@Component({
  selector: 'hero-detail',
  templateUrl: 'hero-detail.html'
})
export class HeroDetailComponent {
  heroForm: FormGroup;

  constructor(private fb: FormBuilder) { this.createForm()}

  createForm() {
    this.heroForm = this.fb.group({name: ''});
  }
}
```

FORMS - REACTIVE FORMS

```
<p>Form value: {{ heroForm.value | json }}</p>  
<p>Form status: {{ heroForm.status | json }}</p>
```

FORMS - REACTIVE FORMS - DOCS LESEN

PRAXIS

RAN AN DEN SPECK

DIE APP

```
git clone https://github.com/ElectricMaxxx/froscon-angular-application example-application
cd example application
npm install
ng serve -o
```

AUFGABEN

- Unterteile die App in saubere Komponenten
- Lagere Logic in Services aus - Verknüpfe per DI
- Nutze Reactive-Forms in den Formularen
- Externen Code in Service wrappen
- Changes -> PR an mein Repository

CONCLUSION

Q&A - EURE PLATTFORM-APPLICATION

LINKS

- [RxJs](#)
- [Jasmine](#)
- [Reactive Forms](#)
- [Reactive Forms on steroids](#)
- [RxJs Slides](#)