GFT

Angular services

GFT INTERNAL TRAINING

INNOVATE. TRANSFORM. DELIVER.

Agenda

1. services
2. dependecy injection
3. service example
4. services with promises and observables
5. services benefits
6. injecting services
7. explicity injection
8. tree-shakeable services

services

services

- **Service**: any value, function or feature that an app needs
- anything can be a service
- typically a class with a narrow, well-defined purpose as:
  - logging service
  - data service
  - message bus
  - tax calculator
  - application configuration

https://angular.io/guide/architecture#services

services in angular

- there is nothing specifically Angular about services
- Angular has no definition of a service
- there is no service base class, and no place to register a service
- yet services are fundamental to any Angular application
- components are usually big consumers of services

https://angular.io/guide/architecture#services

dependency injection

Dependency injection (DI)

- is an important application design pattern whereby one object supplies the dependencies of another object, where a dependency is an object that can be used. Finally, the dependency will be passed to a dependent object (the caller/client, the object that would need it)
- its main purpose is to decouple the both parts; in other words, that a change in one part would not imply a change in the other part

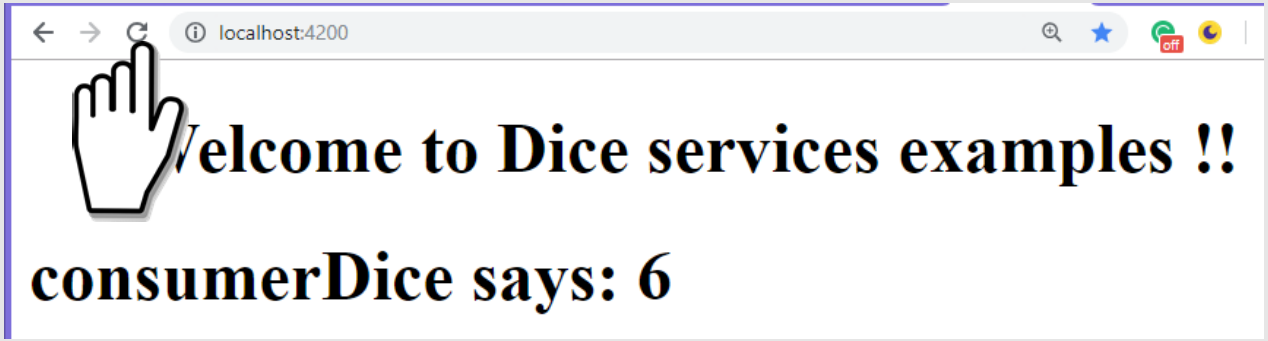
https://angular.io/guide/dependency-injection

Angular DI

- Angular has its own dependency injection framework
- if have a component that depends on a service, we have not create the service ourselves; instead, we will request it in the constructor, and Angular DI engine will provide it for us. Doing that, we can depend on interfaces rather tan concrete types

services example

let`s make a dice



1) create service class

dice.service.ts

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

@Injectable()
export class DiceService {

  constructor() { }

  throwDice(){
    return Math.floor(6*Math.random()+1);
  }
}
```

lets Angular know that a *class* can be used with the dependency injector

2) add to providers

app.module.ts

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

configure Angular DI with the services it will instantiate on demand

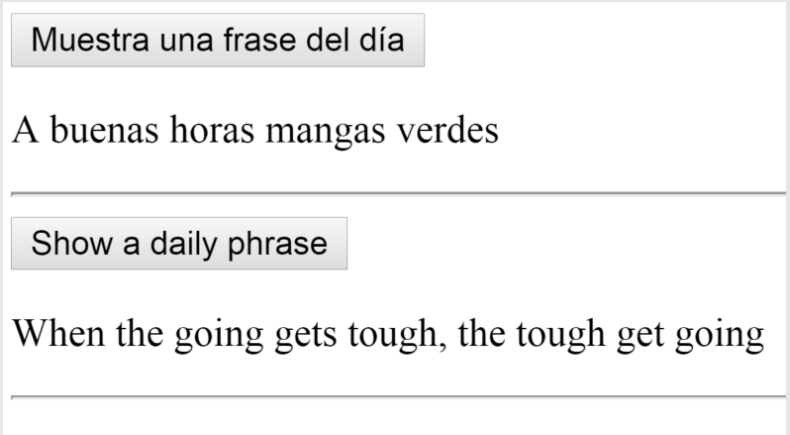
3) use it in component

```
@Component({
  selector: 'app-consumer-dice',
  template: '<h1>consumerDice says: {{throwResult}}</h1>'
})
export class ConsumerDiceComponent implements OnInit {

  throwResult: number;

  constructor( private diceSrv: DiceService ) { }

  ngOnInit() {
    this.throwResult = this.diceSrv.throwDice();
  }
}
```

angular DI will create a property with the service

learn by doing

- create a service with two methods:
  - dameFrase() -> will return a random text in Spanish
  - getPhrase() -> will return a random text in English
- create a component that uses both methods



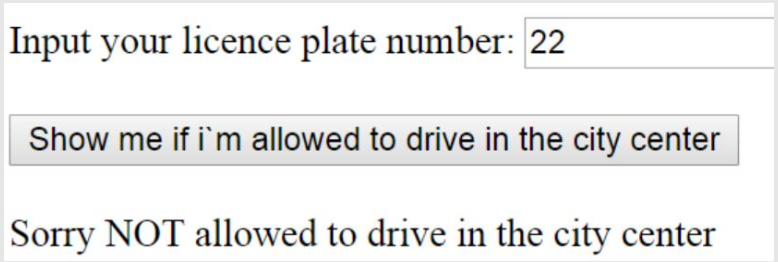
services with promises and observables

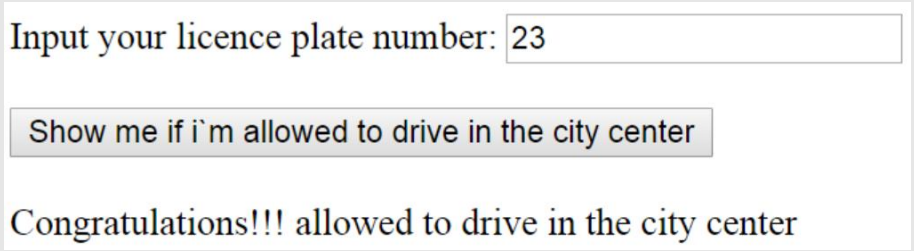
promises and observables

- often a service involves asynchronous programing such as http requests to a remote server that could also fail
- in that case it’s a good practice to return a promise or an observable

learn by doing

- create a component that will use the service showed in the next slide





```
export class LicencePlateAuthorizationService {
  //these could be configured
  oddAllowed: boolean = true;
  evenAllowed: boolean = false;
  isAuthorized: boolean;

  authorize(numberPlate): Promise<string> {
    if (numberPlate%2==0){
      this.isAuthorized = this.evenAllowed;
    } else {
      this.isAuthorized = this.oddAllowed;
    }
    if (this.isAuthorized) {
      return Promise.resolve("allowed to drive in the city center");
    } else {
      return Promise.reject("NOT allowed to drive in the city center");
    };
  }
}
```

services benefits

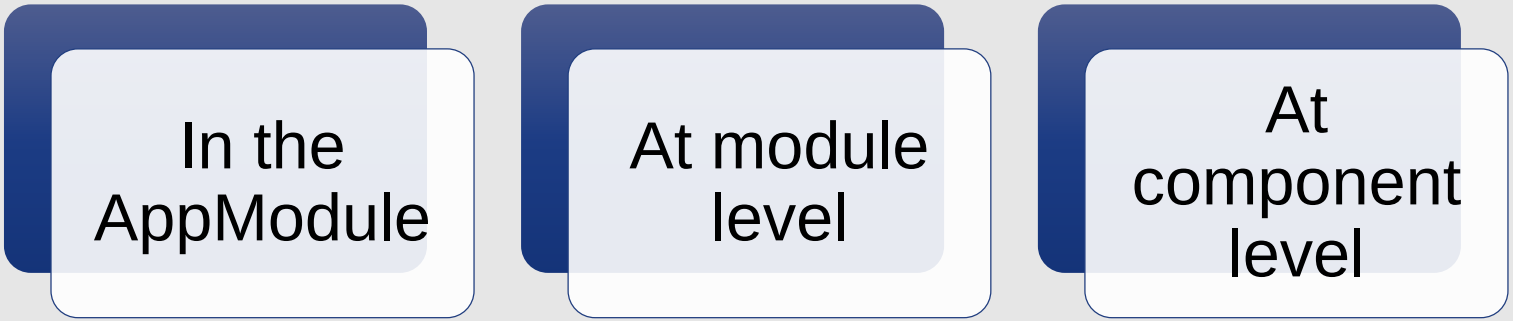
good practices

Organize logic into services has the following benefits:

- code organization
- legibility
- reusability
- testability

injecting services

where a service can be provided



- if multiple imported modules define the same provider, the last module wins
- dependencies are singletons within the scope of an injector

service at component level

```
@Component({
  selector: 'app-consumer-dice-component-level',
  template: '<h1>consumerDice component  level says: {{throwResult}}</h1>',
  providers: [ DiceService ]
})
export class ConsumerDiceComponentLevelComponent implements OnInit {

  throwResult: number;

  constructor( private diceSrv: DiceService ) { }

  ngOnInit() {
    this.throwResult = this.diceSrv.throwDice();
     }
}
```

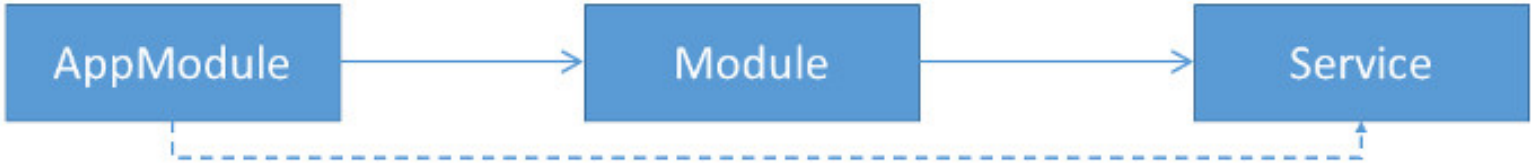
explicity injection

using injector explicity

```
@Component({
  selector: 'app-consumer-dice-injector',
  template: '<h1>consumerDice with explicit injector says: {{throwResult}}</h1>'
})
export class ConsumerDiceInjectorComponent implements OnInit {

  throwResult: number;
  diceSrv: DiceService;

  constructor( private injector: Injector) { }

  ngOnInit() {
    this.diceSrv = this.injector.get(DiceService);
    this.throwResult = this.diceSrv.throwDice();
  }
}
```

tree-shakeable services

Classic service-provider (since Angular 2)




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

This services are NOT treeshakable

Treeshakable providers (since Angular 6)

It looks like this in code:

```
@Injectable({ provideIn: 'root'})
export class SimpleFlightCancellingService { [...] }
```

https://jaxenter.com/new-angular6-143995.html

Shaping the future of digital business

GFT Internal Technical Training

Eduardo García Ibaseta

eduardo.garcia-ibaseta@gft.com
+34 935 639476

GFT IT Consulting, S.L.
Av. Alcalde Barnils, 69-71
08174 Sant Cugat del Vallès (BARCELONA)