Projeto de Interfaces WEB

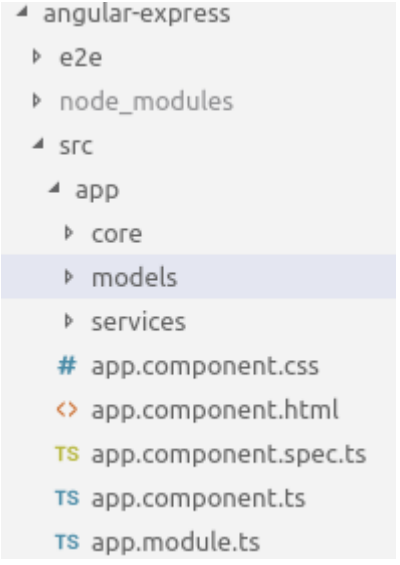
Angular e Express
Aula 09

Introdução

- O objetivo desse mini-projeto é:
  - Criar uma aplicação simples em Angular que insere dados em um servidor e também pega dados do servidor (um set e get)
  - Criar um servidor express simples para tratar as requisições do Angular.

Projeto Angular

- Crie o projeto Angular:
  - A pasta core é um módulo!
  - As pastas models e services são pastas comuns.



A pasta models

- Crie o arquivo User.ts

```
export class User{
    firstName:string;
    lastName:string;
    email:string;
    zipCode:string;
    password:string;
}
```

Uma classe simples que representa um usuário. Facilita a troca de dados entre o Angular e o Express.

A pasta service

- Crie o arquivo user.service.js

```
import { User } from './../models/User';
import { Injectable, OnDestroy } from '@angular/core';
import { HttpClient } from "@angular/common/http";

@Injectable({
  providedIn: 'root'
})
export class UserService{


  constructor(private http:HttpClient) {
  }

  setUser(user:User){

    return this.http.post("http://localhost:3000/angular/express/users/register",user);
  }

  getUser(){
    return this.http.get("http://localhost:3000/angular/express/users/show");
  }

}
```

O service é responsável em se comunicar com o servidor Express.

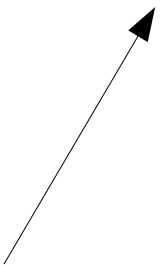
URL de comunicação com o Express.
O padrão é a porta 300.

Esse “pedaço” em destaque da URL é definido no servidor Express, mais adiante.

A pasta core - input user (.ts)

- Componente input-user

```
import { UserService } from './../../services/user.service';
import { User } from './../../models/User';
import { Component, OnInit } from '@angular/core';

@Component({
  selector: 'app-input-user',
  templateUrl: './input-user.component.html',
  styleUrls: ['./input-user.component.css']
})
export class InputUserComponent {

  user:User;

  constructor(private userService:UserService) {
    this.user = new User();
  }

  onSubmit(){
    console.log(JSON.stringify(this.user));
    this.userService.setUser(this.user).subscribe(
      (res:User)=>{
        console.log(JSON.stringify(res));
      }
    );
  }
}
```



setUser recebe como parâmetro this.user, alimentado pela interface.
A resposta (res) é usuário enviado.

A pasta core – input user (.html)

```
<h1>Register User</h1>
<form (ngSubmit)="registerform.form.valid && onSubmit()" #registerform="ngForm" novalidate>
  <div class="form-group">
    <label for="firstName" class="control-label">First Name</label>
    <input type="text" class="form-control" name="firstName" id="firstName" [(ngModel)]="user.firstName" #firstName="ngModel"
    [ngClass]="{ 'is-invalid': registerform.submitted && firstName.invalid }" required>

    <div *ngIf="registerform.submitted && firstName.invalid" class="invalid-feedback">
      <div *ngIf="firstName.errors['required']">First Name is required</div>
    </div>
  </div>

  <div class="form-group">
    <label for="lastName" class="control-label">Last Name</label>
    <input type="text" class="form-control" name="lastName" id="lastName" [(ngModel)]="user.lastName" #lastName="ngModel"
    [ngClass]="{ 'is-invalid': registerform.submitted && lastName.invalid }" required>
    <div *ngIf="registerform.submitted && lastName.invalid" class="invalid-feedback">
      <div *ngIf="lastName.errors['required']">Last Name is required</div>
    </div>
  </div>

  <div class="form-group">
    <label for="email" class="control-label">E-mail</label>
    <input type="text" class="form-control" name="email" id="email" [(ngModel)]="user.email" #email="ngModel"
    [ngClass]="{ 'is-invalid': registerform.submitted && email.invalid }" required email>
    <div *ngIf="registerform.submitted && email.invalid" class="invalid-feedback">
      <div *ngIf="email.errors['required']">Email is required</div>
      <div *ngIf="email.errors['email']">Email must be a valid email address</div>
  </div>
  </div>
```

HTML com os inputs que serão enviados para o servidor Express

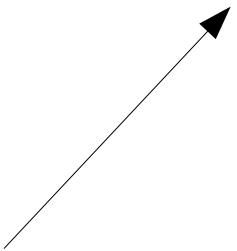
A pasta core - input user (.html) (cont)

```
<div class="form-group">
    <label for="zipCode" class="control-label">Zip Code</label>
    <input type="text" class="form-control" name="zipCode" id="zipCode" [(ngModel)]="user.zipCode" #zipCode="ngModel"
    [ngClass]="{ 'is-invalid': registerform.submitted && zipCode.invalid }" required pattern="^[0-9]{5}(?:-[0-9]{3})?$">
    <div *ngIf="registerform.submitted && zipCode.invalid" class="invalid-feedback">
      <div *ngIf="zipCode.errors['required']">Zip Code is required</div>
      <div *ngIf="zipCode.errors['pattern']">Pattern invalid</div>
    </div>
  </div>

  <div class="form-group">
    <label for="password" class="control-label">Password</label>
    <input type="password" class="form-control" name="password" id="password" [(ngModel)]="user.password" #password="ngModel"
    [ngClass]="{ 'is-invalid': registerform.submitted && password.invalid }" required minlength="6" pattern="^(?=.*[a-z])(?=.*[A-Z])(?=.*[0-9])[a-zA-Z0-9]+$">
    <div *ngIf="registerform.submitted && password.invalid" class="invalid-feedback">
      <div *ngIf="password.errors['required']">Password is required</div>
      <div *ngIf="password.errors['minlength']">Password must be at least 6 characters</div>
      <div *ngIf="password.errors['pattern']">Pattern is invalid</div>
    </div>
  </div>

  <div class="form-group">
    <button type="submit" class="btn btn-primary">Register</button>
  </div>

</form>
```

A pasta core – display user (ts)

- Componente display-user

```
import { UserService } from './../../services/user.service';
import { User } from './../../models/User';
import { Component, OnInit } from '@angular/core';

@Component({
  selector: 'app-display-user',
  templateUrl: './display-user.component.html',
  styleUrls: ['./display-user.component.css']
})
export class DisplayUserComponent {

  user:User = new User();

  constructor(private userService:UserService) {
    this.userService.getUser().subscribe(
      (res:User)=>{
        this.user = res;
      }
    );
   }
}
```



Recebe o User via getUser e atualiza a variável local this.user, a qual será exibida pelo HTML.

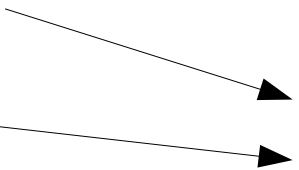
A pasta core – display user (html)

```
<h1>User Information</h1>
<div>
<div class="row">
   <label class="col-6">First Name</label>
   <div class="col-6">{{user.firstName}}</div>
</div>
<div class="row">
   <label class="col-6">Last Name</label>
   <div class="col-6">{{user.lastName}}</div>
</div>
<div class="row">
   <label class="col-6">E-mail</label>
   <div class="col-6">{{user.email}}</div>
</div>
<div class="row">
   <label class="col-6">Zip Code</label>
   <div class="col-6">{{user.zipCode}}</div>
</div>
<div class="row">
   <label class="col-6">Password</label>
   <div class="col-6">{{user.password}}</div>
</div>
</div>
```

Apenas exibe as informações do objeto user armazenado no componente.

core.module

```
import { NgModule } from '@angular/core';
import {FormsModule} from '@angular/forms';

import { CommonModule } from '@angular/common';
import { DisplayUserComponent } from './display-user/display-user.component';
import { InputUserComponent } from './input-user/input-user.component';

@NgModule({
  declarations: [DisplayUserComponent, InputUserComponent],
  exports: [DisplayUserComponent, InputUserComponent],
  imports: [
    CommonModule,
    FormsModule
  ]
})
export class CoreModule { }
```

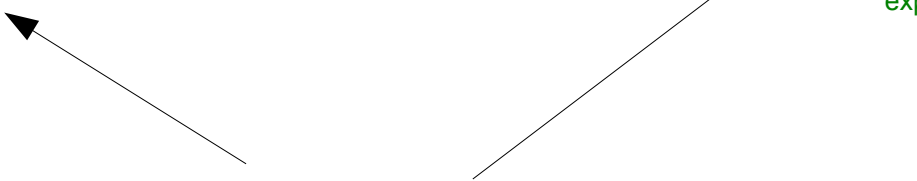


Não esqueça e exportar os componentes e importar o FormsModule

app.module

```
import { CoreModule } from './core/core.module';
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';
import { Routes, RouterModule } from "@angular/router";
import { HttpClientModule } from '@angular/common/http';

import { AppComponent } from './app.component';
import { InputUserComponent } from './core/input-user/input-user.component';
import { DisplayUserComponent } from './core/display-user/display-user.component';

const routes:Routes = [
  {path:'',component:InputUserComponent},
  {path:'show',component:DisplayUserComponent},
];
```

```
@NgModule({
  declarations: [
    AppComponent
  ],
  imports: [
    BrowserModule,
    CoreModule,
    RouterModule.forRoot(routes),
    HttpClientModule
  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```



Rotas e HTTP!

app.component.html

```
<nav class="navbar navbar-expand navbar-dark bg-dark">
  <div class="navbar-nav">
      <a class="nav-item nav-link" routerLink="">Register</a>
      <a class="nav-item nav-link" routerLink="show">Show User</a>
  </div>
</nav>

<div class="jumbotron">
  <div class="container">
    <div class="row">
      <div class="col-sm-6 offset-sm-3">
        <router-outlet></router-outlet>
      </div>
    </div>
  </div>
</div>
```

Barra de navegação

Roteamento.

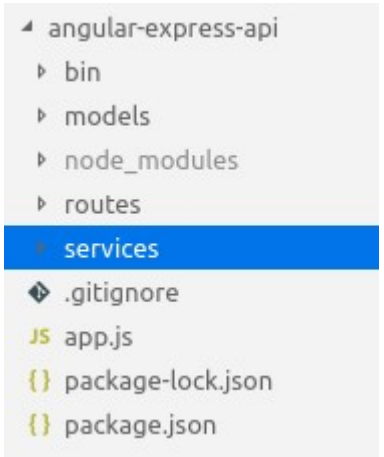
O Servidor Express

O servidor Express

- O servidor Express irá gerenciar um único objeto em memória, um User.
- Para criar o projeto, vamos usar a expresse-api. Caso não tenha esse módulo do Node instalado, faça:
  - **npm install -g express-generator-api**
- Depois, pra criar o projeto, simplesmente faça:
  - **express-api** <nome_do_projeto>
    - cria a pasta de fato
  - **cd** <nome_do_projeto>
    - entra na pasta
  - **npm install**
    - instala as dependências na node_modules.

O servidor express

- Organização do projeto:



- crie a pasta **models** e **services**.

A pasta models.

- Crie o arquivo user.model.js

```
class UserModel{

    constructor(firstName, lastName, login, email, zipCode, password){
        this.login = login;
        this.firstName = firstName;
        this.lastName = lastName;
        this.email = email;
        this.zipCode = zipCode;
        this.password = password;
    }
}

module.exports = UserModel;
```

A pasta services

- Crie o arquivo user.services.js

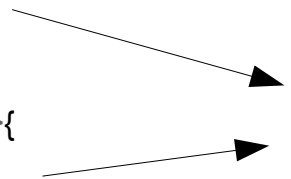
```
const UserModel = require("../models/user.model");

let user = null;

class UserService{

    static setUser(data){
        console.log("set");
        user = new UserModel(data.firstName,data.lastName,data.email,data.zipCode,data.password);
        return user;
    }

    static getUser(){
        return user;
    }

}

module.exports = UserService;
```

Essa classe simula uma base de dados em memória.

Na pasta routes

- Modifique o arquivo user.routes.js

```
var express = require('express');
var router = express.Router();
var UserService = require('../services/user.service');

router.post('/register', async (req,res,next) =>{
  const user = await UserService.setUser(req.body);
  return res.status(201).json(user);

});

router.get('/show', async (req, res, next) =>{

  const user = await UserService.getUser();
  return res.json(user);

});

module.exports = router;
```



Coloca na resposta o resultado da chamada da URI (/register e /show).

Em app.js

```
var express = require('express');
var path = require('path');
var cookieParser = require('cookie-parser');
var bodyParser = require('body-parser');

var users = require('./routes/users.router');

var app = express();

app.use(bodyParser.json());
app.use(bodyParser.urlencoded({ extended: false }));
app.use(cookieParser())

app.use(function(req, res, next) {
    res.header("Access-Control-Allow-Origin", "*");
    res.header("Access-Control-Allow-Headers", "Origin, X-Requested-With, Content-Type, Accept");
    next();
});

app.use('/angular/express/users', users);

module.exports = app;
```

Inicie o Express

- npm start
  - dentro do diretório raiz.
  - Atenção: toda e qualquer modificação no servidor implica em reiniciar novamente o servidor.