Angular 14 JWT Authentication & Authorization example

Last modified: July 9, 2022 bezkoder Angular, Security

In this tutorial, we're gonna build an Angular 14 JWT Authentication (Login, Registration) & Authorization with HttpOnly Cookie and Web Api (including `HttpInterceptor`, Router & Form Validation). I will show you:

- Flow for User Registration (Signup) & User Login with HttpOnly Cookie
- Project Structure with `HttpInterceptor`, `Router`
- Way to implement `HttpInterceptor`
- How to store JWT token in HttpOnly Cookie
- Creating Login, Signup Components with Form Validation
- Angular Components for accessing protected Resources
- How to add a dynamic Navigation Bar to Angular App
- Working with Browser Session Storage

Let's explore together.

Related Posts:
– In-depth Introduction to JWT-JSON Web Token
– Angular 14 CRUD example with Web API
– Angular 14 File upload example

Fullstack:
– Angular + Spring Boot: JWT Authentication & Authorization example
– Angular + Node.js Express: JWT Authentication & Authorization example

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Overview of Angular 14 JWT Authentication & Authorization example

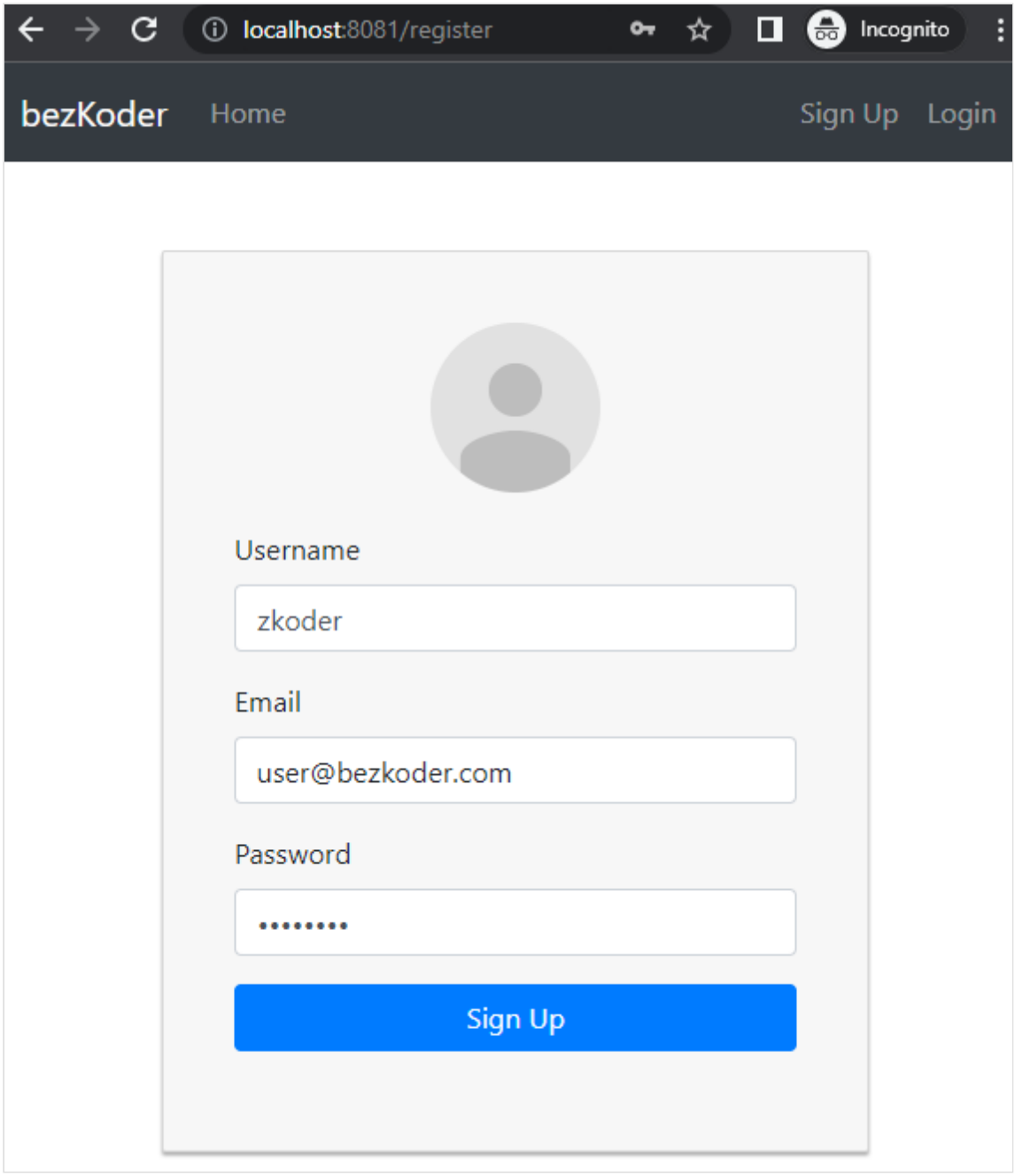
We will build an Angular 14 JWT Authentication & Authorization application with HttpOnly Cookie and Web Api in that:

- There are Login and Registration pages.
- Form data will be validated by front-end before being sent to back-end.
- Depending on User's roles (admin, moderator, user), Navigation Bar changes its items automatically.
- Services contain methods for sending HTTP requests & receiving responses with HttpOnly Cookie

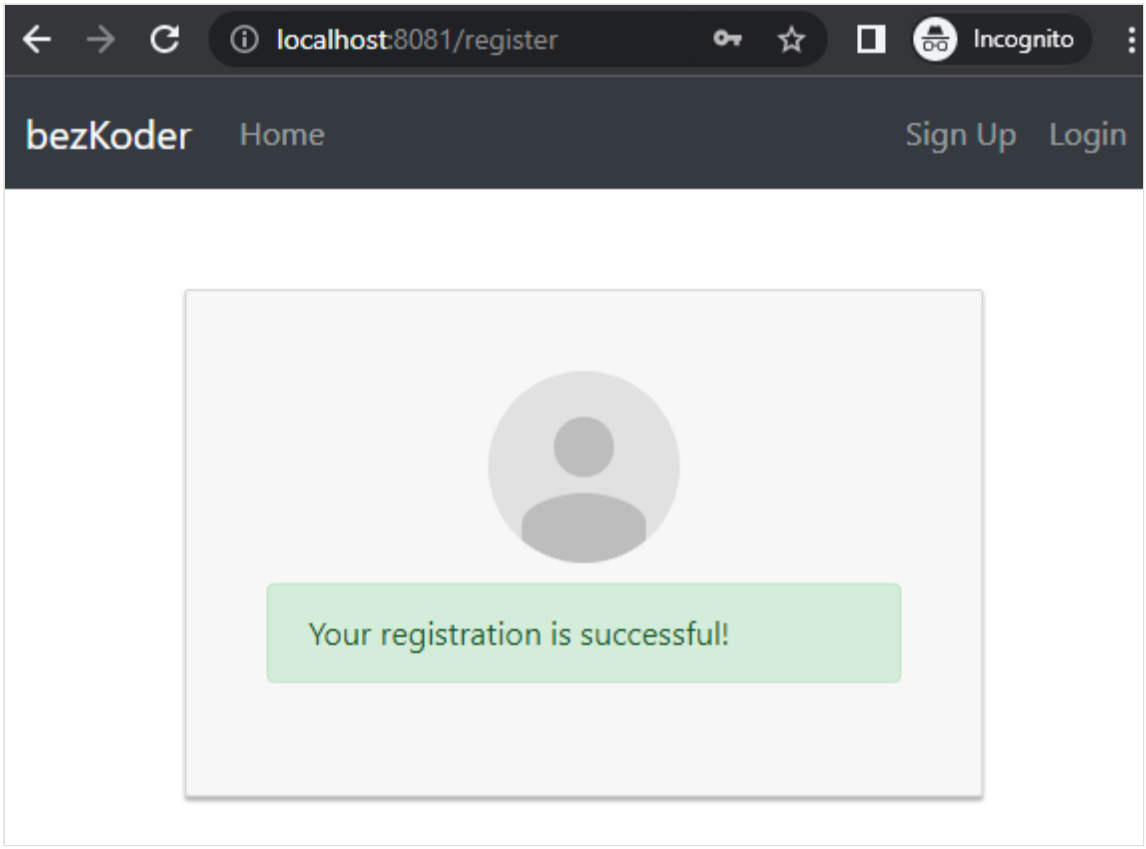
Here are the screenshots of our app:

–

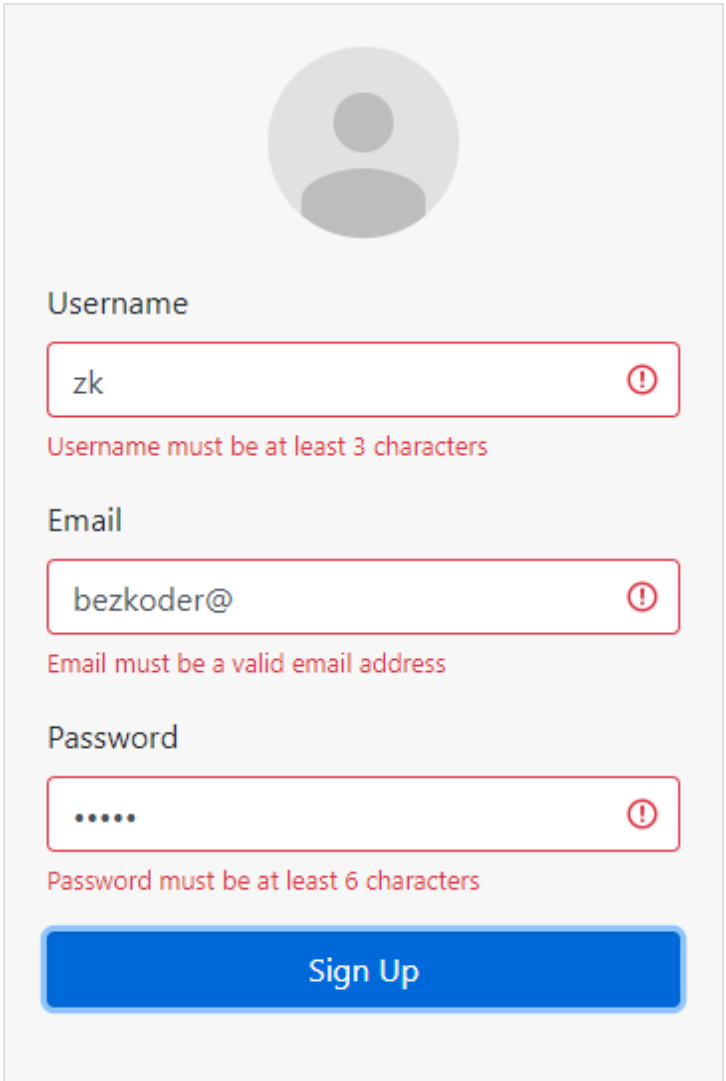
Signup/Registration Page:



Signup Successfully:

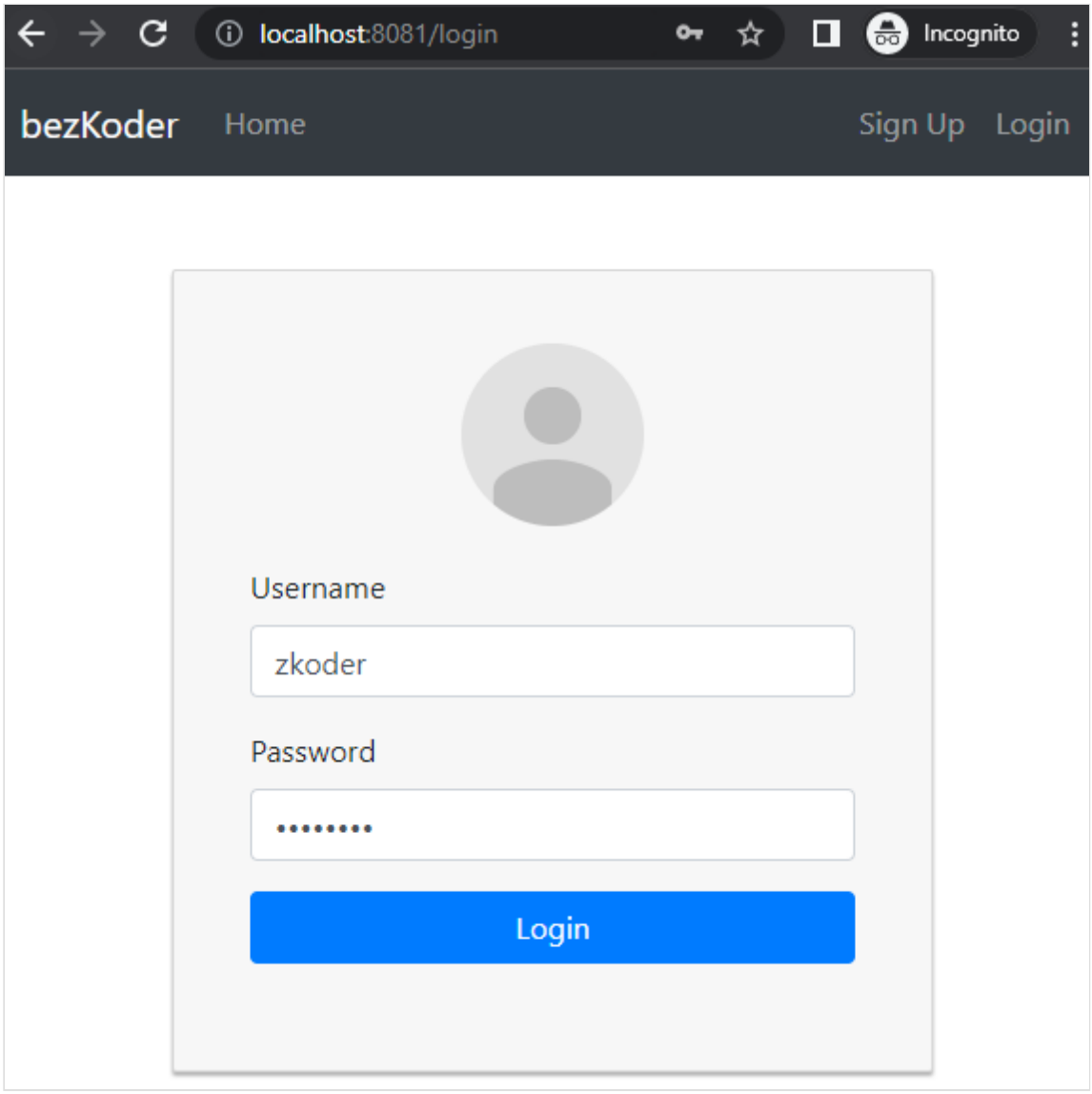


– Form Validation:

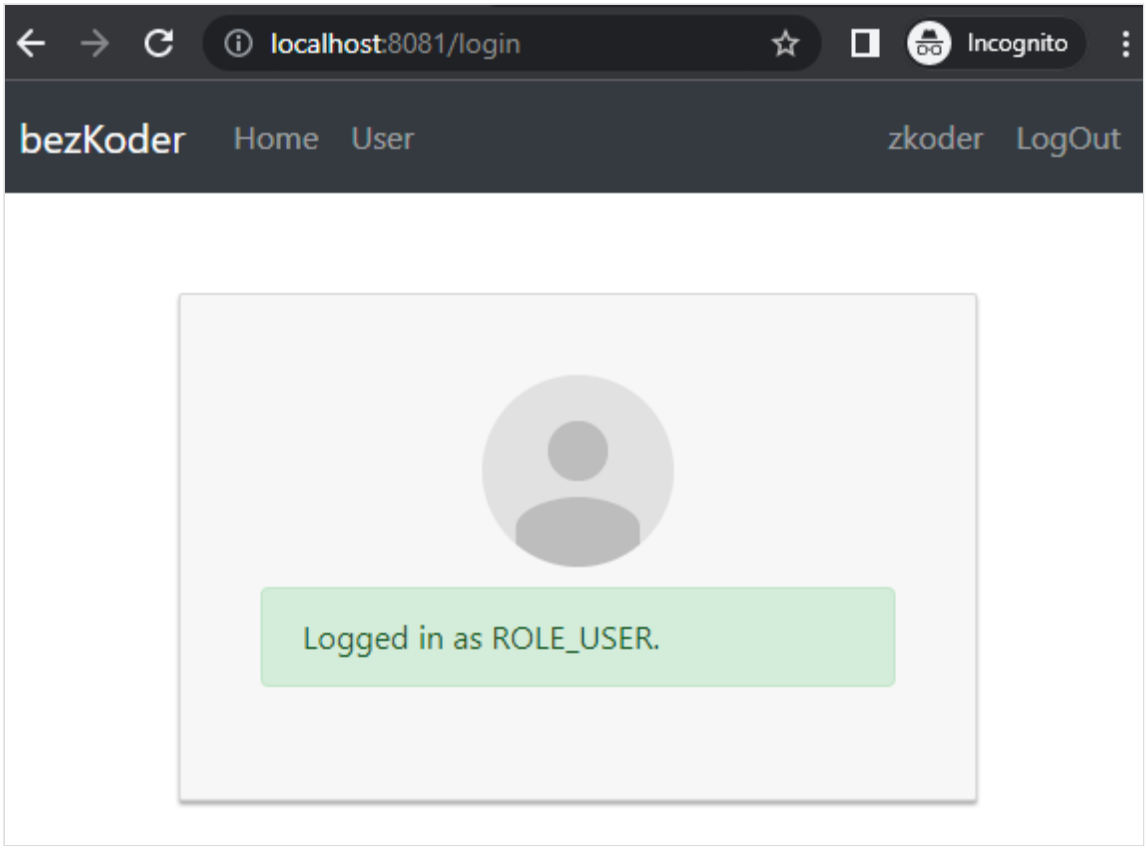


If you want to know more details about Form Validation, please visit:
– Angular 14 Template Driven Forms Validation example
– Angular 14 Reactive Forms Validation example

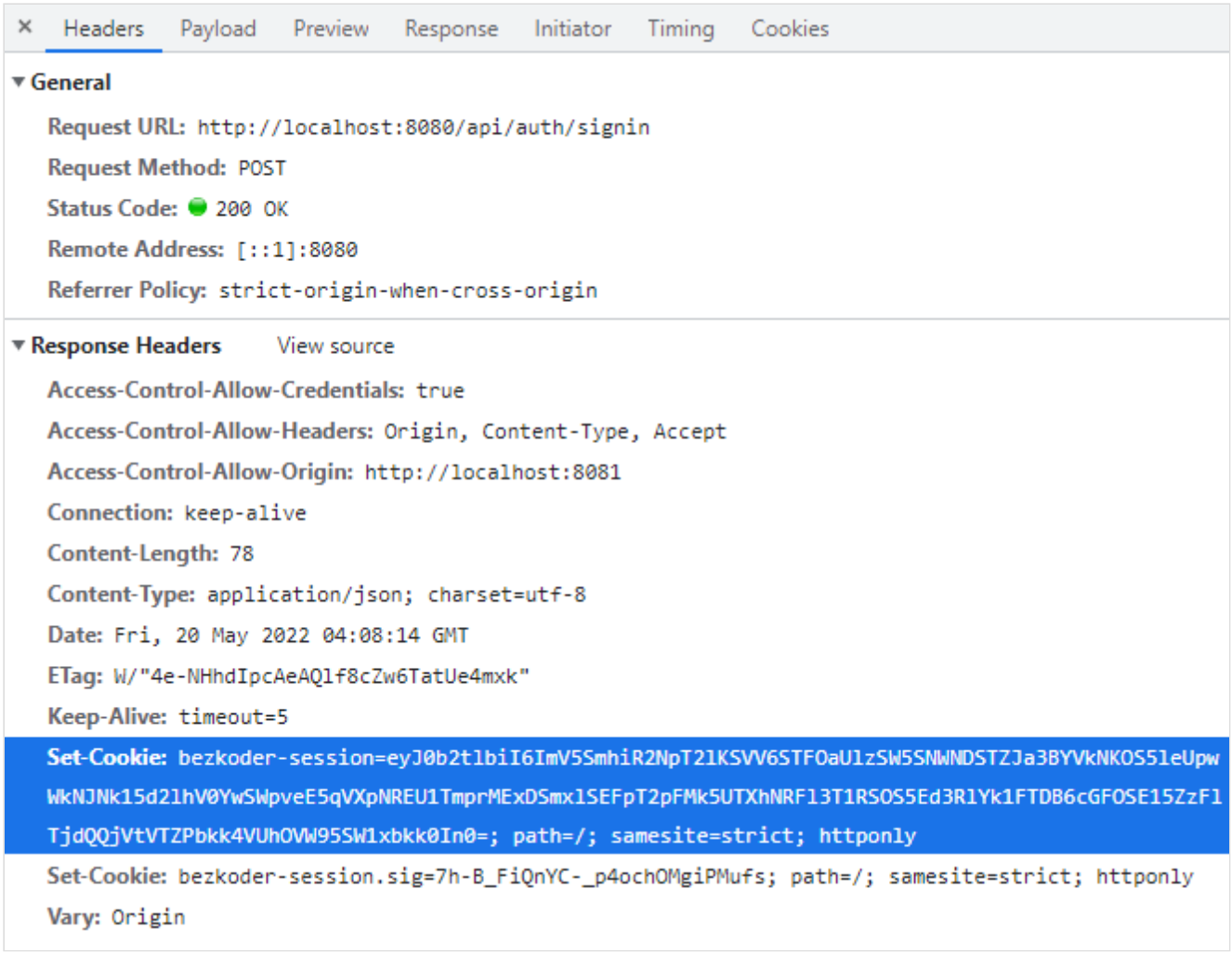
– Login Page:



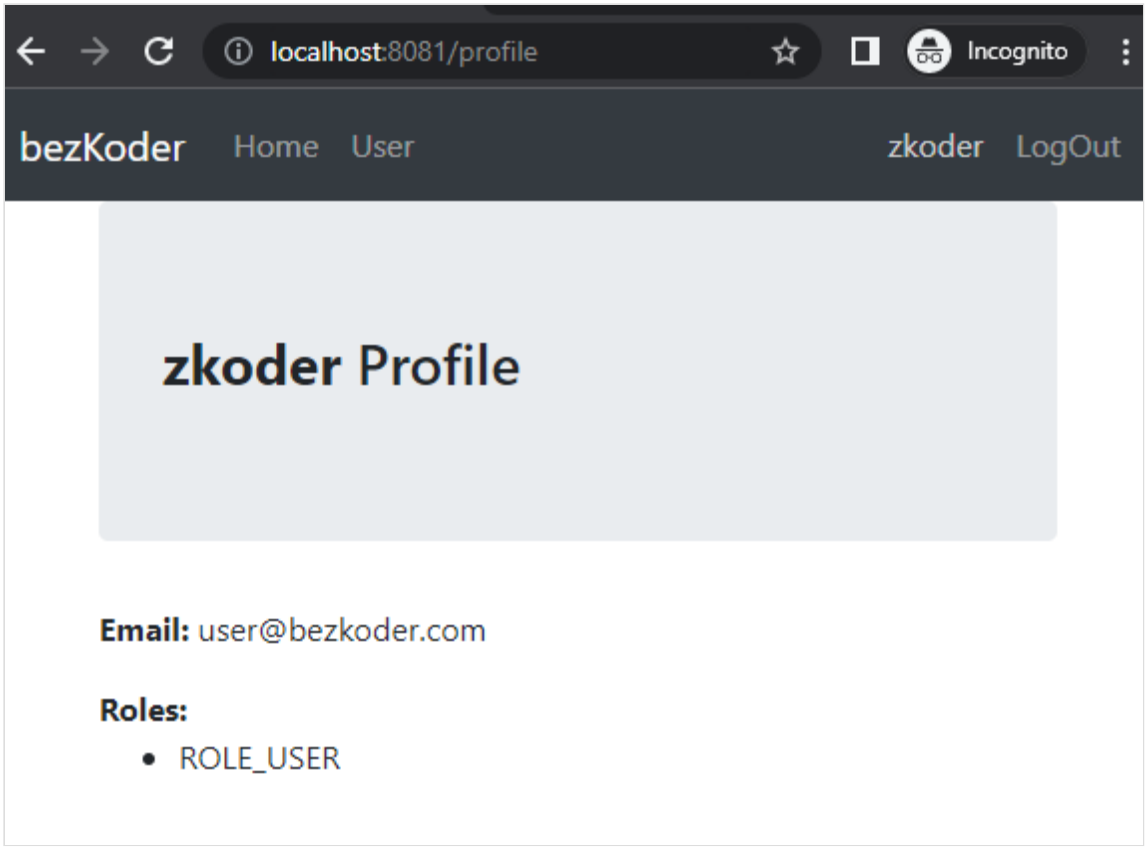
Login Successfully:



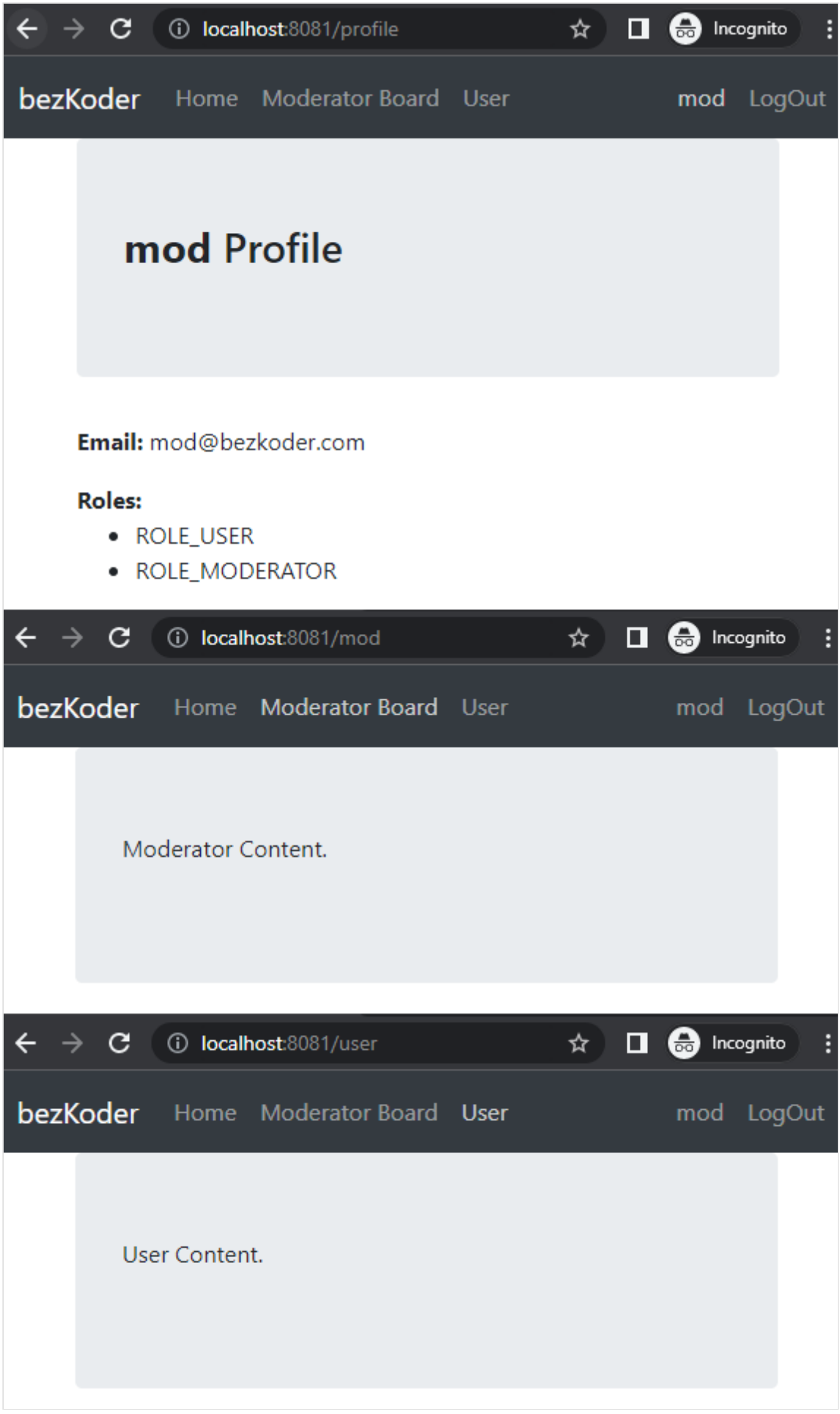
HttpOnly Cookie set by the Server:



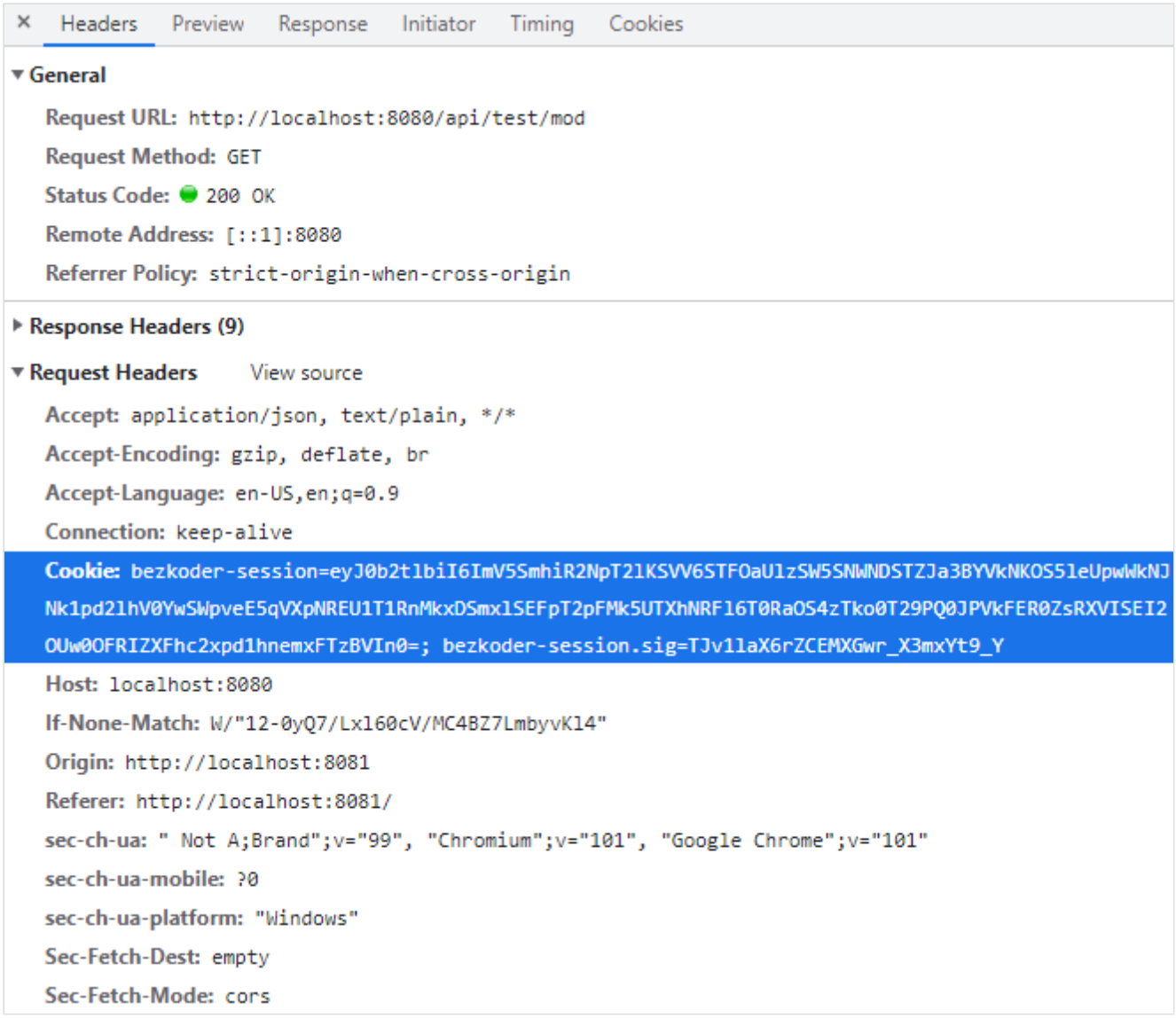
– Profile Page (for successful Login):



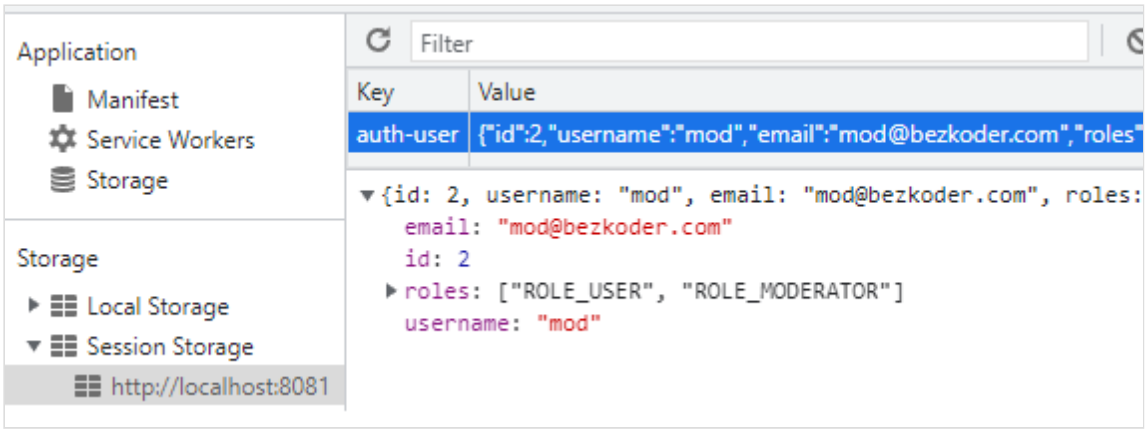
– For Authorization (Moderator account login), the navigation bar will change by authorities:



HttpOnly Cookie is sent automatically with HTTP Request:



– Browser Local/Session Storage for storing user information:



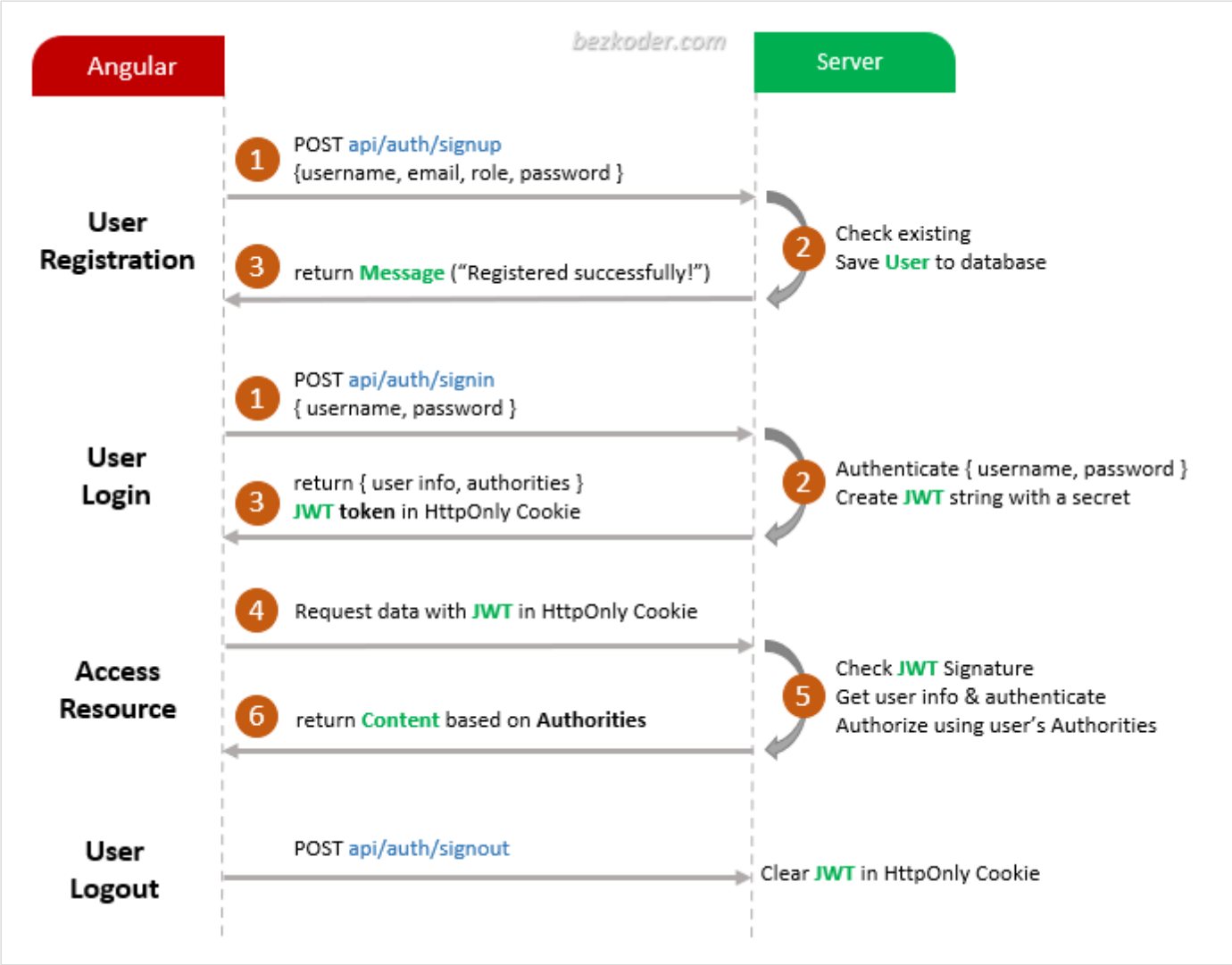
For refresh token, please visit:
Angular Refresh Token with Interceptor and JWT example

User Authentication and Authorization Flow

For JWT Authentication, we're gonna call 3 endpoints:

- POST `api/auth/signup` for User Registration
- POST `api/auth/signin` for User Login
- POST `api/auth/signout` for User Logout

The following flow shows you an overview of Requests and Responses that Angular 14 Client will make or receive. This Angular Client uses JWT in Cookies while sending request to protected resources.



You can find step by step to implement these back-end servers in following tutorial:

- Spring Boot Login and Registration example with H2
- Spring Boot Login and Registration example with MySQL
- Spring Boot Login and Registration example with MongoDB
- Node.js Express Login and Registration example with MySQL
- Node.js Express Login and Registration example with MongoDB

Demo Video

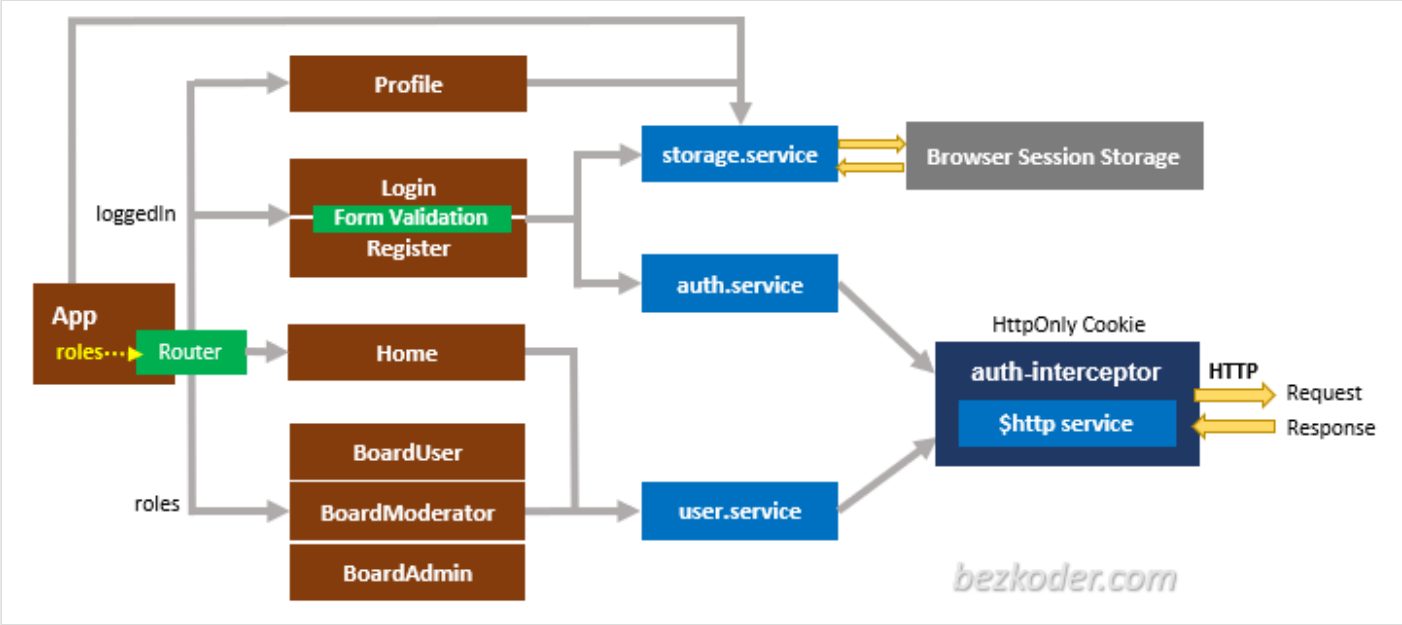
This is full Angular 10 (similar to this Angular version 14) JWT Authentication App (including form validation, check signup username/email duplicates, test authorization for 3 roles: Admin, Moderator, User) with Spring Boot Server:

Angular + Node Express:

The Angular project in video uses Session Storage instead of HttpOnly Cookie for storing JWT, but the flow or structure is the same.

Component Diagram with Router and HttpInterceptor

Now look at the diagram below.



– The `App` component is a container using `Router`. It gets user user information from *Browser Session Storage* via `storage.service`. Then the navbar now can display based on the user login state & roles.

– `Login` & `Register` components have form for submission data (with support of *Form Validation*). They use `storage.service` for checking state and `auth.service` for sending signin/signup requests.

– `auth.service` uses Angular HttpClient (`$http` service) to make authentication requests.
– every HTTP request by `$http` service will be inspected and transformed before being sent by `auth-interceptor`.

– `Home` component is public for all visitor.

– `Profile` component get `user` data from *Session Storage*.

– `BoardUser`, `BoardModerator`, `BoardAdmin` components will be displayed depending on `roles` from *Session Storage*. In these components, we use `user.service` to get protected resources from API (with **JWT** in HttpOnly Cookie).

Technology

– Angular 14
– RxJS 7
– Angular CLI 14
– Bootstrap 4

Setup Angular 14 Jwt Authentication Project

Let's open cmd and use Angular CLI to create a new Angular 14 Project as following command:

```
ng new angular-14-jwt-auth
? Would you like to add Angular routing? Yes
? Which stylesheet format would you like to use? CSS
```

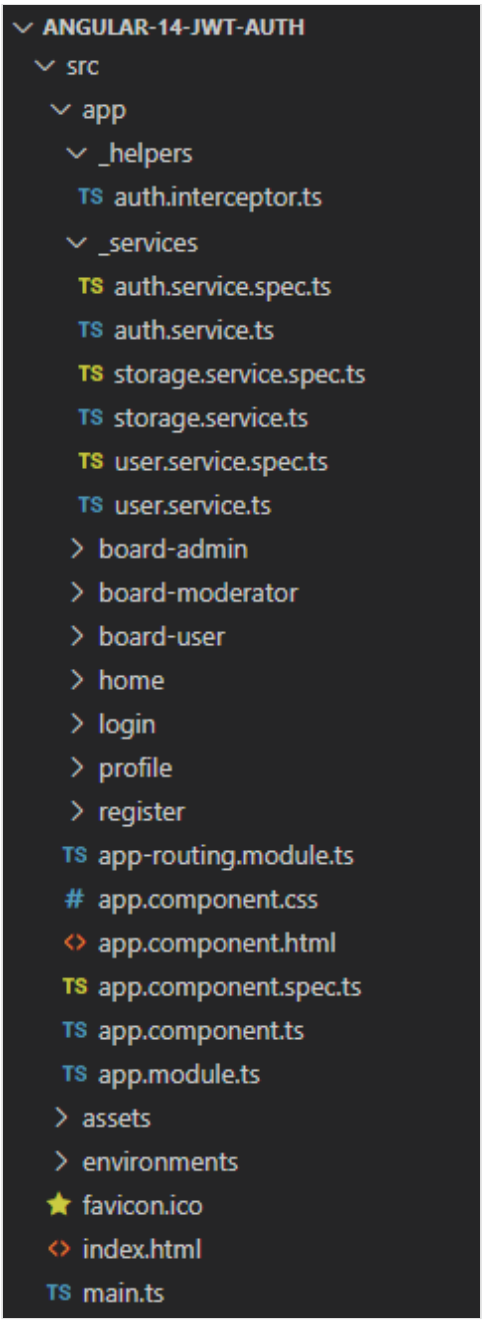
We also need to generate some Components and Services:

```
ng g s _services/auth
ng g s _services/storage
ng g s _services/user
ng g c login
ng g c register
ng g c home
ng g c profile
ng g c board-admin
ng g c board-moderator
ng g c board-user
```

After the previous process is done, under **src** folder, let's create **_helpers** folder and *http.interceptor.ts* file inside.

Now you can see that our project directory structure looks like this.

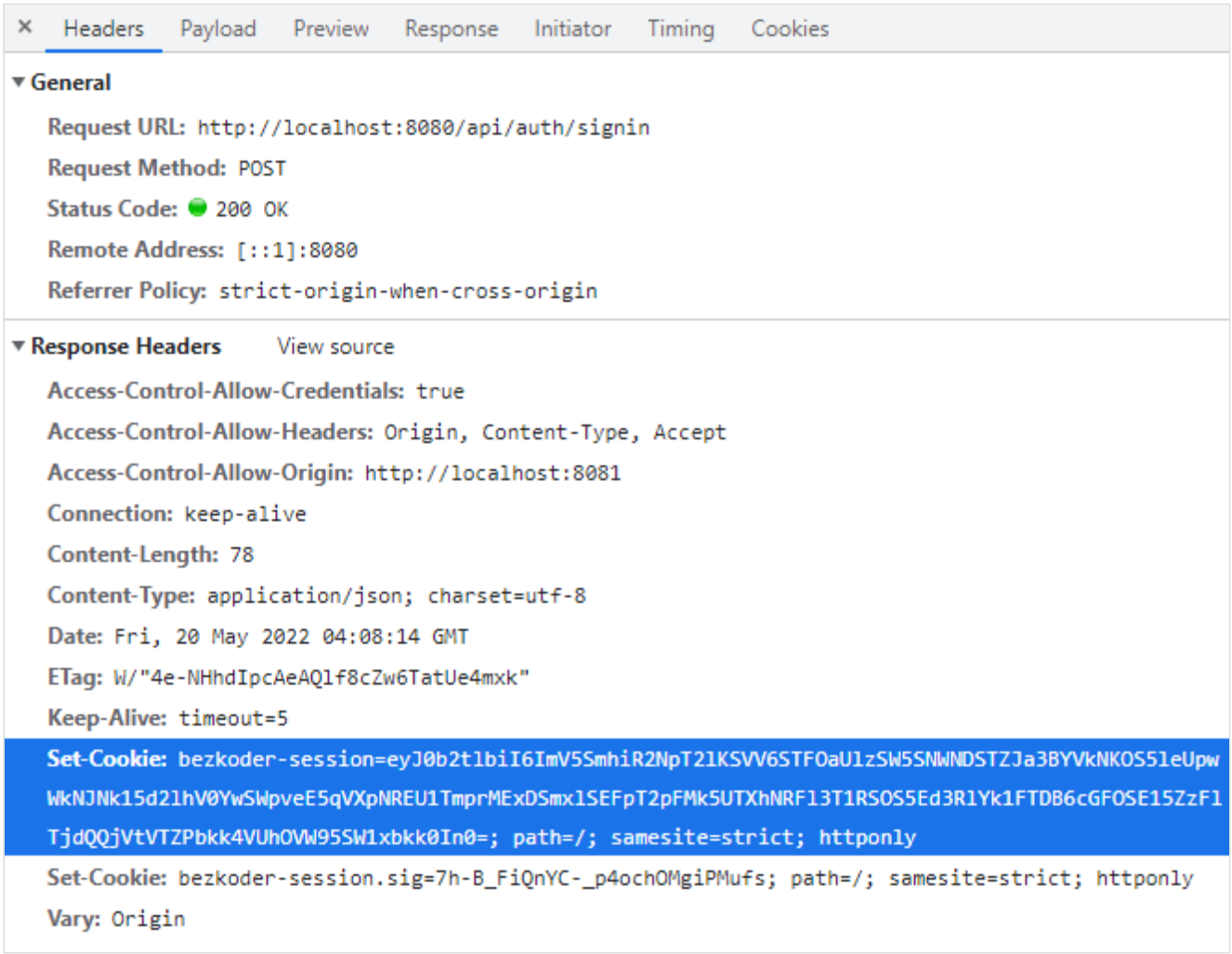
Project Structure



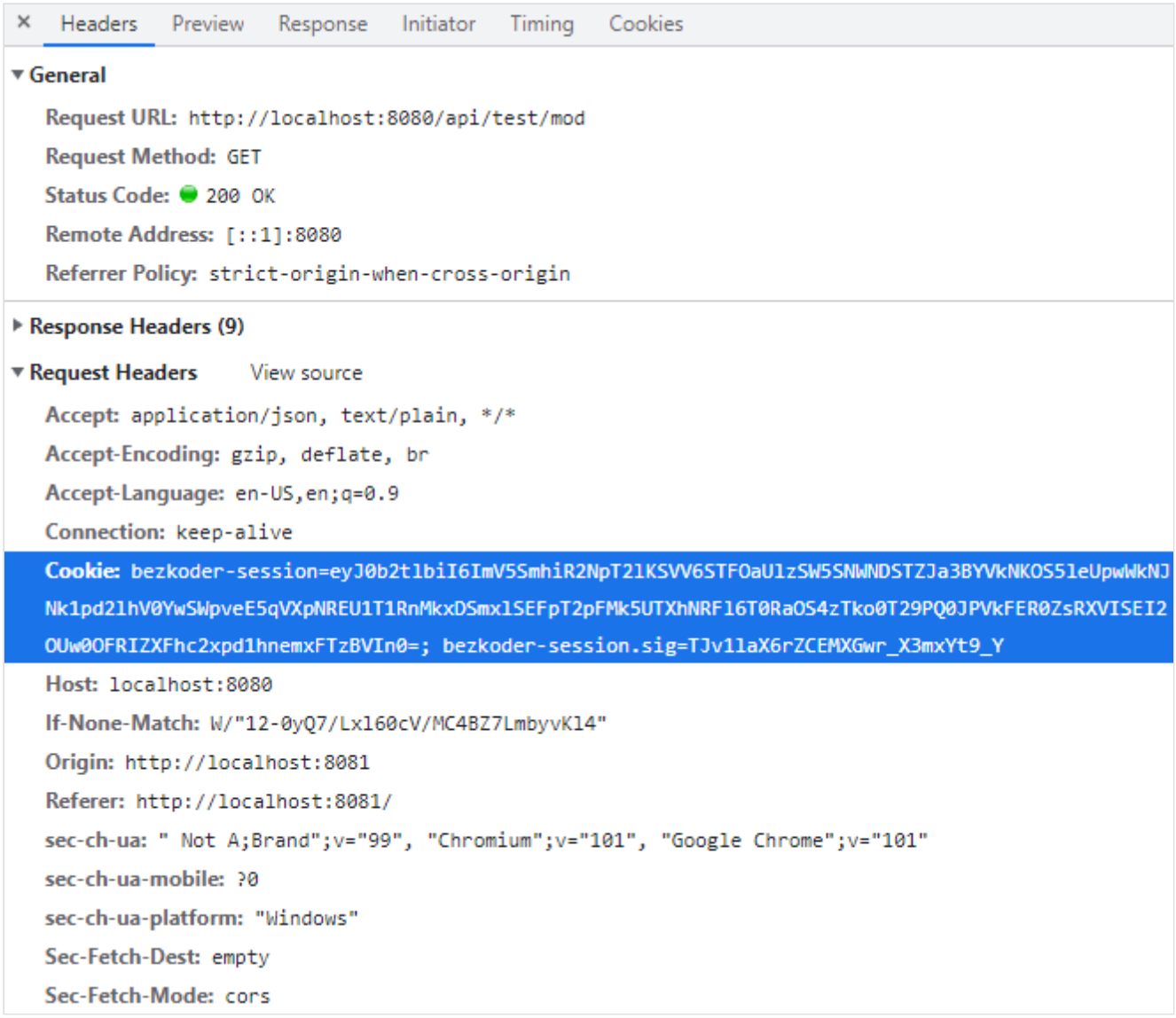
With the explanation in Component Diagram above, you can easily understand this project structure.

How to store JWT token in HttpOnly Cookie with Angular 14

After receiving `/login` request, the server sends one or more `Set-Cookie` headers with the HTTP response.



The browser stores the `Cookie` and sends it with HTTP requests inside a **Cookie** HTTP header.



So how to tell browser that?
We will use `withCredentials: true` to attach the cookie to API calls for cross-site requests. It is because our Rest API and angular domains (ports) are different.

For example:

```
http.post('/auth/login', user, { withCredentials: true });
http.get('/test/user', { withCredentials: true });
http.get('/test/mod', { withCredentials: true });
http.get('/test/admin', { withCredentials: true });
```

We can also use Angular Http Interceptor to do this. So we don't need to attach `{ withCredentials: true }` on every request.

```
http.post('/auth/login', user);
http.get('/test/user');
http.get('/test/mod');
http.get('/test/admin');
// HttpRequestInterceptor implements HttpInterceptor
// automatically add { withCredentials: true }
```

Angular 14 Http Interceptor

HttpInterceptor has `intercept()` method to inspect and transform HTTP requests before they are sent to server.

`HttpRequestInterceptor` implements `HttpInterceptor`. We're gonna add **withCredentials: true** to make browser include **Cookie** on the Request header (HttpOnly Cookie).

_helpers/*http.interceptor.ts*

```
import { Injectable } from '@angular/core';
import { HttpEvent, HttpInterceptor, HttpHandler, HttpRequest, HTTP_INTERCEPTORS
import { Observable } from 'rxjs';
@Injectable()
export class HttpRequestInterceptor implements HttpInterceptor {
  intercept(req: HttpRequest<any>, next: HttpHandler): Observable<HttpEvent<any>>
    req = req.clone({
      withCredentials: true,
    });
    return next.handle(req);
  }
}
export const httpInterceptorProviders = [
  { provide: HTTP_INTERCEPTORS, useClass: HttpRequestInterceptor, multi: true },
];
```

`intercept()` gets `HTTPRequest` object, change it and forward to `HttpHandler` object's `handle()` method. It transforms `HTTPRequest` object into an `Observable<HttpEvents>`.

`next: HttpHandler object` represents the next interceptor in the chain of interceptors. The final 'next' in the chain is the Angular HttpClient.

Setup App Module

Open *app.module.ts*, then import `FormsModule` & `HttpClientModule`.
We also need to add `authInterceptorProviders` in `providers`. I will show you how to define it later on this tutorial (in *http.interceptor.ts*).

```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';
import { FormsModule } from '@angular/forms';
import { HttpClientModule } from '@angular/common/http';
import { AppRoutingModule } from './app-routing.module';
import { AppComponent } from './app.component';
import { LoginComponent } from './login/login.component';
import { RegisterComponent } from './register/register.component';
import { HomeComponent } from './home/home.component';
import { ProfileComponent } from './profile/profile.component';
import { BoardAdminComponent } from './board-admin/board-admin.component';
import { BoardModeratorComponent } from './board-moderator/board-moderator.compon
import { BoardUserComponent } from './board-user/board-user.component';
import { httpInterceptorProviders } from './_helpers/http.interceptor';
@NgModule({
  declarations: [
    AppComponent,
    LoginComponent,
    RegisterComponent,
    HomeComponent,
    ProfileComponent,
    BoardAdminComponent,
    BoardModeratorComponent,
    BoardUserComponent
  ],
  imports: [
    BrowserModule,
    AppRoutingModule,
    FormsModule,
    HttpClientModule
  ],
  providers: [httpInterceptorProviders],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

Create Services

Authentication Service

This service sends registration, login, logout HTTP POST requests to back-end.
It provides following important functions:

- `login()` : POST {username, password}
- `register()` : POST {username, email, password}
- `logout()` : POST logout request

_services/*auth.service.ts*

```
import { Injectable } from '@angular/core';
import { HttpClient, HttpHeaders } from '@angular/common/http';
import { Observable } from 'rxjs';
const AUTH_API = 'http://localhost:8080/api/auth/';
const httpOptions = {
  headers: new HttpHeaders({ 'Content-Type': 'application/json' })
};
@Injectable({
  providedIn: 'root',
})
export class AuthService {
  constructor(private http: HttpClient) {}
  login(username: string, password: string): Observable<any> {
    return this.http.post(
      AUTH_API + 'signin',
      {
        username,
        password,
      },
      httpOptions
    );
  }
  register(username: string, email: string, password: string): Observable<any> {
    return this.http.post(
      AUTH_API + 'signup',
      {
        username,
        email,
        password,
      },
      httpOptions
    );
  }
  logout(): Observable<any> {
    return this.http.post(AUTH_API + 'signout', { }, httpOptions);
  }
}
```

Storage Service

`StorageService` manages user information (username, email, roles) inside Browser's Session Storage. For Logout, we will clear this Session Storage.

_services/*storage.service.ts*

```
import { Injectable } from '@angular/core';
const USER_KEY = 'auth-user';
@Injectable({
  providedIn: 'root'
})
export class StorageService {
  constructor() {}
  clean(): void {
    window.sessionStorage.clear();
  }
  public saveUser(user: any): void {
    window.sessionStorage.removeItem(USER_KEY);
    window.sessionStorage.setItem(USER_KEY, JSON.stringify(user));
  }
  public getUser(): any {
    const user = window.sessionStorage.getItem(USER_KEY);
    if (user) {
      return JSON.parse(user);
    }
    return {};
  }
  public isLoggedIn(): boolean {
    const user = window.sessionStorage.getItem(USER_KEY);
    if (user) {
      return true;
    }
    return false;
  }
}
```

Data Service

This service provides methods to access public and protected resources. Because HttpOnly Cookies will be automatically sent along with HTTP requests (via Http Interceptor), so we just simply use Http module without caring about **JWT**.

_services/*user.service.ts*

```
import { Injectable } from '@angular/core';
import { HttpClient } from '@angular/common/http';
import { Observable } from 'rxjs';
const API_URL = 'http://localhost:8080/api/test/';
@Injectable({
  providedIn: 'root',
})
export class UserService {
  constructor(private http: HttpClient) {}
  getPublicContent(): Observable<any> {
    return this.http.get(API_URL + 'all', { responseType: 'text' });
  }
  getUserBoard(): Observable<any> {
    return this.http.get(API_URL + 'user', { responseType: 'text' });
  }

  getModeratorBoard(): Observable<any> {
    return this.http.get(API_URL + 'mod', { responseType: 'text' });
  }
  getAdminBoard(): Observable<any> {
    return this.http.get(API_URL + 'admin', { responseType: 'text' });
  }
}
```

Add Bootstrap to Angular 14 project

Open *index.html* and add following line into `<head>` tag:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    ...
    <link rel="stylesheet" href="https://unpkg.com/bootstrap@4.6.0/dist/css/boots
  </head>
  ...
</html>
```

Another way is installing Bootstrap module with command: `npm install bootstrap@4.6.1` .
Then add following code into **src**/*style.css*:

```
@import "~bootstrap/dist/css/bootstrap.css";
```

Create Components for Authentication

Register Component

This component binds form data (`username` , `email` , `password`) from template to `AuthService.register()` method that returns an `Observable` object.

register/*register.component.ts*

```
import { Component, OnInit } from '@angular/core';
import { AuthService } from '../_services/auth.service';
@Component({
  selector: 'app-register',
  templateUrl: './register.component.html',
  styleUrls: ['./register.component.css']
})
export class RegisterComponent implements OnInit {
  form: any = {
    username: null,
    email: null,
    password: null
  };
  isSuccessful = false;
  isSignUpFailed = false;
  errorMessage = '';
  constructor(private authService: AuthService) { }
  ngOnInit(): void {
  }
  onSubmit(): void {
    const { username, email, password } = this.form;
    this.authService.register(username, email, password).subscribe({
      next: data => {
        console.log(data);
        this.isSuccessful = true;
        this.isSignUpFailed = false;
      },
      error: err => {
        this.errorMessage = err.error.message;
        this.isSignUpFailed = true;
      }
    });
  }
}
```

We use Form Validation in the template:

- `username` : required, minLength=3, maxLength=20
- `email` : required, email format
- password: required, minLength=6

register/*register.component.html*

```
<div class="col-md-12">
  <div class="card card-container">
    <img
      id="profile-img"
      src="//ssl.gstatic.com/accounts/ui/avatar_2x.png"
      class="profile-img-card"
    />
    <form
      *ngIf="!isSuccessful"
      name="form"
      (ngSubmit)="f.form.valid && onSubmit()"
      #f="ngForm"
      novalidate
    >
      <div class="form-group">
        <label for="username">Username</label>
        <input
          type="text"
          class="form-control"
          name="username"
          [(ngModel)]="form.username"
          required
          minlength="3"
          maxlength="20"
          #username="ngModel"
          [ngClass]="{ 'is-invalid': f.submitted && username.errors }"
        />
        <div class="invalid-feedback" *ngIf="username.errors && f.submitted">
          <div *ngIf="username.errors['required']">Username is required</div>
          <div *ngIf="username.errors['minlength']">
            Username must be at least 3 characters
          </div>
          <div *ngIf="username.errors['maxlength']">
            Username must be at most 20 characters
          </div>
        </div>
      </div>
      <div class="form-group">
        <label for="email">Email</label>
        <input
          type="email"
          class="form-control"
          name="email"
          [(ngModel)]="form.email"
          required
          email
          #email="ngModel"
          [ngClass]="{ 'is-invalid': f.submitted && email.errors }"
        />
```

```
          <div class="invalid-feedback" *ngIf="email.errors && f.submitted">
            <div *ngIf="email.errors['required']">Email is required</div>
            <div *ngIf="email.errors['email']">
              Email must be a valid email address
            </div>
          </div>
        </div>
        <div class="form-group">
          <label for="password">Password</label>
          <input
            type="password"
            class="form-control"
            name="password"
            [(ngModel)]="form.password"
            required
            minlength="6"
            #password="ngModel"
            [ngClass]="{ 'is-invalid': f.submitted && password.errors }"
          />
          <div class="invalid-feedback" *ngIf="password.errors && f.submitted">
            <div *ngIf="password.errors['required']">Password is required</div>
            <div *ngIf="password.errors['minlength']">
              Password must be at least 6 characters
            </div>
          </div>
        </div>
        <div class="form-group">
          <button class="btn btn-primary btn-block">Sign Up</button>
        </div>
        <div class="alert alert-warning" *ngIf="f.submitted && isSignUpFailed">
          Signup failed!<br />{{ errorMessage }}
        </div>
      </form>
      <div class="alert alert-success" *ngIf="isSuccessful">
        Your registration is successful!
      </div>
    </div>
  </div>
```

In the code above, we use Template Driven Form, for more details please visit:
Angular 14 Template Driven Forms Validation example

Login Component

Login Component also uses `AuthService` to work with `Observable` object. Besides that, it calls `StorageService` methods to check `loggedIn` status and save User info to Session Storage.

login/*login.component.ts*

```
import { Component, OnInit } from '@angular/core';
import { AuthService } from '../_services/auth.service';
import { StorageService } from '../_services/storage.service';
@Component({
  selector: 'app-login',
  templateUrl: './login.component.html',
  styleUrls: ['./login.component.css']
})
export class LoginComponent implements OnInit {
  form: any = {
    username: null,
    password: null
  };
  isLoggedIn = false;
  isLoginFailed = false;
  errorMessage = '';
  roles: string[] = [];
  constructor(private authService: AuthService, private storageService: StorageSe
  ngOnInit(): void {
    if (this.storageService.isLoggedIn()) {
      this.isLoggedIn = true;
      this.roles = this.storageService.getUser().roles;
    }
  }
  onSubmit(): void {
    const { username, password } = this.form;
    this.authService.login(username, password).subscribe({
      next: data => {
        this.storageService.saveUser(data);
        this.isLoginFailed = false;
        this.isLoggedIn = true;
        this.roles = this.storageService.getUser().roles;
        this.reloadPage();
      },
      error: err => {
        this.errorMessage = err.error.message;
        this.isLoginFailed = true;
      }
    });
  }
  reloadPage(): void {
    window.location.reload();
  }
}
```

Here are what we validate in the form:

- `username` : required
- password: required, minLength=6

login/*login.component.html*

```
<div class="col-md-12">
  <div class="card card-container">
    <img
      id="profile-img"
      src="//ssl.gstatic.com/accounts/ui/avatar_2x.png"
      class="profile-img-card"
    />
    <form
      *ngIf="!isLoggedIn"
      name="form"
      (ngSubmit)="f.form.valid && onSubmit()"
      #f="ngForm"
      novalidate
    >
      <div class="form-group">
        <label for="username">Username</label>
        <input
          type="text"
          class="form-control"
          name="username"
          [(ngModel)]="form.username"
          required
          #username="ngModel"
          [ngClass]="{ 'is-invalid': f.submitted && username.errors }"
        />
        <div *ngIf="username.errors && f.submitted" class="invalid-feedback">
          Username is required!
        </div>
      </div>
      <div class="form-group">
        <label for="password">Password</label>
        <input
          type="password"
          class="form-control"
          name="password"
          [(ngModel)]="form.password"
          required
          minlength="6"
          #password="ngModel"
          [ngClass]="{ 'is-invalid': f.submitted && password.errors }"
        />
        <div *ngIf="password.errors && f.submitted" 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>
      </div>
      <div class="form-group">
```

```
          <button class="btn btn-primary btn-block">
            Login
          </button>
        </div>
        <div class="form-group">
          <div *ngIf="f.submitted && isLoginFailed" class="alert alert-danger" role
            Login failed: {{ errorMessage }}
          </div>
        </div>
      </form>
      <div class="alert alert-success" *ngIf="isLoggedIn">
        Logged in as {{ roles }}.
      </div>
    </div>
  </div>
```

Profile Component

This Component gets current User from Storage using `StorageService` and show information (username, token, email, roles).

profile/*profile.component.ts*

```
import { Component, OnInit } from '@angular/core';
import { StorageService } from '../_services/storage.service';
@Component({
  selector: 'app-profile',
  templateUrl: './profile.component.html',
  styleUrls: ['./profile.component.css']
})
export class ProfileComponent implements OnInit {
  currentUser: any;
  constructor(private storageService: StorageService) { }
  ngOnInit(): void {
    this.currentUser = this.storageService.getUser();
  }
}
```

profile/*profile.component.html*

```
<div class="container" *ngIf="currentUser; else loggedOut">
  <header class="jumbotron">
    <h3>
      <strong>{{ currentUser.username }}</strong> Profile
    </h3>
  </header>
  <p>
    <strong>Email:</strong>
    {{ currentUser.email }}
  </p>
  <strong>Roles:</strong>
  <ul>
    <li *ngFor="let role of currentUser.roles">
      {{ role }}
    </li>
  </ul>
</div>
<ng-template #loggedOut>
  Please login.
</ng-template>
```

Create Role-based Components

Public Component

Our Home Component will use `UserService` to get public resources from back-end.

home/*home.component.ts*

```
import { Component, OnInit } from '@angular/core';
import { UserService } from '../_services/user.service';
@Component({
  selector: 'app-home',
  templateUrl: './home.component.html',
  styleUrls: ['./home.component.css']
})
export class HomeComponent implements OnInit {
  content?: string;
  constructor(private userService: UserService) { }
  ngOnInit(): void {
    this.userService.getPublicContent().subscribe({
      next: data => {
        this.content = data;
      },
      error: err => {console.log(err)
        if (err.error) {
          this.content = JSON.parse(err.error).message;
        } else {
          this.content = "Error with status: " + err.status;
        }
      }
    });
  }
}
```

home/*home.component.html*

```
<div class="container">
  <header class="jumbotron">
    <p>{{ content }}</p>
  </header>
</div>
```

Protected Components

These Components are role-based. But authorization will be processed by back-end.
We only need to call `UserService` methods:

- getUserBoard()
- getModeratorBoard()
- getAdminBoard()

Here is an example for `BoardAdminComponent` .
`BoardModeratorComponent` & `BoardUserComponent` are similar.

board-admin/*board-admin.component.ts*

```
import { Component, OnInit } from '@angular/core';
import { UserService } from '../_services/user.service';
@Component({
  selector: 'app-board-admin',
  templateUrl: './board-admin.component.html',
  styleUrls: ['./board-admin.component.css']
})
export class BoardAdminComponent implements OnInit {
  content?: string;
  constructor(private userService: UserService) { }
  ngOnInit(): void {
    this.userService.getAdminBoard().subscribe({
      next: data => {
        this.content = data;
      },
      error: err => {console.log(err)
        if (err.error) {
          this.content = JSON.parse(err.error).message;
        } else {
          this.content = "Error with status: " + err.status;
        }
      }
    });
  }
}
```

board-admin/*board-admin.component.html*

```
<div class="container">
  <header class="jumbotron">
    <p>{{ content }}</p>
  </header>
</div>
```

App Routing Module

We configure the Routing for our Angular app in *app-routing.module.ts*.

```
import { NgModule } from '@angular/core';
import { RouterModule, Routes } from '@angular/router';
import { RegisterComponent } from './register/register.component';
import { LoginComponent } from './login/login.component';
import { HomeComponent } from './home/home.component';
import { ProfileComponent } from './profile/profile.component';
import { BoardUserComponent } from './board-user/board-user.component';
import { BoardModeratorComponent } from './board-moderator/board-moderator.compon
import { BoardAdminComponent } from './board-admin/board-admin.component';
const routes: Routes = [
  { path: 'home', component: HomeComponent },
  { path: 'login', component: LoginComponent },
  { path: 'register', component: RegisterComponent },
  { path: 'profile', component: ProfileComponent },
  { path: 'user', component: BoardUserComponent },
  { path: 'mod', component: BoardModeratorComponent },
  { path: 'admin', component: BoardAdminComponent },
  { path: '', redirectTo: 'home', pathMatch: 'full' }
];
@NgModule({
  imports: [RouterModule.forRoot(routes)],
  exports: [RouterModule]
})
export class AppRoutingModule { }
```

`Routes` array is passed to the `RouterModule.forRoot()` method.
We're gonna use `<router-outlet></router-outlet>` directive in the App Component where contains navbar and display Components (corresponding to routes) content.

App Component

This component is the root Component of our Angular 14 application, it defines the root tag: `<app-root></app-root>` that we use in *index.html*.

app.component.ts

```
import { Component } from '@angular/core';
import { StorageService } from './_services/storage.service';
import { AuthService } from './_services/auth.service';
@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  private roles: string[] = [];
  isLoggedIn = false;
  showAdminBoard = false;
  showModeratorBoard = false;
  username?: string;
  constructor(private storageService: StorageService, private authService: AuthSe
  ngOnInit(): void {
    this.isLoggedIn = this.storageService.isLoggedIn();
    if (this.isLoggedIn) {
      const user = this.storageService.getUser();
      this.roles = user.roles;
      this.showAdminBoard = this.roles.includes('ROLE_ADMIN');
      this.showModeratorBoard = this.roles.includes('ROLE_MODERATOR');
      this.username = user.username;
    }
  }
  logout(): void {
    this.authService.logout().subscribe({
      next: res => {
        console.log(res);
        this.storageService.clean();
      },
      error: err => {
        console.log(err);
      }
    });

    window.location.reload();
  }
}
```

First, we check `isLoggedIn` status using `StorageService`, if it is `true`, we get user's roles and set value for `showAdminBoard` & `showModeratorBoard` flag. They will control how template navbar displays its items.

The App Component template also has a **Logout** button link that call `logout()` method and reload the window.

app.component.html

```
<div id="app">
  <nav class="navbar navbar-expand navbar-dark bg-dark">
    <a href="#" class="navbar-brand">bezKoder</a>
    <ul class="navbar-nav mr-auto" routerLinkActive="active">
      <li class="nav-item">
        <a href="/home" class="nav-link" routerLink="home">Home </a>
      </li>
      <li class="nav-item" *ngIf="showAdminBoard">
        <a href="/admin" class="nav-link" routerLink="admin">Admin Board</a>
      </li>
      <li class="nav-item" *ngIf="showModeratorBoard">
        <a href="/mod" class="nav-link" routerLink="mod">Moderator Board</a>
      </li>
      <li class="nav-item">
        <a href="/user" class="nav-link" *ngIf="isLoggedIn" routerLink="user">Use
      </li>
    </ul>
    <ul class="navbar-nav ml-auto" *ngIf="!isLoggedIn">
      <li class="nav-item">
        <a href="/register" class="nav-link" routerLink="register">Sign Up</a>
      </li>
      <li class="nav-item">
        <a href="/login" class="nav-link" routerLink="login">Login</a>
      </li>
    </ul>
    <ul class="navbar-nav ml-auto" *ngIf="isLoggedIn">
      <li class="nav-item">
        <a href="/profile" class="nav-link" routerLink="profile">{{ username }}</
      </li>
      <li class="nav-item">
        <a href class="nav-link" (click)="logout()">LogOut</a>
      </li>
    </ul>
  </nav>
  <div class="container">
    <router-outlet></router-outlet>
  </div>
</div>
```

Run the Angular 14 JWT Authentication and Authorization project

You can run this App with command: `ng serve`.

This client will work well with the back-end in following posts:

- Spring Boot Login and Registration example with H2
- Spring Boot Login and Registration example with MySQL
- Spring Boot Login and Registration example with MongoDB
- Node.js Express Login and Registration example with MySQL
- Node.js Express Login and Registration example with MongoDB

Before running the backend server, you need to add minor configuration:
– Spring Boot:

```
/* In AuthController.java */
// @CrossOrigin(origins = "*", maxAge = 3600)
@CrossOrigin(origins = "http://localhost:8081", maxAge = 3600, allowCredentials="
/* In TestController.java */
// @CrossOrigin(origins = "*", maxAge = 3600)
@CrossOrigin(origins = "http://localhost:8081", maxAge = 3600, allowCredentials="
```

– Node.js Express:

```
/* In server.js */
// app.use(cors());
app.use(
  cors({
    credentials: true,
    origin: ["http://localhost:8081"],
  })
);
```

They configure CORS for port **8081**, so you have to run Angular Client command instead:

```
ng serve --port 8081
```

Conclusion

Today we've done so many things from setup Angular 14 Token based Authentication and Authorization Project to write Login and Registration example with JWT, HttpOnly Cookie and Web Api. I hope you understand the overall layers of our Angular application, and apply it in your project at ease. Now you can build a front-end app that supports JWT Authentication & Authorization with Angular 14, HttpInterceptor and Router.

You will need to implement refresh token:
Angular Refresh Token with Interceptor and JWT example

Happy learning, see you again!

Further Reading

- Angular Form Validation example (Reactive Forms)
- Angular CRUD Application example with Web API
- Angular File upload example with Progress bar
- Angular Pagination example | ngx-pagination

Fullstack:
– Angular + Spring Boot: JWT Authentication & Authorization example
– Angular + Node.js Express: JWT Authentication & Authorization example

Source Code

You can find the complete source code for this tutorial on Github.