Laboratorio – Routing entre modulos en Angular 12

En este laboratorio se trabajará con el conceptos de uso de múltiples módulos para la aplicación angular. Por ello cada nuevo agregado al programa, provocara la modificación de app.routing.module.ts, debido al ingreso de una nueva ruta para dicho modulo.

Procedimiento

1. Se creara una aplicación denominada routing-modulos-angular en modo consola
2. A continuación, se configuraran los archivos básicos de esta aplicación de esta manera:

environment.ts

```
// This file can be replaced during build by using the `fileReplacements` array.

// `ng build` replaces `environment.ts` with `environment.prod.ts`.

// The list of file replacements can be found in `angular.json`.


export const environment = {
  production: false,
  application:
  {
    name: 'angular-starter',
    angular: 'Angular 13.1.1',
    bootstrap: 'Bootstrap 5.1.3',
    fontawesome: 'Font Awesome 5.15.4',
  },
  urlNews: './assets/params/json/mock/trailers.json',
  urlMovies: './assets/params/json/mock/movies.json',

  /* urlNews: 'http://localhost:5004/trailers', */
  // url: 'https://api.ganatan.com/tutorials',

  config: {
```

```
    /* SELECT ONE OF THOSE CONFIGURATIONS */


    /* LOCAL JSON (NO CRUD) */

    api: false,

    url: './assets/params/json/crud/',


    /* LOCAL REST API CRUD WITH POSTGRESQL */

    /* api: true,

    url: 'http://localhost:5004/', */

  },

};


/*

 * For easier debugging in development mode, you can import the following file

 * to ignore zone related error stack frames such as `zone.run`, `zoneDelegate.invokeTask`.

 *

 * This import should be commented out in production mode because it will have a negative impact

 * on performance if an error is thrown.

 */

// import 'zone.js/plugins/zone-error';  // Included with Angular CLI.
```

index.html

```
<!doctype html>

<html lang="en">

<head>

  <meta charset="utf-8">

  <title>RoutingPruebModulo</title>

  <base href="/">
```

```html
    <meta  name="viewport"  content="width=device-width,  initial-
scale=1">

    <link rel="icon" type="image/x-icon" href="favicon.ico">

    <link rel="stylesheet"

href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootst
rap.min.css"

    integrity="sha384-
Gn5384xqQ1aoWXA+058RXPxPg6fy4IWvTNh0E263XmFcJlSAwiGgFAW/dAiS6JXm
"

    crossorigin="anonymous">
</head>
<body>

    <app-root></app-root>
</body>
</html>
```

Se creará una carpeta module dentro de app y dentro de ella se crearan las carpetas application y general.

styles.css

```css
/* You can add global styles to this file, and also import other style files */
body {

  padding-top: 3.5rem;

  font-family: "Roboto", sans-serif;

}
```

A continuación, se implementará el código para el componente App.

app.component.ts

```typescript
import { Component } from '@angular/core';


@Component({
```

```
  selector: 'app-root',

  templateUrl: './app.component.html',

  styleUrls: ['./app.component.css']

})

export class AppComponent {

  title = 'Routing entre Modulos Angular';

}
```

app.component.html

```html
<div class="container">

  <div class="row">

    <div class="col-md-12">

      <div class="card bg-dark my-5">

        <div class="card-body">

          <h2 class="card-title text-center text-white py-3">{{
title }}</h2>

          <ul class="text-center list-inline py-3">

            <li class="list-inline-item">

              <a routerLink="/about" class="btn btn-info">Datos
Generales</a>

              </li>

            <li class="list-inline-item">

              <a routerLink="/angular" class="btn btn-
info">Carac. Angular</a>

              </li>

              <li class="list-inline-item">

              <a routerLink="/song" class="btn btn-
info">Revisar Canciones</a>

                </li>

              <li class="list-inline-item">

              <a routerLink="" class="btn btn-
info">Inicio</a>
```

```
              </li>
          </ul>
        </div>
      </div>
      <router-outlet></router-outlet>
    </div>
  </div>
</div>
```
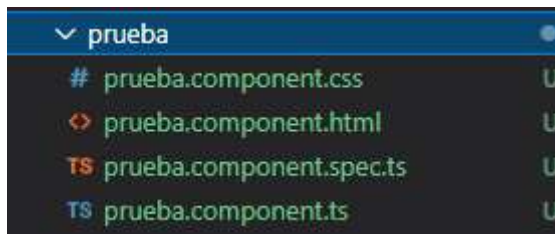
app.component.ts

```
p {
  font-family: Lato;
}
```

Para completar el proceso, se creará el Componente **Prueba** que se usará como inicio de la vista de la aplicación.

prueba.component.html

```
<section class="nga-gradient text-white">
  <div class="container col-xxl-8 px-4 py-5">
    <div class="row align-items-center">
      <div class="col-lg-7 p-3 p-lg-5 pt-lg-3">
        <div class="text-center">
          <h1 class="mt-2 display-4 fw-bold">Angular</h1>
          <h2 class="h1">Aplicacion Web - General</h2>
          <hr>
          <div class="col-lg-12 mx-auto mt-4">
```

```html
        </div>

       </div>

      </div>

      <div class="col-lg-4 offset-lg-1 p-0">

        <div class="position-lg-absolute top-0 left-0 overflow-hidden">

          <img            src="./assets/params/images/home/demarrer-avec-angular.png"
srcset="./assets/params/images/home/demarrer-avec-angular.png,

          ./assets/params/images/home/demarrer-avec-angular@2x.png              2x"
alt="Trabajando con Angular" width="360" height="350">

        </div>

       </div>

     </div>

   </div>

</section>
```

prueba.component.ts

```typescript
import { Component, OnInit } from '@angular/core';


@Component({
  selector: 'app-prueba',
  templateUrl: './prueba.component.html',
  styleUrls: ['./prueba.component.css']
})
export class PruebaComponent implements OnInit {


  constructor() { }


  ngOnInit(): void {
  }
```

```
}
```

prueba.component.css

```css
.nga-gradient {
  padding: 3rem 0;
  background: linear-gradient(225deg, #0d47a1, #42a5f5);
}


.nga-btn-home {
  font-family: inherit;
  color: inherit;
  display: inline-block;
  line-height: 32px;
  line-height: 3.2rem;
  padding: 0 16px;
  font-size: 14px;
  font-size: 1.4rem;
  font-weight: 400;
  border-radius: 3px;
  text-decoration: none;
  overflow: hidden;
  border: none;
  color: white;
}


.nga-btn-home {
  background-color: black;
  padding: 2px 34px 0;
  font-size: 16px;
  font-size: 1.6rem;
  font-weight: 600;
```

```css
  line-height: 30px;

  line-height: 3rem;

  border-radius: 48px;

  box-shadow: 0 2px 5px 0 rgba(0, 0, 0, .26);

  box-sizing: border-box;

  cursor: pointer
}


.nga-btn-home:hover {

  background-color: #09238d;

  color: yellow;

  text-decoration: underline;
}


.nga-card-step {

  box-shadow: 0 1px 1px rgba(0, 0, 0, .04), 0 3px 3px rgba(0, 0,
0, .09);

  margin: 4px;

  cursor: pointer;

  text-decoration: none;
}


.nga-card-step:hover {

  box-shadow: 0 4px 4px rgba(0, 0, 0, .09), 0 4px 4px rgba(0, 0,
0, .13);

  border-radius: 5px;

  color: #0d6efd;


}


.nga-card-step a {
```

```css
  color: black;

  text-decoration: none;

}


.nga-card-step a:hover {

  color: #0d6efd;

  text-decoration: none;

}
```

Luego se configura y registra este componente:

En **app.module.ts**

```typescript
import { PruebaComponent } from './prueba/prueba.component';

----

----

@NgModule({

  declarations: [

    AppComponent,

    PruebaComponent

  ],
```

En **app.routing.module.ts**

```typescript
import { PruebaComponent } from './prueba/prueba.component';

import { NgModule } from '@angular/core';

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


const routes: Routes = [


  { path: '', component: PruebaComponent}

];


@NgModule({
```
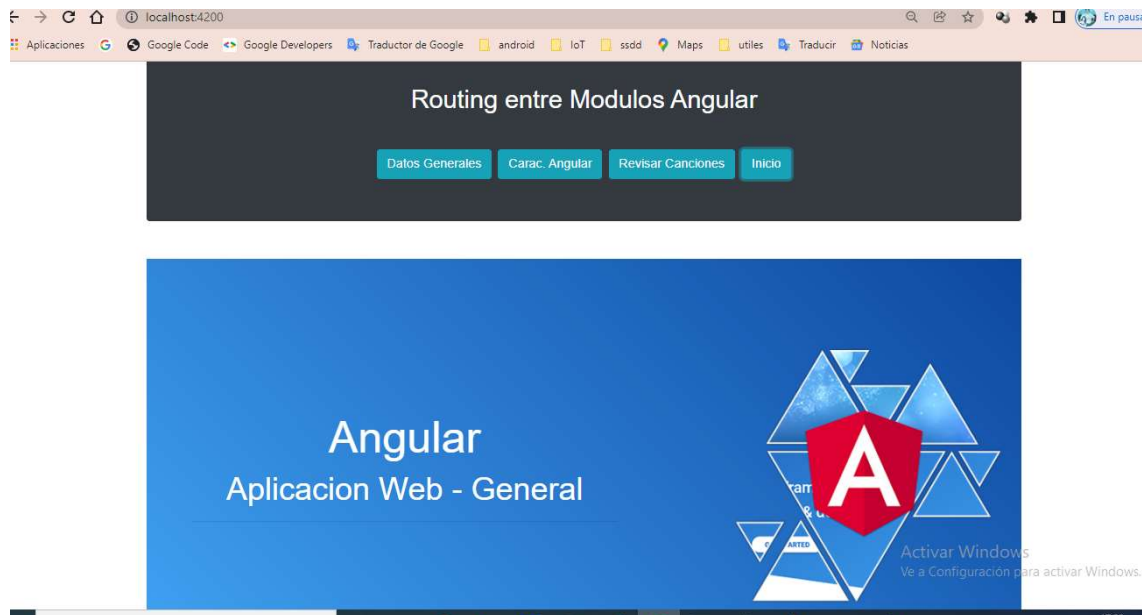
```
    imports:          [RouterModule.forRoot(routes,{enableTracing:
false})],
    exports: [RouterModule]
})
export class AppRoutingModule { }
```
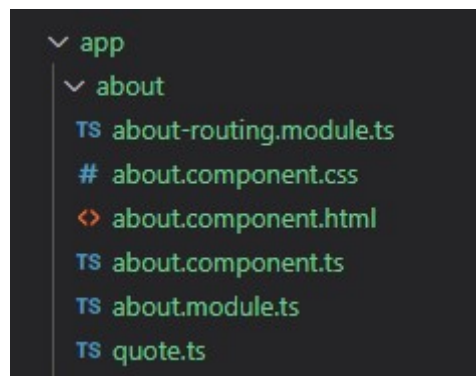
Con esto, esta delineado el aspecto inicial del programa.

Definición de módulos

Dentro de la carpeta App se crean los modulos que serán usados en el código. Cada modulo se creará con la opción GENERATE MODULE
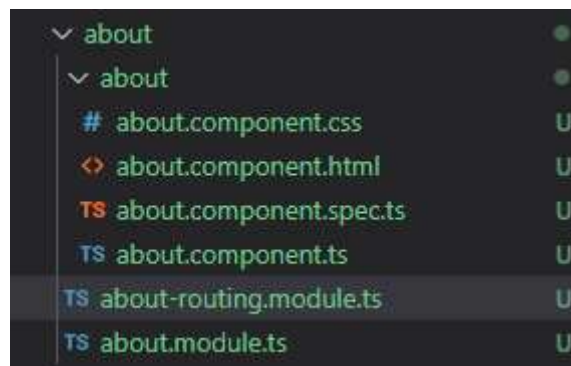
1. Modulo about

La creación del módulo about permite la creación de su propia carpeta y la declaración del archivo ts correspondiente. Sin embargo, no se creará el archivo routing. Debido a ello, se creara el archivo **about.routing.module.ts** mediante línea de comandos:

```
ng generate module about-routing --module about --flat
```


A continuación, se crearan los archivos que se usaran en este modulo.

a. quote.ts

```
export class Quote {

  name: string;

  title: string;

  link: string;


  constructor() {

    this.name = '';

    this.title = '';

    this.link = '';

  }

}
```

A continuación, se creará el componente about. Observese que al realizar esto, dicho componente creara su propia carpeta.

b. about.component.ts

```typescript
import { Component, OnInit, Inject } from '@angular/core';
import { PLATFORM_ID } from '@angular/core';
import { Meta, Title } from '@angular/platform-browser';
import { isPlatformBrowser } from '@angular/common';
import { Quote } from '../quote';
import { Observable, of } from 'rxjs';

@Component({
  selector: 'app-about',
  templateUrl: './about.component.html',
  styleUrls: ['./about.component.css']
})
export class AboutComponent implements OnInit {
  dependencies: any;
  features: any;
  quote: Quote;
  id: number;

  constructor(
    @Inject(PLATFORM_ID) private platformId: object,
    private meta: Meta,
    private titleService: Title
  ) {
    this.id = 0;
    this.quote = new Quote();
    this.dependencies = {
      frontend: [
        { name: 'Angular 13.1.1' },
        { name: 'Angular CLI 13.1.2' },
        { name: 'Angular Universal 13.0.1' },
        { name: 'Bootstrap 5.1.3' },
        { name: 'Font Awesome 5.15.4' },
```

```
      ],
      backend: [
        { name: 'Node.js 14.17.3' },
        { name: 'Express 4.17.1' },
        { name: 'pg-promise 10.10.2' },
      ]
    };
    this.features = {
      frontend: [
        {
          name: 'Angular CLI',
          englishTutorial:
'https://www.ganatan.com/tutorials/getting-started-with-
angular',
          frenchTutorial:
'https://www.ganatan.com/tutorials/demarrer-avec-angular',
        },
        {
          name: 'Routing',
          englishTutorial:
'https://www.ganatan.com/tutorials/routing-with-angular',
          frenchTutorial:
'https://www.ganatan.com/tutorials/routing-avec-angular',
        },
        {
          name: 'Lazy loading',
          englishTutorial:
'https://www.ganatan.com/tutorials/lazy-loading-with-angular',
          frenchTutorial:
'https://www.ganatan.com/tutorials/lazy-loading-avec-angular',
        },
        {
          name: 'Bootstrap',
          englishTutorial:
'https://www.ganatan.com/tutorials/bootstrap-with-angular',
          frenchTutorial:
'https://www.ganatan.com/tutorials/bootstrap-avec-angular',
```

```
        },
        {
            name: 'Server side Rendering',
            englishTutorial:
'https://www.ganatan.com/tutorials/server-side-rendering-with-
angular-universal',
            frenchTutorial:
'https://www.ganatan.com/tutorials/server-side-rendering-avec-
angular-universal',
        },
        {
            name: 'HTTPClient',
            englishTutorial:
'https://www.ganatan.com/tutorials/httpclient-with-angular',
            frenchTutorial:
'https://www.ganatan.com/tutorials/httpclient-avec-angular',
        },
        {
            name: 'Transfer State',
            englishTutorial:
'https://www.ganatan.com/tutorials/transfer-state-with-angular',
            frenchTutorial:
'https://www.ganatan.com/tutorials/transfer-state-avec-angular',
        },
        {
            name: 'Progressive Web App',
            englishTutorial:
'https://www.ganatan.com/tutorials/progressive-web-app-with-
angular',
            frenchTutorial:
'https://www.ganatan.com/tutorials/progressive-web-app-avec-
angular',
        },
        {
            name: 'Search Engine optimization',
            englishTutorial:
'https://www.ganatan.com/tutorials/search-engine-optimization-
with-angular',
```

```
          frenchTutorial:
'https://www.ganatan.com/tutorials/search-engine-optimization-
avec-angular',
        },
        {
          name: 'Components',
          englishTutorial: null,
          frenchTutorial:
'https://www.ganatan.com/tutorials/components-avec-angular',
        },
        {
          name: 'Services',
          englishTutorial: null,
          frenchTutorial:
'https://www.ganatan.com/tutorials/services-avec-angular',
        },
      ],
      backend: [
        { name: 'Local JSON' },
        { name: 'RESTFull API' },
        { name: 'CRUD API' },
        { name: 'Database Creation' },
        { name: 'Data Import' },
        { name: 'Data Export' },
      ]
    };
  }


  ngOnInit() {
    if (isPlatformBrowser(this.platformId)) {
      // MCP
      // $('html,body').scrollTop(0);
    }


    this.loadQuote();
```

```javascript
    this.titleService.setTitle('angular.ganatan.com : A Propos');
    this.meta.addTag({
      name: 'author',
      content: 'danny ganatan'
    });
    this.meta.updateTag(
      {
        name: 'description',
        content: 'Cette application a été développée avec Angular
version 13.1.1 et bootstrap 5.1.3' +
          ' Elle applique le Routing, le Lazy loading, le Server
side rendering et les Progressive Web App (PWA)'
      });
  }
  loadQuote() {
    let quotes = [
      {
        name: 'Lawrence of Arabia',
        title: 'There is nothing in the desert and no man needs
nothing',
        link:
'https://en.wikipedia.org/wiki/Lawrence_of_Arabia_(film)'
      },
      {
        name: 'Alien Prometheus',
        title: 'Big things have small beginnings',
        link:
'https://en.wikipedia.org/wiki/Prometheus_(2012_film)'
      },
      {
        name: 'Blade Runner',
        title: 'All those moments will be lost in time... like
tears in rain... Time to die.',
        link: 'https://en.wikipedia.org/wiki/Blade_Runner'
      },
    ];
    let index = quotes.length;
```

```
  let id = this.id;
  while (this.id === id) {
    id = Math.floor(Math.random() * index);
  }
  this.id = id;
  this.quote = quotes[id];
}
}
```

c. about.component.html

```html
<div class="py-5">
  <div class="container">
    <div class="row">


      <div class="col-lg-4 col-md-12 pb-4">
        <section class="nga-card-about card-logo">
          <img                                              class=""
src="./assets/params/images/logo/lgiot50t.png"        alt="logo
jguerra" title="logo jguerra">
          <div class="card-body">
            <h1 class="card-title h5">
              <strong>Jorge Guerra</strong>
            </h1>
            <h2 class=" h6">Desarrollador Web Angular, Android,
Java</h2>
            <p>guerracloud@gmail.com</p>
            <a type="button" class="nga-btn-about nga-btn-github"
href="https://scholar.google.es/citations?user=VREZXUYAAAAJ&hl=e
sn" aria-label="Google Scholar">
              <i class="fab fa-github"></i></a>
            <a    type="button"    class="nga-btn-about    nga-btn-
linkedin" href="https://www.linkedin.com/in/jorgeguerraguerra/"
```

```
              aria-label="Linkedin jguerra">

              <i class="fab fa-linkedin-in"></i>

          </a>

          <a   type="button"   class="nga-btn-about   nga-btn-
twitter"
href="https://www.scopus.com/authid/detail.uri?authorId=57187802
200"

              aria-label="Investigador SCOPUS">

              <i class="fab fa-twitter"></i>

          </a>

          <hr>

          <h3 class="h6 text-primary p-4">Actualizado 2022, 2
Enero</h3>

          <figure *ngIf="quote">

            <blockquote class="blockquote">

              <p style="font-size: 1rem;">

                <strong>{{ quote.title }}</strong>

              </p>

            </blockquote>

            <figcaption>

              <cite style="font-size: 1rem;">

                <a href="{{ quote.link }}">

                  <i>{{ quote.name }}</i>

                </a></cite>

              <button type="button" (click)="loadQuote()"

                class="ms-4  btn  nga-about-hint  btn-sm"><i
class="fas fa-random"

                  aria-hidden="true"></i></button>

            </figcaption>

          </figure>

        </div>

      </section>
```

```
            </div>


        <div class="col-lg-8 text-center">
          <div class="row">
            <div class="col-lg-6 mb-2">
              <div class="nga-card-about p-4">
                <h2 class="h5 mb-4 text-primary">
                  <strong>Front End</strong>
                </h2>
                <div class="row mb-2"><i class="fas fa-desktop mb-
2"></i>
                  <h3 class="h5">Dependencias</h3>
                </div>
                <div class="row">
                  <h4 *ngFor="let item of dependencies.frontend"
class="h6"><i
                    class="fa fa-square fa-xs text-primary me-
2"></i>{{item.name }}</h4>
                </div>
                <hr>
                <div class="row mb-2"><i class="fas fa-desktop mb-
2"></i>
                  <h3 class="h5">Caracteristicas</h3>
                </div>
                <div class="row ml-4">
                  <div class="col">
                    <div class="table-responsive">
                      <table class="table table-hover table-striped
table-bordered table-responsive-md table-sm">
                        <thead>
                          <tr>
                            <th class="h6">Name</th>
```

```html
                    <th class="h6 ">Tutorial<img class="ms-2" src="./assets/params/images/about/gb.png"
                        alt="Tutoriel Anglais">
                    </th>
                    <th class="h6 font-weight-bold text-center">Tutorial<img class="ms-2"

src="./assets/params/images/about/fr.png"        alt="Tutoriel Français"></th>
                </tr>
              </thead>
              <tbody>
                <tr *ngFor="let item of features.frontend">
                    <td>
                      <h4 class="h6">{{ item.name }}</h4>
                    </td>
                    <td>
                      <a *ngIf="item.englishTutorial!=null" href="{{ item.englishTutorial }}"
                         style="cursor: pointer">
                         <i class="nga-tutorial fas fa-desktop"></i>
                      </a>
                    </td>
                    <td>
                      <a *ngIf="item.frenchTutorial!=null" href="{{ item.frenchTutorial }}"
                         style="cursor: pointer">
                         <i class="nga-tutorial fas fa-desktop"></i>
                      </a>
                    </td>
```

```html
          </tr>
        </tbody>
      </table>
    </div>
  </div>
</div>
</div>
<div class="col-lg-6 col-md-12 mb-2">
  <div class="nga-card-about p-4">
    <h2 class="h5 mb-4 text-primary">
      <strong>Back End</strong>
    </h2>
    <div class="row mb-2"><i class="fas fa-laptop mb-2"></i>
      <h3 class="h5">Dependencias</h3>
    </div>
    <div class="row">
      <h4 *ngFor="let item of dependencies.backend" class="h6"><i class="fa fa-square fa-xs text-primary me-2"
          aria-hidden="true"></i>{{item.name }}
      </h4>
    </div>
    <hr>
    <div class="row mb-2"><i class="fas fa-laptop mb-2"></i>
      <h3 class="h5">Caracteristicas</h3>
    </div>
    <div class="row ml-4">
      <h4 *ngFor="let item of features.backend" class="h6"><i class="fa fa-square fa-xs text-primary me-2"
          aria-hidden="true"></i>{{ item.name }}
```

```
            </h4>

          </div>

        </div>

      </div>

    </div>

  </div>

</div>

</div>
```

d. about.component.css

```css
.nga-btn-about {
  position: relative;

  z-index: 1;

  display: inline-block;

  padding: 0;

  margin: 10px;

  overflow: hidden;

  vertical-align: middle;

  cursor: pointer;

  border-radius: 50%;

  -webkit-box-shadow: 0 5px 11px 0 rgba(0, 0, 0, 0.18), 0 4px 15px
0 rgba(0, 0, 0, 0.15);

  box-shadow: 0 5px 11px 0 rgba(0, 0, 0, 0.18), 0 4px 15px 0
rgba(0, 0, 0, 0.15);

  -webkit-transition: all 0.2s ease-in-out;

  transition: all 0.2s ease-in-out;

  width: 47px;

  height: 47px
}
```

```css
.nga-btn-about i {

  font-size: 1.25rem;

  line-height: 47px;

  display: inline-block;

  width: inherit;

  color: #fff;

  text-align: center

}


.nga-btn-about:hover {

  -webkit-box-shadow: 0 8px 17px 0 rgba(0, 0, 0, 0.2), 0 6px 20px
0 rgba(0, 0, 0, 0.19);

  box-shadow: 0 8px 17px 0 rgba(0, 0, 0, 0.2), 0 6px 20px 0 rgba(0,
0, 0, 0.19)

}


.nga-btn-about i:hover {

  color: black;

}


.nga-card-about {

  -webkit-box-shadow: 0 2px 5px 0 rgba(0, 0, 0, 0.16), 0 2px 10px
0 rgba(0, 0, 0, 0.12);

  box-shadow: 0 2px 5px 0 rgba(0, 0, 0, 0.16), 0 2px 10px 0 rgba(0,
0, 0, 0.12);

}


.nga-card-about.card-logo {

  margin-top: 5rem;

  text-align: center;

}
```

```css
.nga-card-about.card-logo img {

  margin-top: -5rem;

}


hr {

  color: #0d6efd;

}


.nga-about-hint {

  -webkit-box-shadow: 0 2px 5px 0 rgba(0, 0, 0, 0.16), 0 2px 10px
0 rgba(0, 0, 0, 0.12);

  box-shadow: 0 2px 5px 0 rgba(0, 0, 0, 0.16), 0 2px 10px 0 rgba(0,
0, 0, 0.12);

  -webkit-border-radius: 0.125rem;

  border-radius: 0.125rem;

  border: 1px solid #4285f4;

  color: #4285f4;

  background-color: transparent;

}


.nga-about-hint:hover,     .nga-about-hint:active,     .nga-about-
hint:focus {

  -webkit-box-shadow: 0 5px 11px 0 rgba(0, 0, 0, 0.18), 0 4px 15px
0 rgba(0, 0, 0, 0.15);

  box-shadow: 0 5px 11px 0 rgba(0, 0, 0, 0.18), 0 4px 15px 0
rgba(0, 0, 0, 0.15);

  color: black;

}


.nga-btn-github {

  background-color: #333;

}
```

```css
.nga-btn-linkedin {
  background-color: #0082ca;
}


.nga-btn-twitter {
  background-color: #55acee;
}


.nga-tutorial {
  color: #0d6efd;
}


.nga-tutorial:hover {
  color: black;
}
```

Ahora, debe completarse la configuración del module y el routing.
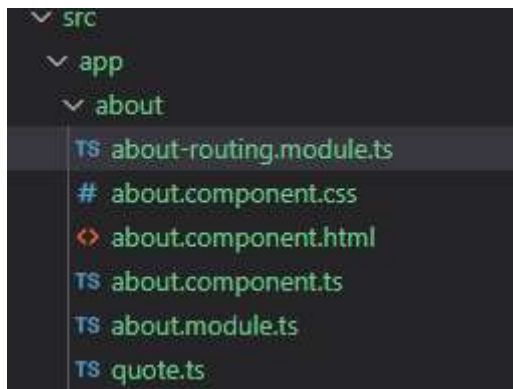
   e. **about.module.ts**

```typescript
import { NgModule } from '@angular/core';
import { CommonModule } from '@angular/common';
import { AboutComponent } from './about.component';
import { AboutRoutingModule } from './about-routing.module';

@NgModule({
  imports: [
    CommonModule,
    AboutRoutingModule
  ],
  declarations: [AboutComponent]
```

```
})
export class AboutModule { }
```

f. about.routing.module.ts

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

import { CommonModule } from '@angular/common';

import { AboutComponent } from './about.component';

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


const routes: Routes = [
  { path: '', component: AboutComponent, children: [
    { path: 'about', component: AboutComponent }
  ]}
]



@NgModule({
  declarations: [],
  imports: [
    RouterModule.forChild(routes)
  ],
  exports: [
    RouterModule
  ]
})
export class AboutRoutingModule { }
```

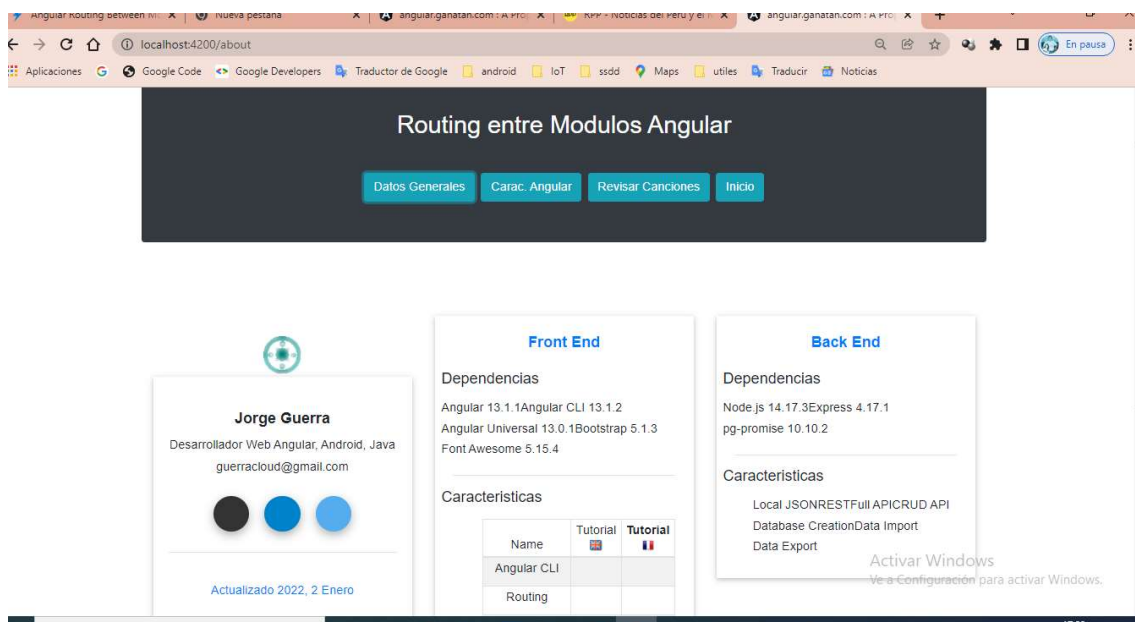con lo cual el modulo queda organizado de la siguiente manera:

a. Después de completar este modulo debe crearse un route para ser invocado de App. Por esa razón, se regresara a **app.routing.module.ts** y se agregara el siguiente código:

```
const routes: Routes = [

  {        path:        'about',        loadChildren:        ()        =>
import(`./about/about.module`).then(m => m.AboutModule) },

  { path: '', component: PruebaComponent}

];
```
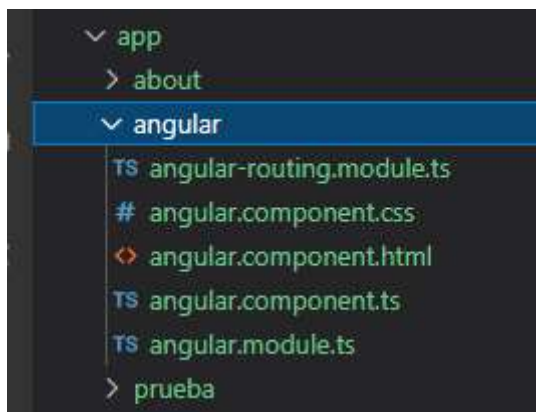
b. Se agregara al archivo **app.module.ts**

```
import { AboutModule } from './about/about.module';

----

----

imports: [

  BrowserModule,

  AppRoutingModule,

  AboutModule,

],
```
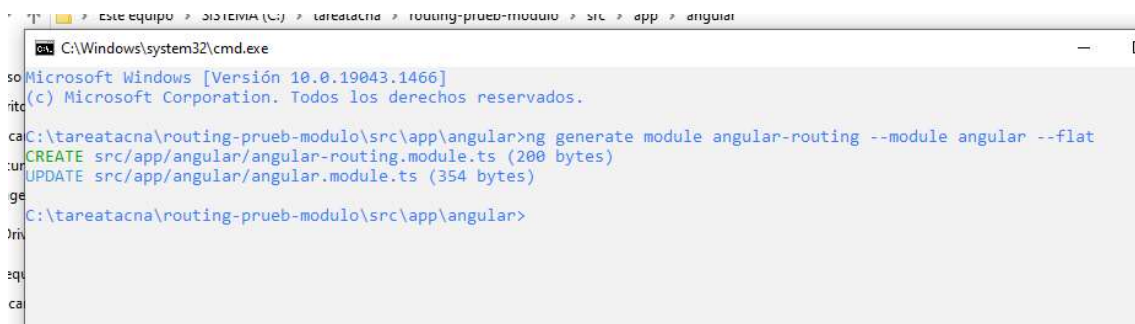
Modulo Angular

El proceso es similar al anterior. Se creará el modulo en App usando Generate Modulo

Se creara a continuación el archivo routing, de la siguiente manera:

```
ng generate module about-routing --module about –-flat
```


A continuación, se colocará el código de este módulo:

angular.component.ts

```
import { environment } from './../../environments/environment';
```

```
import { Component, Inject, OnInit, PLATFORM_ID } from
'@angular/core';

import { isPlatformBrowser } from '@angular/common';

import { Meta, Title } from '@angular/platform-browser';


@Component({
  selector: 'app-angular',
  templateUrl: './angular.component.html',
  styleUrls: ['./angular.component.css']
})
export class AngularComponent implements OnInit {

  name = environment.application.name;

  angular = environment.application.angular;

  bootstrap = environment.application.bootstrap;

  fontawesome = environment.application.fontawesome;


  features: any;


  constructor(
    @Inject(PLATFORM_ID) private platformId: object,
    private meta: Meta,
    private titleService: Title) {
    this.features =
      [
        {
          type: 'CRUD',
          description: 'CRUD , API Rest, Components, Pages,
Extends',
          image: 'demo-responsive-images-list.png',
          link: 'crud'
```

```
    },
    {
      type: 'Services',
      description: 'Use services to view a playlist and a
youtube player',
      image: 'demo-services-playlist-youtube.png',
      link: 'services'
    },
    {
      type: 'Components',
      description: 'Channel Component with Input, Output and
Event Emitter',
      image: 'demo-components.png',
      link: 'components'
    },
    {
      type: 'HttpClient',
      description: 'Use an external API with the HttpClient
module',
      image: 'demo-httpclient.png',
      link: 'httpclient'
    },
    {
      type: 'Reactive Form',
      description: 'A model-driven approach to handling form
inputs',
      image: 'demo-reactive-forms.png',
      link: 'forms'
    },
    {
      type: 'Template Driven Forms',
```

```
        description: 'Forms are the mainstay of business
applications',
        image: 'demo-template-driven-forms.png',
        link: 'forms'
      },
      {
        type: 'Modal',
        description: 'How to implement modal windows with
Angular and Bootstrap',
        image: 'demo-template-driven-forms.png',
        link: 'modal'
      },
      {
        type: 'Prism',
        description: 'Use a lightweight, extensible syntax
highlighter',
        image: 'demo-template-driven-forms.png',
        link: 'prism'
      },
    ];


  }


  ngOnInit() {
    this.loadScript('assets/params/js/index.js');


    this.titleService.setTitle('Aplic   Web   para   mostrar
caracteristicas Angular');
    this.meta.addTag({
      name: 'author',
      content: 'jorge guerra'
    });
```

```
    this.meta.updateTag(

      {

        name: 'description',

        content: 'Esta aplicacion esta desarrollada en Angular
version 13.1.1 y bootstrap 5.1.3' +

          ' Se realicen operaciones diversas como Routing, Acceso
API, pipe, etc'

      });

  }


  loadScript(name: string): void {


    if (isPlatformBrowser(this.platformId)) {

      const s = document.createElement('script');

      s.type = 'text/javascript';

      s.src = name;

      s.async = false;

      document.getElementsByTagName('head')[0].appendChild(s);

    }

  }

}
```

angular.component.html

```
<div class="container py-5">

  <div class="row">


    <div class="col-12 col-sm-12 col-md-12 col-lg-3 col-xl-3
text-center mb-2">

      <h1 class="h5">

        <i class="fas fa-laptop fa-lg me-2 text-primary"></i>

        {{ name }}<i class="fas fa-mobile-alt fa-lg ms-2 text-
primary"></i>
```

```html
        </h1>
    </div>
    <div class="col-12 col-sm-12 col-md-12 col-lg-3 col-xl-3
text-center text-danger mb-2">
        <h2 class="h5">
          {{ angular }}<i class="fab fa-angular fa-lg ms-2"></i>
        </h2>
    </div>
    <div class="col-12 col-sm-12 col-md-12 col-lg-3 col-xl-3
text-center text-primary mb-2">
        <h2 class="h5">
          {{ bootstrap }}<i class="fab fa-bootstrap fa-lg ms-
2"></i>
        </h2>
    </div>
    <div class="col-12 col-sm-12 col-md-12 col-lg-3 col-xl-3
text-center text-success mb-2">
        <h2 class="h5">
          {{ fontawesome }}<i class="fab fa-font-awesome-flag fa-lg
ms-2"></i>
        </h2>
    </div>
  </div>
  <hr>
  <div class="row mb-2">
    <div class="col-md-12 text-center">
      <h3 class="h5">Angular Features<i class="fas fa-list ms-
2"></i></h3>
    </div>
  </div>
  <div class="row">
    <div class="col-12 col-sm-6 col-md-4 col-lg-3 col-xl-3 mb-4"
*ngFor="let item of features">
```

```html
<div class="nga-card-angular nga-card-cascade">

  <div class="nga-card-img">

    <a routerLink="/{{ item.link }}">

      <img class="img-fluid card-img-top"
src="./assets/params/images/demo/{{  item.image  }}"  alt="Card
image cap">

    </a>

  </div>

  <div class="card-body pt-0">

    <h4 class="h6 card-title">

      <span style="font-size: 14px;"><strong>{{
item.description }}

      </strong></span>

    </h4>

  </div>

 </div>

 </div>

</div>
```

angular.component.css

```css
.nga-card-angular {
  display: block;
  background-color: rgba(255, 255, 255, .8);
  box-shadow: 0 1px 3px rgba(0, 0, 0, .12), 0 1px 2px rgba(0, 0,
0, .24);
  border-radius: 2px;
  transition: all .2s ease-in-out;
  cursor: pointer;
}
```

```css
.nga-card-angular:hover {
  box-shadow: 0 10px 20px rgba(0, 0, 0, .19), 0 6px 6px rgba(0,
0, 0, .23);
  color: #0d6efd;
}


.nga-card-cascade {
  margin-top: 20px;
}


.nga-card-cascade .nga-card-img {
  width: 91%;
  margin: 0 auto;
  position: relative;
  top: -20px;
}


.nga-card-cascade .nga-card-img img {
  border-radius: 5px;
  box-shadow: 0 0 10px rgba(0, 0, 0, 0.63);
}
```

angular.module.ts

```typescript
import { NgModule } from '@angular/core';
import { CommonModule } from '@angular/common';
import { AngularComponent } from './angular.component';
import { AngularRoutingModule } from './angular-routing.module';


@NgModule({
  imports: [
    CommonModule,
```

```
      AngularRoutingModule
  ],
  declarations: [AngularComponent]
})
export class AngularModule { }
```

angular.routing.module.ts

```
import { NgModule } from '@angular/core';
import { CommonModule } from '@angular/common';
import { Routes, RouterModule } from '@angular/router';

import { AngularComponent } from './angular.component';

const routes: Routes = [
  { path: '', component: AngularComponent, children: [
    { path: 'angular', component: AngularComponent }
  ]}
];

@NgModule({
  declarations: [],
  imports: [
    CommonModule,
    RouterModule.forChild(routes)
  ],
  exports: [RouterModule]
})
export class AngularRoutingModule { }
```

Una vez realizado esto, se hacen los añadidos en el sistema para este modulo.
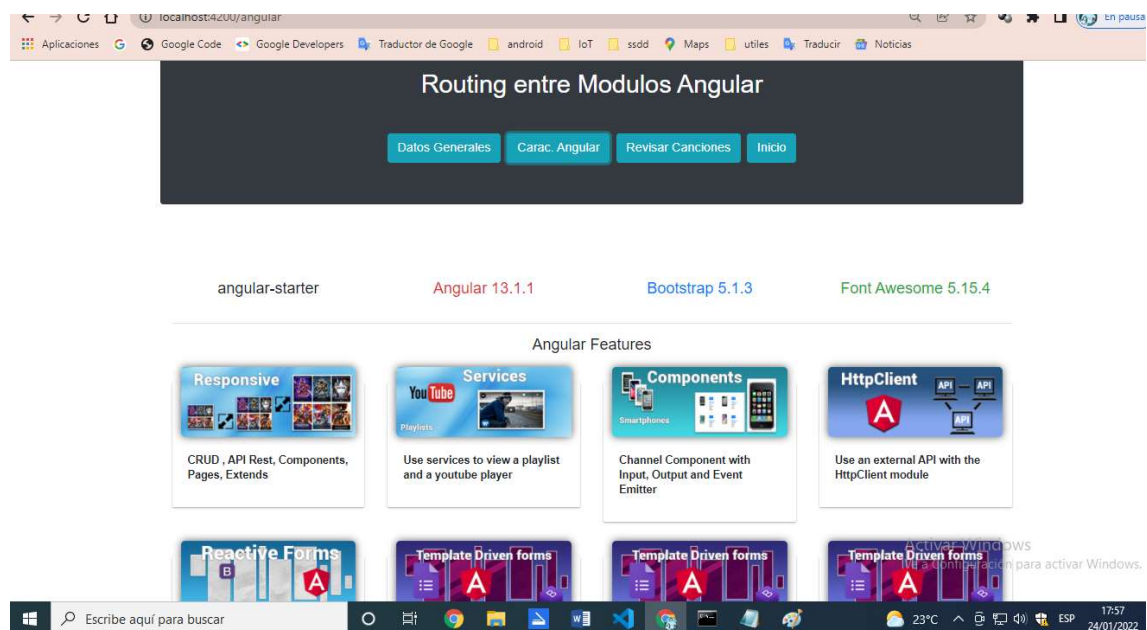
En **app.module.ts** se realizara lo siguiente:

```
import { AngularModule } from './angular/angular.module';

---

---

imports: [

    BrowserModule,

    AppRoutingModule,

    AboutModule,

    AngularModule

  ],
```

Finalmente, en **app.routing.module.ts** se agregara:
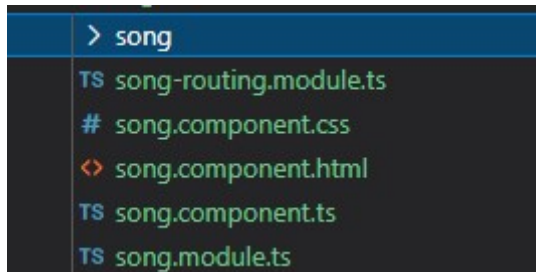
```
const routes: Routes = [

  {      path:      'about',      loadChildren:      ()      =>
import(`./about/about.module`).then(m => m.AboutModule) },

  {      path:      'angular',      loadChildren:      ()      =>
import(`./angular/angular.module`).then(m => m.AngularModule) },

    { path: '', component: PruebaComponent}

];
```

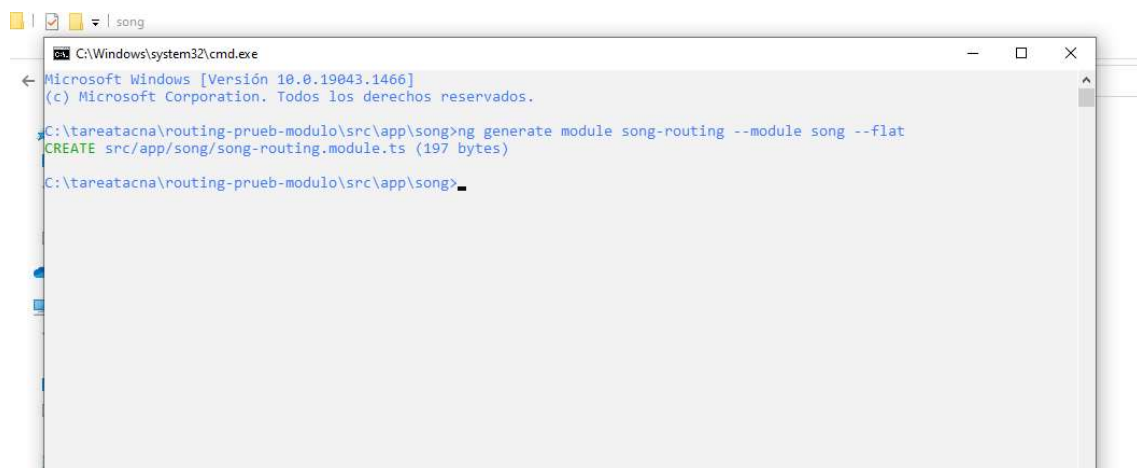De esa forma, se completará este modulo.

Modulo Song

Finalmente se creara el modulo Song que hará uso de servicios y de Pipe para presentar un grupo de datos referidos a canciones.

Se crea su archivo routing

```
ng generate module song-routing --module song --flat
```


Se crean los siguientes elementos:

song.component.ts

```
import { Component, OnInit } from '@angular/core';

import { Song } from './song/song';


import { SongService } from './song/song.service';


@Component({
```

```
  selector: 'app-song',

  templateUrl: './song.component.html',

  styleUrls: ['./song.component.css']

})

export class SongComponent implements OnInit {


  songs: Song[];

  songSelected: Song;

  yearSelected: number;


  constructor(private songService: SongService) {

    this.songs = [];

    this.yearSelected = 3;

    this.songs = this.songService.getSongs(this.yearSelected);

    this.songSelected = new Song();

    this.songSelected = this.songs[0];

  }


  ngOnInit() {

    this.getSongs(this.yearSelected);

  }


  getSongs(year: number): void {

    this.songs = this.songService.getSongs(year);

  }


  select(song: Song): void {

    this.songSelected = song;

  }
```

```
  onChangeYear($event: any): void {

    this.yearSelected = $event.target.value;

    this.songs = this.songService.getSongs(this.yearSelected);

    this.songSelected = new Song();

    this.songSelected = this.songs[0];

  }


}
```

song.component.html

```
<div class="container pt-5">

  <div class="row mb-4">

    <div class="text-center">

      <h1 class="h5">Services en Angular<i class="fas fa-list ms-
2"></i></h1>

      <hr>

    </div>

  </div>

  <div class="row  justify-content-center">

    <div class="col-12 col-sm-12 col-md-6 col-lg-6 col-xl-6">

      <div class="text-center col mb-4">

        <div class="card bg-light p-4 text-center">

          <div class="card-body" *ngIf="songSelected">

            <h5        class="card-title       text-primary">{{
songSelected.artist }}</h5>

            <h6         class="card-title        text-info">{{
songSelected.title }}</h6>

            <h6        class="card-title      text-secondary">{{
songSelected.top }}</h6>

          </div>

          <div class="card-body" *ngIf="!songSelected">

            <div class="alert alert-danger" role="alert">
```

```html
                Selecciona una cancion y haz click para verla<br>

                <i class="fab fa-youtube fa-2x text-danger"></i>

            </div>

          </div>

          <div    *ngIf="songSelected"    class="embed-responsive
embed-responsive-16by9">

              <iframe           width="100%"           height="450"
[src]="('https://www.youtube.com/embed/'  +  songSelected.link)  |
safe"

                allowfullscreen>

              </iframe>

          </div>

        </div>

      </div>


    </div>


    <div class="col-12 col-sm-12 col-md-6 col-lg-6 col-xl-6">

      <div class="form-group mb-4">

        <label      class="text-primary      fw-bold      mb-2"
for="selectSongs">Top Single (France)

        </label>

        <select    class="form-control    text-primary    fw-bold"
id="selectSongs"

          (change)="onChangeYear($event)">

          <option value="1">2019</option>

          <option value="2">2018</option>

          <option value="3" selected>2017</option>

          <option value="4">2016</option>

          <option value="5">2015</option>

        </select>

      </div>
```

```html
    <table   class="table   table-hover   table-striped   table-
bordered table-responsive-md table-sm">

      <thead>

        <tr>

          <th        class="text-secondary"        style="text-
align:center;">Cancion</th>

          <th        class="text-secondary"        style="text-
align:center;">Puesto</th>

          <th         class="text-primary"         style="text-
align:center;">Artista</th>

          <th  class="text-info"  style="cursor:  pointer;text-
align:center;">Titulo</th>

        </tr>

      </thead>

      <tbody>

        <!--       <tr *ngFor="let song of songs" class="table-
{{ song.class }}" (click)="select(song)">-->

        <tr *ngFor="let song of songs" (click)="select(song)">

          <td       class="text-secondary"       style="cursor:
pointer;text-align:center"><i

            class="fab fa-youtube text-danger"></i></td>

          <td       class="text-secondary"       style="cursor:
pointer;text-align:center">{{ song.top }}</td>

          <td class="text-primary" style="cursor: pointer;text-
align:center">{{ song.artist }}</td>

          <td  class="text-info"  style="cursor:  pointer;text-
align:center">{{ song.title }}</td>

        </tr>

      </tbody>

    </table>

  </div>


  </div>
```
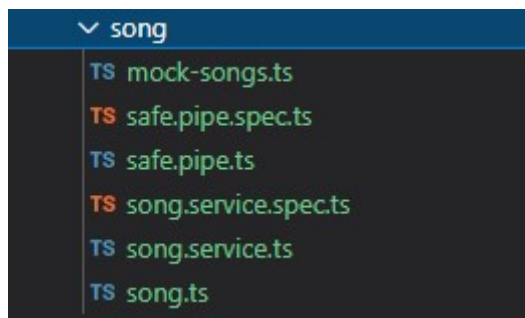
```
</div>
```

La clase song.module.ts queda asi:

```ts
src > app > song > TS song.module.ts > ...
  1   import { NgModule } from '@angular/core';
  2   import { CommonModule } from '@angular/common';
  3   import { SongComponent } from './song.component';
  4   import { SafePipe } from './song/safe.pipe';
  5   import { SongRoutingModule } from './song-routing.module';
  6
  7   @NgModule({
  8     imports: [
  9       CommonModule,
 10       SongRoutingModule
 11     ],
 12     declarations: [
 13       SongComponent,
 14       SafePipe
 15     ]
 16   })
 17   export class SongModule { }
 18
```

Se crea un servicio song que será el que maneje los datos de las canciones.

```
∨ song
  TS mock-songs.ts
  TS safe.pipe.spec.ts
  TS safe.pipe.ts
  TS song.service.spec.ts
  TS song.service.ts
  TS song.ts
```

song.ts

export class Song {

 link: string;

 top: string;

 artist: string;

 title: string;

```typescript
  constructor() {

   this.link = '';

   this.top = '';

   this.artist = '';

   this.title = '';


  }


}
```

El archivo **mock-songs.ts**

```typescript
export const SONGS: any[] =
 [
  {
    year: '2019',
    items: [
     { link: 'Fy1xQSiLx8U', top: '1', artist: 'Angèle feat. Roméo Elvis', title: 'Tout oublier' },
     { link: 'AAqATW60uFM', top: '2', artist: 'Bramsito feat. Booba', title: 'Sale mood' },
     { link: 'k_eEW2Ioe-o', top: '3', artist: 'Eva feat. Lartiste', title: 'On Fleek' },
     { link: '3egagRvougI', top: '4', artist: 'Booba', title: 'PGP' },
     { link: 'W-gmIG41dGA', top: '5', artist: 'Heuss I\'Enfoiré feat. ', title: 'Sofiane
        Khapta' },
     { link: '0uLp-tejcSo', top: '6', artist: 'Ninho', title: 'Goutte d\'eau' },
     { link: 'BtyHYIpykN0', top: '7', artist: 'PNL', title: 'Au DD' },
     { link: 'AhO3INtwFwA', top: '8', artist: 'Niska feat. Booba', title: 'Médicament' },
     { link: 'e1wbWhMOCaQ', top: '9', artist: 'Booba', title: 'Arc-en-ciel' },
     { link: 'r7qovpFAGrQ', top: '10', artist: 'Lil Nas X        ', title: 'Old Town Road' },
    ]
   },
   {
    year: '2018',
```

```
    items: [

      { link: 'S6baf8BqKDI', top: '1', artist: 'Lartiste featuring Caroliina', title: 'Mafiosa' },

      { link: 'kutk2XHEZNU', top: '2', artist: 'Vald', title: 'Désaccordé' },

      { link: 'iPGgnzc34tY', top: '3', artist: 'Aya Nakamura', title: 'Djadja' },

      { link: 'fC6YV65JJ6g', top: '4', artist: 'Maître Gims & Vianney', title: 'La Même' },

      { link: 'hQU_pgyCL6k', top: '5', artist: 'Dadju', title: 'Bob Marley' },

      { link: 'xpVfcZ0ZcFM', top: '6', artist: 'Drake      God\'s', title: 'Plan' },

      { link: 'RHb5LKnnxLg', top: '7', artist: 'Vegedream', title: 'Ramenez la coupe à la
maison' },

      { link: 'BQ0mxQXmLsk', top: '8', artist: 'Camila Cabello featuring Young Thug', title:
'Havana' },

      { link: 'DkeiKbqa02g', top: '9', artist: 'Calvin Harris & Dua Lipa', title: 'One Kiss' },

      { link: '_I_D_8Z4sJE', top: '10', artist: 'Nicky Jam & J Balvin', title: 'X' },

    ]

  },

  {

    year: '2017',

    items: [

      { link: 'JGwWNGJdvx8', top: '1', artist: 'Ed Sheeran', title: 'Shape of You' },

      { link: 'kJQP7kiw5Fk', top: '2', artist: 'Luis Fonsi featuring Daddy Yankee', title:
'Despacito' },

      { link: 'tul6zYBp9tA', top: '3', artist: 'Niska', title: 'reseaû' },

      { link: 'GGhKPm18E48', top: '4', artist: 'Damso', title: 'Macarena' },

      { link: 'NuXaPB_KWg8', top: '5', artist: 'Lartiste featuring Awa Imani', title: 'Chocolat'
},

      { link: 'UPnMFUsKm8w', top: '6', artist: 'Kalash featuring Damso', title: 'Mwaka
Moon' },

      { link: 'L3wKzyIN1yk', top: '7', artist: 'Rag\'n\'Bone Man', title: 'Human' },

      { link: 'xvZqHgFz51I', top: '8', artist: 'Future', title: 'Mask Off' },

      { link: 'wuCK-oiE3rM', top: '9', artist: 'Petit Biscuit', title: 'Sunset Lover' },
```

    { link: 'CTFtOOh47oo', top: '10', artist: 'French Montana featuring Swae Lee', title: 'Unforgettable' },

    ]

  },

  {

    year: '2016',

    items: [

    { link: '2Y6Nne8RvaA', top: '1', artist: 'Kungs vs Cookin`\' on 3 Burners featuring Kylie Auldist', title: 'This Girl' },

    { link: 'b1_B-IKEufg', top: '2', artist: 'Imany', title: 'Don\'t Be So Shy (Filatov & Karas remix)' },

    { link: 'nYh-n7EOtMA', top: '3', artist: 'Sia featuring Sean Paul', title: 'Cheap Thrills' },

    { link: 'ru0K8uYEZWw', top: '4', artist: 'Justin Timberlake', title: 'Can\'t Stop the Feeling!' },

    { link: 'SxyahDOtqZw', top: '5', artist: 'Céline Dion', title: 'Encore un soir' },

    { link: 'pXRviuL6vMY', top: '6', artist: 'Twenty One Pilots', title: 'Stressed Out' },

    { link: '1LXsm9y-z3I', top: '7', artist: 'Matt Simons', title: 'Catch & Release (Deepend remix)' },

    { link: 'YxCTYUG0sow', top: '8', artist: 'Alan Walker featuring Iselin Solheim', title: 'Faded' },

    { link: 'KDXOzr0GoA4', top: '9', artist: 'Jain', title: 'Come' },

    { link: 'iAbnEUA0wpA', top: '10', artist: 'Drake featuring Wizkid & Kyla', title: 'One Dance' },

    ]

  },

  {

    year: '2015',

    items: [

    { link: 'jGflUbPQfW8', top: '1', artist: 'OMI', title: 'Cheerleader (Felix Jaehn remix)' },

    { link: 'OPf0YbXqDm0', top: '2', artist: 'Mark Ronson featuring Bruno Mars', title: 'Uptown Funk' },

```
    { link: 'YqeW9_5kURI', top: '3', artist: 'Major Lazer & DJ Snake featuring MØ', title:
'Lean On' },

    { link: 'pwKkjLOHd7s', top: '4', artist: 'Marina Kaye', title: 'Homeless' },

    { link: 'YQHsXMgIC9A', top: '5', artist: 'Adele', title: 'Hello' },

    { link: 'Mptdcx36qZU', top: '6', artist: 'Feder featuring Lyse', title: 'Goodbye' },

    { link: 'PVjiKRfKpPI', top: '7', artist: 'Hozier', title: 'Take Me to Church' },

    { link: 'rs40yxHjTxQ', top: '8', artist: 'Christine and the Queens', title: 'Christine' },

    { link: 'W6cp9FakTlo', top: '9', artist: 'Louane', title: 'Avenir' },

    { link: 'hXI8RQYC36Q', top: '10', artist: 'Nicky Jam & Enrique Iglesias', title: 'El
Perdón' },

  ]
 },
];
```

Servicio SongService

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

import { Song } from './song';

import { SONGS } from './mock-songs';


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


 song: Song[];

 constructor() {
  this.song = [];
 }


 getSongs(year: number): Song[] {
```

```
    this.song = SONGS[year - 1].items;

    return this.song;

  }

}
```

Pipe **SafePipe (**safe.pipe.ts**)**

```
import { Pipe, PipeTransform } from '@angular/core';

import { DomSanitizer, SafeResourceUrl } from '@angular/platform-
browser';


@Pipe({

  name: 'safe'

})
export class SafePipe implements PipeTransform {


  constructor(private sanitizer: DomSanitizer) { }

    transform(url: any): SafeResourceUrl {

        return
this.sanitizer.bypassSecurityTrustResourceUrl(url);

    }

}
```

Con esta implementación se modifica finalmente tanto app.module.ts y app.routing.module.ts

app.module.ts

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

import { BrowserModule } from '@angular/platform-browser';


import { AppRoutingModule } from './app-routing.module';

import { AppComponent } from './app.component';
```

```typescript
import { AboutModule } from './about/about.module';

import { PruebaComponent } from './prueba/prueba.component';

import { AngularModule } from './angular/angular.module';

import { SongModule } from './song/song.module';


@NgModule({
  declarations: [
    AppComponent,
    PruebaComponent
  ],
  imports: [
    BrowserModule,
    AppRoutingModule,
    AboutModule,
    AngularModule,
    SongModule
  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

app.routing.module.ts

```typescript
import { PruebaComponent } from './prueba/prueba.component';

import { NgModule } from '@angular/core';

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

import { AboutModule } from './about/about.module';

import { AngularModule } from './angular/angular.module';

import { SongModule } from './song/song.module';
```

```
const routes: Routes = [

 { path: 'about', loadChildren: () => import(`./about/about.module`).then(m =>
m.AboutModule) },

 { path: 'angular', loadChildren: () => import(`./angular/angular.module`).then(m =>
m.AngularModule) },

 { path: 'song', loadChildren: () => import(`./song/song.module`).then(m =>
m.SongModule) },

 { path: '', component: PruebaComponent}

];


@NgModule({

 imports: [RouterModule.forRoot(routes,{enableTracing: false})],

 exports: [RouterModule]

})
export class AppRoutingModule { }
```

completandose asi el código de la aplicación.