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Angular 14 - 11

Routes and Navigation

Angular routing

- The **Angular router** is a core part of the Angular platform. It enables developers to build Single Page Applications with multiple views and allow navigation between these views.
  - https://angular.io/guide/routing-overview

- Angular router is componsed by:
  - An router module: **`app-routing.module.ts`**
  - A directive: **`<router-outlet></router-outlet>`**
  - Navigation directive: **`[routerLink] = ["route to navigate"]`**
  - We can also navigate programatically using the **`Router`** object.

The routing module

- We will need a module that takes care of the routes.
  - We define a decorated class with annotation **@NgModule**
    - https://angular.io/guide/ngmodules
  - Uses two classes from the @angular/router: **Routes** and **RouterModule**.
  - **Imports** the basic RouterModule to be configured.
  - **Exports** the configured RouterModule.
  - Must import all the components that are going to the routes destination.
  - Must be imported by main module to apply the routes.
- The array of type Routes holds the **route definitions**:
  - It defines pairs `{path,component}`, the routes we want for our application.
  - Route specification: https://angular.io/api/router/Route
  - `{ path: 'products', component: ProductsListComponent }`
- **Redirects** may be defined too:
  - `{path: '', redirectTo: 'home', pathMatch: 'full'}`
  - For the special case of an empty URL, we also need to add the **pathMatch: 'full'** property,
  - so Angular knows how to exactly match the empty string and not partially match that empty string.
  - Also a route to fit all not definied routes (404): `{path: '**', component: NotFoundComponent}`
- Then we use the router outlet selector:
  - `<router-outlet></router-outlet>`
  - Here the router will show the related component to the route.

The routing module

```
// routing module
import { RouterModule, Routes } from '@angular/router’;
// import components

const routes: Routes = [
  { path: '', redirectTo: 'dashboard', pathMatch: 'full' },
  { path: 'products', component: ProductsListComponent },
  { path: 'dashboard', component: DashboardComponent },
  { path: '**', component: NotFoundComponent },
];

@NgModule({
  imports: [RouterModule.forRoot(routes)],
  exports: [RouterModule],
})
export class AppRoutingModule {}
```

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

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

```
// main component template
...
<router-outlet></router-outlet>
...
```

🔗 **In the browser you can try these routes:**

- http://localhost:4200/
- http://localhost:4200/products
- http://localhost:4200/users

The routing module

- The **forRoot** is the method that configures the root routing module for the app.
- We have **forChild** method: is the method that we will call to register routes throughout the app and will be used it inside of the child, routing modules that you create.
  - We will see this later in modules section.
  - https://angular.io/api/router/RouterModule

Links to routes in the view

- We use the **[routerLink]** attributes, which associate the indicated value with the defined routes.

```
<section>
  <h1>{{title}}</h1>
  <header>
    <nav>
      <ul>
        <li><a [routerLink]="['']" routerLinkActive="router-link-active">Home</a></li>
        <li><a [routerLink]="['products']">Products</a></li>
      </ul>
    </nav>
  </header>
  <router-outlet></router-outlet>
</section>
```

- Note that [routerLink] has as its value another array as its attribute value. Namely.:
  - `[routerLink] = "['subroute1','subroute2','subroute3', ...]"`
  - These subpaths are joined to form the route being pointed to.
- Besides this, we can mark the active route element with **`RouterLinkActive`** directive.

Let's put it into practice: Tasks/Projects App

- Split views of task and project lists.
    - Create a different route for each view.
- Add components for the header menu, footer and for 404 route.

Routes with path params

- We can generate patterns for routes that involve parameters, so that all routes that match the pattern are served by the same component.
- The format it will adopt will be the following:
  - `{ path : 'path/:param1/subpath/:param2', component : Component }`
  - For example:
  - `{ path : 'product/:code', component : ProductDetailComponent }`
- Usually we will need to read the parameter in the destination component, to load the proper data.
  - To read the value of the parameters we will use the **ActivatedRoute** service
  - Then we will inject the service into the constructor.
  - Finally we can subscribe to the params property of the route in the destination component to read the parameter information

Routes with path params

```
import { Component, OnInit } from '@angular/core';
import { ActivatedRoute } from '@angular/router';
import { IProduct } from 'src/app/models/iproduct';

@Component({
  selector: 'app-product-detail',
  templateUrl: './product-detail.component.html',
  styleUrls: ['./product-detail.component.scss'],
})
export class ProductDetailComponent implements OnInit {
  constructor(private _route: ActivatedRoute) {}

  code: string = '';
  product: IProduct|null = null;

  ngOnInit(): void {
    this._route.params.subscribe((params) => {
      console.log('params:', params);
      this.code = params['code'];
      // load product by code
    });
  }
}
```

Programmatic Navigation

- We can navigate to routes using the **Router service.**
- In the constructor we will inject the router and later we will use the navigate method to navigate

```
import { ActivatedRoute, Router } from '@angular/router';

@Component()
export class ProductDetailComponent implements OnInit {
  constructor(private _route: ActivatedRoute, private _router: Router) {}
  ...
  goHome() {
    this._router.navigate(['']);
  }

  goProducts() {
    this._router.navigate(['products']);
  }
}
```

Child routes

- In Angular we can create child routes within a specific route, using **children** attribute within the routes configuration

```
...
  {
    path: 'products/:code',
    component: ProductDetailComponent,
    children: [
      { path: '', redirectTo: 'features', pathMatch: 'full'  },
      { path: 'features', component: NotFoundComponent },
      { path: 'images', component: NotFoundComponent },
    ],
  },
...
```

- In the parent component template (ProductDetailComponent in the example), we will use **router-outlet** to indicate where the content of the child route should appear.

```
<p>
<a [routerLink]="['./features']">Tracks</a> |
<a [routerLink]="['./images']">Albums</a>
</p>

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

- As can be seen, the routerLink will use relative references for the routes.

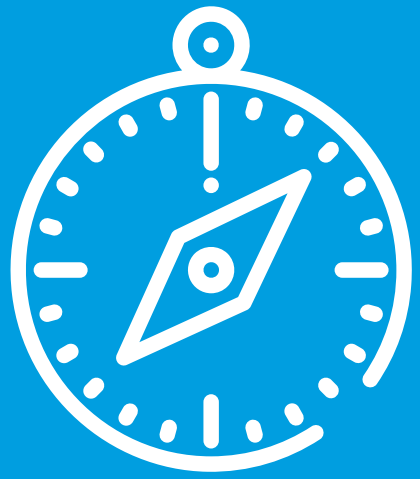
Access to parent's path params

- When working with child routes, it is very likely that we will need to access the path params defined in the parent.
- The way to do it is also using ActivatedRoute, but this time subscribing to the parameters of the **parent route**

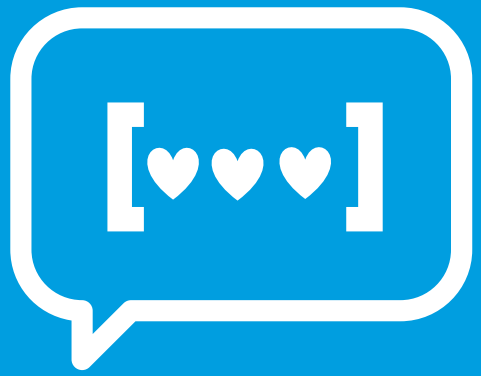
```
ngOnInit(): void {
    this._route.parent.params.subscribe(params => {
      //do something
    });
}
```

Let's put it into practice: Tasks/Projects App

1. Create a component that allows you to see the details of a task.
    - The specific task will be identified by its id that must come in the route.
    - Add buttons in the detail view, for going to the next or previous task (programatically).
2. Do the same for projects.
3. Add a two tab view to a project detail using child routes:
    - Default detail
    - Team members



Next steps



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